GEOLOGICAL SURVEY OF GEORGIA

W. S. YEATES, State Geologist

BULLETIN No. 3—A

A PRELIMINARY REPORT

ON A PART OF THE

Water-powers of Georgia

COMPILED FROM THE NOTES OF

C. C. ANDERSON

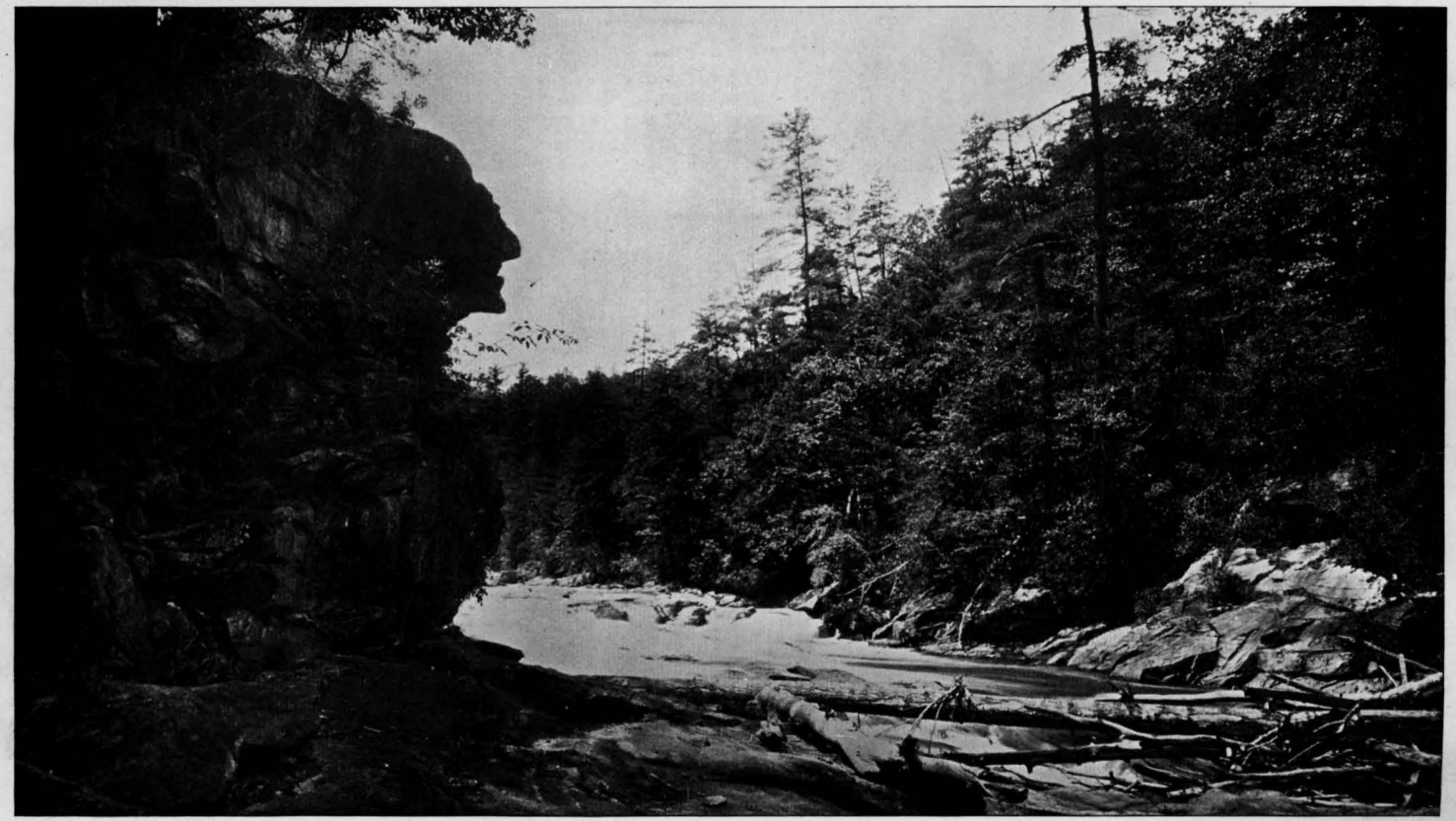
Late Assistant Geologist

AND FROM OTHER SOURCES

BY

B. M. HALL, SPECIAL ASSISTANT

1896



THE WITCH'S HEAD, TALLULAH FALLS, GEORGIA.

ERRATA

On page 125, 5th column of table, in fourth line from bottom, for "— 1.55," read — 0.55.

On page 128, foot-note at bottom, for "inches," read *feet.*

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SEPTEMBER 5TH, 1896.

To His Excellency, W. Y. ATKINSON, *Governor, and President of the Advisory Board of the Geological Survey of Georgia,*

SIR: — I have the honor to transmit, herewith, a preliminary report on a part of the Water-powers of Georgia, compiled by Mr. B. M. Hall, Special Assistant, from the report of Mr. C. C. Anderson, late Assistant Geologist, and from other sources.

During the past year, especially, there has been great demand for information, as to Southern water-powers, coming mostly from Eastern manufacturers, contemplating the establishment of cotton-mills and other factories in the South. This is, therefore, an opportune time, for the issuing of such a bulletin, which will be the first of a series on this subject. Field-work, for a second bulletin, is now in progress; and, as soon as sufficient data has been collected, a second report will be submitted.

Very respectfully yours,

W. S. YEATES,

State Geologist.

WATER-POWERS OF GEORGIA

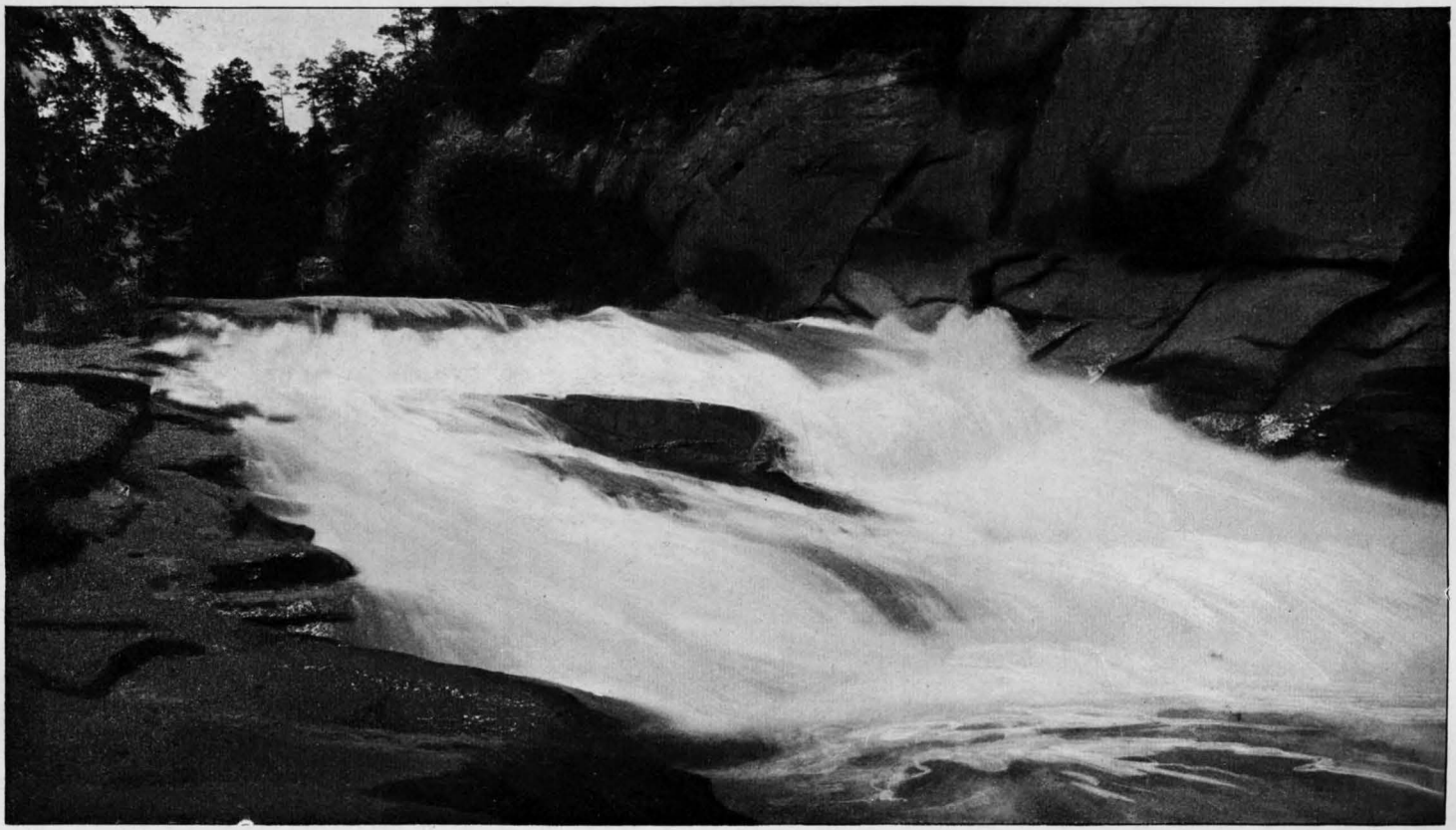
CHAPTER I

INTRODUCTORY[1]

The necessity for an economic survey of the water-powers of Georgia, that would show their number and their degree of availability for practical use, has long been felt. So, when the office of State Geologist was revived, in the fall of 1889, by act of the legislature, with an appropriation for five years, from July 1st, 1890, Dr. J. W. Spencer having been elected State Geologist, a survey of the water-powers of the State was begun, by Mr. C. C. Anderson, Assistant Geologist, who continued field-work during field-seasons, until the close of the season of 1892. During this time, Mr. Anderson established gauge-stations and appointed gauge-readers, who made regular monthly reports of daily readings, for a period of thirteen consecutive months. These stations were established at certain points along the Chattahoochee, Flint and Ocmulgee rivers, and some of their tributaries. Mr. Anderson proceeded to make surveys of the shoals, by soundings along cross-sections, and by measuring the velocities of the streams, with a Haskell current-meter. He was under instruction, too, to make certain geological and timber observations, and to collect

[1] By W. S. Yeates, State Geologist.

specimens of minerals, rocks and soils, all of which he did. His report was submitted to the Geological Board, about the time the Survey was reorganized in April, 1893; but it was never published. In the course of a year's experience, it became apparent to the present State Geologist, that a published report on the water-powers of Georgia was greatly needed; for many inquiries for information on this subject were constantly coming to him from manufacturers and others outside the State. By advice of the Geological Board, a competent hydrographic engineer was employed, to carefully examine Mr. Anderson's report, and, subsequently, to compile, from it and other reliable sources, material for a preliminary bulletin on such of the water-powers in the State, as had been surveyed. Such published work as was done by the Survey, when Dr. George Little was State Geologist, from 1874 to 1879, has been made use of; and the United States Weather and Census Reports have, in a measure, contributed to this bulletin. While it cannot be claimed, that this report is complete, even as to the rivers and tributaries undertaken; yet, it will serve to call attention, in a practical way, to a large number of valuable water-powers, by far the greater number of which are unutilized. On the map, which accompanies the report, there are a few omissions, which were occasioned by the compiler's failure to submit data, before the engraving was completed and the transfers were made. Along the tributaries of the three principal rivers, a number of water-powers are not given, because no surveys have been made. These will be surveyed, and included in the next one of this series. Arrangements have been made, by which this Survey is now working conjointly with the U. S. Geological Survey on the Water-powers of Georgia. This plan of co-operation gives to each Survey the data collected in the field by the other, whereby each is enabled to cover more territory, in a given time, than it otherwise would be able to do.



FALLS OF L'EAU D'OR, TALLULAH FALLS, GEORGIA.

CHAPTER II

THE RECENT INCREASE IN THE VALUE OF WATER-POWERS, ESPECIALLY THOSE OF GEORGIA

Very few of the large water-powers of Georgia are utilized. This is a fact, not from lack of energy and enterprise in the people of the State; but because their energy has, heretofore, been directed mainly to agriculture and commerce, and not to manufacturing. But a rapid change is taking place in this respect; and it is all the better for our future, that this, the dawn of the age of electricity, has found us with undeveloped powers, ready to receive the latest and best machinery, without the loss and expense of taking out old machinery, to make room for it; or, worse still, the necessity of running the antiquated machinery at a great loss, when it is brought into competition with the latest improvements.

This bulletin locates, and gives some information concerning, hundreds of water-powers in the State, many of the smaller being utilized, and a few of the larger, partly utilized; but by far the greater number are absolutely in their natural state.

The following are some of the great powers, in the State, that are running to waste: —

Tallulah Falls, in Rabun county, with a 335-foot fall.

Coosawattee Shoals, in Gilmer and Gordon counties, a succession of cascades for seventeen miles.

The Etowah Mining Co's. Shoals, at Cartersville, on the Etowah river, with a fall of 50 feet.

The Great Amicalola Shoals, in Dawson county, with a 234-foot fall.

Roswell and Bull Sluice Shoal, on the Chattahoochee river, in Fulton county, fourteen miles from Atlanta, with 50 feet of fall.

The Vining Shoals, on the Chattahoochee river, in Fulton county, seven miles from Atlanta, with a fall of 32 feet.

The Jack Todd Shoal, on the Chattahoochee river, in Harris county, near West Point, with 51 feet of fall.

Hargett Island Shoals, on the Chattahoochee river, in Harris county, with 60 feet of fall.

The Great Shoals, on the Chattahoochee river, at Columbus, with 120 feet of fall.

Flat Shoals, on the Flint river, in Pike and Meriwether counties, with 32 feet of fall.

Yellow Jacket Shoals, on the Flint river, in Upson county, with a 36-foot fall.

Rogers' Shoal and Nelson's Shoal, on Big Potato creek, Upson county, with 81 feet and 115 feet of fall, respectively.

High Falls, on the Towaliga river, Monroe county, with a fall of 96 feet.

Sweet-water Shoals, on Sweet-water creek, Douglas county, near Austell, with an 80-foot fall.

Cedar Shoals, on the Yellow river, in Newton county, with 55 feet of fall.

Garner Shoals, on Alcovy river, in Newton county, with a fall of 85 feet.

The Harper or Pittman Shoal, on the Ocmulgee river, in Butts county, with a 28-foot fall and a six-foot shoal just below it.

Tallassee Bridge Shoal, on Middle Oconee river, in Jackson county, with a 52-foot fall.

High Shoals, on the Apalachee river, in Oconee county, with 50 feet of fall.

Barnett's Shoal, on the Oconee river, in Oconee county, with a 54-foot fall.

Trotter's Shoal, on the Savannah river, in Elbert county, with 75 feet of fall.

Anthony Shoal, on the Broad river, in Elbert and Lincoln counties, with over 70 feet of fall.

These powers are mentioned here, to attract attention to the tabulated statements of Chapter III, where they, with numerous others, are given in detail.

Water-power has always been recognized as the cheapest and best power for running stationary machinery. Hence, in all manufacturing countries, the powers, that are conveniently located, with reference to transportation, and capable of being developed at a reasonable cost, have formed the nucleus for important industrial towns. As these towns have grown, and offered advantages for manufacturing, beyond the capacity of the available water-power, steam-power has been added, rather than go to other and less favorable localities, for more water-power. This is why such cities as Lowell, Mass., use more steam-power than water-power — a fact that has furnished a pretext for all kinds of unreasonable arguments, to prove that steam-power is cheaper than water-power; arguments, that are made by people interested in the manufacture of steam-engines, the development of coal mines, or the prosperity of towns, not blessed with water-power. It has been freely admitted, by all advocates of water-power, that it is often cheaper to erect and operate a steam-plant in a favorable locality, than to develop and run a water-power, where there are no facilities for transportation; and this fact has caused many fine water-powers to remain undeveloped. But the recent improvements, in electric motors and long distance transmission, have brought about a new era in water-power development. As factories could not go to

these water-powers, the water-powers are beginning to come to the factories; and, not only to the factories, but to the operation of railroads, a field which has, until recently, been considered the exclusive domain of the steam locomotive. It does not even stop at this point; for it is rapidly displacing coal-gas and steam-generated electricity, in lighting our cities; and it may soon perform an important part in cooking and heating.

The old idea of development was to bring a power-canal into a city, and build factories along the canal; but many cities, located on or near rivers, having fine shoals, are prevented from doing this, by topographical difficulties, that are practically insurmountable. With the possible exception of Macon and Milledgeville, the only city in Georgia, favorably located for this kind of power-development, is Augusta; and it is highly probable, that the Augusta power-canal, constructed in 1847, is the only one of the kind, that any Georgia city will ever possess. There is no longer the same necessity for this kind of development. The modern plan of placing a generating-plant at the shoals, and transmitting the power, electrically, for distribution wherever it is needed, is, in most cases, infinitely better; and the day is not far distant, when many towns, situated in or near the Crystalline Belt of Georgia, can have all the power desired, at a much smaller cost than steam-power. Capitalists are now contemplating the taking hold of an enterprise to develop the large powers on the Chattahoochee river, near Atlanta, for this purpose; and other cities in the State are also planning to make use of contiguous water-powers, in the same way.

The foregoing discussion is to show the great possibilities for water-power, as a source of city-power, and its corresponding increase in value. It is not intended to intimate, that the powers of this State are less conveniently located for factory-sites, than those

of other States. On the contrary, many of the best water-powers are close to important railroads, and offer beautiful locations for manufacturing towns. Many others, near railroads, but situated in deep gorges and among rock-cliffs, can be profitably utilized, by placing a power-station at the shoal, and transmitting the power, electrically, to a good factory-site on the railroad.

There are also many valuable powers in our mining and quarrying regions, that can be utilized in like manner. The granite quarries of Lithonia and Stone Mountain can be run by power from South river, near at hand. The marble quarries of Long Swamp valley in Pickens county, where more than two million dollars is already invested in developments, can be run by power from the Amicalola river, eight miles distant; and the gold mines, that cover a large area in the State, can have cheap power from the adjacent streams, for running drills, ventilators and hoisting and milling machinery, thus encouraging deep mining, which is so necessary to the proper development of such properties. It is now an acknowledged fact, that cotton-goods can be manufactured more cheaply in the South, than anywhere else; and the bringing of the cotton-factories to the cotton-fields, which has already been begun in earnest, will continue, until the greater portion of our cotton crop will be shipped in the form of manufactured goods. Eastern capitalists, seeing and acknowledging this tendency, are beginning to investigate our region, with a real desire to find out something about it.

It is expected, that the Cotton States and International Exposition, recently held in Atlanta, will largely increase the demand for information along this line; and this bulletin, the first of a series on this subject, is compiled for the purpose of giving such information, concerning our water-powers, as is attainable from the data, thus far collected.

CHAPTER III [1]

THE STREAMS AND DRAINAGE BASINS OF GEORGIA, WITH TABLES SHOWING TRIBUTARIES AND WATER-POWERS

DRAINAGE BASINS

A study of the water-courses of Georgia is peculiarly interesting. The streams all rise within the borders of the State, and flow to the four points of the compass, forming a large number of separate and distinct drainage basins, which discharge into either the Gulf of Mexico or the Atlantic Ocean, at points very remote from each other. The nine principal drainage basins,[2] that lie wholly or partly in the State, are: —

FIRST — *The Tennessee Basin*, occupied by tributaries of the Tennessee river, whose waters find their way through the Mississippi to the Gulf, below New Orleans.

SECOND — *The Mobile Basin*, in which originate the Coosa and Tallapoosa rivers, with their outlets into the Gulf at Mobile.

THIRD — *The Apalachicola Basin*, through which run the waters of the Chattahoochee and the Flint rivers, reaching the Gulf at Apalachicola.

FOURTH — *The Altamaha Basin*, including the Oconee and Ocmul-

[1] By authority of the Geological Board of Georgia, this chapter was furnished by the State Geologist to the Commissioner of Agriculture, for use in "Georgia: Her Resources, etc.", published in 1895.

[2] See map, page 16.

gee waters, which enter the Atlantic Ocean, by way of the Altamaha river.

FIFTH — *The Ogeechee Basin*, which is drained into the Atlantic Ocean, by the Ogeechee river.

SIXTH — *The Savannah Basin*, which is drained by the Savannah river into the Atlantic Ocean.

SEVENTH — *The Ocklockonee Basin*, which is drained into the Gulf through Ocklockonee bay.

EIGHTH — *The Suwannee Basin*, which is drained into the Gulf by the Suwannee river.

NINTH — *The Satilla and St. Mary's Basin*, the rivers of which flow into the Atlantic Ocean near Cumberland Island.

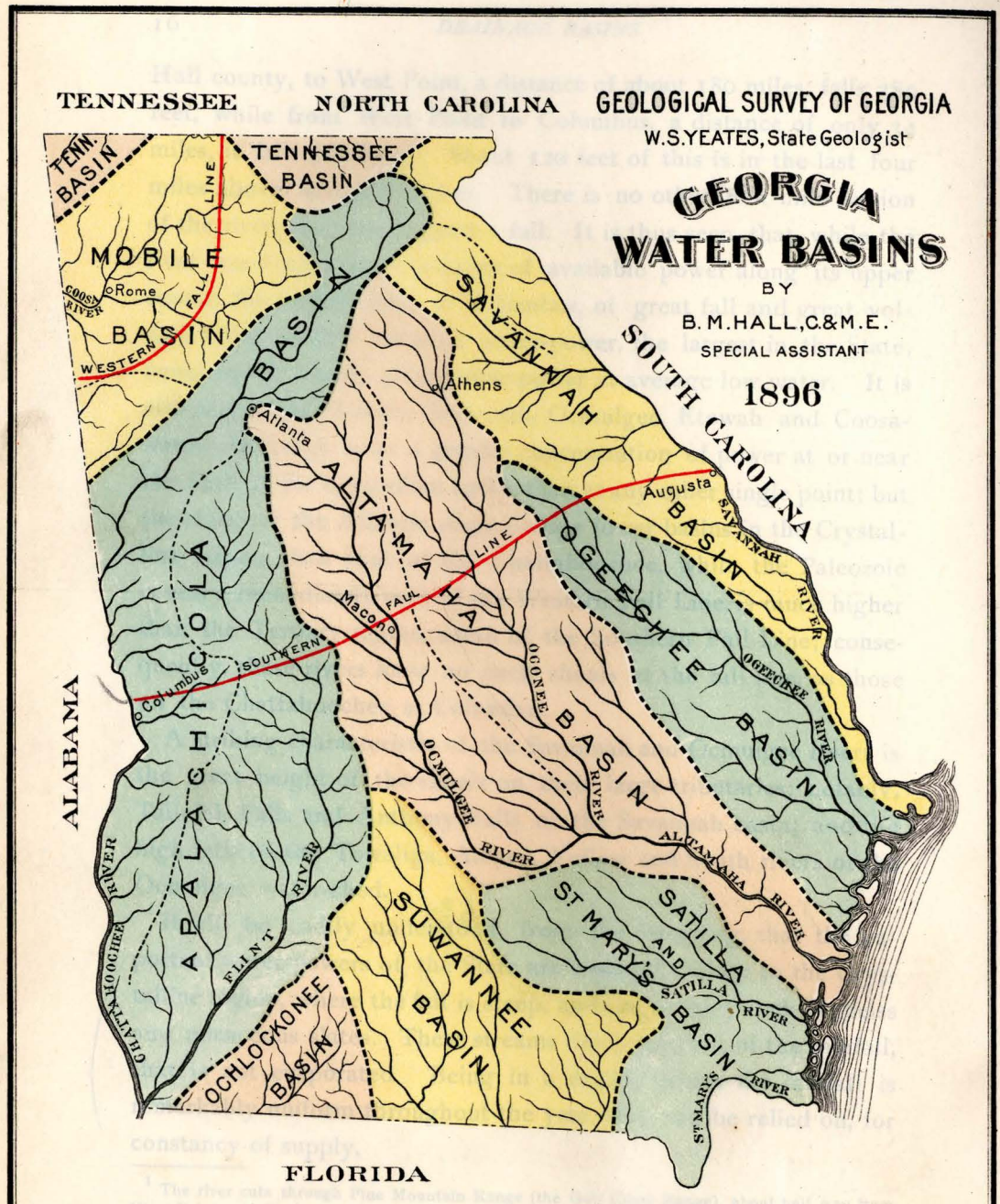
Five of these basins, the Tennessee, the Mobile, the Apalachicola, the Altamaha and the Savannah, have a great portion of their territory lying in the Crystalline Belt of the State, which is all that part of the State north of a line joining Augusta, Macon and Columbus, and east of a line passing through Polk, Bartow, Gordon and Murray counties. These two lines are shown on the map, and are designated, respectively, as the Southern Fall Line and the Western Fall Line. It may be said, in a general way, that the greatest water-powers in the State are at, or not far above, the points where the rivers cross these fall lines; but it must not be understood from this statement, that the greater part of the total water-power of the State is in the vicinity of these fall lines. These streams are a series of shoals from their heads to the fall line, which is the head of navigation in all the rivers, except the Etowah, and which marks the divide between the hard granite and schistose rocks of the older Crystalline region and the softer materials of a younger formation; but the last great plunge that the river makes, in its descent, forms a water-power, that is more important, than any other along its course. To illustrate: — The Chattahoochee river, from Thompson's bridge, in

Hall county, to West Point, a distance of about 180 miles, falls 389 feet, while from West Point to Columbus, a distance of only 34 miles, it falls 362 feet.[1] About 120 feet of this is in the last four miles above navigable water. There is no other four-mile section of the river, that has so great a fall. It is thus seen, that, while the river has a very large amount of available power along its upper course, the combination, at Columbus, of great fall and great volume makes a most valuable water-power, the largest in the State, being nearly 80,000 gross horse-power at average low-water. It is also true of the Oconee, Savannah, Ocmulgee, Etowah and Coosawattee, that they have a greater concentration of power at or near the limit of the Crystalline rocks, than at any other single point; but the rivers of the Atlantic slope occupy lower basins in the Crystalline region, than that of the Chattahoochee, while the Paleozoic country, immediately west of the Western Fall Line, is much higher than the Tertiary region, south of the Southern Fall Line; consequently, these rivers have no such shoals at the fall line, as those on the Chattahoochee at Columbus.

A striking characteristic of the Savannah and Ocmulgee rivers is the great height of the shoals on their large tributaries; notably, Tallulah Falls and Anthony Falls of the Savannah basin; and the high falls on the Towaliga, Alcovy, Yellow and South rivers of the Ocmulgee water-shed.

It will be readily understood, from the foregoing, that the important water-powers of the State are confined mainly to the Crystalline region, where the fall is steep, and the country-rock is gneiss and micaceous slates. These streams drain off most of the rainfall, that is not evaporated. Being in a region, where the rainfall is remarkably uniform throughout the year, they can be relied on, for constancy of supply.

[1] The river cuts through Pine Mountain Range (the Gulf Coast Range), about half way from West Point to Columbus.


TENNESSEE
NORTH CAROLINA
GEOLOGICAL SURVEY OF GEORGIA
W.S.YEATES, State Geologist
GEORGIA
WATER BASINS
BY
B. M. HALL, C.&M.E.
SPECIAL ASSISTANT
1896
TENN. BASIN
TENNESSEE BASIN
MOBILE BASIN
COOSA RIVER
Rome
FALL LINE
WESTERN
SAVANNAH BASIN
SOUTH CAROLINA
Athens
Atlanta
ALTAMAHA BASIN
Augusta
SAVANNAH RIVER
OGEECHEE BASIN
OGEECHEE RIVER
Macon
FALL LINE
Columbus
SOUTHERN
APALACHICOLA BASIN
ALABAMA
OCONEE BASIN
OCONEE RIVER
OCMULGEE RIVER
ALTAMAHA RIVER
CHATTAHOOCHEE RIVER
FLINT RIVER
SUWANNEE BASIN
ST MARY'S AND SATILLA BASIN
SATILLA RIVER
ST MARY'S RIVER
OCHLOCKONEE BASIN
FLORIDA

Special attention may be called to the form and position of the Chattahoochee water-shed. It is very narrow in proportion to its length and depth. Its greatest breadth is in the Blue Ridge mountains of Lumpkin, White and Habersham counties, where the autumn rainfall is nearly twice as great, as it is at Atlanta. The Atlanta rainfall may be taken as an average, for all that part of the Crystalline region, which is not mountainous. The table on the following page, showing this precipitation for twenty-six years, is from the records of the U. S. Weather Bureau.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU

STATION: — ATLANTA, GEORGIA

Data: — Monthly Rainfall (Inches)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual	Observer
1870	. . .	. . .	. . .	. . .	. . .	. . .	2.25	2.69	9.40	0.67	5.42	3.74	. . . .	
1871	2.03	6.20	6.11	5.20	7.77	5.97	1.12	6.49	4.44	2.09	3.41	3.36	54.19	Maj. S. B. Wright, Ga. Agri. Reports.
1872	2.94	5.28	7.66	3.09	3.75	1.82	3.91	5.84	2.26	0.74	2.12	4.48	43.89	"
1873	3.36	12.04	2.58	1.96	6.05	6.86	3.87	2.08	5.40	1.23	3.15	2.41	50.99	"
1874	3.14	6.86	7.38	10.42	3.00	7.71	4.70	10.00	0.47	0.80	3.19	3.00	60.67	"
1875	5.60	6.92	10.27	4.79	1.84	4.58	3.84	3.42	4.64	1.50	3.45	6.14	56.99	R. J. Redding of Ga. Agri. Dept.
1876	3.32	5.37	5.59	6.01	5.00	3.25	3.49	5.32	0.82	1.81	2.56	4.35	46.87	"
1877	5.93	3.10	7.46	6.43	0.72	5.71	3.40	0.86	2.85	3.78	3.85	4.11	48.20	"
1878	3.76	6.54	6.72	3.15	2.25	5.39	1.77	3.76	1.75	1.99[1]	4.54[1]	5.80[1]	47.42	R. J. Redding of Ga. Ag. Dept. and U. S. W. B. [1]
1879	4.29	3.09	2.49	3.98	4.16	3.20	5.75	4.76	1.43	5.44	3.88	7.86	50.33	U. S. Weather Bureau.
1880	2.86	3.11	11.87	7.07	4.52	3.57	3.16	3.61	6.21	2.81	8.21	5.70	62.70	"
1881	8.35	10.41	10.98	4.58	1.27	2.46	0.56	4.10	3.76	3.44	4.30	7.53	59.74	"
1882	6.40	10.29	4.16	5.21	3.02	3.22	6.61	5.86	3.51	1.35	4.22	4.37	58.22	"
1883	15.82	3.22	3.73	8.20	2.00	3.31	1.06	2.73	1.38	1.52	4.72	4.84	51.53	"
1884	5.20	5.84	9.70	5.86	1.33	10.73	2.42	2.06	0.08	0.70	2.84	6.09	52.85	"
1885	8.44	4.14	4.26	1.31	6.12	4.83	4.02	6.92	6.51	3.94	3.98	2.64	57.01	"
1886	7.33	1.53	11.16	2.53	6.21	8.68	2.08	2.36	0.53	0.03	5.32	3.03	50.78	"
1887	3.52	3.74	1.99	1.38	1.76	2.82	14.11	7.51	4.20	3.28	0.30	5.79	50.40	"
1888	3.89	5.91	8.16	1.34	6.86	4.71	1.85	3.89	14.26	3.99	4.70	5.42	64.98	"
1889	6.39	5.28	2.49	2.54	3.16	5.03	8.83	6.73	6.32	2.21	5.17	0.60	54.75	"
1890	2.95	3.36	3.13	2.04	6.32	1.12	5.37	3.99	5.36	4.89	0.18	3.89	42.60	"
1891	6.73	8.50	10.16	1.58	2.17	4.71	5.38	2.59	1.19	0.02	3.26	3.68	49.97	"
1892	8.93	3.44	5.71	4.75	1.37	4.65	3.77	6.66	2.70	0.59	4.41	2.89	49.87	"
1893	3.02	5.45	2.43	2.48	4.46	4.65	2.13	4.07	3.06	0.39	1.11	3.18	36.43	"
1894	5.09	4.98	2.99	3.06	1.49	1.29	5.55	3.70	5.78	2.62	0.92	3.45	40.92	"
1895	5.47	2.01	7.55	5.20	3.99	4.87	2.75	8.55	0.21	1.30	1.04	2.98	45.92	"
1896	3.12	3.04	3.29	0.58	1.95	2.66	7.55	1.97	1.36	1.28	5.90	1.42	34.12	"
Av'rge 26 y'rs	5.30	5.37	6.16	4.03	3.56	4.53	4.19	4.61	3.48	2.07	3.47	4.19	50.96	1871 to 1896, inclusive.

This Average Rainfall is distributed as follows: — Spring, 13.75; Summer, 13.33; Autumn, 9.02; Winter, 14.86.

STREAMS

The following lists of important streams, and the accompanying water-power tables, give some idea of the extent and distribution of the water-powers of the State, and the work to be done, in order to arrive at a full knowledge of them. The tables are a compilation of data, derived from all available sources. In all the streams, covered by the surveys of Mr. Anderson, the compiler has computed, from his data, volumes corresponding to the lowest stages noted in his fluctuation-tables. While it is not claimed, that the low-water volumes, thus deduced, are absolutely correct, they are given as a close approximation of the true volumes, that would have been found by measurement, at the lowest stages noted in the tables. The data, as to other streams, has been derived from Janes's Hand-book of Georgia, Henderson's Commonwealth of Georgia, the 10th Census Report of the United States, and from other sources. It is mostly of a general nature, serving to call attention to certain water-powers, without giving definite information concerning them. The fall, where given, is probably accurate, as the surveys were made by engineers of high standing; but the measurements of volume, though correct for the time they were taken, give little information, as to the flow of the stream throughout the year. The volumes, given by the U. S. Census Reports, are estimated from the area of water-shed, and are used, only, when there is no positive information obtainable. The tables of utilized power are from the 10th U. S. Census Report, being the only data at hand. Mr. Anderson's statistics of utilized power are given in the regular power-tables; but they cover only a limited area.

In these tables, the column, "Source of Information" shows the work of the Georgia Survey, 1874–79, by the names, C. A. Locke and D. C. Barrow. The names of Messrs. Frobel, Sublett and Carson represent surveys by the U. S. Government.

TENNESSEE BASIN—IMPORTANT STREAMS

STREAM	TRIBUTARY TO	COUNTY	REMARKS
Nickajack Creek	Tennessee River	Dade	
Lookout Creek	" "	"	
Chattanooga Creek	" "	Walker	
Chickamauga River	" "	"	
West Chickamauga Cr.	Chickamauga River	"	
Middle Chickamauga Cr.	" "	Catoosa	
East Chickamauga Cr.	" "	Whitfield	
Toccoa River	Hiawassee River	Fannin	The streams of Fannin, Union and Towns Counties are a succession of shoals, from their heads to the State line; but no surveys have been made of the water-powers.
Fightingtown Creek	Toccoa River	"	
Hemptown Creek	" "	"	
Nuntootlee Creek	" "	"	
Notteley River	Hiawassee River	Union	
Hiawassee River	Tennessee River	Towns	
Cooper's Creek	Notteley River	Union	
Brasstown Creek	Hiawassee River	"	
Choestoe Creek	" "	"	
Wills Creek	" "	"	

MOBILE BASIN—IMPORTANT STREAMS

Coosa River	Alabama River	Floyd	Formed by junction of Oostanaula and Etowah at Rome (navigable water).
Chattooga River	Coosa River	Chattooga	Furnishes power to Trion Factory.
Duck Creek	Chattooga River	Walker	
Silver Creek	Coosa River	Floyd	
Cedar Creek	" "	Polk and Floyd	
Oostanaula River	" "	Gordon and Floyd	Navigable.
Armuchee Creek	Oostanaula River	Chattooga and Floyd	
John's Creek	" "	Floyd	

Oothcaloga Creek	Oostanaula River	Gordon and Bartow	
Connasauga River	" "	Whitfield and Murray	
Coosawattee River	" "	Gilmer and Gordon	Succession of cataracts for 17 miles, from Ellijay to Carter's Mill; navigable below.
Sallacoa Creek	Coosawattee River	Gordon	
Talking Rock Creek	" "	Pickens	
Mountain Town Creek	" "	Gilmer	
Scared Coon Creek	" "	Pickens	
Ellijay River	" "	Gilmer	Large mountain stream. (No survey.)
Cartecay River	" "	Gilmer	Large power at Ellijay, and others up the stream. (No survey.)
Etowah River	Coosa River	Lumpkin and Floyd	Flows also through Dawson, Cherokee and Bartow Counties.
Euharlee Creek	Etowah River	Polk and Bartow	
Raccoon Creek	" "	Paulding	
Pumpkinvine Creek	" "	"	
Allatoona Creek	" "	Cobb and Bartow	
Little River	" "	Cherokee	
Shoal Creek	" "	"	
Sharp Mountain Creek	" "	Cherokee and Pickens	Has one cotton factory and many undeveloped shoals.
Long Swamp Creek	" "	Pickens	The great Marble Valley of Pickens County. See table for power.
Sitting Down Creek	" "	Forsyth	
Amicalola River	" "	Dawson	Amicalola Falls, 625 feet high, on head waters. See table for power.
Nimble Will Creek	" "	Lumpkin	Source of Kin Mori mining ditch, 35 miles long.
Two Run Creek	" "	"	
Shoal Creek	" "	Dawson	Source of Cincinnati Consolidated mining ditch, 25 miles long, with laterals amounting to 25 miles more.
Mill Creek	" "	Lumpkin	Source of Battle Branch mining ditch.
Camp Creek	" "	"	
Jones Creek	" "	"	
Tallapoosa River	" "	Haralson	
Little Tallapoosa River	" "	Carroll	

LOCATION OF WATER-POWER	POINT OF SECTION	STAGE	Cubic feet per second	Fall in feet	Length of Shoal	Gross Horse-power[1]	Source of Information	REMARKS
BARTOW COUNTY								
Oothcaloga Creek	Gordon County line	Minimum	15.0	6.00		10.2	Locke	
" "	Adairsville	"	7.0	6.00		4.7	"	
Lewis Spring	Near Adairsville	"	8.0	10.00		9.0	"	
Cedar Spring	Martillo's Mill	"	2.5	18.00		5.0	"	
" Creek	Gordon County line	"	8.0	12.00		11.0	"	
Fork of Pine Log Creek	McCandless & Parrott M	"	18.0	20.00		41.0	"	
" " " " "	Johnson's Mill	"	14.0	15.00		23.8	"	
Sallacoa Creek	Gordon County line	"	20.0	20.00		45.4	"	
Stamp Creek	Pool's Furnace	"	12.0	20.00		27.3	"	
" "	At mouth	"	24.0	20.00		54.5	"	
Boston Creek	At mouth	"	4.0	20.00		9.0	"	
Rogers Creek	At mouth	"	7.0	20.00		16.0	"	
Etowah River	At mouth of Allatoona Cr.	Average low water	833.3	15.00		1420.5	10th U. S. Census	
" "	Etowah Mining Co.	Average low water	833.3	80.00		7575.7	"	
Pettis Creek	At mouth	Minimum	20.0	5.00		11.3	Locke	
Nancy's Creek	At mouth	"	6.0	5.00		3.4	"	
Two Run Creek	Kingston	"	26.0	16.00		17.3	"	
Conaseena Creek	"	"	5.0	20.00		11.3	"	
Bansley's Creek	Near mouth	"	5.0	18.00		10.2	"	
Allatoona Creek	2½ m. from mouth	"	25.5	12.00		49.3	"	
Pumpkinvine Creek	2 m. from mouth	"	70.0	10.00		79.5	"	
Raccoon Creek	1 m. from mouth	"	39.0	10.00		44.3	"	
Euharlee Creek	2 m. from mouth	"	120.9	12.00		164.8	"	
CARROLL COUNTY								
Little Tallapoosa River	Above mouth of Buck Cr	Low spr'g	101.4	10.00		115.1	"	
Buck Creek	Branch of Tallapoosa	"	16.6	10.00		19.0	"	
Indian Creek	" " "	"	7.0	10.00		7.9	"	
Buffalo Creek	" " "	"	6.0	10.00		6.8	"	
CHATTOOGA COUNTY								
Chattooga River	Trion Factory	Ordinary	166.6	16.00	2¾ m.	303.0	10th U. S. Census	Water-power supplemented by steam for four months.

[1] Net horse-power=80 per cent. of gross horse-power.

CHATTOOGA COUNTY (*Con.*)								
Armuchee Creek	Subligna	Low spr'g	41.6	10.00	. . .	47.3	D. C. Barrow	
Little Turtle Creek	Near mouth	"	5.5	10.00	. . .	6.2	"	
Raccoon Creek	Lot 39	"	4.5	10.00	. . .	5.1	"	
Rough Creek	At mouth	"	8.8	10.00	. . .	10.0	"	
CHEROKEE COUNTY								
Etowah River	Canton	Low wat'r	733.3	6.25	6000′	520.0	B. M. Hall	Surveyed Aug. 27, 1890.
Mill Creek	"	Low spr'g	45.0	. . .	. . .	. . .	D. C. Barrow	
Etowah River	Franklin Gold Mine	Average low water	666.6	15.00	. . .	1136.3	10th U. S. Census	Name now changed to Creighton Mine.
DAWSON COUNTY								
Etowah River	Palmer's Mill	Low wat'r	216.6	10.00	. . .	246.2	D. C. Barrow	
Shoal Creek	Howser's Mill	"	33.3	16.00	. . .	60.6	"	
Amicalola River	Dawsonville & J. R'd.	"	150.0	200.00	17000′	3400.0	B. M. Hall	This is at Heard's Mill. There are other great falls below and above.
Amicalola Creek	Bart Crane's	Low wat'r	10.0	625.00	. . .	710.2	"	Amicalola Falls.
Nimble Will Creek	Kin Mori Ditch	Ordinary	25.0	300.00	. . .	852.2	"	At Kin Mori Mine.
Shoal Creek Ditch	Near Dawsonville	"	5.0	200.00	. . .	113.6	"	Cin. Consolidated Mines.
FLOYD COUNTY								
Etowah River	Horse Shoe Bend	. . . .	No measurement	No survey	. . .	Said to be large power	. . . .	Between Rome and Kingston.
Armuchee Creek	Jones's Mill	Ordinary	133.3	10.00	. . .	142.3	Locke	Little above low water.
Little Fork, Armuchee Cr.	Texas Valley	"	41.0	15.00	. . .	60.0	"	Echols' Mill.
Big Fork, " "	White's Bridge	"	48.0	. . .	. . .	. . .	"	
" " " "	Hammond's Mill	"	48.0	8.00	. . .	43.6	"	
John's Creek	Near mouth	"	15.0	8.00	. . .	13.6	"	
Silver Creek	" "	"	24.0	18.00	. . .	49.1	"	
Cedar Creek	Thoman's Mill	Minimum	70.0	10.00	. . .	79.5	"	
Little Cedar Creek	Near mouth	"	20.0	14.00	. . .	32.7	"	
" " "	Cave Springs	Low spr'g	60.0	10.00	. . .	68.2	"	
Big Spring	" "	"	8.0	. . .	. . .	. . .	"	
FORSYTH COUNTY								
Beaver Run Creek	At mouth	Flush	75.0	20.00	. . .	170.4	D. C. Barrow	
Sitting Down Creek	Halbrook's Mill	Low spr'g	30.0	7.00	. . .	23.8	"	
" " "	Pool & Heard's	"	30.0	15.00	. . .	51.1	"	

THE MOBILE BASIN—WATER-POWERS—*Continued*

LOCATION OF WATER-POWER	POINT OF SECTION	STAGE	Cubic feet per second	Fall in feet	Length of Shoal	Gross Horse-power[1]	Source of Information	REMARKS
GORDON COUNTY								
Oothcaloga Creek	Calhoun Mills	Low spr'g	40.0	9.00	. . .	40.9	D. C. Barrow	
Connesauga River	At mouth.	"	291.6	. . .	. . .	. . .	"	Flat stream.
Coosawattee River	Carter's Mill.	"	541.0	9.00	. . .	562.3	"	Dam is only 9 feet, but fall is 50 feet in less than 2 miles.
" "	Two miles above Carter's	"	541.0	50.00	. . .	3073.8	"	
" "	Ellijay to Carter's	"	541.0	. . .	17 m.	. . .	"	Heavy fall all the way. (No survey.)
Talking Rock Creek	At mouth.	"	108.3	. . .	. . .	. . .	"	Creek has good shoals; no survey has been made.
Salacoa Creek	Lot 117, 7th Dist., 3d Sec.	"	100.0	. . .	. . .	. . .	"	No fall given.
Snake Creek	Lot 113, 1st Dist.	"	14.5	. . .	. . .	. . .	"	No fall given.
John's Creek	Lot 53, 24th Dist., 3d Sec.	"	12.5	. . .	. . .	. . .	"	No fall given.
HARALSON COUNTY.								
Tallapoosa River	Waldrop's.	"	50.0	10.00	. . .	56.8	"	Ten foot head assumed.
" "	McBride's Bridge	Flush	583.3	10.00	. . .	662.8	"	Ten foot head assumed.
Little River	At mouth	Ordinary	19.5	10.00	. . .	22.1	"	Ten foot head assumed.
Bench Creek	Rock House.	Low wat'r	30.5	30.00	. . .	69.30	"	A 30-foot dam would flood 70 acres.
LUMPKIN COUNTY								
Etowah River	Five miles of Dahlonega.	"	200.0	20.00	. . .	454.5	"	
" "	Simmon's Mill to Battle Branch Bridge.	. . .	. . .	210.00	10 m.	. . .	10th U. S. Census	
" "	Falls	. . .	. . .	100.00	½ m.	. . .	B. M. Hall	Near Cooper's Gap road.
Battle Branch Ditch	From Mill Creek.	. . .	3.3	300.00	. . .	113.6	"	Empties into Cane Creek, to increase Hand and Barlow Mill power.
Etowah Ditch	From upper Etowah River.	. . .	25.0	200.00	. . .	568.1	"	
Jones' Creek	Lot 234, 5th Dist., 1st Sec.	Low wat'r	5.0	50.00	. . .	28.4	D. C. Barrow	
Nimble Will Creek	10 miles from Dahlonega	"	50.0	12.00	. . .	68.1	"	
PICKENS COUNTY								
Big Scared Coon Creek.	Fairmount Road	"	11.0	10.00	. . .	12.5	"	Assumed head.
Talking Rock Creek	Federal Road	"	13.3	10.00	. . .	15.1	"	Assumed head.

[1] Net horse-power = 80 per cent. of gross horse-power.

PICKENS COUNTY—(*Con.*)								
West Longswamp Creek	Perseverance Quarries	"	21.6	40.00	1 m.	98.4	B. M. Hall	Perseverance Marble Quarries.
East Longswamp Creek	Southern Marble Co.'s mill.	"	6.6	50.00	2,600ft	94.7	"	Surveyed Jan., 1890.
Rocky Creek	" " " "	"	3.6	210.00	. . .	87.5	"	Pelton wheel, one mile ditch, and 1,500 foot pipe.
Long Swamp Creek	Georgia Marble Co.	"	46.6	. . .	. . .	. . .	"	Fall about 30 feet in one mile.
" " "	Blue Ridge Marble Co	"	50.7	16.00	3,200ft	92.1	"	Surveyed Nov., 1890.
POLK COUNTY								
Euharlee Creek	Rockmart	Low wat'r	25.0	10.00	. . .	28.4	D. C. Barrow	
" "	2 miles north of Rockmart.	Low spr'g	19.0	10.00	. . .	21.6	"	
" "	Hightower's Mill	"	5.4	90.00	. . .	55.2	"	
Big Spring	2 miles from Van Wert	"	5.0	. . .	. . .	. . .	"	
Little Cedar Creek	Young's Mill	"	19.3	10.00	. . .	20.7	"	
Big Spring	Cedartown	"	9.6	. . .	. . .	. . .	"	
Gut Creek	At mouth	"	26.6	10.00	. . .	30.3	"	Assumed head of 10 feet.
PAULDING COUNTY.								
Little Pumpkinvine Creek	16 miles from Marietta	"	10.0	20.00	. . .	22.7	Locke	
Raccoon Creek	Chappel's Store	"	22.0	12.00	. . .	30.0	"	
WALKER COUNTY								
Fork of Dry Creek	One-half mile from mouth.	"	6.5	10.00	. . .	7.3	D. C. Barrow	
WHITFIELD COUNTY								
Swamp Creek	Lot 113.	. . . .	33.3	10.00	. . .	37.8	"	Assumed head.
Carpenter Creek	One-half mile So. of Tilton.	. . . .	11.0	10.00	. . .	12.5	"	Assumed head.
Mill Creek	Lot 148, 13th Dist., 3d Sec.	. . . .	16.0	10.00	. . .	18.1	"	Assumed head.
Etowah River	For 17 miles above W. & A. bridge	Low wat'r	833.3	102.00	17 m.	9,659.0	. . . .	From mouth of Little River in Cherokee Co. to W. & A. R. R. bridge in Bartow Co.
" "	Cartersville to Rome	"	1000.0	154.00	45 m.	17,500.0	. . . .	

The foregoing gives a very meagre idea of the water-powers of this basin. The surveys made by Messrs. Barrow and Locke, Assistant State Geologists, in 1874-'75, were confined mainly to that part of the basin, in which the streams have very few shoals of importance. The great shoals on the Coosawattee, the Cartecay and the Amicalola rivers, and the head streams of the Etowah River, have as yet received very little attention.

MOBILE BASIN — UTILIZED POWER

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total fall used	Total H. P. used	REMARKS
Tallapoosa River	Haralson	Flour and grist	3	16	67	
" "	"	Saw	1	7	12	
" "	Paulding	Flour and grist	1	10	10	
Tributaries of Tallapoosa R.	Haralson	" " "	7	71	92	
" " "	"	Saw	1	6	5	
" " "	Carroll	Cotton gin	1	6	. . .	
" " "	"	Flour and grist	10	142	151	
" " "	"	Saw	3	32	36	
" " "	"	Tannery	1	24	6	
" " "	"	Woolen	2	20	9	
Tributaries of Coosa River	Floyd	Flour and grist	14	183	204	
" " "	"	Saw	3	37	43	
" " "	"	Woolen	2	15	17	
" " "	"	Cotton gins	2	23	20	
" " "	Polk	Machine shop etc.	. . .	4	70	Cedartown.
" " "	"	Flour and grist	6	125	138	
Etowah River	Dawson	Flour and grist, saw and tannery.	. . .	18	58	
" "	"	Stamp mill	1	. . .	. . .	
" "	"	Flour and grist	4	83	50	
" "	"	Saw	2	42	27	
Tributaries of Etowah River	Polk	Flour and grist	2	30	40	
" " "	Floyd	" " "	2	16	47	
" " "	Bartow	" " "	14	156	318	
" " "	Paulding	" " "	9	107	79	
" " "	"	Saw	2	24	34	
" " "	"	Woolen	1	12	4	
" " "	Cobb	Flour and grist	2	26	26	
" " "	Cherokee	" " "	12	195	187	
" " "	"	Cotton gins	2	25	56	
" " "	"	Saw	5	78	64	
" " "	Pickens	"	5	54	50	

" " "	"	Furniture	2	15	20
" " "	"	Flour and grist	13	179	129
" " "	"	Marble mill	1	210	60
" " "	Milton	Flour and grist	2	28	16
" " "	"	Wheelwright	1	12	6
" " "	"	Saw	4	68	74
" " "	Dawson	Flour and grist	2	38	40
" " "	"	Woolen	1	. . .	8
Coosawattee R. and Trib'r's	Bartow	Flour and grist	5	57	74
" " "	Gilmer	" "	3	61	48
" " "	Gordon	" "	5	41	160
" " "	"	Cotton gin	1	. . .	. . .
" " "	"	Saw	1	. . .	. . .
" " "	"	Tannery	1	. . .	. . .
" " "	Pickens	Cotton factory	1	18	432
" " "	"	Flour and grist	10	141	116
" " "	"	Saw	1	12	10
" " "	"	Woolen	1	18	20
Conasauga R. and Trib'r's	Murray	Flour and grist	8	93	105
" " "	"	Saw	2	28	30
" " "	Whitfield	"	2	20	22
" " "	"	Flour and grist	12	161	151
" " "	"	Boots and shoes	1	7	6
" " "	Bartow	Flour and grist	4	56	52
" " "	"	Woolen	2	17	13
" " "	Chattooga	Cotton gin	1	10	7
" " "	"	Saw	3	43	50
" " "	"	Flour and grist	6	74	122
" " "	Floyd	" "	3	24	141
" " "	Gordon	" "	3	43	24
Chattooga R. and Trib'r's.	Chattooga	Cotton factory	1	16	300
" " "	"	" gin	4	24	40
" " "	"	Flour and grist	7	92	145
" " "	"	Saw	5	63	102
" " "	"	Woolen	1	13	8

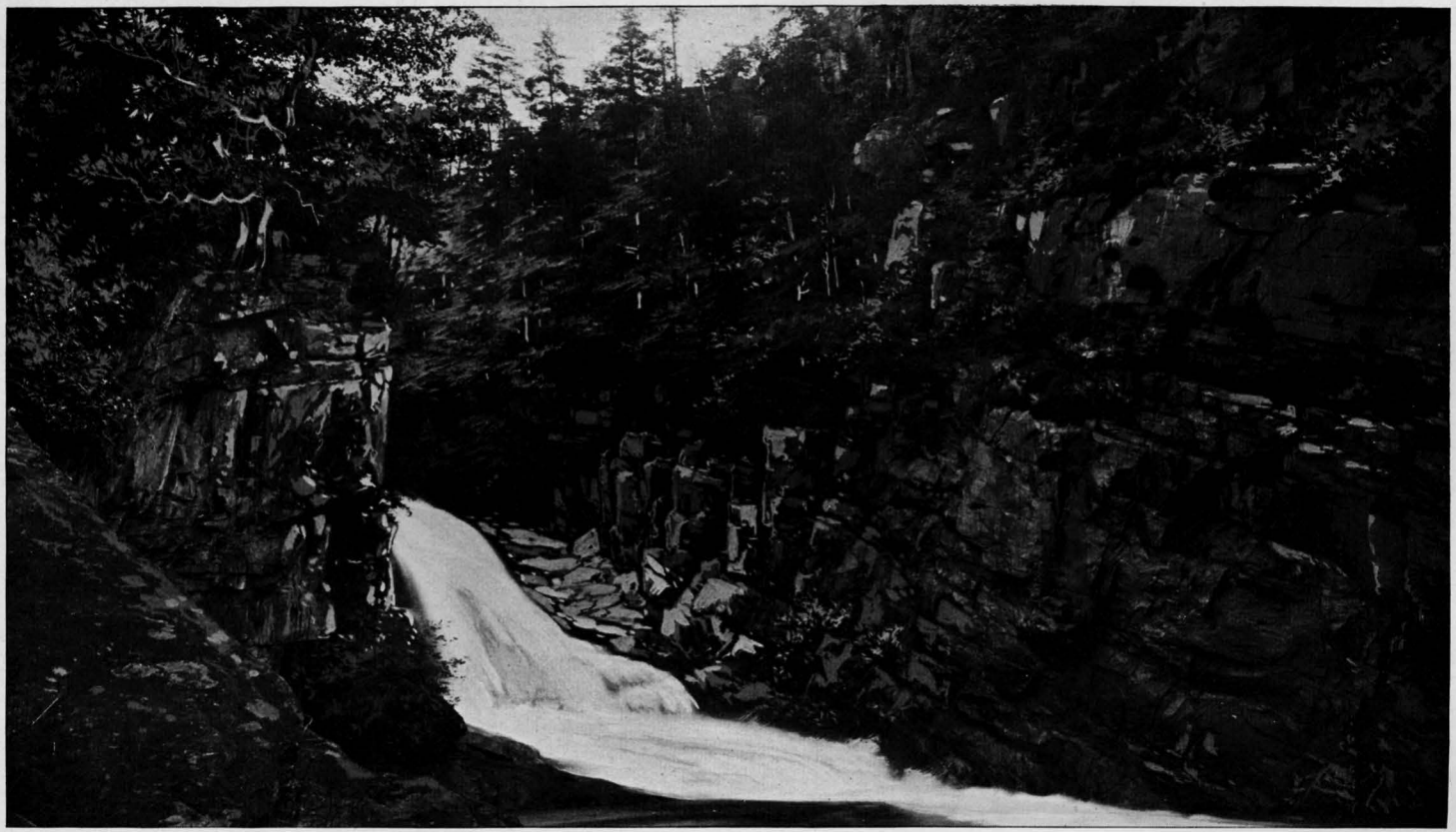
APALACHICOLA BASIN —— IMPORTANT STREAMS

NAME OF STREAM	TRIBUTARY TO	COUNTY	REMARKS
Chattahoochee River	Apalachicola River		
Standing Boy Creek	Chattahoochee "	Muscogee	Large shoal on creek, 2 m. from mouth.
Mulberry Creek	" "	Harris	Large cr.; falls 60 ft. in quarter of mile.
Mountain Creek	" "	"	60 cu. ft. per sec.; 20 ft. fall on shoal at River Road.
Old House Creek	" "	"	
Flat Shoals	" "	Harris and Troup	Troup Factory, 80 cu. ft. per sec.; 18 ft. fall, low water. (Locke)
Muddy Creek	" "	Troup	5½ m. from LaGrange; 7 cu. ft. per sec.; 10 ft. fall, low water. (Locke)
Yellow Jacket Creek	" "	"	8½ m. from LaGrange; 87 cu. ft. per sec.; 10 ft. fall, low water. (Locke)
Beach Creek	Yellow Jacket Creek	"	5 m. from LaGrange; 35 cu. ft. per sec.; 15 ft. fall, low water. (Locke)
Panther Creek	Chattahoochee River	"	3 m. from LaGrange; 25 cu. ft. per sec.; 10 ft. fall, low water. (Locke)
Flat Creek	" "	"	Gorham's Mill; 20 cu. ft. per sec.; 12 ft. fall, low water. (Locke)
New River	" "	Heard and Coweta	¼ m. of mouth; 133.3 cu. ft. per sec.; 10 ft. fall, low spring. (Locke)
Whittaker Creek	" "	Heard	Whittaker's Mill; 91 cu. ft. per sec.; 30 ft. fall. (C. C. Anderson)
Hillabuhatchee Creek	" "	"	
Centralhatchee Creek	" "	"	57.9 cu. ft. per sec.; 8 ft. fall, saw mill. (C. C. Anderson)
Wahoo Creek	" "	Coweta	At Sergeant's; 41.4 cu. ft. per sec. at mean low water. Fall, 33 ft. in 1,600. (C. C. Anderson) Cotton factory and grist mill.
Cedar Creek	" "	"	
Snake Creek	" "	Carroll	2.6 cu. ft. per sec., 14 ft. fall=$\frac{3}{10}$ H. P. per foot of fall. (C. C. Anderson)
Dog River	" "	"	Above Watkin's mill; 25 cu. ft. per sec., low spring. (Locke)

Bear Creek	" "	Douglas	52.5 cu. ft. per sec. (C. C. Anderson)
Camp Creek	" "	Campbell	
Sweet Water Creek	" "	Paulding, Cobb and Douglas	Austell Shoals, near mouth, has 80 feet of fall and 166.9 cu. ft. per sec. Hayes bridge, 80 cu. ft. per sec., low water. (Locke)
Powder Springs Creek	Sweet Water Creek	Cobb	Powder Springs; 34 cu. ft. per sec., low water. (Locke)
Nose's Creek	" "	"	
Soap Creek	Chattahoochee River	"	Paper mill; 62 cu. ft. per sec.; 67 ft. head, low spring. (Locke)
Utoy Creek	" "	Fulton	
Nickajack Creek	" "	Cobb	29 ft. fall at Ruff's Mill, and 21 ft. at Concord Factory.
Peachtree Creek	" "	Fulton and DeKalb	Houston's Mill; 23.3 cu. ft. per sec; 22 ft. fall, low water. (Locke) Buckhead Road, 97 cu. ft. per sec., flush. (Locke)
Nancy's Creek	Peachtree Creek	" "	Lot 96, 17th Dist.; 45 cu. ft. per sec., low spring. (Locke)
Rottenwood Creek	Chattahoochee River	Cobb	12 cu. ft. per sec. = 1.27 gross H. P. per ft. of fall; measured July 28, 1892, by B. M. Hall.
Long Island Creek	" "	Fulton	Lot 164, 17th Dist., 6.5 cu. ft. per sec. (Locke)
Willis Creek	" "	Cobb	Wright's Mill; 16.6 cu. ft. per sec.; 23 ft. fall, ordinary stage; gross H. P. = 43.
Vickery's Creek	" "	Forsyth, Milton and Cobb	3 factories at Roswell; total fall, 103 ft.; volume about 50 cu. ft. per sec. (C. C. Anderson)
Suwanee Creek	" "	Gwinnett	Lawrenceville and Buford road; 11.6 cu. ft. per sec. (Locke)
Ivy Creek	Suwanee Creek	"	Hamilton's Mill; 2 cu. ft. per sec., 18 ft. fall, low water. (Locke)
Chestatee River	Chattahoochee River	Lumpkin, Dawson, Forsyth and Hall	Important gold mining stream, with many fine undeveloped powers, not surveyed.
Etowah Ditch, entering Cane Creek	Chestatee River	Lumpkin	Ditch, 7 miles long, diverts Etowah waters across ridge into Cane Creek; 25 cu. ft. per sec., with a head of 200 ft. = 568 gross H. P.; not utilized.
Cane Creek	" "	"	At Cane Cr'k falls, 16.6 cu. ft. per sec.; 60 ft. fall. At Barlow gold-mill, 40 cu. ft. per sec.

APALACHICOLA BASIN — IMPORTANT STREAMS — *Continued*

NAME OF STREAM	TRIBUTARY TO	COUNTY	REMARKS
Clay Creek	Cane Creek	Lumpkin	Has a good shoal.
Yahoola Creek	Chestatee River	"	Source of Hand Mining Ditch, 35 miles long; furnishes water to many mines for hydraulic mining. The ditch carries from 16 to 25 cu. ft. per sec.; and is 300 ft. above streams near Dahlonega.
Cavender's Creek	" "	"	Drains an important gold-mining region of Lumpkin county.
Yellow Creek	" "	Hall	7.2 cu. ft. per sec.; 20 ft. shoal near mouth. (Barrow)
Tessantee River	" "	White	95 cu. ft. per sec.; big shoal near mouth.
Shoal Creek	Tessantee River	"	Has Asbury's Mill and other good shoals.
Town Creek	" "	"	Source of Loud Ditch, 25 miles long, used for hydraulic mining.
Jennie's Creek	Town Creek	"	
Tate's Creek	Chestatee River	Lumpkin	To furnish water for proposed Cavender's Creek Ditch.
Mill Creek	" "	"	To furnish water for proposed Cavender's Creek Ditch.
Dick's Creek	" "	"	Large creek; falls over 100 feet to the mile.
Turner's Creek	" "	White	
Little R. from Wahoo Cr.	Chattahoochee River	Hall	Castleberry's Mill, 4 miles from Gainesville; 151.5 cu. ft. per sec.; 71 ft. fall; gross H. P., 122; 25 H. P. used. (C. C. Anderson)
Glade Creek	" "	"	Furnishes water and drainage to "The Glades" Gold Mine.
Flat Creek	" "	"	13.6 cu. ft. per sec.; 50 ft. fall; shoal above "The Glades" Mine.
Mud Creek	" "	Habersham	Big Mud Creek, 33.3 cu. ft. per sec.; Little Mud Creek, 20 cu. ft. per sec.
Soquee River	" "	"	See Power Table.
Hazel Creek	Soquee River	"	Lake and water-power at Demorest.
Deep Creek	" "	"	38.3 cu. ft. per sec. at mouth. (Barrow and Locke)



HURRICANE FALLS, TALLULAH FALLS, GEORGIA.

Shoal Creek	" "	"	16.6 cu. ft. per sec. at mouth. (B. M. Hall, estimated)
Mossy Creek	Chattahoochee River	White	
Duke's Creek, North Fork	" "	"	Duke's Creek Falls, 12.8 cu. ft. per sec.; 300 ft. fall. (Barrow)
" "	" "	"	Minnehaha Falls, 3.6 cu. ft. per sec.; 300 ft. fall. (Barrow)
Smith's Creek	" "	"	Annie Ruby Falls, 7.1 cu. ft. per sec.; 300 ft. fall. (Barrow)
Flint River	Apalachicola River	Webster, Sumter, Terrell	Large Creek with fine undeveloped power, enough for running 100,000 spindles. (U. S. Government Report)
Kinahatoochee Creek	Flint River		
Buck's Creek	" "	Macon	
Whitewater Creek	" "	Macon and Taylor	
Cedar Creek	Whitewater Creek	Taylor	
Parchelagee Creek	Flint River	"	
Spring Creek	" "	Crawford	
Little Potato Creek	" "	Upson	
Big Potato Creek	" "	Upson and Pike	
Wasp Creek	Big Potato Creek	Pike	
Grape Creek	" " "	"	
Laxer Creek	Flint River	Talbot	
Pigeon Creek	" "	Meriwether and Talbot	
Cane Creek	" "	Meriwether	
Red Oak Creek	" "	"	
Elkin's Creek	" "	Pike	
Line Creek	" "	Coweta and Fayette	
Whitewater Creek	Line Creek	Fayette	

APALACHICOLA BASIN —— WATER-POWERS

Utilized Net H.P.	LOCATION OF WATER-POWER	POINT OF SECTION	Stage of Water	Cubic ft. per Second	Fall in feet	Length of shoal	Gross H. P.[1]	Source of Information	REMARKS
	SOQUEE RIVER								
60	Habersham County . .	Clarkesville Woolen Mill .	0.0	266.6	26.0	1,000′	738.6	C.C. Anderson	Only 18 ft. used.
100	" " . .	Porter Mills, Shoal No. 1 .	"	266.6	14.4	1,00′	436.3	"	See fluctuation tables; 0.0 = min. observed waters.
150	" " . .	Porter Mills, Shoal No. 2 .	"	291.6	45.2	1,400′	1,369.0	"	
None	" " . .	Porter Mills, Shoal No. 3 .	"	. .	15.0	1,200′	497.0	"	
	CHATTAHOOCHEE RIVER								
Corn Mill	White County	Nicholls' Mill	Min. L.W.	72.0	10.0	. . .	81.8	Barrow & Locke	
None	White & Habersham Cos.	Duncan Shoal	0.0	683.3	7.6	400′	589.2	C.C. Anderson	Includes Soquee River at mouth.
"	" " "	Carpenter Shoal	"	683.3	3.2	400′	248.4	"	Below mouth of Soquee.
"	" " "	Johnny's Ford Shoal . . .	"	683.3	5.4	1,200′	419.3	"	
"	" " "	Gearing Shoal	"	683.3	1.3	300′	101.0	"	
"	" " "	Fishtrap Shoal	"	683.3	1.8	300′	138.8	"	
"	" " "	Bull Shoal	"	683.3	7.0	1,800′	543.5	"	Foot, 3 miles below mouth of Soquee.
"	" " "	Last Six Shoals, total . .	"	683.3	38.0	13,200′	2,950.7	"	Can be developed as one power.
"	" " "	Rock House Shoal	"	750.0	3.7	900′	315.3	"	
"	" " "	Mountain Island Shoal . .	"	766.6	7.3	1,800′	635.8	"	
"	Hall County	Lula Bridge	"	783.3	2.0	1,200′	178.0	"	
"	" "	Reynolds	"	800.0	6.0	1,200′	545.4	"	
"	" "	Seven Islands	"	816.6	4.0	. . .	371.2	"	
"	" "	Savage Shoal, No. 1 . . .	"	833.3	1.0	1,200′	94.7	"	
"	" "	Savage Shoal, No. 2 . . .	"	833.3	2.5	1,200′	236.7	"	
"	" "	Peg's Shoal	"	833.3	6.3	2,530′	596.0	"	
"	" "	Stringer's Ford	"	833.3	10.0	1,200′	947.0	"	
"	" "	Wilson Shoal	"	933.3	6.5	2,500′	689.4	"	
"	" "	Thompson's Bridge . . .	"	933.3	. .	. . .	. . .	"	

[1] Net H. P. = 80 per cent. of gross H. P.

"	" " "	Shallow Ford	"	933.3	6.70	5,500′	710.6	U. S. Sur.	Vol. estimated from Sur. of C. C. Anderson.
"	" " "	Johnson's Shoal	"	933.3	3.20	3,600′	339.4	"	" "
"	" " "	Mooney's Shoal	"	933.3	3.20	5,600′	339.4	"	" "
"	" " "	Overby's Shoal	"	1,450.0	6.90	800′	1,137.0	"	Below Mouth of Chestatee.
Mill and Gin, 80	" " "	Brown's Bridge	"	1,450.0	17.00	8,500′	2,801.0	"	Vol. estimated from Sur. of C. C. Anderson.
"	" " "	Pirkle Shoal	"	1,450.0	3.90	4,000′	642.3	"	" "
"	Gwinnett County . . .	Garner's Shoal	"	1,666.6	. .	. . .	. . .	"	" "
"	" " "	Bridge Shoal	"	2,000.0	16.90	1,182′	3,841.0	"	" "
"	" " "	Jones's Shoal	"	2,083.3	3.10	1,200′	733.9	"	" "
"	Milton County	Island Ford Shoal	"	2,133.3	9.00	5,000′	2,181.0	"	" "
None	Cobb and Fulton Co's[1] .	Roswell Shoal	0.0	2,190.5	18.00	about 2 mls.	4,480.0	Anderson	From Bridge to head of Bull Sluice.
"	" " " " [1] .	Bull Sluice Shoal	"	2,200.0	25.30	1 mile	6,325.0	"	On Pink Power Property.
"	" " " " [1] .	" " " *continued* .	"	2,200.0	6.40	3,300′	1,600.0	"	On Strapp & Power "
"	" " " " .	Cochran Shoal	"	2,333.3	6.50	2,700′	1,723.0	"	Above Power's Ferry.
"	" " " " .	Devil's Race Course . . .	"	2,333.3	10.50	2,500′	2,784.0	"	Below " "
"	" " " " .	Upper Thornton Shoal . .	"	2,333.3	4.60	1,100′	1,219.0	"	Below "The Narrows."
"	" " " " .	Long Island Shoal . . .	"	2,358.3	10.00	5,900′	2,679.0	. . . .	Head of Island to Little Nancy's Creek.
"	" " " " [2] .	Top of Cochran Shoal to foot of L. I. Shoal	"	2,358.3	32.80	18,100′	8,790.0	Hall	Includes the four shoals above.
"	" " " " .	Howell's Shoal	"	2,366.6	10.70	4,000′	2,877.0	Anderson	
"	" " " " .	W. & A. R. R. Bridge . .	"	2,500.0	. .	. . .	. . .	. . . .	
"	Campbell County . . .	Redman's Shoal	"	2,500.0	3.00	1,000′	848.0	Anderson	
"	" " " . . .	Pumpkintown Shoal . . .	"	2,666.6	3.00	800′	909.0	"	
"	" " " . . .	Mederis Shoal	"	2,666.6	8.40	2,000′	2,545.4	"	
"	Coweta County	Island Shoal	"	2,750.0	12.50	5,280′	3,906.0	"	
"	" " "	Fridell Shoal	"	2,750.0	9.00	1,400′	2,812.5	"	
"	" " "	McIntosh Shoal	"	2,833.3	11.62	19,000′	3,741.0	"	Fall by B. M. Hall.
"	Heard County	Hilly Mill	"	2,833.3	7.00	2,600′	2,632.5	"	
"	" " "	Bush Head Shoal	"	2,916.6	5.00	1,000′	1,657.0	"	
50 H. P.	" " "	Hendrick's Shoal	"	2,916.6	16.50	4,000′	5,468.7	"	Grist-mill.

[1] These three shoals form one continuous shoal four miles long with a fall of fifty feet.

[2] Known as the Vining Shoal, being near Vining Station on W. & A. R. R.

APALACHICOLA BASIN —— WATER-POWERS — *Continued*

Utilized Net H.P.	LOCATION OF WATER-POWER	POINT OF SECTION	Stage of Water	Cubic Feet per Second	Fall in Feet	Length of Shoal	Gross H. P.[1]	Source of Information	REMARKS
None	Heard County	Jackson Shoal	0.0	3,066.6	6.7	3,000′	2,296.7	Anderson	
"	" "	Seven small Shoals	"	3,333.3	13.0	. . .	4,924.0	"	
"	Troup County	Swanson Shoal	"	3,500.0	7.0	1,500′	2,784.0	"	
"	" "	Small Shoals	"	3,750.0	3.5	. . .	1,491.5	"	
"	" "	McGees' Bridge	"	4,000.0	8.3	3,000′	3,772.7	"	
"	" "	Buzzard and Reed Island .	"	4,166.6	8.3	3,000′	3,930.0	"	Three shoals.
"	" "	Bentley's Mill	"	4,166.6	4.0	. . .	1,894.0	"	
"	" "	Ferrell or Huguley's . . .	"	4,666.6	9.0	. . .	4,772.7	"	
"	" "	Pott's Shoal	"	4,933.3	5.0	3,600′	2,803.0	"	3 or 4 miles above W. P.
"	" "	West Point	"	4,933.3	. .	. . .	. . .	"	
300H.P.	Harris County	Jack Todd's Shoal	"	4,933.3	51.0	39,600′	28,591.0	U. S. Sur.	Two cotton-mills, four miles below W. P.
. . .	" "	3 m. below Houston's Ferry	"	4,933.3	4.0	1,100′	2,242.0	"	Vol. from C. C. Anderson
None	" "	Hargett's Island Shoal . .	"	5,000.0	60.0	13,000′	34,091.0	"	" "
"	" "	Shoal	"	5,000.0	15.0	4,000′	8,522.7	"	" "
. . .	" "	"	"	5,000.0	26.0	8,700′	14,772.0	"	" "
. . .	" "	Tate Shoals	"	5,000.0	22.0	6,300′	12,500.0	"	" "
. . .	" "	Mulberry Shoals	"	5,166.6	30.0	10,560′	17,613.0	"	" "
. . .	Muscogee County . . .	Near mouth of Standing Boy Creek . .	"	5,216.6	10.0	3,800′	5,928.0	"	" "
. . .	At Columbus	Chattahoochee Falls Prop.	"	5,216.6	42.0	6,900′	24,715.0	"	" "
. . .	" "	Lover's Leap	"	5,216.6	37.0	2,600′	21,933.0	"	" "
. . .	" "	City Mills	"	5,216.6	10.0	Dam	5,928.0	"	" "
. . .	" "	Eagle and Phœnix Mills .	"	5,216.6	25.0	"	14,820.0	"	" "
	Hall, Bartow, Muscogee and Intervening Counties								
. . .	Continuous level from Thompson's Bridge	to W. & A. Ry. Bridge . .	"	. . .	227.0	73 miles	. . .	"	3 m. N. of Gainesville to 6 m. W. of Atlanta.
. . .	From W. & A. Ry. Bridge to West Point		"	. . .	162.0	108 mls.	. . .	"	6 m. W. of Atlanta to West Point.
. . .	From West Point to Columbus		"	. . .	362.0	34 mls.	. . .	"	W. Point to Columbus.

[1] Net horse-power=80 per cent. of gross horse-power.

	SWEETWATER CREEK								
. . .	Douglas County	Austell Shoals	LowWat'r	166.6	80.0	3,900′	1,515.0	B. M. Hall	Near Austell, Ga. Easily developed.
	CHESTATEE RIVER								
. . .	Lumpkin County . . .	Garnet Mine	"	Unk'n	15.0	1,200′	Unk'n	"	Dam, race, stamp-mill and pumps.
. . .	" " . . .	Chestatee Pyrites Co. . .	"	"	20.0	. . .	. . .	"	
. . .	" " . . .	Penitentiary Shoal	"	"	L'rge	Unk'n	"	"	
. . .	" " . . .	Chestatee Mining Co. . .	"	"	Unk'n	"	"	"	Power developed.
. . .	" " . . .	Calhoun Mine	"	"	12.0	Dam	"	"	Dam, stamp-mill and pump.
. . .	" " . . .	Leather's Ford	"	290.0	12.0	Unk'n	395.0	Barrow	
	FLINT RIVER								
30 H.P.	Meriwether and Pike Cos.	Sullivan's Mill	0.0	250.0	7.3	200′	207.0	Anderson	Grist-mill.
40 "	" "	Flat Shoals	Min.L.W.	258.3	32.0	3,000′	934.0	B. M. Hall	A four foot storage-dam will develop 2,630 gross 10 hour H. P., 6 days per week, at lowest water.
. . .	" "	"	Normal	856.6	32.0	3,000′	3,114.0	Anderson	
None	Upson County	Dripping Rock	Flush	1,674.1	14.0	2,900′	. . .	"	
"	" "	Yellow Jacket Shoals . . .	Normal	1,216.2	36.6	3,400′	. . .	. . . .	Water too high for measurement.
"	" "	Snipe's Shoals	Flush	2,607.6	7.0	1,800′	. . .	Anderson	
	BIG POTATO CREEK								
None	Upson County	Rogers' Shoals	LowWat'r	103.3	81.0	3,500′	951.0	"	
30 H.P.	" "	Nelson's Shoals	0.0	110.0	115.0	2,700′	1,437.0	"	1st drop is 60 ft, in a distance of 500 ft., making 750 gross H. P.
30 "	" "	Daniel's Mill	"	110.0	13.0	150′	162.0	"	
	CHATTAHOOCHEE CO.								
. . .	Oswitchee Creek . . .	Romney's Mill	Low Sp'g	21.0	18.0	. . .	42.0	Locke	
. . .	Woolfolk's Branch . . .	Woolfolk's	"	1.0	65.0	. . .	7.0	"	
	CLAY COUNTY								
. . .	Chemochechobee Creek	Weaver's Mill	"	60.0	30.0	. . .	204.0	Barrow	
. . .	Pataula Creek	Rapids	"	240.0	22.0	. . .	600.0	"	

APALACHICOLA BASIN —— WATER-POWERS — *Continued*

Utilized Net H.P.	LOCATION OF WATER-POWER	POINT OF SECTION	Stage of Water	Cubic Feet per Second	Fall in Feet	Length of Shoal	Gross H. P.[1]	Source of Information	REMARKS
	DECATUR COUNTY								
. . .	Limesink Creek	Limesink	Low Spr'g	2.0	105.0	. . .	23.0	Locke	Creek disappears.
. . .	Barnett's Creek	Lot 367	"	23.0	10.0	. . .	26.0	"	Flow affected by mills above.
. . .	Attapulgas Creek . . .	Thomasville Road	"	18.0	. .	. . .	. . .	"	
. . .	Sanburn's Creek . . .	Attapulgas Road	"	8.0	. .	. . .	. . .	"	
	EARLY COUNTY								
. . .	Harrod's Creek	Early Factory	"	20.0	35.0	. . .	80.0	"	
. . .	Colomochee Creek . . .	Early Road	"	70.0	12.0	. . .	95.0	"	
	QUITMAN COUNTY								
. . .	Hoclarnee Creek . . .	Near Mouth	LowWat'r	6.0	10.0	. . .	7.0	"	
. . .	Tobehannee Creek . . .	" Georgetown	"	10.0	10.0	. . .	11.0	"	
	RANDOLPH COUNTY								
. . .	Roaring Branch	Five miles from Fort Gaines	"	4.0	30.0	. . .	14.0	"	
. . .	Wakefortsee Creek . .	Near Chemochechobee . .	"	5.0	10.0	. . .	5.0	"	
	STEWART COUNTY								
. . .	Wimberly's Branch . .	Gaines & Freeman's Mill .	"	8.8	12.0	. . .	12.0	"	
. . .	Hodchodkee Creek . .	Scott's Mill	"	12.0	10.0	. . .	14.0	"	

Many important water-powers are omitted in the Apalachicola Basin for want of data. The foregoing is the best, that can be done, until more surveys are made. Investigation is especially needed on the Flint River and its upper tributaries.

[1] Net H. P.=80 per cent. of Gross H. P

APALACHICOLA BASIN —— UTILIZED POWER

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total Fall Used, in Feet	Total Net H.P.Used	REMARKS
Chattahoochee River	Muscogee	Cotton Factories	3	43	2,000	
" "	"	Flour and Grist	1	8	100	
" "	Harris	" " "	1	8	50	
" "	"	Cotton Factory	1	8	160	
" "	Troup	" "	1	9	130	
" "	Hall	Building Material	1	9	30	
" "	"	Flour and Grist	1	9	60	
" "	Cobb	" " "	1	11	10	
Trib'r's of Chat'h'chee River	Early	" " "	6	56	72	
" " "	"	Sawmill	1	....	25	
" " "	Clay	"	3	29	60	
" " "	"	Cotton Gin	1	8	6	
" " "	"	Flour and Grist	6	58	77	
" " "	Quitman	" " "	4	49	96	
" " "	"	Sawmill	2	24	63	
" " "	Randolph	Flour and Grist	1	9	8	
" " "	Stewart	" " "	8	83	192	
" " "	"	Sawmill	2	20	22	
" " "	Chattahoochee	"	1	10	15	
" " "	"	Flour and Grist	6	57	75	
" " "	Muscogee	" " "	4	73	213	
" " "	Marion	" " "	1	6	12	
" " "	"	Cotton Gin	1	8	21	
" " "	"	Sawmill	1	8	30	
" " "	Harris	"	1	12	10	
" " "	"	Flour and Grist	13	235	398	
" " "	Talbot	" " "	2	36	47	
" " "	"	Sawmill	2	36	43	
" " "	Troup	"	4	57	65	
" " "	"	Tannery	1	22	8	
" " "	"	Flour and Grist	22	223	506	
" " "	"	Cotton	1	20	60	

APALACHICOLA BASIN —— UTILIZED POWER — *Continued*

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total Fall Used, in Feet	Total Net H.P.Used	REMARKS
Trib'r's of Chat'h'chee River	Meriwether	Flour and Grist	1	30	11	
" " "	Heard	" " "	8	91	101	
" " "	"	Sawmill	3	124	125	
" " "	Carroll	Cotton	1	30	120	
" " "	"	Flour and Grist	12	277	160	
" " "	"	Sawmill	3	58	26	
" " "	Coweta	Cotton	1	. . . .	60	
" " "	"	Flour and Grist	14	275	226	
" " "	Campbell	" " "	7	124	130	
" " "	Douglas	Cotton Gin	1	11	20	
" " "	"	Flour and Grist	13	202	119	
" " "	"	Sawmill	6	136	82	
" " "	"	Tannery	1	60	10	
" " "	"	Cotton	1	. . . .	60	
" " "	"	Woolen-mill	1	14	9	
" " "	Paulding	Flour and Grist	2	13	60	
" " "	"	Sawmill	1	20	8	
" " "	Cobb	Cotton	3	67	375	
" " "	"	Woolen-mill	2	40	85	
" " "	"	Cotton Gins	9	135	111	
" " "	"	Flour and Grist	23	368	454	
" " "	"	Paper-mill	1	22	75	
" " "	"	Sawmill	5	45	69	
" " "	Fulton	"	3	30	31	
" " "	"	Cotton Gins	3	20	22	
" " "	"	Flour and Grist	8	157	106	
" " "	DeKalb	" " "	7	120	119	
" " "	"	Furniture	2	47	25	
" " "	"	Tannery	1	15	10	
" " "	"	Sawmill	2	24	40	
" " "	Gwinnett	"	4	47	44	
" " "	"	Flour and Grist	9	116	98	

"	"	"	Forsyth	" "	8	154	137	
"	"	"	"	Sawmill	4	54	36	
"	"	"	Hall	"	4	45	90	
"	"	"	"	Carriages and Wagons	1	22	15	
"	"	"	"	Flour and Grist	11	151	175	
"	"	"	Milton	" "	4	68	82	
"	"	"	"	Sawmill	2	28	32	
"	"	"	Lumpkin	"	7	141	75	
"	"	"	"	Flour and Grist	10	183	134	
"	"	"	"	Tannery	1	20	4	
"	"	"	"	Gold Mills	3	35	700 [1]	Chestatee River.
"	"	"	"	" "	3	40	280 [1]	Yahoola Creek.
"	"	"	"	" "	1	16	40 [1]	Cane Creek.
"	"	"	"	Hydraulic Mining		300	600 [1]	Yahoola Ditch.
"	"	"	Habersham	Flour and Grist	1	14	10	
"	"	"	"	Leather	1	16	6	
"	"	"	"	Woolen-mill	1	20	12	
"	"	"	White	Flour and Grist	1	10	15	
Flint River			Campbell	" "	1	14	28	
"	"		Clayton	" "	5	90	44	
"	"		Fayette	" "	1	13	12	
Tributaries of Flint River			Campbell	" "	3	70	50	
"	"	"	Clayton	" "	8	148	136	
"	"	"	"	Sawmill	1	22	15	
"	"	"	Henry	Flour and Grist	1	18	15	
"	"	"	Spalding	" "	2	13	40	
"	"	"	Fayette	" "	5	46	109	
"	"	"	Coweta	" "	4	71	88	
"	"	"	"	Sawmill	1	5	12	
"	"	"	"	Tannery	1	30	16	
"	"	"	Meriwether	Flour and Grist	11	171	138	
"	"	"	"	Sawmill	1	16	15	
"	"	"	Pike	Wheelwrighting	1	8	12	
"	"	"	"	Flour and Grist	11	154	276	
"	"	"	Crawford	" "	3	25	43	
"	"	"	Upson	" "	15	191	373	
"	"	"	"	Cotton	2	29	115	

[1] Power estimated by B. M. Hall.

APALACHICOLA BASIN —— UTILIZED POWER — *Continued*

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total Fall Used, in Feet.	Total Net H.P. Used	REMARKS
Tributaries of Flint River	Upson	Sawmill	5	72	102	
" " "	"	Tannery	1	10	5	
" " "	Talbot	Flouring and Grist	9	214	169	
" " "	Taylor	Cotton	1	12	40	
" " "	Marion	Sawmill	1	12	20	
" " "	"	Flouring and Grist	4	33	52	
" " "	Taylor	" "	10	84	129	
" " "	"	Sawmill	6	58	95	
" " "	Schley	Flouring and Grist	6	53	70	
" " "	Macon	" "	5	51	102	
" " "	"	Sawmill	1	8	30	
" " "	Dooley	"	2	14	15	
" " "	"	Flouring and Grist	2	8	30	
" " "	Sumter	" "	7	51	99	
" " "	Lee	" "	4	22	41	
" " "	Webster	" "	8	66	107	
" " "	"	Sawmill	3	28	33	
" " "	Randolph	Flouring and Grist	6	69	84	
" " "	Terrell	Sawmill	2	11	30	
" " "	"	Flouring and Grist	2	14	15	
" " "	Calhoun	" "	3	10	50	
" " "	"	Sawmill	1	6	12	
" " "	Dougherty	Flouring and Grist	1	12	40	
" " "	"	Sawmill	1	. . . .	20	
" " "	Worth	"	1	10	20	
" " "	"	Flouring and Grist	3	25	23	
" " "	Early	Cotton	1	40	45	
" " "	"	Flouring and Grist	5	57	62	
" " "	"	Sawmill	1	9	10	
" " "	Miller	"	1	8	12	
" " "	"	Flouring and Grist	1	8	40	
" " "	Baker	" "	3	14	45	
" " "	Decatur	" "	1	5	8	

BEAN CREEK FALLS, NEAR NACOOCHEE VALLEY, WHITE COUNTY, GEORGIA.

Ocmulgee River

STREAM	TRIBUTARY TO	COUNTY	REMARKS
Ocmulgee River	Altamaha River		
Mossy Creek	Indian Creek	Houston	Cotton factory; 12 ft. fall; estimated 120 H. P. (U. S. Census)
Indian Creek	Ocmulgee River	"	
Stone Creek	" "	Bibb	8 miles from Macon; 8 cu. ft. per sec.; 12 ft. fall, low water. (Locke)
Echaconnee Creek	" "	Monroe and Crawford	Has several grist and sawmills. (U. S. Census)
Snake Creek	" "	Twiggs and Bibb	
Tobesofkee Creek	" "	Bibb, Monroe and Crawford	Freeman's Mill; 70 cu. ft. per sec.; 20 ft. fall, normal water. (Locke)
Walnut Creek	" "	Jones and Bibb	Macon; 5 cu. ft. per sec.; 10 ft. fall, low water. (Locke)
Falling Creek	" "	Jones	
Rum Creek	" "	Monroe	
Towaliga River	" "	Henry, Butts and Monroe	High Falls; see Power Table. Has other shoals above, and Willis Shoals nearer mouth; 10 ft. fall.
South Towaliga River	Towaliga River	Monroe	Has two mills; one of them has 27 ft. head. (10th U. S. Census)
Towaliga Creek	" "	Henry	
Tussahaw Creek	Ocmulgee River	Henry and Butts	
Alcovy River	" "	Newton and Walton	
Cornish Creek	Alcovy River	Walton	
Big Flat Creek	" "	"	
Bear Creek	" "	Newton	
South River	Ocmulgee River		
Wildcat Creek	South River	Newton	
Sheel Creek	" "	"	
Walnut Creek	" "	Henry	
Cotton River	" "	"	Has several mills and sites, and is a good stream in dry weather. (10th U. S. Census)

ALTAMAHA BASIN —— IMPORTANT STREAMS — *Continued*

STREAM	TRIBUTARY TO	COUNTY	REMARKS
Snap Finger Creek	South River	DeKalb	At Mitchell's mill, 20 cu. ft. per sec.; low water. (Frobel)
Pole Bridge Creek	" "	Rockdale	14.6 cu. ft. per sec.; extreme low water. (Frobel)
Honey Creek	" "	"	14.3 cu. ft. per sec.; extreme low water. (Frobel)
Yellow River	Ocmulgee River	Newton, Rockdale, Gwinnett	Six miles above Rockdale Paper Mill is Baker's Mill, with 9 or 10 ft. fall, and four grist-mills above it. (10th U. S. Census)
Big Haynes Creek	Yellow River	" " "	Principal tributary of Yellow River. Has many available powers, and is a fine steam in all respects. (10th U. S. Census)
Little Haynes Creek	Big Haynes Creek		
OCONEE RIVER			
Oconee River	Altamaha River		
Big Sandy Creek	Oconee River	Wilkinson and Twiggs	Drainage area, 284 sq. miles. Myrick's mill, 8 ft. fall. (Locke)
Commissioners Creek	" "	Jones and Wilkinson	Drainage area, 196 sq. miles.
Buffalo Creek	" "	Washington	Drainage area, 286 sq. miles.
Palmetto Creek	" "		Drainage area, 375 sq. miles.
Little River	" "	Morgan and Putnam	Falls 62 ft. on five shoals in 12 miles. The largest single shoal is at Old Factory in Putnam county, 25 ft. in 900 ft.
Cedar Creek	Little River	Jasper, Jones and Baldwin	
Murder Creek	" "	Jasper and Putnam	Three miles from mouth; 18 ft. fall in 600 ft.
Indian Creek	" "	Morgan and Putnam	
Crooked Creek	Oconee River	Putnam	
Shoulderbone Creek	" "	Hancock	
Sugar Creek	" "	Morgan	
Apalachee River	" "	Gwinnett, Walton, Oconee and Morgan	No surveys of the good powers of this river in Gwinnett and Walton counties have been made.
Hardlabor Creek	Apalachee River	Morgan	Has a shoal 3 miles from its mouth; 10 ft. fall.
Sandy Creek	Hardlabor Creek	"	Has a shoal 2 miles long, 8 miles from Madison.

Shoal Creek	Apalachee River	Walton	
Middle Oconee River	Oconee River	Clarke, Jackson and Hall	
Barber's Creek	Mid. Oconee River	Oconee and Clarke	20 ft. in 900 ft.; 24 ft. in 180 ft.; and 20 ft. in 600 ft.; all in 3 miles, near mouth; 20 ft. utilized for paper-mill.
Mulberry Fork	Mid. Oconee River	Jackson	Good stream for power. No surveys.
North Oconee River	Oconee River	Clarke, Jackson and Hall	
Big Sandy Creek	North Oconee River	Jackson and Clarke	
Walnut Fork	" " "	Hall	Harrington's Ford, 15.5 cu. ft. per sec.; 20 ft. fall. (Barrow)
Allen's Fork	" " "	"	County line; 22.5 cu. ft. per sec.; 10 ft. fall. (Barrow)
Pond Fork	" " "	"	Mangum's mill; 10.5 cu. ft. per sec.; 9 ft. fall. (Barrow)
Curry's Creek	" " "	Jackson	Near Jefferson; 8 cu. ft. per. sec.; 18 ft. fall. (Barrow)

ALTAMAHA BASIN —— WATER-POWERS

Ocmulgee River

Utilized Power	LOCATION OF POWER	POINT OF SECTION	Stage of Water	Cubic Feet per Second	Fall in Feet	Length of Shoal in Feet	Gross H. P.[1]	Source of Information	REMARKS
	YELLOW RIVER								
. . .	Gwinnett County . . .	Fain's Mill	Low Spr.	10.0	20.0	. . .	136	Barrow & Locke	
. . .	" " . . .	Steadman's Mill	"	64.0	30.0	. . .	218	"	
. . .	Rockdale County . . .	Rockdale Paper-mill . . .	Normal	266.6	46.0	3,365	1,394	B. M. Hall	
. . .	" " . . .	Glenn Shoal	"	283.3	12.0	. . .	386	10th U. S Census	Volume estimated.
. . .	Newton County	Bridge Shoal	. . . .	500.0	4.4	. . .	250	Frobel, U.S.A.E.	Volume from C. C. Anderson.
. . .	" "	Cedar Shoals	. . . .	515.4	55.0	2,700	3,221	Anderson	Porterdale Factory, 3 m. from Covington.
. . .	" "	Dried Indian Shoal . . .	. . . .	515.4	7.0	1,500	410	Frobel	
8 H. P.	" "	Indian Fishery	LowWat'r	. . .	12.7	525	764	Anderson	Cotton Gin.
	SOUTH RIVER								
Utilized	DeKalb County	Flat Shoals	"	74.0	24.0	. . .	202	Frobel	Cotton Factory of the Oglethorpe Mfg. Co.
. . .	" "	Albert Shoal	"	. . .	18.0	. . .	. . .	10th U.S. Census	Not utilized.
Utilized	Henry County	McKnight's Mill	"	93.0	12.0	. . .	126	Frobel	12 ft. head utilized ; 20 ft. head available.
. . .	" "	Peachstone Shoal	"	120.0	12.0	. . .	163	"	
135 H. P.	Newton County	Snapping Shoal	Flush	617.1	20.0	775	. . .	Anderson	28 ft. fall in 1,500 ft. (C. C. Anderson)
40 H. P.	" "	Island Shoal	LowWat'r	475.0	16.0	750	863	"	
None	" "	Mann's Bridge	"	488.3	10.0	3,000	555	"	

[1] Net H. P. = 80% of gross H. P.

	ALCOVY RIVER							
30 H. P.	Newton County	White & Garner's Shoals .	Low Water	55.0	85.0	3,800	531	U. S. C.	L. W. vol. = 55 cu. ft. per sec. (10th U. S. Census)
	TOWALIGA RIVER		Flush	416.6	85.0	3,800	4,024	Anderson	Newt'n Fc'y. Burnt during the war.
30 H. P.	Monroe County	High Falls	LowWat'r	138.1	96.8	1,200	1,520	Anderson	Utilized in grist-mill.
	OCMULGEE RIVER								
None	Newton County	Barnes' Shoals	"	1,015.0	14.0	1,300	1,614	"	At junction of South and Yellow Rivers.
20 H. P.	Butts County	Key's Ferry	"	1,386.6	7.5	1,900	1,172	"	
None	" "	Harper or Pitman Shoal .	"	1,476.6	28.0	5,500	4,698	"	
"	" "	Pitman Ferry	"	1,476.6	6.0	1,650	1,006	"	Below ferry.
20 H. P.	" "	Roach's or Cargle's Shoals	"	2,116.6	6.4	3,350	1,539	"	At Smith's ferry.
Small Mill	" "	Lamar's Shoals	"	2,116.6	18.0	1,000	4,328	"	
50 H. P.	Monroe County	Glover's	"	2,116.6	16.0	4,000	3,848	"	
None	" "	Dames	"	2,116.6	6.0	1,500	1,443	"	
"	" "	Long or Carden's Shoals .	"	2,116.6	9.0	4,500	2,164	"	
"	Bibb County	Holton	"	2,125.0	6.0	3,960	1,449	"	
"	" "	Macon	"	2,156.0	. .	. . .	. . .	"	
"	" "	Proposed Macon Canal . .	"	2,116.6	40.0	10 m.	9,621	"	Fall and dist. taken from 10th U. S. Cen.
	NORTH OCONEE RIVER								
32 H. P.	Jackson County	Hurricane Shoal	"	76.1	30.0	600	237	"	
. . .	" "	Tumbling Shoal	"	126.0	8.0	600	113	"	
200 H. P.	Clarke County	Athens Factory	"	331.9	12.0	. . .	. . .	. . . .	At Athens.
200 "	" "	Georgia Factory	"	. . .	21.0	2,100	704	Anderson	Near junction of rivers.
. . .	Hall County	Carnesville and Gainesville Road	. . . .	31.5	10.0	. . .	34	Barrow	
	MIDDLE OCONEE RIVER								
None	Jackson County	Tallassee Bridge	LowWat'r	241.3	32.0	3,600	999	Anderson	Total fall said to be 58 ft. in less than a mile.
. . .	Clarke County	Mc'Elroy's Mill	"	241.3	23.0	2,600	718	"	
60 H. P.	" "	Princeton Factory	"	290.6	15.0	Dam	495	"	

ALTAMAHA BASIN —— WATER-POWERS — *Continued*

Utilized Power	LOCATION OF POWER	POINT OF SECTION	Stage of Water	Cubic Feet per Second	Fall in Feet	Length of Shoal, in Feet	Gross H. P.[1]	Source of Information	REMARKS
	APALACHEE RIVER								
. . .	Oconee County	Just above High Shoals .	. . . .	. . .	20.0	. . .	. . .	U. S. Cen.	
150 H. P.	" "	High Shoals	Normal	139.6	50.0	600	792	Anderson	
30 H. P.	" "	Price's Mill	"	139.6	19.0	900	301	"	
. . .	Morgan County	Furlow's Shoals	LowWat'r	47.0	26.0	4,200	139	U. S. Cen.	8′ at mill, and 18′ above.
. . .	" "	Reid's Mill	"	76.0	8.0	. . .	69	"	
	OCONEE RIVER								
150 H. P.	Oconee County	Barnett's Shoal	"	624.1	54.0	4,000	3,830	Anderson	5 miles below junction of Middle and North Oconee rivers.
. . .	Morgan County	Scull's Shoal	. . . .	. . .	10.0	Dam	. . .	10th U.S. Census	Powell Mfg. Co.'s dam backs water 2 miles.
. . .	" "	Park's Mill	. . . .	. . .	8.0	"	. . .	"	Grist-mill.
. . .	Intervening two Shoals .	. . . . .	. . . .	. . .	7.0	. . .	. . .	"	
. . .	Putnam County	Long Shoal	. . . .	533.3	12.0	1,300	726	"	Old factory site, not in use. Head can be made 15 or 20 feet by dam.
. . .	Intervening six Shoals .	. . . . .	. . . .	. . .	33.0	. . .	. . .	. . . .	
. . .	Baldwin County	Milledgeville	. . . .	740.0	34.0	5 or 6 m.	2,859	10th U.S. Census	Canal proposed.
. . .	Hall County	Six miles from Gainesville	. . . .	30.0	39.0	. . .	133	Anderson	Head-waters.
	LITTLE RIVER								
. . .	Putnam County	Site of old Eatonton Fact'ry	LowWat'r	45.0	25.0	900	127	10th U.S. Census	Volume estimated. No utilized power.
. . .	" "	Grist Mill	"	. . .	8.0	. . .	. . .	"	
. . .	" "	" "	"	. . .	13.5	. . .	. . .	"	
. . .	" "	Pierson's Mill	"	. . .	7.0	. . .	. . .	"	
. . .	" "	Humber's Mill	"	108.0	9.0	. . .	110	"	Volume estimated.

[1] Net H. P. = 80 per cent. of gross H. P.

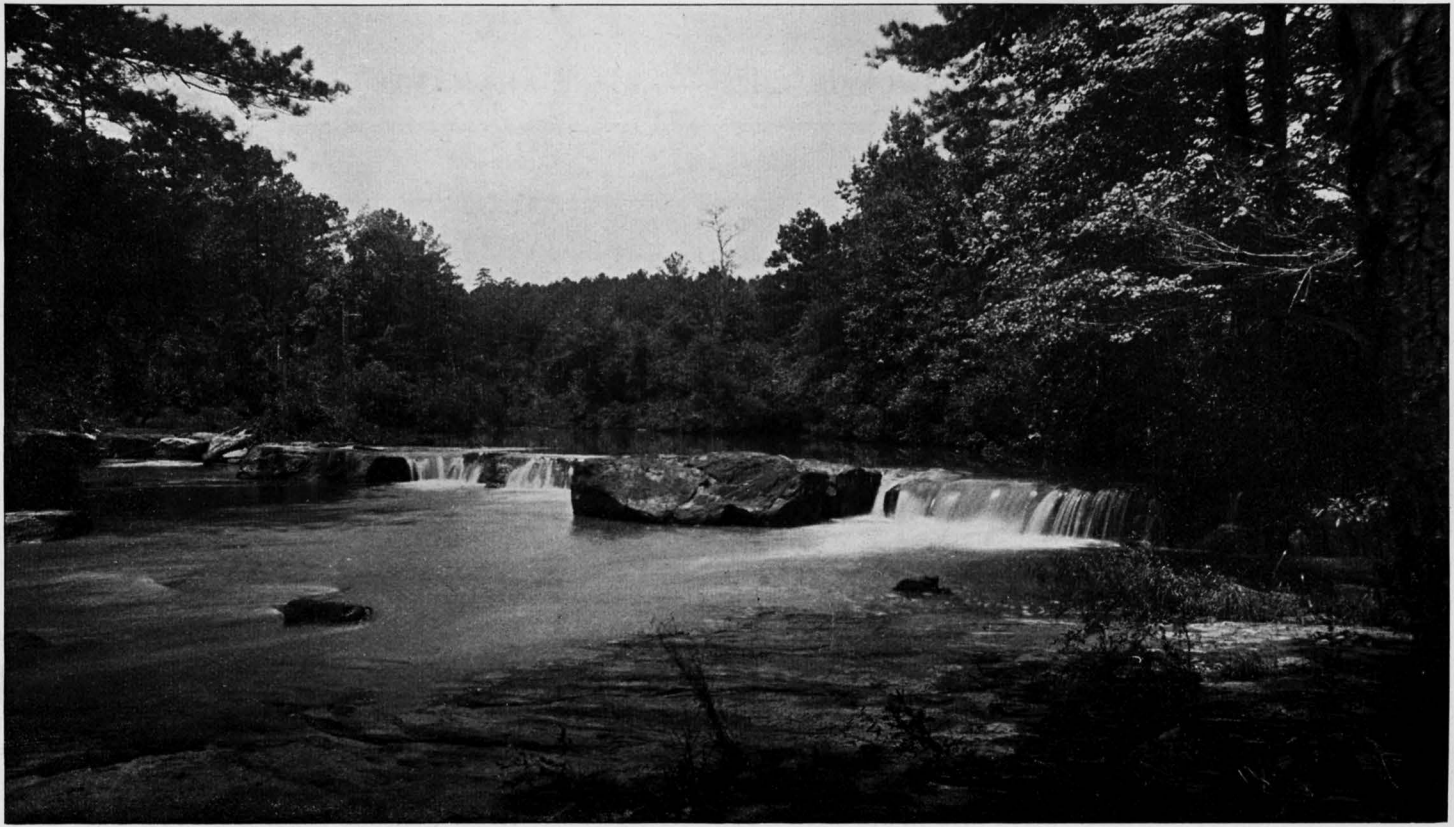
NOTE. — The foregoing is a very imperfect statement, concerning the water-powers of the Altamaha Basin; but it is the best that can be done with the data at hand.

ALTAMAHA BASIN — UTILIZED POWER

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total Fall Used, in Feet.	Total Net H.P. Used	REMARKS
Tributaries to Altamaha R.	Tattnall	Flour and Grist	3	. . . .	62	
" "	"	Sawmill	2	21	55	
" "	Johnson	Flour and Grist	2	15	24	
Oconee River	Baldwin	" " "	2	12	70	
" "	Putnam	" " "	2	15	70	
" "	Greene	Cotton Factory	1	10	. . . .	
" "	"	Flour and Grist	3	26	104	
" "	Clarke	" " "	1	8	6	
Little River	Putnam	" " "	4	32	165	
" "	"	Sawmill	1	7	20	
" "	Morgan	Flour and Grist	2	22	25	
" "	Newton	" " "	2	47	30	
" "	"	Cotton Gin	1	25	15	
" "	Walton	Flour and Grist	1	40	45	
Apalachee River	Morgan	" " "	1	20	20	
" "	Walton	Cotton Factory	1	20	100	
" "	"	Flour and Grist	5	42	124	
" "	Gwinnett	" " "	1	22	10	
Other Tributaries of Oconee River	Laurens	" " "	3	34	50	
" "	"	Sawmill	2	22	50	
" "	Johnson	Flour and Grist	2	16	23	
" "	Twiggs	" " "	3	. . . .	63	
" "	"	Sawmill	1	6	20	
" "	Washington	Flour and Grist	3	. . . .	58	
" "	Wilkinson	" " "	12	69	140	
" "	"	Sawmill	8	4	102	
" "	"	Agricultural Implements	1	3	4	
" "	Hancock	Flour and Grist	6	94	95	
" "	Jones	" " "	4	60	98	
" "	Baldwin	" " "	3	37	60	
" "	Jasper	" " "	2	30	32	

ALTAMAHA BASIN — UTILIZED POWER — *Continued*

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total Fall Used, in Feet	Total Net H.P. Used	REMARKS
Other Tributaries of Oconee River	Putnam	Flour and Grist	6	73	178	
" "	"	Sawmill	1	8	25	
" "	Morgan	Flour and Grist	7	. . . .	90	
" "	Walton	" " "	6	91	122	
" "	Greene	" " "	1	16	50	
" "	"	Sawmill	1	23	32	
" "	"	Cotton Gin	2	41	11	
" "	Oconee	Flour and Grist	1	22	30	
" "	Oglethorpe	" " "	2	56	30	
" "	"	Sawmill	4	128	190	
" "	Gwinnett	Woolen-mill	1	16	12	
North Oconee River	Clarke	Cotton Factory	2	32	330	
Middle Oconee River	"	" "	1	20	100	
North and Middle Oconee and Tributaries	"	Sawmill	1	12	10	
" "	"	Paper-mill	1	16	75	
" "	"	Flour and Grist	4	52	82	
" "	Gwinnett	" " "	1	32	26	
" "	"	Sawmill	1	12	12	
" "	Madison	Flour and Grist	2	29	13	
" "	Hall	" " "	11	170	130	
" "	"	Sawmill	1	16	15	
" "	Jackson	"	8	146	141	
" "	"	Flour and Grist	13	201	187	
" "	"	Cotton Gin	5	82	70	
" "	"	Leather	1	30	10	
" "	"	Woolen-mill	1	8	6	
Ocmulgee River	Monroe	Flour and Grist	1	12	. . . .	
" "	Jones	" " "	1	12	. . . .	
" "	Butts	" " "	4	48	103	
" "	"	Sawmill	1	12	40	



THE NATURAL DAM, BIG POTATO CREEK, NEAR THOMASTON, UPSON COUNTY, GEORGIA.

Ocmulgee River	Jasper	Woolen-mill	1	12	6	
" "	Henry	Flour and Grist	2	34	14	
Tributaries of Ocmulgee R.	Wilcox	" " "	1	6	4	
" "	Wilcox	Sawmill	1	6	24	
" "	Dodge	Flour and Grist	1	. . . .	10	
" "	Pulaski	" " "	5	45	46	
" "	"	Woolen-mill	1	9	4	
" "	"	Sawmill	1	9	15	
" "	Houston	"	3	25	46	
" "	"	Flour and Grist	10	. . . .	186	
" "	"	Cotton Factory	1	12	60	
" "	Twiggs	Flour and Grist	1	8	11	
" "	Crawford	" " "	3	36	90	
" "	Bibb	" " "	1	9	20	
" "	"	Sawmill	1	9	30	
" "	"	Cotton Gin	1	13	8	
Towaliga River	Monroe	" "	1	9	12	
" "	"	Sawmill	1	11	15	
" "	"	Flour and Grist	3	39	76	
" "	"	Wool Carder	1	5	4	
" "	Henry	Flour and Grist	2	100	120	
" "	"	Sawmill	2	30	36	
Alcovy River	Newton	Cotton Gin	1	6	20	
" "	"	Flour and Grist	2	30	40	
" "	"	Sawmill	1	19	15	
" "	Walton	Flour and Grist	2	66	18	
" "	Gwinnett	" " "	3	34	54	
" "	"	Wheelwright	1	14	5	
Yellow River	Newton	Cotton Factory	1	16	76	
" "	"	Paper-mill	1	20	60	
" "	"	Flour and Grist	1	21	25	
" "	"	Sawmill	2	. . . .	80	
" "	Rockdale	Flour and Grist	2	24	70	
" "	"	Sawmill	1	14	10	
" "	Rockdale	Cotton Gin	1	14	10	
" "	"	Furniture	1	14	10	
" "	"	Paper-mill	1	18	90	Rockdale Paper-mill.
" "	DeKalb	Flour and Grist	1	7	15	
" "	"	Cotton Gin	1	7	6	

ALTAMAHA BASIN — UTILIZED POWER — *Continued*

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total Fall Used, in Feet	Total Net H.P. Used	REMARKS
Yellow River	Gwinnett	Flour and Grist	6	66	126	
" "	"	Furniture	1	8	10	
" "	"	Sawmill	1	14	15	
South River	DeKalb	Cotton Factory	1	23	. . . .	
" "	Henry	Flour and Grist	1	8	20	
" "	"	Agricultural Implements	1	9	3	
" "	"	Furniture	1	9	3	
" "	"	Sawmill	1	9	20	
" "	Newton	"	1	30	10	
" "	"	Flour and Grist	1	30	25	
" "	Rockdale	" " "	2	24	39	
" "	"	Cotton Gin	1	16	4	
" "	"	Furniture	1	9	6	
" "	DeKalb	Flour and Grist	2	35	65	
" "	"	Sawmill	1	10	15	
" "	"	Cotton Gin	1	10	12	
" "	"	Furniture	1	10	5	
" "	Fulton	Sawmill	1	22	9	
" "	"	Flour and Grist	2	34	24	
Other Trib's of Ocmulgee R.	Pike	" " "	2	74	55	
" "	Monroe	" " "	11	157	148	
" "	"	Sawmill	1	11	9	
" "	"	Cotton Gin	1	11	5	
" "	Henry	Flour and Grist	3	78	38	
" "	"	Sawmill	2	33	23	
" "	Butts	Flour and Grist	4	52	45	
Tributaries of South River	Henry	" " "	3	119	26	
" "	"	Sawmill	1	10	10	
" "	"	Woolen-mill	1	. . . .	5	
" "	Clayton	Flour and Grist	2	36	33	
" "	Rockdale	" " "	3	62	48	
" "	"	Sawmill	1	18	6	

"	"	Rockdale	Cotton Gin	2	31	22
"	"	"	Leather	1	8	4
"	"	Newton	Flour and Grist	1	30	12
"	"	DeKalb	" " "	10	180	128
"	"	"	Sawmill	3	44	30
"	"	"	Cotton Gin	6	108	54
"	"	"	Paper-mill	3	99	152
"	"	Newton	Leather	1	15	20
"	"	"	Cotton Gin	1	15	15
Tributaries of Yellow River		"	Flour and Grist	2	37	18
"	"	"	Cotton Gin	1	12	8
"	"	Rockdale	Flour and Grist	3	70	73
"	"	"	Sawmill	1	. . . .	13
"	"	Walton	"	1	15	8
"	"	"	Flour and Grist	3	35	22
"	"	Gwinnett	" " "	2	51	10
"	"	DeKalb	" " "	2	26	25
"	"	"	Sawmill	2	55	20
"	"	"	Cotton Gin	2	32	33
"	"	"	Furniture	1	15	3
Tributaries of Alcovy River		Walton	Flour and Grist	1	18	8
"	"	Gwinnett	" " "	2	54	32
"	"	"	Cotton Gin	1	15	5
"	"	"	Sawmill	1	18	20

THE OGEECHEE BASIN

The greater part of this drainage basin lies below the fall-line, and, as only that part, which lies above the fall-line, has much importance for water-power, this is the smallest and least important of the six basins, considered from the standpoint of water-power. The first power, in going up the Ogeechee river, is at the fall-line, and is known as the *Shoals of the Ogeechee*. They are above the mouth of Little Ogeechee, 8½ miles from Mayfield, the nearest railroad station. Part of the power is utilized by a grist- and saw-mill. The entire fall of the shoal is 21 feet; but the mill utilizes only about 18 feet, and about 40 net, 12-hour horse-power. The low season volume is estimated at 40 cubic-feet per second. With the fall, head and storage, 200 gross, 12-hour horse-power is available. *The Jewell Cotton Factory*, 4½ miles from Mayfield, is the next power. For eight months in the year, 150 net, 12-hour horse-power is utilized with storage. During the other four months, it is sometimes necessary to use auxiliary steam-power to the extent of 125 horse-power.

Nearly all the power on this basin being utilized, the following tabulated statement from the 10th U. S. Census is given, as the best showing, that can be made. It is the only data available.

OGEECHEE BASIN —— UTILIZED POWER

STREAM	COUNTY	KIND OF MILL	No. of Mills	Fall Used, in Feet	Total Net H. P. Used	REMARKS
Ogeechee River	Warren	Flour and Grist-mill	2	20.0	30	
" "	Hancock	" " "	2	13.0	40	
" "	"	Woolen Mill (Carder)	1	....	8	
" "	Warren	Cotton Factory	1	16.0	150	
" "	Taliaferro	Flour and Grist-mill	1	22.0	15	
Tributaries to Ogeechee River	Liberty	" " "	1	9.0	20	
" "	"	Sawmill	2	....	27	
" "	Bulloch	Flour and Grist-mill	5	36.0	20	
" "	"	Sawmills	2	17.5	24	
" "	Screven	Flour and Grist-mill	1	10.0	8	
" "	"	Sawmill	1	10.0	12	
" "	Burke	Flour and Grist-mill	9	75.0	117	
" "	Jefferson	" " "	9	82.0	189	
" "	Washington	" " "	1	21.0	33	
" "	Glascock	" " "	4	60.0	54	
" "	"	Sawmill	2	23.0	27	
" "	Hancock	Flour and Grist-mill	2	42.0	30	
" "	Warren	" " "	1	9.0	12	

SAVANNAH BASIN — IMPORTANT STREAMS

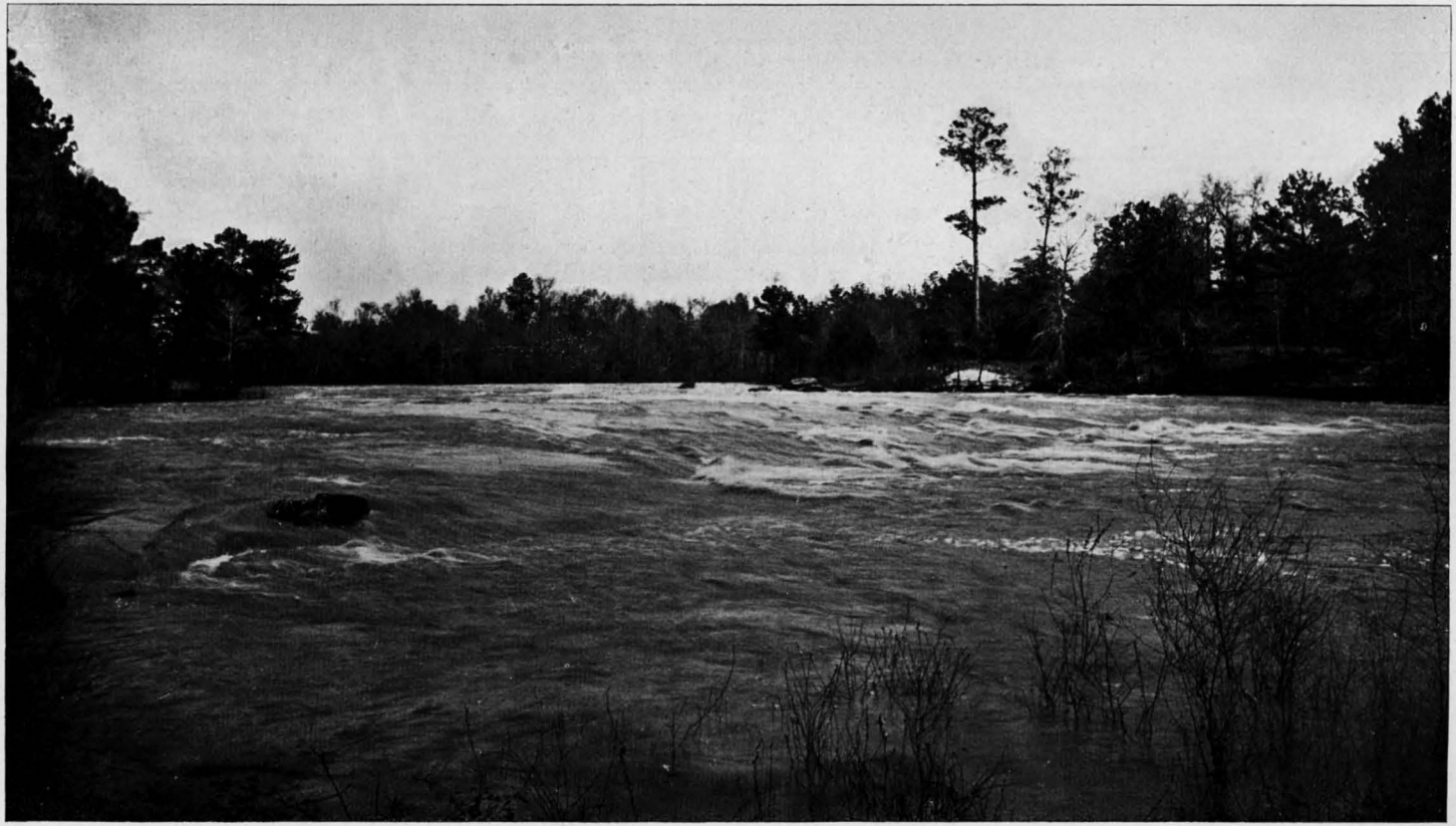
STREAM	TRIBUTARY TO	COUNTY	REMARKS
Savannah River	Atlantic Ocean		
Beaverdam Creek	Savannah River	Screven	Jacksonboro, 87.3 cu. ft. per sec.; 7 ft. fall. (Barrow)
Briar Creek	" "	"	Mill Haven, 565.5 cu. ft. per sec.; 10 ft. fall. (Barrow)
Rocky Creek	" "	"	Wade's Mill, 12 cu. ft. per sec.; 5 ft. fall. (Barrow)
Spirit Creek	" "	Richmond	12 cu. ft. per sec.; 8 ft. fall. (Barrow) Little Spring Cr. at mouth.
Butler's Creek	" "	"	
Rock Creek	" "	"	
Bottie's Creek	" "	Columbia	
Kiokee Creek	" "	"	Near Appling, 30 cu. ft. per sec.; 10 ft. fall, low water. (Barrow)
Keg Creek	" "	"	
Little River	" "	McDuffie	Power at Mrs. J. Belknap Smith's, 47 cu. ft. per sec.; 8 ft. fall; 218 H. P. utilized by six mills on river.
Sweetwater Creek	" "	"	Cotton card factory; 21 ft. head; 36 gross H. P. (Barrow)
Soap Creek	" "	Lincoln	
Fishing Creek	" "	" and Wilkes	
Pistol Creek	" "	" "	
Broad River	" "	Franklin, Madison, Oglethorpe etc.	Franklin Co., Toccoa and Carnesville Road, 50 cu. ft. per sec.; low spring. (Barrow)
Long Creek	Broad River	Oglethorpe	4 m. from Lexington, 7.2 cu. ft. per sec.; 10 ft. fall. (Barrow)
S. Fork, Broad River	" "	"	At Eberhart's Mill, 80 ft. fall in 1 m. (U. S. Cens.)
Groves Creek	S. Fork, Broad River	"	At Watson's Mill, 30 ft. fall in 1 m. (U. S. Cens.)
Cloud's Creek	" "	"	
Beaverdam Creek	" "	" and Madison	
Millshoal Creek	" "	Madison	
Bushy Creek	" "	"	
N. Fork, Broad River	Broad River	Franklin and Madison	

Hudson's Fork	N. Fork, Broad River	Banks and Franklin	Homer and Mt. Airy Road, 77.3 cu. ft. per sec., normal. (Locke)
Unawattee Creek	" " "	Franklin	4 miles from Carnesville, 50 cu. ft. per second, normal. (Barrow)
Webb's Creek	Hudson Fork, Br'd R.	Banks	
Bear Creek	N. Fork, Broad River	Franklin	
Beaverdam Creek	Savannah River	Elbert	Point east of Southern R'y, 30 cu. ft. per sec. (Barrow) Stream has 9 mills and several good undeveloped shoals. (U. S. C.)
Cold Water Creek	" "	Elbert	
Lightwood Log Creek	" "	Hart	
Tugalo River	" "		
Panther Creek	Tugalo River	Habersham	Walker's mill, 4.5 cu. ft. per sec.; 20 ft. fall. (Barrow)
Tallulah River	" "	Rabun	Tallulah Falls. (See Power Table)
Toccoa Creek	" "		Toccoa Falls, 5.2 cu. ft. per sec.; 190 ft. fall. (Barrow & Locke)
Persimmon Creek	Tallulah River	Rabun	Parker's mill, 333.7 cu. ft. per sec., normal. (C. C. Anderson)
Chatuga River	Tugalo River	Rabun	
Stekoa Creek	Chatuga River	Rabun	Near Clayton, 3.7 cu. ft. per sec. At mouth, 30 cu. ft. per sec. (Barrow)
War Woman Creek	" "	Rabun	
Wildcat Creek	" "	Rabun	At mouth, 50 cu. ft. per sec., low water. (Barrow)
Tiger Creek	" "	Rabun	At mouth, 40.6 cu. ft. per sec., low water. (Barrow)

SAVANNAH BASIN — WATER-POWERS

LOCATION OF WATER-POWER	POINT OF SECTION	Stage of Water	Cubic Feet per Second	Fall in Feet	Length of Shoal, in Feet	Gross H. P.[1]	Source of Information	REMARKS
TALLULAH RIVER								
Rabun County	Tallulah Falls	Normal	723.3	335.0	4,000	27,470	Anderson	
TUGALO RIVER								
Habersham County . . .	Mouth of Tallulah River .	LowWat'r	654.0	75.0	2½ m.	5,573	J. P. Carson, Ass't U.S.Eng.	
Franklin County	Eastonolly Shoals	"	. . .	4.0	2,640	. . .	"	
" "	Stribling Shoals	"	. . .	2.0	2,640	. . .	"	
Hart County	Guest Shoal	"	290.0	17.0	5,280	560	10th U. S. Census	
" "	Hatton Shoal	"	290.0	39.0	8,000	1,280	"	
BROAD RIVER								
Elbert County	Baker's Ferry	"	600.0	3.0	600	204	"	
" "	Anthony's Shoals	"	600.0	70.0	6,600	4,772	"	Fall said to be over 70 ft. in 1¼ miles. (U. S. Census)
" "	Smith Shoals	"	600.0	10.0	2,640	681	"	
SAVANNAH RIVER								
Hart County	McDaniel's Shoals	. . . .	766.6	30.0	5 m.	2,600	"	Volume as given by U. S. Eng. J. P. Carson, 1,725 cu. ft. per second.
Elbert County	Ferrill's Ledge	. . . .	766.6	3.0	360	260	"	Vol. etc., 1,750 cu. ft. per sec.
" "	Middleton's Shoal	. . . .	833.3	18.0	5,280	1,700	"	Vol. etc., 1,873.3 " "
" "	Gregg's Shoal	. . . .	833.3	14.0	5,280	1,325	"	Vol. etc., 2,000 " "
" "	Bowman's Ledge	. . . .	880.0	3.0	120	300	"	Vol. etc., 2,100 " "
" "	Cherokee Shoal	. . . .	880.0	9.0	2,640	900	"	Vol. etc., 2,150 " "
" "	Trotter's Shoal	. . . .	107.5	75.0	7 m.	9,165	"	Vol. etc., 2,400 " "
Lincoln County	Long Shoal	. . . .	1,800.0	35.0	5 m.	7,250	"	Vol. etc., 2,775 " "
Columbia County	Blue Jacket Shoal	. . . .	2,166.6	10.0	600	2,350	"	
Richmond County	Augusta	L. Season Dry Y'rs	2,400.0	50.0	Canal 7 miles	13,636	"	
" "	Augusta	Max. with Storage	6,000.0	50.0	"	34,090	"	The city owns the water-power and factory sites. Mfg. Cos. buy sites, and lease power.
" "	Same with average head attainable	L. Season Dry Y'rs	2,400.0	40.0	"	10,908	"	

[1] Net H. P. = 80 per cent. of gross H. P.



FLAT SHOALS ON THE FLINT RIVER, BETWEEN PIKE AND MERIWETHER COUNTIES, GEORGIA.

SAVANNAH BASIN — UTILIZED POWER

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total Fall Used	Total Net H. P. Used	REMARKS
Savannah River	Richmond	Miscellaneous	15	....	3,650	
" "	Lincoln	Flour and Grist	3	14	32	
" "	Elbert	" " "	2	19	115	
Tributaries of Savannah R.	Effingham	Sawmill	1	6	20	
" "	Burke	Flour and Grist	8	72	96	
" "	Richmond	" " "	11	125	190	
" "	"	Sawmill	8	100	209	
" "	"	Cotton Factory	1	9	50	
" "	"	Woolen-mill	1	9	45	
Little River	Lincoln	Sawmill	3	24	45	
" "	"	Flour and Grist	4	30	60	
" "	McDuffie	" " "	1	9	60	
" "	"	Gold Stamp-mill	1	8	12	
" "	Wilkes	Flour and Grist	1	8	8	
" "	Warren	" " "	1	8	30	
" "	Greene	Saw and Grist	1	14	5	
Other Tributaries of Savannah River	Columbia	Flour and Grist	5	69	91	
" "	"	Sawmill	1	10	25	
" "	McDuffie	Flour and Grist	7	127	152	
" "	Warren	" " "	1	20	15	
" "	"	Sawmill	1	12	12	
Broad River and Tributaries	Oglethorpe	Flour and Grist	10	195	175	
" "	Madison	" " "	10	145	281	
" "	"	Sawmill	5	61	64	
" "	Elbert	Flour and Grist	3	44	39	
" "	Franklin	" " "	9	....	163	
" "	"	Sawmill	4	56	54	
" "	"	Cotton Gin	6	83	53	
" "	Banks	Sawmill	1	18	20	
" "	"	Flour and Grist	12	169	279	
Other Tributaries of Savannah River	Wilkes	Flour and Grist	7	85	75	
	Elbert	" " "	6	73	134	

SAVANNAH BASIN — UTILIZED POWER — *Continued*

STREAM	COUNTY	KIND OF MILL	No. of Mills	Total Fall Used	Total Net H.P. Used	REMARKS
Other Tributaries to Savannah River	Elbert	Sawmill	1	14	12	
" "	Hart	Flour and Grist	11	194	156	
" "	"	Sawmill	1	14	15	
" "	"	Cotton Gin	8	99	50	
Tributaries of Tugalo River	"	Sawmill	1	30	10	
" " "	"	Flour and Grist	2	27	45	
" " "	"	Cotton Factory	1	26	20	
" " "	"	Wool Carder	1	20	44	
" " "	Habersham	Flour and Grist	4	47	46	
" " "	"	Leather	1	16	6	
" " "	"	Sawmill	3	46	58	
" " "	"	Woolen-mill	1	. . . .	6	
" " "	Rabun	Sawmill	1	14	8	

OCKLOCKONEE AND SUWANNEE BASINS — UTILIZED POWER

Ocklockonee R. and Trib'r's	Colquitt	Flour and Grist	3	16	30	
" " "	Decatur	" " "	4	64	50	
" " "	"	Sawmill	1	6	12	
" " "	Thomas	Flour and Grist	4	32	34	
Ocilla R. and Tributaries	"	" " "	4	60	50	
Tributaries of the Suwannee River	Berrien	Woolen-mill	1	12	12	
" "	"	Flour and Grist	10	82	145	
" "	"	Sawmill	1	9	10	
" "	Brooks	Woolen-mill	1	. . . .	12	
" "	"	Sawmill	1	10	10	
" "	"	Flour and Grist	7	43	54	
" "	Clinch	" " "	1	7	15	
" "	Echols	" " "	1	6	6	
" "	"	Cotton Gin	1	12	6	
" "	Lowndes	Sawmill	1	10	10	
" "	"	Flour and Grist	8	80	77	
" "	Wilcox	" " "	1	6	4	

CHAPTER IV

FLOW OF STREAMS

The object of this chapter is to show, in a concise manner, the important facts, developed by the water-power surveys of Mr. C. C. Anderson, C.E., late Assistant State Geologist.

The new and special feature, presented, is a compilation from his notes, showing in tabulated form the daily fluctuation, for thirteen consecutive months, at certain points on the Chattahoochee, the Flint and the Ocmulgee rivers, each table being accompanied by a cross-section of the stream, and by velocities taken with a Haskell current-meter at certain stages. From this, discharges, in cubic feet per second, are calculated. This is the first systematic attempt, at gauging any of the streams of the State, to determine their flow, at all seasons of the year. Unfortunately, it covers a very limited portion of the wide field, that is open for investigation; but the results are very gratifying, as far as they go. They make a good showing for the constancy of these streams, and will be of incalculable value to the hydraulic engineer, in future investigations.

The important items, that determine the value of any water-power, are: — *First*, the quantity of water flowing in the stream, at all seasons of the year; *second*, the available fall; *third*, its location; *fourth*, the cost of development. A competent engineer can determine the last three of these items, in a short time, at any season of the year; but the first cannot be determined, in a short time. It must be found by a series of gaugings, extending over at least twelve consecutive months, and, preferably, a great deal longer time. In the absence of data, obtained in this way, engineers are forced to form

an estimate from the area and the character of the water-shed, rainfall, statistics etc. A short method, frequently adopted, and which often leads to glaring errors, is to figure out a low water-flow for the river, at so many cubic feet per minute, for each square mile of water-shed, using, as a standard, the measured low water-flow of some other stream, assumed to be identical in its characteristics. But the water-shed rule, which applies to one stream, cannot be applied at random to all other streams, which seem to have the same general character of water-shed. Each stream has its own peculiarities; and, while it is a comparatively easy matter to arrive at an estimate of the total annual discharge, or run-off, and form a tolerably correct idea of the amount of water available for storage, when the form and area of the water-shed, geological formations and rainfall are known, the data, as to the low water-flow of a stream, must be derived from the actual daily fluctuations and measurements of discharge at known stages. When enough data of this kind has accumulated, a reliable curve of discharge can be made. In Mr. Anderson's work, the velocity was not metered, often enough, to give a complete curve of discharge; but some of the meterings were taken at such low stages, that a close approximation to the minimum, for the period covered by his observations, can be arrived at. Mr. Anderson established gauge-stations on the Chattahoochee, Flint and Ocmulgee rivers, in August, 1891. At each station, a gauge-rod, divided into feet and tenths of feet, was set vertically in the stream, and firmly attached to a bridge-pier or some other permanent object. The rod was made of sufficient length, to cover the fluctuations of the stream, and its bottom end placed low enough in the water to be below the surface, at lowest stage. A gauge-reader, residing in the vicinity, was then employed, whose duty it was, to read the surface height of the water, every morning, and keep a record of it. Some of these gauge-readers

failed to note the stage of water, for several days at a time, thus causing blanks in the tables here presented; but, where these blanks occur, there are generally other stations on the same stream, that give the reading, for that day, and thus show, comparatively, the stage of water.[1]

The following fluctuation-tables are made from these records. The readings, which were elevations above the bottom of the gauge-rod, have been reduced to elevations above the lowest observed water, which is the "0.0" of the table, when given.

At each gauge-station, a cross-section of the stream was made, as shown in connection with the tables. The cross-section was divided into subsections, from five to fifty feet in width; and the velocity, in feet per second, was taken at each subsection, with a Haskell current-meter, the stage of the stream being noted from the gauge-rod, at the time. At most of the stations, there has been a metering of the streams, at a low stage of water, so near to the minimum observed stage, that the velocities, v and v', at given stage, and minimum observed stage, would be approximately proportional to the square roots of the respective areas of water-way, a and a'. So that, $v' = v\sqrt{\frac{a'}{a}}$. In this way, the compiler has calculated a volume for minimum observed stage, at four of these stations, based on Mr. Anderson's lowest actual measurements. At two others, Mr. Anderson's statement, concerning the volume at minimum observed stage, has been given.

Gauge-stations were also established on four branches of the Oconee river in January, 1893; but the only gauge-readings were for January and February, which was too short a time to render them of any value.

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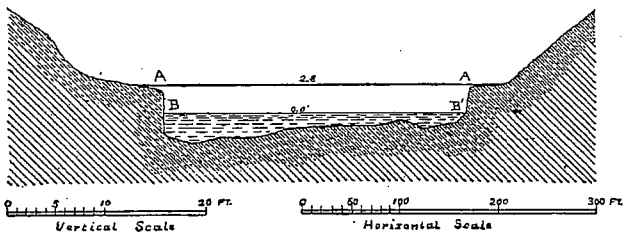
[1] Compare tables for Porter Mills, Roswell, West Point and Columbus.

FIG. 1



CROSS-SECTION OF THE SOQUEE RIVER, AT PORTER MILLS, HABERSHAM COUNTY, GEORGIA

FLOW OF THE SOQUEE RIVER, AT PORTER MILLS, HABERSHAM COUNTY, GEORGIA

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	Dec. 1890	Not given	306.6	0.90	275.9	Different section, measured by C. C. Anderson.
2	Aug. 13, 1891	0.6	336.0	1.22	409.9	Section, here given, was measured by C. C. Anderson.
3	. . . . .	0.0	250.0	1.66	266.6	Section calculated.

TABLE I

DAILY FLUCTUATIONS IN FEET AND TENTHS

Lowest Observed Stage = 0.0

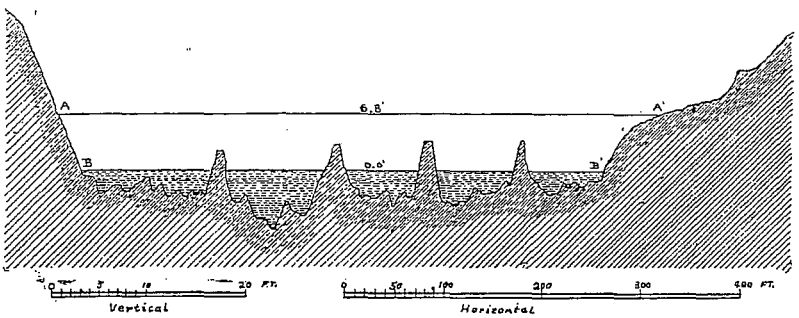
THE SOQUEE RIVER AT PORTER MILLS, HABERSHAM COUNTY, GEORGIA

Date	1891					1892								
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	Begun August 13th, 1891.	0.7	0.2	0.2	0.3	0.3	0.5	0.5	0.5	0.8	0.5	0.7	0.6	0.5
2		0.4	0.2	0.2	0.3	0.3	0.5	0.5	0.5	0.8	0.8	0.7	0.6	0.5
3		0.4	0.2	0.2	0.3	0.7	0.5	0.5	0.5	0.8	1.0	0.7	0.5	0.5
4		0.5	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.8	1.3	0.7	0.5	0.5
5		0.2	0.2	0.2	0.4	0.5	0.5	0.5	0.5	0.8	0.8	1.8	0.5	0.5
6		0.3	0.2	0.2	0.6	0.7	0.5	0.6	2.8	0.7	0.8	1.2	0.5	0.5
7		0.3	0.3	0.2	0.2	0.5	0.5	0.7	2.0	0.7	0.8	1.0	0.5	0.5
8		0.3	0.2	0.5	0.0	0.5	0.7	1.2	1.7	0.7	0.8	0.8	1.0	0.5
9		0.3	0.2	0.4	0.6	0.5	0.6	0.8	1.2	0.7	0.8	0.8	0.6	
10		0.3	0.1	0.3	0.5	0.6	0.6	0.6	1.0	0.7	0.7	0.8	0.6	
11		0.2	0.1	0.2	0.5	0.8	0.5	0.5	1.0	0.8	0.7	2.8	0.6	
12		0.3	0.1	0.2	0.3	0.8	0.5	0.5	0.9	0.7	0.6	1.3	0.6	
13	0.6	0.4	0.1	0.2	0.3	2.8	0.5	0.5	0.8	0.7	0.6	1.0	0.8	
14	0.4	0.3	0.2	0.2	0.3	1.7	0.5	0.5	1.0	0.7	0.6	0.8	0.8	
15	0.4	0.2	0.2	0.2	0.5	1.1	0.7	0.5	0.8	0.7	0.5	0.8	0.6	
16	0.4	0.2	0.1	0.2	0.7	0.8	0.6	0.5	0.8	0.7	0.6	0.8	0.6	
17	0.4	0.2	0.1	0.2	0.5	0.8	0.5	0.5	0.8	1.7	0.6	0.8	0.6	
18	0.4	0.2	0.1	0.2	0.4	1.1	0.5	0.5	0.8	1.7	0.6	0.8	0.6	
19	0.4	0.2	0.2	0.2	0.4	1.5	0.5	0.5	0.8	0.7	0.6	0.8	0.5	
20	0.6	0.2	0.3	0.2	0.4	1.1	0.6	0.5	0.8	0.7	0.8	0.8	0.5	
21	0.5	0.2	0.1	0.2	0.3	0.8	0.8	0.5	0.8	0.7	1.5	0.8	0.5	
22	0.3	0.2	0.2	0.3	0.3	0.8	0.7	0.5	0.8	0.7	1.5	0.8	0.4	
23	0.3	0.2	0.2	0.4	0.4	0.8	0.6	0.6	0.8	0.7	1.0	0.8	0.5	
24	0.6	0.2	0.2	0.6	0.4	0.8	0.6	0.8	0.8	0.7	0.8	0.8	0.5	
25	0.5	0.2	0.2	0.5	0.4	0.8	0.6	1.2	0.8	0.7	0.8	0.8	0.5	
26	0.4	0.2	0.2	0.4	0.4	0.7	0.5	0.8	0.8	0.6	0.8	0.8	0.5	
27	0.6	0.2	0.2	0.4	0.4	0.7	0.5	0.7	0.8	0.6	0.8	0.8	0.5	
28	0.7	0.2	0.2	0.3	0.4	0.6	0.5	0.7	0.8	0.6	0.8	0.7	0.8	
29	0.4	0.3	0.2	0.3	0.4	0.6	0.5	0.6	0.8	0.6	0.8	0.7	0.7	
30	0.4	0.3	0.2	0.3	0.4	0.5	. .	0.6	0.8	0.6	0.8	0.7	0.6	
31	0.3	. .	0.2	. .	0.3	0.5	. .	0.5	. .	0.6	. .	0.7	0.5	

Ended September 8th, 1892.

NOTE — In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was 2.2 feet below the 0.0 of this table.

FIG. 2



CROSS-SECTION OF THE CHATTAHOOCHEE RIVER, AT ROSWELL BRIDGE, BETWEEN FULTON AND COBB COUNTIES, GEORGIA

FLOW OF THE CHATTAHOOCHEE RIVER, AT ROSWELL BRIDGE

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	April 22, 1891	2.0	1,960.4	3.70	7,253.5	Measured by C. C. Anderson.
2	April 12, 1892	1.2	1,913.0	2.85	5,452.0	Measured by C. C. Anderson.
3	July 2, 1892	0.4	987.2	3.22	3,178.7	Measured by C. C. Anderson.
4	. . . . .	0.0	770.4	2.84	2,190.5	Calculated.


GEOLOGICAL SURVEY OF GEORGIA
W. S. YEATES, STATE GEOLOGIST
HYDROGRAPHIC MAP
OF
NORTH GEORGIA
SHOWING SOME OF ITS
WATER POWERS
Compiled by
B. M. HALL, C. & M. E.
SPECIAL ASSISTANT
PRINCIPALLY FROM THE FIELD NOTES OF
C. C. ANDERSON
LATE ASSISTANT GEOLOGIST
1896
TENNESSEE
NORTH CAROLINA
ALABAMA
SOUTH CAROLINA
Water Powers
Scale of Miles.
0 5 10 20 30 40 50

TABLE II

DAILY FLUCTUATIONS IN FEET AND TENTHS

Lowest Observed Stage = 0.0

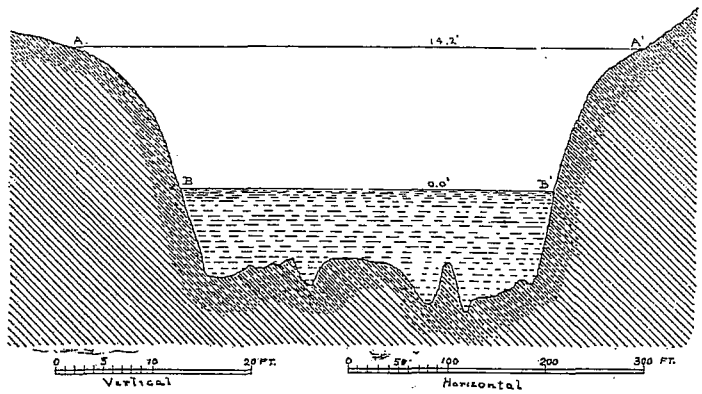
THE CHATTAHOOCHEE RIVER AT ROSWELL BRIDGE, COBB AND FULTON COUNTIES, GEORGIA

Date	1891					1892								
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	. .	. .	Begun October 10th, 1891.	0.2	No Record.	0.4	0.5	0.5	1.2	0.4	0.1	0.4	0.2	0.1
2	. .	. .		0.2		0.3	0.5	0.4	1.1	0.4	0.1	0.4	0.6	0.1
3	. .	. .		0.2		0.4	0.5	0.3	0.9	0.4	0.9	0.4	0.4	0.0
4	. .	. .		0.2		1.2	0.5	0.3	0.8	0.3	2.0	0.4	0.2	0.0
5	. .	. .		0.3		1.5	0.5	0.3	0.7	0.2	1.6	0.6	0.2	0.0
6	. .	. .		0.3	1.1	2.2	0.5	0.3	2.2	0.2	1.5	1.9	0.1	0.0
7	. .	. .		0.2	1.2	2.0	0.5	0.3	5.0	0.2	0.8	1.0	0.1	0.0
8	. .	. .		0.2	0.8	1.8	0.8	1.2	5.6	0.2	0.8	0.8	0.1	0.0
9	. .	. .		0.2	0.5	1.5	0.9	2.0	4.2	0.2	1.0	0.7	0.1	
10	. .	. .	0.2	0.3	0.4	1.2	0.8	1.2	1.7	0.5	0.6	1.1	0.2	
11	. .	. .	0.1	0.4	0.3	1.1	0.6	1.1	1.2	0.8	0.3	2.8	0.2	
12	. .	. .	0.2	0.6	0.3	2.1	0.5	0.9	1.2	0.9	0.2	3.2	0.2	
13	. .	. .	0.3	0.5	0.4	3.2	0.5	0.6	1.0	0.6	0.2	2.2	0.1	
14	. .	. .	0.4	0.5	0.3	5.4	0.5	0.5	0.9	0.4	0.2	1.2	0.0	
15	. .	. .	1.5	0.3	0.2	6.5	0.7	0.4	1.1	0.2	0.2	1.0	0.0	
16	. .	. .	1.5	0.3	0.8	6.8	0.7	0.4	1.1	0.2	0.1	0.8	0.0	
17	. .	. .	1.3	0.3	1.2		0.6	0.4	0.7	0.2	0.1	0.7	0.1	
18	. .	. .	1.2	0.3	0.5		0.6	0.4	0.6	0.3	0.1	0.6	0.4	
19	. .	. .	1.1	0.3	0.5		0.5	0.6	0.6	0.8	0.2	0.6	0.6	
20	. .	. .	1.2	0.3			0.6	0.6	1.2	0.6	0.2	0.9	0.4	
21	. .	. .	1.1	0.3			1.8	0.5	0.9	0.5	1.1	0.7	0.2	
22	. .	. .	0.7	0.4			2.3	0.5	0.9	0.4	1.2	0.7	0.2	
23	. .	. .	0.3	0.8	No Record.		1.4	0.5	0.9	0.3	0.8	0.4	1.6	
24	. .	. .	0.1	1.2			1.0	0.6	0.9	0.2	2.9	0.4	1.2	
25	. .	. .	0.0	1.2		No Record.	0.7	0.9	0.7	0.2	1.2	1.1	1.2	
26	. .	. .	0.2	1.2			0.6	2.6	0.7	0.2	1.0	0.5	1.0	
27	. .	. .	0.2	1.2	0.4		0.5	3.2	0.5	0.2	1.1	0.3	0.9	
28	. .	. .	0.1	1.2	0.3		0.5	1.5	0.5	0.2	1.0	0.3	1.1	
29	. .	. .	0.1	. .	0.3		0.5	1.4	0.5	0.2	1.2	0.2	1.3	
30	. .	. .	0.1	. .	0.2		. .	1.2	0.5	0.2	0.7	0.2	0.2	
31	. .	. .	0.2	. .	0.3		. .	1.2	. .	0.2	. .	0.2	0.2	

Ended September 8th, 1892.

NOTE — In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was 1.8 feet below the 0.0 of this table.

FIG. 3



CROSS-SECTION OF THE CHATTAHOOCHEE RIVER, AT WEST POINT, TROUP COUNTY, GEORGIA

FLOW OF THE CHATTAHOOCHEE RIVER, AT WEST POINT GEORGIA

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	Sept. 26, 1891	0.2	3,519.5	1.54	5,414.2	Measured by C. C. Anderson.
2	Nov. 24, 1891	2.4	4,596.0	2.00	9,192.0	Measured by C. C. Anderson.
4	. . . . .	0.0	3,400.0	1.45	4,939.5	Calculated.

TABLE III

DAILY FLUCTUATIONS IN FEET AND TENTHS

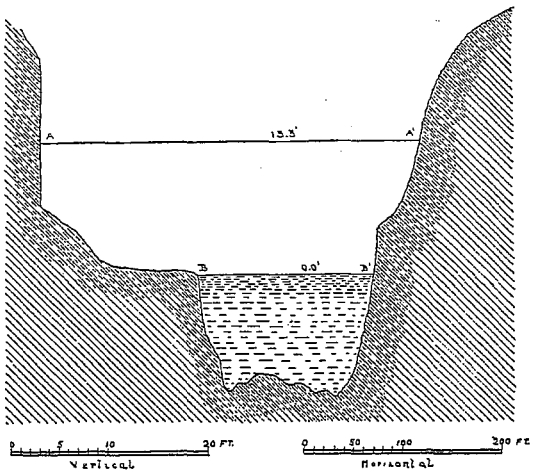
Lowest Observed Stage = 0.0

THE CHATTAHOOCHEE RIVER AT WEST POINT, GEORGIA

Date	1891				1892								
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.
1	Begun Sept. 25th, 1891.	0.5	0.3	1.0	No Record.	1.6	1.5	2.1	1.6	0.1	1.7	0.3	0.6
2		0.6	0.3	1.3		1.4	1.4	1.2	1.9	0.9	1.3	0.3	0.3
3		0.6	0.3	1.3		1.1	1.3	1.3	0.9	1.1	1.0	0.4	0.2
4		0.6	0.3	1.4		1.3	1.7	1.3	0.9	3.6	0.9	0.5	0.2
5		0.6	0.4	2.1		1.3	1.8	1.1	0.9	4.6	0.8	0.5	0.3
6		0.4	0.4	2.2		1.3	1.1	0.9	0.9	3.6	1.0	0.5	0.0
7		0.4	0.4	2.4		2.3	1.3	7.6	0.8	2.9	1.8	0.5	0.0
8		0.5	0.4	3.3		2.3	6.3	12.8	0.8	1.1	1.3	0.9	0.0
9		0.4	0.4	2.6		4.7	6.3	13.4	0.8	1.3	1.0	1.0	
10		0.6	0.5	3.0		4.7	5.7	14.2	1.1	1.1	3.3	1.3	
11		0.6	1.5	2.7		4.0	3.7	8.9	1.4	1.4	3.2	0.9	
12		0.5	1.5	1.6		3.7	3.1	3.3	1.1	1.5	5.3	0.6	
13		0.4	1.2	1.4		2.7	3.3	2.3	0.9	1.4	9.3	0.4	
14		0.4	1.2	1.3		1.3	1.6	2.2	0.8	1.1	8.3	0.3	
15		0.4	1.8	3.0		1.3	1.5	2.3	0.8	1.0	2.3	0.0	
16		0.5	1.6	2.2		1.7	1.4	1.9	1.1	0.9	1.0	0.0	
17		0.3	1.6	3.7		1.6	1.5	2.3	1.2	0.9	0.9	0.3	Ended Sept. 8th, 1892.
18		0.4	1.6	3.3		1.6	2.3	2.9	1.2	0.9	1.3	2.5	
19		0.3	1.6	2.1		1.4	2.3	2.0	1.6	0.9	1.9	3.2	
20		0.3	1.6	2.1		1.6	2.5	1.4	1.4	1.1	2.3	2.0	
21		0.3	1.6	2.1		3.3	2.4	2.0	1.1	1.9	2.4	1.0	
22		0.3	1.6	2.6		5.2	1.3	2.5	1.1	3.0	1.2	2.0	
23		0.3	1.9	1.6		5.2	1.1	2.1	1.1	4.9	1.1	1.9	
24		0.3	2.4	1.4		3.0	2.1	2.4	0.8	4.3	0.3	2.5	
25	0.5	0.3	3.3	1.6		2.5	5.8	2.0	0.8	2.1	0.4	2.0	
26	0.5	0.3	2.1	2.6		2.0	10.0	2.4	0.8	1.1	0.5	1.6	
27	0.5	0.3	1.7	1.2	3.6	1.9	12.8	2.0	0.8	2.1	0.5	1.0	
28	0.5	0.3	1.3	1.3	3.3	1.6	10.0	1.6	0.9	2.5	0.8	1.7	
29	0.5	0.3	1.3	1.2	3.1	1.5	6.4	1.6	0.7	2.1	0.3	1.2	
30	0.5	0.3	1.3	1.2	2.3	. .	3.2	1.5	1.1	2.0	0.3	1.0	
31	. .	0.3	. .	1.5	2.1	. .	2.2	. .	1.1	. .	0.4	1.0	

NOTE — In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was the same level as the 0.0 of this table.

FIG. 4



CROSS-SECTION OF THE CHATTAHOOCHEE RIVER, AT COLUMBUS, GEORGIA

FLOW OF THE CHATTAHOOCHEE RIVER, AT COLUMBUS, GEORGIA

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	Aug. 24, 1891	1.5	2,365.75	2.68	6,348.1	Measured by C. C. Anderson.
2	Jan. 14, 1892	13.3	8,307.50	Vel. not taken.	. . . .	Maximum.
3	Nov. 29, 1892	4.8	4,083.06+	4.94	20,190.8	Measured by C. C. Anderson.
4	Oct. 29, 1891	0.0	. . . .	. . . .	5,221.1	Stated in table by C. C. Anderson.

TABLE IV

DAILY FLUCTUATIONS IN FEET AND TENTHS

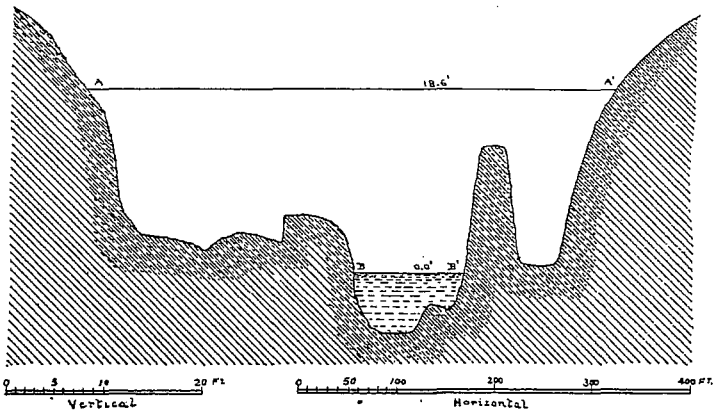
Lowest Observed Stage = 0.0

THE CHATTAHOOCHEE RIVER AT COLUMBUS, GEORGIA

Date	1891					1892								
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	Begun August 24th, 1891.	0.9	0.4	0.6	0.9	1.0	1.8	1.8	2.5	2.0	1.1	1.6	0.9	0.9
2		0.8	0.4	0.2	0.6	1.6	1.8	1.8	2.4	1.6	1.3	1.5	0.8	0.9
3		1.0	0.4	0.2	0.5	2.1	1.7	1.7	2.6	1.6	1.3	1.7	1.0	0.8
4		1.8	0.8	0.1	0.9	1.8	1.7	1.6	2.3	1.5	2.5	1.7	1.0	1.2
5		1.3	0.3	0.1	1.5	1.8	1.6	1.5	2.2	1.5	3.0	1.1	0.9	0.5
6		1.5	0.3	0.1	1.8	1.6	1.6	1.8	2.0	1.4	2.7	1.8	0.8	0.4
7		1.1	0.3	0.2	1.7	2.0	1.9	1.6	2.4	1.6	2.2	1.3	1.4	0.4
8		0.9	0.2	0.6	2.0	1.7	2.3	3.8	7.3	1.8	2.0	2.7	1.2	0.4
9		0.6	0.3	0.1	1.9	1.7	4.8	4.8	7.8	1.3	1.9	2.0	1.3	
10		0.4	0.3	0.1	1.8	1.9	4.0	3.9	7.9	1.3	1.8	4.0	1.2	
11		0.4	0.9	0.7	1.5	1.7	2.9	3.2	7.5	1.3	1.7	4.2	0.9	
12		0.5	0.4	0.9	1.1	3.3	2.2	2.4	4.2	1.2	1.5	4.3	1.2	
13		1.5	0.4	0.6	1.3	5.4	1.9	2.3	3.9	1.5	1.2	5.0	1.0	
14		1.1	0.4	0.8	1.0	13.3	2.1	1.9	3.6	1.5	1.0	4.9	1.3	
15		1.0	0.4	1.1	0.8	12.4	2.0	1.8	3.5	1.8	0.9	3.4	0.8	
16		1.0	0.4	0.4	1.6	9.7	2.1	1.7	3.4	1.2	0.8	2.6	0.9	
17		0.9	0.3	0.4	1.7	8.7	1.9	1.6	3.5	1.2	0.7	2.1	0.8	Ended September 8th, 1892.
18		0.6	0.6	0.6	1.8	8.4	1.9	1.9	3.2	1.3	0.8	2.1	1.4	
19		0.5	0.0	0.6	1.9	4.6	1.8	1.6	3.1	1.4	1.4	2.0	1.3	
20		0.9	0.0	0.6	2.0	7.9	1.8	1.9	3.0	1.7	0.9	2.8	3.0	
21		0.5	0.1	0.6	1.5	7.8	3.8	1.6	3.0	1.5	0.9	2.7	2.5	
22		0.4	0.1	1.0	1.3	6.4	3.8	1.6	2.6	1.8	2.2	2.4	1.7	
23		0.3	0.0	1.7	1.2	4.3	4.0	1.6	2.2	1.3	1.9	1.7	2.5	
24	1.5	0.2	0.0	1.6	1.1	3.2	3.1	3.4	2.3	1.4	2.1	2.1	2.7	
25	1.5	0.2	0.3	1.7	1.5	2.6	2.4	4.6	2.0	1.2	2.7	1.7	2.6	
26	1.3	0.1	0.0	2.0	1.5	2.4	2.1	11.2	1.9	1.2	2.2	1.7	2.1	
27	1.2	0.7	0.0	1.2	1.6	2.2	2.0	9.9	1.8	1.1	1.5	1.9	2.1	
28	1.3	0.4	0.0	0.9	1.3	2.1	2.1	7.1	1.7	1.1	3.0	1.2	2.2	
29	1.1	0.4	0.0	1.4	1.3	2.0	1.8	4.8	1.7	1.4	2.5	1.2	1.4	
30	1.3	0.4	0.0	0.9	1.2	1.9	. .	3.4	1.7	1.2	1.9	1.0	1.3	
31	0.9	. .	0.1	. .	1.1	2.1	. .	2.8	. .	1.2	. .	0.8	1.0	

NOTE.—In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was 1.6 feet below the 0.0 of this table.

FIG. 5



CROSS-SECTION OF THE FLINT RIVER, AT SULLIVAN'S MILL, PIKE COUNTY, GEORGIA

FLOW OF THE FLINT RIVER, AT SULLIVAN'S MILL, PIKE COUNTY, GEORGIA

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	Mar. 16, 1891	2.6	674.5	0.91	612.6	Measured by C. C. Anderson.
2	. . . . .	0.0	375.0	0.66	250.0	Calculated.

TABLE V

DAILY FLUCTUATIONS IN FEET AND TENTHS

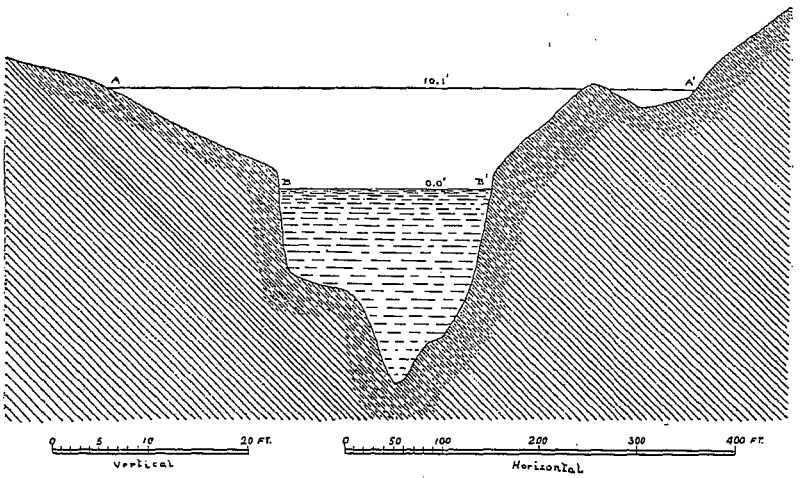
Lowest Observed Stage = 0.0

THE FLINT RIVER, SULLIVAN'S MILL, PIKE COUNTY, GEORGIA
NEAR ERIN P. O., MERIWETHER COUNTY

Date	1891								1892								
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	Begun May 15th, 1891.	2.5	3.1	2.5	2.4	0.6	0.7	1.7	1.4	2.2	2.2	4.0	2.0	1.3	2.3	1.4	2.4
2		2.4	2.7	2.4	2.4	0.3	1.0	1.5	1.5	2.3	2.2	3.1	1.9	1.2	3.2	1.3	1.8
3		2.3	3.1	2.4	2.3	0.4	1.0	1.4	2.2	2.3	2.2	2.8	1.9	1.4	2.5	1.7	1.8
4		2.2	2.8	2.5	2.5	0.2	1.3	2.2	1.8	1.8	2.1	2.5	1.9	2.1	2.1	1.8	1.5
5		2.2	2.4	2.6	2.6	0.0	1.3	3.0	1.4	1.7	2.0	2.3	1.8	2.4	2.4	2.0	1.6
6		2.2	2.4	3.1	2.7	0.4	1.3	2.5	2.2	1.5	1.9	2.2	1.8	2.6	2.6	1.8	1.5
7		2.1	2.5	3.3	3.1	0.2	1.3	2.5	3.1	1.5	2.1	3.8	1.8	2.2	2.8	1.5	1.4
8		2.5	2.3	3.1	2.7	0.0	1.0	2.6	2.9	4.8	2.9	10.1	1.8	2.0	2.4	1.2	1.3
9		4.9	2.2	3.3	2.5	0.6	1.0	2.0	1.5	7.1	4.2	13.5	1.7	1.9	2.2	1.6	
10		3.2	1.9	2.9	2.2	0.7	0.8	1.6	1.2	8.5	4.5	10.5	1.7	1.8	3.4	2.4	
11		7.2	1.7	2.7	2.1	0.6	2.1	1.5	3.0	7.1	4.2	6.3	1.8	2.4	4.6	2.3	
12		4.7	1.5	2.4	2.3	0.6	1.6	1.5	4.2	5.2	3.2	4.3	1.8	2.1	3.7	2.2	
13		5.1	1.4	2.4	2.0	0.7	1.5	1.4	7.2	3.4	3.1	3.3	1.8	1.8	3.5	2.0	
14		5.3	1.2	2.3	1.8	0.7	1.4	1.4	14.2	2.9	2.8	2.8	1.8	1.6	4.2	1.8	
15	2.6	4.7	1.2	2.5	1.5	0.9	1.4	1.5	18.6	2.8	2.3	2.6	1.7	1.5	4.4	1.6	
16	2.5	4.4	1.2	2.7	1.4	0.7	1.2	1.5	14.2	3.4	2.0	2.2	1.8	1.4	3.2	1.5	
17	2.4	2.8	1.1	3.0	1.6	0.6	1.2	2.0	12.4	3.0	1.8	2.1	1.9	1.3	4.4	2.8	
18	2.4	2.2	1.1	2.7	1.7	0.5	1.1	2.4	7.2	3.1	2.4	1.9	2.1	1.2	3.4	8.5	
19	2.5	2.4	1.1	2.5	1.9	0.4	1.1	2.2	7.8	2.8	3.0	1.9	2.4	1.2	2.9	7.8	Ended Sept. 8th, 1892.
20	2.9	2.4	1.3	2.6	1.7	0.3	1.1	2.4	12.4	2.3	2.6	1.8	2.5	1.7	3.2	5.7	
21	3.0	2.4	1.4	2.7	1.5	0.3	1.1	2.2	15.2	3.2	2.4	1.8	2.3	2.8	3.2	5.2	
22	2.7	3.1	1.6	3.1	1.3	0.3	1.1	2.0	13.5	4.6	2.1	2.0	2.1	2.3	3.6	3.2	
23	2.6	3.4	1.8	3.5	1.0	0.2	2.2	1.9	10.4	6.8	1.8	1.9	2.0	2.1	3.4	6.6	
24	2.4	4.0	2.2	7.1	0.9	0.2	2.5	1.8	7.4	5.8	2.7	1.8	1.9	2.0	2.8	6.8	
25	2.7	4.7	2.4	7.8	0.8	0.2	2.4	1.7	5.2	4.5	5.5	1.7	1.8	2.2	2.5	5.8	
26	2.8	4.2	2.6	7.3	0.7	0.3	2.0	1.6	3.4	3.1	13.0	1.7	1.6	2.4	2.2	7.8	
27	2.8	3.4	2.7	5.2	0.6	0.4	1.7	2.2	3.0	3.2	14.8	1.8	1.5	2.8	1.8	5.8	
28	3.1	2.7	3.1	4.7	0.5	0.5	1.5	2.3	2.8	2.8	15.0	1.8	1.5	4.5	1.8	4.8	
29	3.3	2.5	3.0	3.9	0.4	0.6	1.7	1.7	2.7	2.4	13.1	1.9	1.6	3.7	1.7	3.0	
30	3.1	2.2	2.7	3.3	0.3	0.7	1.8	1.5	2.6	. .	7.9	2.0	1.6	3.7	1.6	3.1	
31	2.6	. .	2.5	2.7	. .	0.7	. .	1.4	2.6	. .	5.2	. .	1.5	. .	1.5	3.2	

NOTE — In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was 1.2 feet below the 0.0 of this table.

FIG. 6

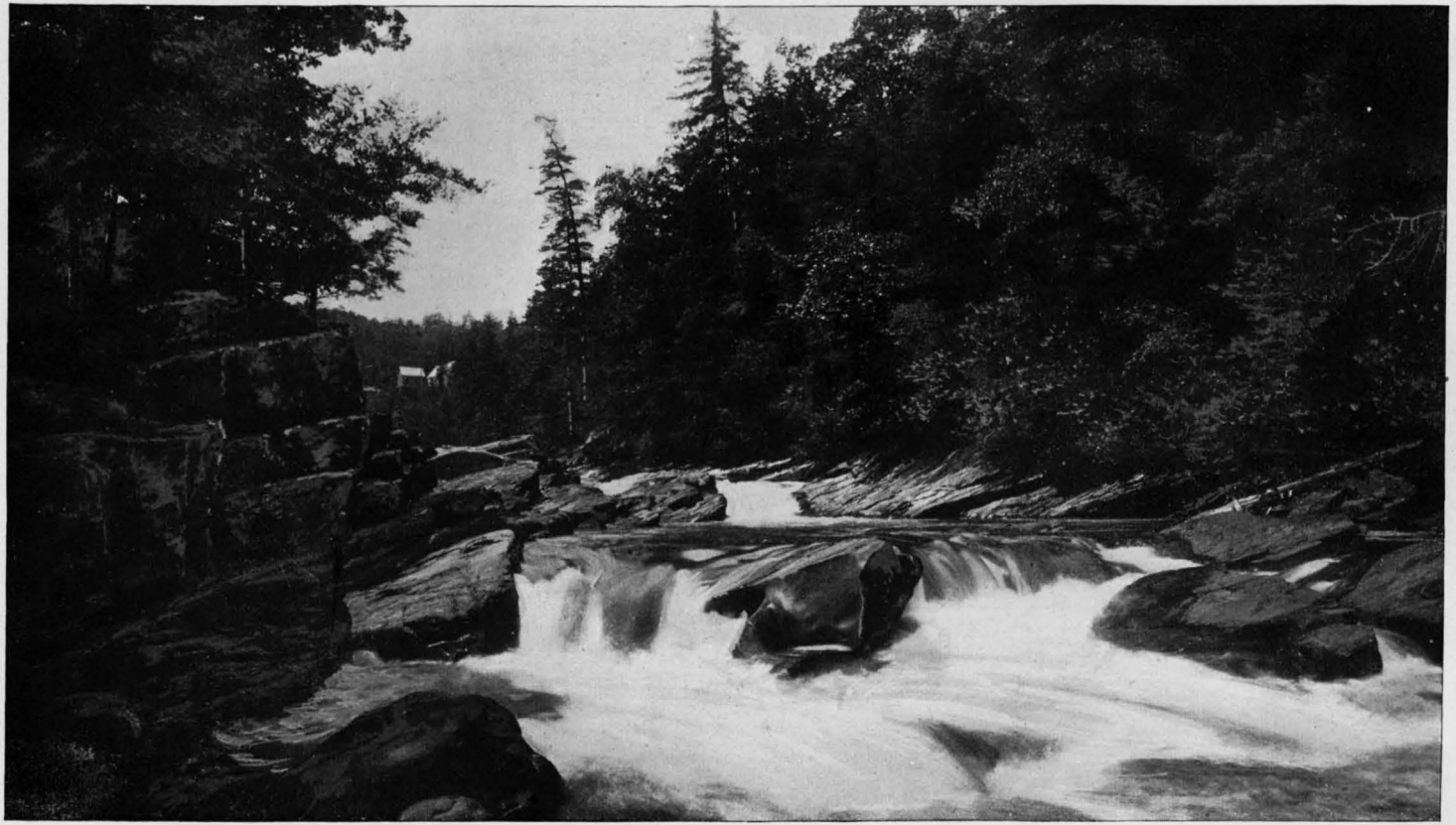


CROSS-SECTION OF THE FLINT RIVER, AT THE MACON & BIRMINGHAM R. R. BRIDGE, MERIWETHER COUNTY, GEORGIA

FLOW OF FLINT RIVER, AT THE MACON & BIRMINGHAM R. R. BRIDGE, MERIWETHER COUNTY, GEORGIA

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	Aug. 25, 1891	3.3	3,051.8+	2.00	6,103.6	Measured by C. C. Anderson.
2	April 1, 1892	2.2	1,904.7	1.84	3,497.9	Measured by C. C. Anderson.

Data not sufficient for calculating minimum discharge.



INDIAN ARROW RAPIDS, THE HEAD OF TALLULAH FALLS, GEORGIA.

TABLE VI

DAILY FLUCTUATIONS IN FEET AND TENTHS

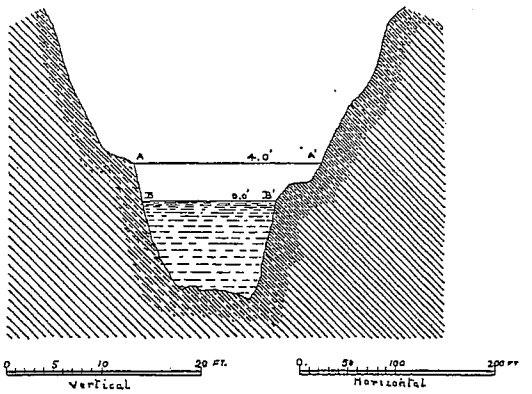
Lowest Observed Stage = 0.0

THE FLINT RIVER AT THE MACON AND BIRMINGHAM R. R. BRIDGE, MERIWETHER COUNTY, GEORGIA

Date	1891					1892								
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	Begun Aug. 25, 1891.	0.9	0.2	0.3	0.8	0.8	1.4	1.3	2.2	0.9	0.4	0.8	0.4	1.2
2		3.4	0.2	0.2	0.7	1.3	1.4	1.3	1.9	0.8	0.4	0.7	0.3	0.8
3		2.9	0.2	0.2	0.7	1.3	1.2	1.2	1.7	0.8	1.0	0.6	0.3	0.7
4		3.0	0.2	0.3	1.2	1.2	1.2	1.2	1.6	0.8	1.8	0.4	0.8	0.6
5		2.1	0.2	0.3	1.1	1.0	1.1	1.1	1.5	0.7	1.1	1.1	0.7	0.5
6		1.1	0.2	0.4	1.6	1.3	1.7	1.1	1.5	0.7	1.2	2.3	0.4	0.4
7		0.9	0.2	0.4	1.6	1.8	6.1	1.1	1.9	0.6	1.0	1.4	0.7	0.4
8		0.8	0.2	0.3	1.8	1.7	5.3	2.1	3.4	0.6	0.8	1.2	0.6	0.4
9		0.7	0.2	0.3	1.5	1.4	6.1	2.4	5.5	0.6	0.6	0.9	1.9	
10		0.9	0.2	0.5	1.3	1.5	4.7	2.3	5.1	0.6	0.7	3.0	1.5	
11		0.7	0.2	0.9	1.2	1.6	3.4	2.0	3.2	0.7	0.6	3.2	1.2	
12		1.2	0.0	0.9	1.0	2.6	2.8	1.6	2.1	0.8	0.6	2.5	0.8	
13		1.3	0.1	0.7	0.7	4.2	2.1	1.4	1.8	0.7	0.4	1.9	0.6	
14		1.5	0.1	0.7	0.8	8.8	1.7	1.3	1.6	0.6	0.3	1.9	0.4	
15		1.3	0.3	0.6	0.8	10.1	1.8	1.2	1.5	0.6	0.2	1.8	0.3	
16		1.0	0.2	0.5	1.2	9.6	1.9	1.1	1.4	0.7	0.2	1.6	0.3	
17		0.9	0.1	0.5	1.6	7.2	1.8	1.1	1.3	0.7	0.2	1.6	1.7	
18		0.3	0.1	0.5	1.5	4.3	1.6	1.5	1.2	0.7	0.2	1.9	3.1	Ended Sept. 8, 1892.
19		0.2	0.0	0.5	1.3	9.1	1.5	1.6	1.2	1.0	0.6	2.2	4.4	
20		0.2	0.0	0.5	1.5	8.8	1.4	1.5	1.2	0.9	0.7	2.2	3.4	
21		0.3	0.0	0.5	1.4	7.4	2.3	1.3	1.1	0.8	1.5	1.7	2.4	
22		0.2	0.1	0.4	1.2	4.8	2.7	1.2	1.2	0.7	1.5	1.7	2.3	
23		0.2	0.2	0.6	1.1	2.8	3.4	1.1	1.1	0.7	0.9	2.0	3.9	
24		0.2	0.1	1.7	1.1	2.2	2.7	2.1	1.1	0.8	0.8	1.7	3.7	
25	3.3	0.0	0.1	1.1	1.1	1.9	2.8	4.6	1.1	0.7	0.9	0.8	3.8	
26	2.4	0.2	0.0	1.0	1.1	1.7	1.7	10.0	1.0	0.6	0.9	0.9	3.1	
27	1.5	0.2	0.2	0.9	1.1	1.5	1.5	9.6	1.0	0.6	1.3	0.6	3.2	
28	2.6	0.2	0.2	0.7	0.3	1.4	1.4	8.5	0.9	0.5	2.2	0.5	2.2	
29	1.5	0.2	0.2	0.8	1.0	1.4	1.4	7.9	0.9	0.5	1.9	0.4	2.6	
30	1.1	0.2	0.2	0.8	0.9	1.4	. .	4.3	0.9	0.4	1.4	0.3	1.2	
31	0.9	. .	0.1	. .	0.9	4.5	. .	4.6	. .	0.5	. .	0.3	0.3	

NOTE—In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was 0.9 foot below the 0.0 of this table.

FIG. 7



CROSS-SECTION OF BIG POTATO CREEK, AT NELSON'S MILL, UPSON COUNTY, GEORGIA

FLOW OF BIG POTATO CREEK, AT NELSON'S MILL, UPSON COUNTY, GEORGIA

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	Aug. 18, 1892	0.0	88.0	1.25	110.0	Measured by C. C. Anderson.

TABLE VII

DAILY FLUCTUATIONS IN FEET AND TENTHS

Lowest Observed Stage = 0.0

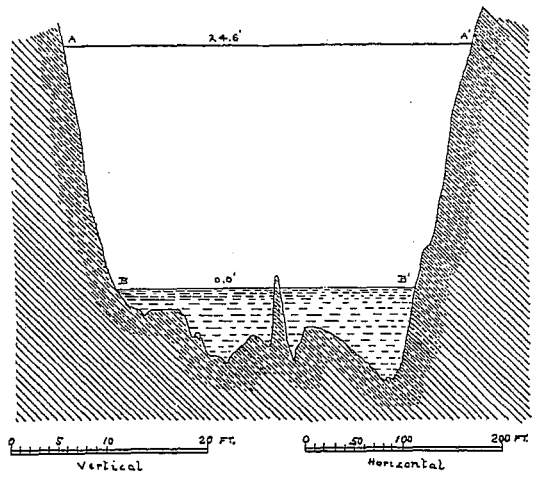
BIG POTATO CREEK AT NELSON'S MILL, UPSON COUNTY, GEORGIA

Date	1891				1892								
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.
1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.5	0.1	0.0	0.1	0.1	0.1
2	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.5	0.1	0.0	0.1	0.1	0.1
3	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.4	0.1	0.1	0.1	0.1	0.1
4	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.4	0.1	0.1	0.1	0.2	0.1
5	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1
6	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1
7	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.2	0.1
8	0.0	0.0	0.0	0.2	0.2	0.6	0.6	0.5	0.1	0.1	0.2	0.2	0.1
9	0.0	0.0	0.0	0.3	0.2	1.1	0.5	0.5	0.1	0.3	0.5	0.4	
10	0.0	0.0	0.0	0.2	0.2	1.2	0.6	0.4	0.1	0.1	0.3	0.4	
11	0.0	0.0	0.0	0.1	0.2	0.7	0.4	0.3	0.1	0.2	1.0	0.4	
12	0.0	0.0	0.0	0.1	0.5	0.6	0.3	0.3	0.1	0.1	1.1	0.2	
13	0.1	0.0	0.0	0.1	0.8	0.7	0.2	0.3	0.1	0.0	0.7	0.2	
14	0.1	0.0	0.0	0.1	1.3	0.5	0.2	0.2	0.1	0.0	0.4	0.2	
15	0.1	0.0	0.0	0.0	1.4	0.6	0.2	0.2	0.1	0.0	0.3	0.2	
16	0.0	0.0	0.0	0.1	1.0	0.4	0.2	0.2	0.1	0.0	0.3	0.1	
17	0.0	0.0	0.0	0.1	0.6	0.5	0.2	0.2	0.1	0.0	0.2	0.4	
18	0.0	0.0	0.0	0.1	1.1	0.4	0.3	0.2	0.1	0.0	0.2	1.3	
19	0.0	0.0	0.0	0.1	1.4	0.3	0.3	0.2	0.1	0.0	0.3	1.2	
20	0.0	0.0	0.0	0.1	1.7	0.3	0.3	0.2	0.1	0.1	0.3	0.7	
21	0.0	0.0	0.0	0.1	1.6	0.9	0.2	0.1	0.1	0.1	0.7	0.5	
22	0.0	0.0	0.0	0.2	0.9	0.8	0.2	0.1	0.1	0.1	0.7	0.3	
23	0.0	0.0	0.6	0.2	0.6	0.6	0.2	0.1	0.1	0.1	0.3	0.8	
24	0.0	0.0	0.2	0.1	0.6	0.5	1.0	0.1	0.1	0.1	0.3	0.8	
25	0.0	0.0	0.2	0.1	0.5	0.4	1.1	0.1	0.1	0.1	0.1	1.4	
26	0.0	0.0	0.1	0.1	0.4	0.3	4.0	0.1	0.0	0.1	0.1	0.7	
27	0.0	0.0	0.0	0.1	0.4	0.3	3.2	0.1	0.0	0.1	0.1	0.6	
28	0.0	0.0	0.0	0.1	0.3	0.3	1.3	0.1	0.0	0.5	0.1	0.6	
29	0.0	0.0	0.0	0.1	0.3	0.3	0.8	0.1	0.0	0.5	0.1	0.4	
30	0.0	0.0	0.0	0.1	0.3	. .	0.5	0.1	0.0	0.3	0.1	0.4	
31	0.0	0.0	0.0	0.1	0.3	. .	0.6	. .	0.0	. .	0.1	0.2	

Ended September 8th, 1892.

NOTE — In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was 0.3 foot below the 0.0 of this table.

FIG. 8



CROSS-SECTION OF THE OCMULGEE RIVER, AT MACON, GEORGIA

FLOW OF THE OCMULGEE RIVER, AT MACON, GEORGIA

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	Aug. 18, 1891	3.2	2,444.7	1.47	3,611.7	Measured by C. C. Anderson.
2	Nov. 28, 1892	20.6	5,800.0	4.35	25,269.6	Measured by C. C. Anderson.
3	. . . . .	0.0	. . . .	. . . .	2,157.6	Stated in notes by C. C. Anderson.

TABLE VIII

DAILY FLUCTUATIONS IN FEET AND TENTHS

Lowest Observed Stage = 0.0

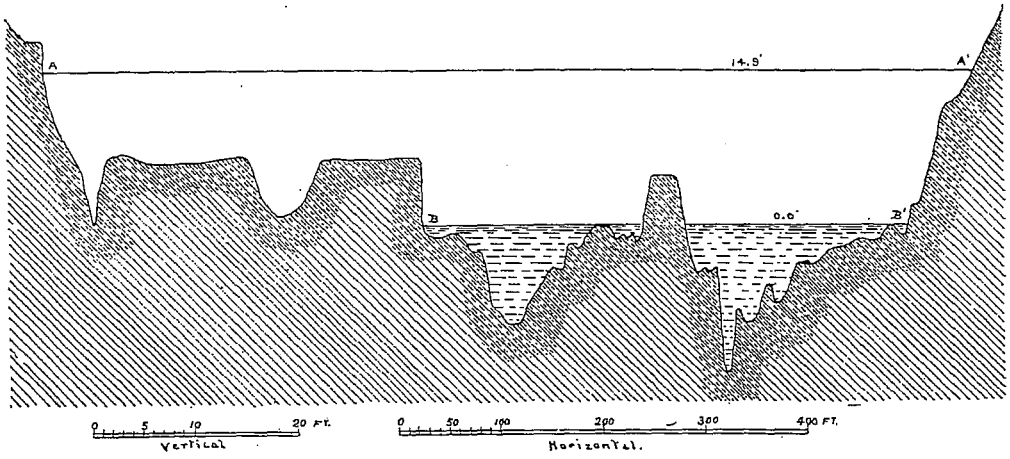
THE OCMULGEE RIVER, AT MACON, GEORGIA

Date	1891					1892							
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1		2.4	1.9	0.1				5.0	3.8	3.7			1.8
2		2.7	1.7	0.2				4.9	3.9	3.7			2.4
3		4.5	2.7	0.0				4.6	3.8	3.6			2.4
4		2.8	2.0	0.0			4.4	4.2	4.1	3.6			2.4
5		4.8	1.6	0.6			4.2	4.1	4.1	3.7			8.2
6		1.7	1.6	0.8			4.1	3.8	4.2	3.6			7.0
7		1.6	1.6	0.8			4.1	5.9	8.9	3.6			4.8
8		2.5	1.7	0.9			6.8	9.0	15.0	3.9			4.6
9		2.0	1.8	0.8			14.4	13.9	14.9	4.7			4.2
10		1.8	1.8	1.6			13.0	9.6	14.6				2.6
11		1.7	1.9	1.9			8.8	6.9	12.8				2.6
12		1.8	1.8	2.2			7.0	4.8	9.1			11.6	6.6
13		3.4	1.7	2.8			5.9	7.7	5.8			8.9	5.3
14		3.3	1.7	2.0			5.2	6.8	4.7			6.0	4.2
15		3.4	1.6	1.4			7.4	5.6	3.8			7.8	4.6
16		2.4	1.6	1.7			7.6	5.6	4.6			5.0	
17		2.7	0.6	1.8			7.2	5.0	4.2			4.6	
18	3.2	2.0	0.6	3.2			6.8	4.9	3.9			4.6	
19	2.8	1.8	0.6	3.3			5.0	4.9	3.9			4.4	
20	2.7	2.8	0.4	3.4			4.6	4.8	4.0			11.4	
21	3.2	1.7	0.4	3.8			11.2	4.6	4.0			8.0	
22	3.3	1.6	0.3	1.8			13.9	4.4	4.0			6.8	
23	6.3	2.6	0.2	1.8			11.4	4.7	3.7			6.2	
24	13.3	2.3	0.2	3.9			7.8	5.1	3.7			5.8	
25	11.6	2.8	0.2	5.2			7.2	14.3	3.6			5.4	
26	17.4	1.7	0.4	5.9			7.2	17.6	3.6			5.4	
27	15.3	1.7	0.5	5.9			5.2	24.6	3.6			3.6	
28	11.6	1.6	0.2	4.0			5.0	20.6	3.6			3.0	
29	6.8	1.6	0.1	2.0			. .	15.6	3.6			2.6	
30	5.3	1.6	0.0	2.0			. .	9.4	3.7			2.6	
31	3.4	. .	0.0	. .			. .	5.3	. .			2.4	

Begun August 18th, 1891. — No Record. — No Record. — No Record. — No Record. — Ended August 15th, 1892.

NOTE — In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was 0.4 foot below the 0.0 of this table.

FIG. 9



CROSS-SECTION OF THE OCMULGEE RIVER, AT JULIETTE, MONROE COUNTY, GEORGIA

FLOW OF THE OCMULGEE RIVER, AT JULIETTE, MONROE COUNTY, GEORGIA

No.	Date of Measurement	Stage	Area in Sq. Ft. of Cross-Section	Velocity in Feet per Second	Discharge in Cu. Ft. per Sec.	REMARKS
1	Sept. 4, 1891	0.5	2,300.5	1.57	3,615.6	Measured by C. C. Anderson.
2	May 6, 1892	0.4	2,258.0	1.19	2,691.2	Measured by C. C. Anderson.

Data not sufficient for calculating minimum discharge.

TABLE IX

DAILY FLUCTUATIONS IN FEET AND TENTHS

Lowest Observed Stage = 0.0

THE OCMULGEE RIVER, AT JULIETTE, MONROE COUNTY, GEORGIA

Date	1891				1892								
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	Begun Sept. 4th, 1891.	1.1	1.1	1.2	1.1	1.9	1.8	1.1	0.7	0.3	0.3	0.1	0.2
2		1.1	1.1	1.2	1.3	1.9	1.8	1.0	0.6	0.3	0.3	0.3	0.2
3		1.1	1.1	1.2	1.4	1.8	1.7	0.9	0.6	0.6	0.3	0.8	0.2
4	1.6	1.1	1.1	1.2	1.5	1.7	1.7	0.9	0.6	0.7	0.2	0.6	0.1
5	1.6	1.1	1.1	1.7	1.4	1.7	1.7	0.8	0.5	0.6	0.4	0.3	0.1
6	1.4	1.1	1.1	1.9	1.7	1.5	1.5	1.0	0.5	0.5	0.7	0.2	0.0
7	1.4	1.1	1.1	1.5	2.7	1.5	1.4	2.6	0.5	0.4	0.3	0.2	0.0
8	1.4	1.1	1.1	1.6	2.8	. . .	2.9	6.4	0.4	0.6	0.3	0.3	0.0
9	1.3	1.1	1.1	1.6	1.4	4.5	2.1	5.5	0.4	0.8	0.3	0.5	
10	1.2	1.1	1.1	1.6	1.4	2.9	1.5	1.9	0.9	0.9	2.1	0.4	
11	1.2	1.1	1.2	1.3	1.8	2.3	1.1	1.8	1.0	0.5	2.8	0.3	
12	1.4	1.1	1.2	1.3	3.1	2.1	0.6	1.6	0.9	0.4	2.3	0.3	
13	1.4	1.1	1.2	1.3	4.1	2.1	0.6	1.1	0.6	0.3	2.3	0.3	
14	1.4	1.1	1.1	1.3	8.6	2.1	0.5	1.0	0.6	0.3	1.6	0.0	
15	1.3	1.1	1.1	1.2	10.7	2.1	0.7	1.0	0.6	0.2	1.1	0.0	
16	1.2	1.1	1.1	1.3	6.1	2.5	0.7	0.9	0.5	0.2	0.9	0.1	
17	1.2	1.1	1.1	1.5	3.0	2.0	9.7	0.9	0.4	0.1	0.7	0.3	
18	1.2	1.1	1.1	1.5	5.0	2.1	0.9	0.8	0.5	0.2	1.1	2.5	
19	1.2	1.1	1.1	1.5	5.1	1.9	1.0	0.8	0.5	0.4	0.9	2.5	
20	1.2	1.1	1.1	1.4	14.9	1.7	0.8	0.8	0.5	0.8	2.2	1.8	
21	1.2	1.1	1.1	1.4	13.1	3.0	0.7	0.8	0.4	0.7	1.6	1.7	
22	1.2	1.1	1.1	1.5	5.1	3.5	0.7	0.8	0.4	1.1	0.9	1.6	
23	1.2	1.1	2.0	1.5	2.9	2.8	0.7	0.9	0.6	1.3	0.5	1.9	
24	1.2	1.1	2.2	1.5	2.6	2.7	1.5	0.9	0.4	0.8	0.3	2.1	
25	1.2	1.1	1.7	1.5	2.5	2.1	3.1	0.8	0.3	0.7	0.5	1.4	
26	1.2	1.1	1.3	1.5	2.4	2.0	11.1	0.8	0.3	1.5	0.5	1.3	
27	1.2	1.1	1.2	1.4	2.1	2.1	12.0	0.8	0.3	1.6	0.4	2.2	
28	1.2	1.1	1.2	1.4	1.9	2.0	10.9	0.8	0.3	2.6	0.3	0.9	
29	1.2	1.1	1.2	1.3	1.9	1.9	2.6	0.7	0.1	1.4	0.3	0.7	
30	1.2	1.1	1.2	1.2	1.9	. . .	1.9	0.7	0.1	0.5	0.2	0.5	
31	. . .	1.1	. . .	1.1	1.9	. . .	1.7	. . .	0.1	. .	0.2	0.3	

Ended September 8th, 1892.

NOTE—In the original monthly table, the stages given were the heights of the surface above the bottom of the gauge-rod, which point was 0.9 foot below the 0.0 of this table.

PLANS AND PROFILE

In addition to the foregoing cross-sections and fluctuation tables, Mr. Anderson's notes contained thirty-two illustrations, showing plans and profiles of important water-powers, some of which are partially utilized. A description of each is given below, and such reference is made to his three books of notes, on file in the office of the State Geologist, as will enable those, particularly interested, to examine the plans and profiles.

1st. SOQUEE RIVER. *Profile of Porter Mills Shoals.* Book No. 2, page 39. These three shoals cover a fall of 90 feet, in a total length of 6,600 feet. Shoal No. 1 falls 14.4 feet in 800 feet. This is the upper Cotton Mill Shoal. From the foot of this shoal, the river is comparatively level, for 2,000 feet, to the head of Shoal No. 2, the Woolen Mill Shoal, which falls 45.2 feet in a distance of 1,150 feet, and has an additional fall, below the Woolen Mill wheel, of 14 feet, in a distance of 1,950 feet. Shoal No. 3 begins at this point, and falls 15 feet in 700 feet. Volume of stream at low water, 250 cubic-feet per second. Net horse-power utilized, 250.

2nd. CHATTAHOOCHEE RIVER. *Plan and profile* showing its junction with the Soquee and three miles below this point. Book No. 2, page 41. It includes Duncan, Carpenter's, Gearing, Fish-trap, and Bull shoals. Total fall, 38 feet in a distance of 13,200 feet.

3rd. CHATTAHOOCHEE RIVER. *Island Ford Shoal.* Book No. 2, page 64. *Plan, profile and section.* Fall of 5.4 feet in 1,100 feet, or a 10-foot fall in 4,500 feet, from the top of the shoal to Roswell bridge.

4th. VICKERY'S CREEK. *At Roswell, Ga.* Book No. 2, page 63. This shows the upper Cotton Mill, the lower Cotton Mill and the Laurel Mills. All the power is utilized.

5th. CHATTAHOOCHEE RIVER. *Bull Sluice Shoal,* in Fulton and

CANE CREEK FALLS, NEAR DAHLONEGA, GEORGIA.

Cobb counties. Book No. 2, page 65. A fall of 44 feet from Roswell bridge to the foot of Bull sluice. Distance 18,000 feet.

6th. CHATTAHOOCHEE RIVER. *Cochran Shoal* and *Devil's Race-course*, Fulton and Cobb counties. Book No. 2, page 66. Fall, 17 feet in 8,000 feet.

7th. FLINT RIVER. *Flat Shoals*, Pike and Meriwether counties. Book No. 2, page 43. Fall, 32 feet in 3,000 feet.

8th. FLINT RIVER. *Dripping Rock Shoal*, Upson county. Book No. 2, page 58. A fall of 14 feet in 3,900 feet.

9th. FLINT RIVER. *Yellow Jacket Shoals*, Upson county. Book No. 2, page 53. A fall of 36.6 feet in 3,400 feet.

10th. FLINT RIVER. *Snipes Shoals*, Upson county. Book No. 2, page 60. A fall of 12 feet in 2,350 feet.

11th. BIG POTATO CREEK. *Rogers Shoal*, Upson county. Book No. 2, page 44. A fall of 80 feet in 3,600 feet.

12th. BIG POTATO CREEK. *Daniels Mill*, Upson county. Book No. 2, page 59. A fall of 13 feet in 150 feet.

13th. OCMULGEE RIVER. *Barnes Shoals*, at the junction of Yellow river and South river, Newton county. Book No. 2, page 52. A fall of 14 feet in 1,200 feet.

14th. OCMULGEE RIVER. *Key's Ferry*, Butts county. Book No. 2, page 75. A fall of 7.5 feet in 1,900 feet.

15th. OCMULGEE RIVER. *Pittman Ferry and Harper Shoals*, Butts county. Book No. 2, page 74. Falls 28 feet in 5,500 feet, at Harper Shoal, and 6 feet in 1,600 feet, below ferry.

16th. OCMULGEE RIVER. *Smith's Ferry and Lamar's Mill*, Butts county. Book No. 2, pages 45 and 67. A fall of 28 feet in 4,700 feet; at Lamar's mill, the fall is 18 feet in 1,000 feet.

17th. OCMULGEE RIVER. *Carden Shoal*, Monroe county. Book No. 2, page 62. A fall of 9 feet in 4,500 feet.

18th. OCMULGEE RIVER. *Holton,* Bibb county. Book No. 2, page *78.* A fall of 7 feet in 2,000 feet.

19th. YELLOW RIVER. *Porter Dale Mills, at Cedar Shoals,* Newton county. Book No. 2, page 49. Falls 54.7 feet in 2,200 feet.

20th. YELLOW RIVER. *Indian Fishery,* Newton county. Book No. 2, page 51. Falls 12 feet in 550 feet.

21st. SOUTH RIVER. *Snapping Shoals,* Newton county. Book No. 2, page 50. A fall of 28 feet in 1,500 feet.

22nd. ALCOVY RIVER. *Newton Factory on White and Garner Shoals,* Newton county. Book No. 2, page 48. A fall of 85 feet in 3,800 feet.

23rd. TOWALIGA RIVER. *High Falls,* Monroe county. Book No. 2, page 47. A fall of 95 feet in 600 feet.

24th. NORTH OCONEE RIVER. *Hurricane Shoals,* Jackson county. Book No. 2, page 68. Falls 30 feet in 600 feet.

25th. NORTH OCONEE RIVER. *Tumbling Shoals,* Jackson county. Book No. 2, page 72. Falls 8 feet in 600 feet.

26th. MIDDLE OCONEE RIVER. *Tallassee Bridge Shoal,* Jackson county. Book No. 2, page 77. Falls 31 feet in 3,600 feet.

27th. NORTH OCONEE RIVER. *Georgia Factory Shoal,* Clarke county. Book No. 2, page 97. A fall of 21 feet in 2,100 feet.

28th. MIDDLE OCONEE RIVER. *McElroy's Mill,* Clarke county. Book No. 2, page 81. A fall of 23 feet in 2,600 feet.

29th. MIDDLE OCONEE RIVER. *Princeton Factory,* Clarke county. Book No. 2, page 86. Falls 15 feet.

30th. OCONEE RIVER. *Barnett's Shoal,* Oconee county. Book No. 2, page 99. Falls 54 feet in 3,950 feet.

31st. APALACHEE RIVER. *High Shoals,* Oconee county. Book No. 2, page 98. Falls 50 feet in 600 feet.

32nd. APALACHEE RIVER. *Price's Shoal,* Oconee county. Book No. 2, page 100, and Book No. 3, page 32. A fall of 19 feet in 900 feet.

CHAPTER V

ELEVATIONS ON RAILROAD LINES

These tables were compiled by Mr. C. C. Anderson, C.E., late Assistant Geologist of this Survey. The following is an extract from his report concerning them: —

"These elevations for Topography were obtained from various railroads; but the list is by no means complete. Through the courtesy of the Chief Engineers of the Georgia Pacific, East Tennessee, Virginia and Georgia, Georgia Midland and Gulf, the Atlanta and Florida, and of the Assistant Engineers of the Central of Georgia System, Georgia, Southern and Florida, and the Savannah, Florida and Western, a list of the elevations of the various mile-posts and railroad stations has been obtained and reported. Some of these elevations refer to cross-ties or grade, while others refer to ground surface. At the tie-points, where the roads meet, or cross each other, it has been found impossible to harmonize the datum lines of the respective roads, for the reason, that no fixed points have been determined, from which to make the ties. This has been especially difficult at Macon, where some level-notes refer to surface, and others, to grade. The notes of the S., F. and W. were complete and accurate from Savannah to Bainbridge and from Waycross to Albany. So are those of the Central, when the datum for such was taken from mean low tide at Savannah. The U. S. Coast Survey has made a change of this datum, from mean low tide at Savannah to mean low tide at Fort Pulaski, where daily readings have been kept up, for a number of years. To this datum have all elevations been reduced, where possible.

It is necessary to mention the grave discrepancy in the elevation at the car-shed in Atlanta, as given by the level-notes of the Central R. R., and those of the U. S. Coast and Geodetic Survey. The Central R. R. notes show Atlanta to be 1,085 feet above mean low tide at Fort Pulaski, while the Geodetic Survey shows the elevation to be 1,050 feet above the same datum.

Mr. Schwab, Assistant Engineer and Draughtsman to the Central R. R., at Savannah, through whose courtesy these notes were obtained, has reduced all the lines of the Central System to one common datum of the main line at Savannah, which is given as zero. This zero-point is forty-six feet above mean low tide at Fort Pulaski, as found by Mr. Geisler, Assistant Engineer of the Coast Survey, who established permanent benches, or "B. M.," at various points in Savannah, as points of reference. From one of these bench-marks, levels were run to the head of the track in the Central passenger-depot, in that city, with the above result; that is, the Central datum to be forty-six feet above mean low tide at Fort Pulaski.

Mr. Schwab has carefully corrected, compiled and reduced all the levels of the Central System to this zero datum, with the result of making Atlanta 1,085 feet, instead of 1,050 feet. How this elevation of 1,050 feet was ever determined is not known. Mr. Schwab's figures are relied on for accuracy. His long years of experience; his familiarity with the Central R. R. notes, field and office; his known exact methods of work, give credit to the assumption, that 1,085 feet is the correct elevation for Atlanta.

The Southwestern R. R. and the B. & W. R. R., the former from Macon and the latter from Brunswick, meet at Albany, where the two different routes from Savannah harmonize very closely. This is close enough to give confidence to the levels, as run and worked out by the two routes.

The datum of the Georgia, Southern & Florida, which starts at Macon, was assumed at 200 feet, when the preliminary survey was made. This datum was retained, during location and construction. It crosses the B. & W. at Tifton. An attempt has been made to harmonize the levels at this point; but not very successfully, on account of the notes of the B. & W. referring to ground surface. When the elevations of the B. & W. station at Tifton are applied to the Ga., Sou. & Fla. at the same point, the Ga., Sou. & Fla. elevations, at the Union passenger-depot in Macon, do not correspond with the Central R. R. elevations, at the same point. This discrepancy can be reconciled, if the points, to which the elevations of either road refer, can be located and fixed with exactness. The importance of these railroad elevations cannot be overestimated; as so many topographical and geological questions depend upon them."

TIDE-WATER ELEVATIONS ON RAILROAD LINES

COMPILED BY C. C. ANDERSON

Ex-Assistant State Geologist

GEORGIA MIDLAND & GULF R. R.[1]

Station	Elevation[2]
Columbus	260.0
Flat Rock	474.0
Bull Creek	408.0
Midland	565.0
Ellerslie	726.0
Waverly Hall	746.0
Mulberry Creek	632.0
Mulberry Oak Mountain	716.0
Shiloh	919.0
Tennille	1,060.0
Topover Mountain, over Tunnel	1,148.0
Nebula	1,039.0
Warm Springs	929.0
Cold Creek	753.0
Raleigh	765.0
Cane Creek	705.0
Woodbury	781.0
Flint River	658.0
Molena	780.0
Neal	824.0
Concord	820.0
Williamson's	931.0
Griffin	967.0
Towaliga River	682.0
Lowella	871.0
Greenwood	873.0
McDonough	870.0

COLUMBUS SOUTHERN R. R.

Station	Elevation
Columbus	260.
Bull Creek	240.
Upatoie	225.
Ochillee	289.
Cusseta	532.
Manta	515.
Top of Cut, Manta	565.
Green Hill	601.
Brooklyn	691.
Richland	600.
Westerio	528.
Parrott's	482.
Dawson	376.
Sasser	336.
Oakland	275.0
Palmyra	260.0
Albany	208.0

EAST TENNESSEE, VIRGINIA & GEORGIA R. R.[1]

Station	Elevation
Red Clay	841.0
Cohutta	885.0
Varnell's	824.0
Waring's	813.0
Dalton	775.0
Immiline Creek	708.0

[1] Now a part of the Southern Railway.

[2] In feet.

EAST TENNESSEE, VIRGINIA & GEORGIA R. R.[1] (*Continued*)

Station	Elevation [2]
Phelps	724.0
Carbondale	776.0
Miller's	731.0
Valley	661.0
Snake Creek	630.0
Bruse Creek	624.0
Oostanaula	646.0
Bottom	597.0
Oostanaula River	620.0
Creek, 90 Mile-post	658.0
Plainville	690.0
Shannon	698.0
Harper	691.0
Stream	659.0
Creek, 79 Mile-post	679.0
North Rome	643.0
Etowah River	635.0
East Rome	624.0
Atlanta Junction	619.0
Vance Creek	614.0
Silver Creek, 73 Mile-post	612.0
Silver Creek, 70 Mile-post	688.0
Dry Creek	793.0
Seney	842.0
Fish Creek	755.0
Euharlee	776.0
Rockmart	775.0
Braswell	1,066.0
Summit	1,200.0
Big Tunnel	1,095.0
Stream	937.0
Cochrane Creek	1,012.0
Stream	908.0
Big Raccoon Creek	988.0
Top of Summit	1,073.0

EAST TENNESSEE, VIRGINIA & GEORGIA R. R.[1] (*Continued*)

Station	Elevation [2]
Little Tunnel	1,002.0
Little Raccoon Creek	981.0
McPherson	1,011.0
Stream	856.0
Pumpkinvine Creek	920.0
Dallas	1,012.0
Big Powder Springs Creek	927.0
Powder Springs	921.0
Stream	889.0
Sweet Water Creek	904.0
Austell	935.0
Peters Street, Atlanta	1,054.0
Railroad Shops, Atlanta	1,028.0
Atlanta	1,038.0
Stream	784.0
South River	826.0
Summit	932.0
Soapstone Cut	905.0
Stream	816.0
Creek	861.0
Ellenwood	853.0
Estes	768.0
Stream	736.0
Indian Creek	751.0
Stockbridge	803.0
Indian River	714.0
Pates' Creek	714.0
Stream	741.0
Walnut Creek	791.0
Stream	748.0
Camp Creek	778.0
Long Branch	778.0
McDonough	852.0
Near McDonough	890.0
Cloud's Branch	873.9

[1] Now a part of the Southern Railway.

[2] In feet.

EAST TENNESSEE, VIRGINIA & GEORGIA R. R.[1] (*Continued*)

Station	Elevation[2]
Locust Grove	825.0
Yellow Water Creek	662.0
Jackson	705.0
Flovilla	655.0
Williams	632.0
Stream	385.0
Big Sandy	410.0
Stream	385.0
Rattlesnake Creek	408.0
Stream	380.0
Towaliga River	415.0
Juliette	395.0
Stream	354.0
Powder Creek	384.0
Dames Ferry	364.0
Stream	327.0
Rum Creek	353.0
Holton	350.0
Stream	300.0
Beaver Creek	321.0
Stream	283.0
Vineville Branch	303.0
Macon	311.0
Cotton Yard	311.0
Stratton's Branch	285.0
Banks of Stream	272.0
Ocmulgee River	285.0
Reid's	280.0
Bullard's	265.0
Belchers Branch	258.0
Adams' Park	265.0
Savage Creek	251.0
West Lake	240.0
Coley's	306.0
Cochrane	341.0

EAST TENNESSEE, VIRGINIA & GEORGIA R. R.[1] (*Continued*)

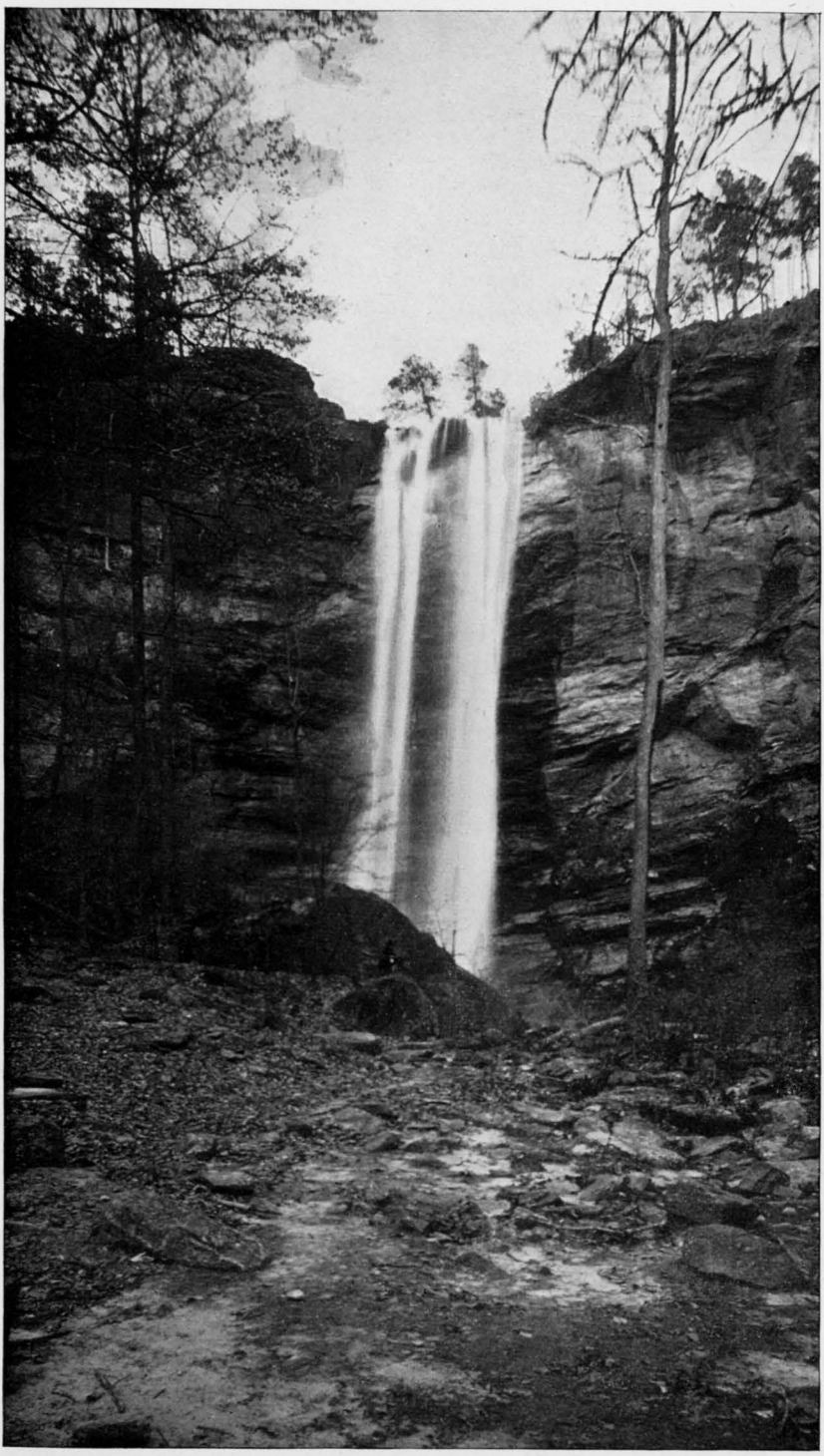
Station	Elevation[2]
Empire	380.0
Dubois	394.0
Dempsey	363.0
Eastman	361.0
Godwinsville	316.0
Chancey	303.0
Cunningham	707.0
Cave Spring	697.0
State Line	900.0

GEORGIA PACIFIC R. R.[1]

Station	Elevation[2]
Peyton	870.0
Chattahoochee River	808.0
Nickajack Creek	808.0
Stanback's Creek	820.0
Nickajack No. 2	839.0
" No. 3	850.0
Mable's Trestle	922.0
Near Mableton	1,006.0
Mableton	986.0
Water Tank	936.0
Sweetwater	913.0
Austell	937.0
County Line	1,010.0
Salt Springs	1,034.0
Douglasville	1,216.0
Winston	1,130.0
County Line	1,146.0
Villa Rica	1,157.0
Water Tank, 40 Mile-post	1,054.0
Tallapoosa River, Little	1,057.0
Temple	1,178.0
County Line	1,221.0

[1] Now a part of the Southern Railway.

[2] In feet.



TOCCOA FALLS, HABERSHAM COUNTY, GEORGIA.

GEORGIA PACIFIC R. R.[1]

(*Continued*)

Station	Elevation [2]
Bremen	1,413.0
Waco	1,343.0
Tallapoosa	1,159.0
Tallapoosa River	963.0
Dempsey Creek	943.0
State Line	945.0

SAVANNAH, FLORIDA & WESTERN R. R.

Station	Elevation [2]
Savannah	25.8
Little Ogeechee River	19.0
Crosstie, East End of Bridge	18.4
" West " " "	17.7
Bottom of River	9.8
Station, No. 10	25.8
Burroughs, No. 12	17.8
Great Ogeechee Bridge	20.6
Bottom of River	9.8
Station, No. 16, or Way's	21.1
Branch, 18½ Miles	22.2
Branch, 20½ Miles	22.6
Branch, 21¼ Miles	22.5
Mt. Hope Creek	23.3
Branch, 22½ Miles	24.2
Flemming, No. 24	25.4
Branch, 25 Mile-post	23.0
" 26½ Miles	22.5
" 27½ "	22.3
Branch, 29 Mile-post	22.1
" 29¼ Miles	22.3
McIntosh, No. 31	26.4
McIntosh Creek	22.8
Gauldin's Creek	29.6
Branch	31.9

SAVANNAH, FLORIDA & WESTERN R. R.

(*Continued*)

Station	Elevation [2]
Branch, 38¼ Miles	102.6
Walthourville, No. 39	102.5
Branch	102.3
"	102.2
"	91.8
" 40¾ Miles	89.7
" 41¾ "	74.3
Durham Creek	66.3
Johnston, No. 46	75.8
Jones Creek	52.6
Fountain Branch	50.8
Forest Pond	51.2
Morgan Lake	51.7
Bottom of Lake	12.8
Water-surface of Lake	38.3
Altamaha River	75.9
High-water Mark	42.5
Mean-water Surface	33.3
Bottom of River	21.3
Doctortown, No. 53	77.3
End of Cut	92.1
Jesup	102.9
" Warehouse	102.8
Turnout, No. 62	101.7
Dale's Mill, No. 67	140.0
Branch, 67½ Miles	126.8
" 68¼ "	121.8
Screven, No. 69	127.3
Turnout, No. 74	76.5
Offerman, No. 76	110.4
Patterson, No. 79	108.0
Turnout, No. 83	127.8
Blackshear, No. 87	125.8
Turnout, No. 89	141.0
Exeter, No. 93	96.8

[1] Now a part of the Southern Railway.

[2] In feet.

SAVANNAH, FLORIDA & WESTERN R. R.

(*Continued*)

Station	Elevation [1]
Big Satilla River	96.4
Bottom of River	68.8
Water-surface of River	71.8
Waycross, No. 97	140.8
Turnout, No. 99	147.1
Glenmore's, No. 103	112.1
Argyle, No. 116	164.2
Homerville, No. 123	179.8
Dupont, No. 131	184.1
Junction, No. 131	184.1
Stockton, No. 139	192.6
Naylor	195.6
Valdosta	218.8
Ousley	151.8
Quitman	176.7
Dixie	134.4
Boston	197.9
Thomasville	253.6
Cairo	242.4
Whigham	268.9
Climax	280.8
Bainbridge	113.6
Fowltown	292.8
Franceville	299.8
Recovery	192.8
Florida Railway & Navigation Co.	75.8
Chattahoochee	73.8
Pensacola Junction	74.8

WAYCROSS & JACKSONVILLE BRANCH, SAVANNAH, FLORIDA & WESTERN R. R.

Station	Elevation [1]
Waycross	140.8
Braganza	147.8
Fort Mudge	137.8

WAYCROSS & JACKSONVILLE BRANCH, SAVANNAH, FLORIDA & WESTERN R. R.

(*Continued*)

Station	Elevation [1]
Race Pond	151.8
Uptonsville	87.3
Folkstone	83.8
Boulogne	73.8

BRUNSWICK & WESTERN R. R.

Station	Elevation [1]
Brunswick	17.8
Buffalo Swamp	7.8
Water Surface, Big Buffalo	3.8
Water Surface, Little Buffalo	3.8
Near Waynesville	53.8
Satilla River	18.8
Caney Bay	103.8
Big Creek, Water Surface	80.8
Waycross	140.8
Cox Creek	104.8
Waresboro	120.8
Dixonia Station	126.8
Poley Branch, Water Surface	123.8
Peach Creek, Water Surface	94.8
Gordonia	131.8
Duncan Branch, Water Surface	117.8
Red Bluff Creek	108.
Branch, Red Bluff Station	147.
Pearson Station	172.
Kirkland	200.
Westonia	196.
Leliaton	203.
Branch at 99 Mile-post	196
Pine Bloom	206
Willacoochee	222
Branch, 103 Mile-post	17(

[1] In feet.

BRUNSWICK & WESTERN R. R. (*Continued*)

Station	Elevation [1]
Willacoochee River	184.8
" "	179.3
Sniff Station	223.8
Allapaha River	121.8
Branch of the Allapaha River	241.8
Allapaha Station	268.8
Branch of the Willacoochee River	263.8
Branch of the Willacoochee River	259.8
Ridge, 116 Mile-post	388.8
Enigma Station	265.8
Henry's Branch, 119¼ Miles	248.8
Brookfield	306.8
Middle Creek	278.8
New River	282.8
Vanceville	290.8
Little River	303.8
Tifton	343.8
Branch, 130 Mile-post	304.8
Tucker Creek	255.8
Riverside Station	264.8
Little River	239.8
Hillsdale Station	303.8
Ty Ty Creek	275.8
" " " and Station	269.8
Sumner Station	350.8
Wiston Mill	351.8
Poulan Station	312.8
Warrior Creek	302.8
Hog-heaven	331.8
Isabella	341.8
Coleman's Station	354.8
Willingham Station	299.8
Acrosta Station	205.0

BRUNSWICK & WESTERN R. R. (*Continued*)

Station	Elevation [1]
East Albany	186.0
Flint River Valley	154.0
Water Surface, Flint River	127.0
Albany	172.0

EAST GEORGIA & FLORIDA R. R.[2]

Station	Elevation [1]
Jesup	103.0
Cypress Flat	104.0
Pigeon Roost Swamp	95.0
Branch, 63 Mile-post	85.0
Buffalo Creek	66.0
Crossing East Tenn., Va., & Ga. R. R.[3]	68.0
Turkey Swamp, 72 Mile-post	75.0
" " 72½ Miles	67.0
B. & W. R. R. Grade	73.0
College Creek	63.0
Little Satilla Swamp	61.0
Waverly Swamp	60.0
White Oak Swamp	60.0
Flowers' Swamp	56.0
Big Walker Swamp	61.0
Little Walker Swamp	62.0
Rose Creek Swamp	71.0
Seal Swamp	61.0
North Fork of Crooked River Swamp	58.0
Crooked River Bottom	56.0
South Fork, Crooked River Bottom	55.0
Little Catfish Creek	56.0
Big Catfish Creek	44.0
St. Mary's Swamp	47.0
St. Mary's River, Low Tide	52.0

[1] In feet.

[2] Datum:—Reduced to Fort Pulaski by adding.

[3] Now a part of the Southern Railway.

WESTERN & ATLANTIC R. R.[1]

Station	Elevation [2]
Atlanta	1,050.0
Simpson Street Crossing	1,025.6
Belt Crossing	969.7
Guano Works	937.8
Chemical Works	925.7
Bolton	848.3
Iceville	843.3
Joplin	837.6
Collins Brick-yard	851.6
Chattahoochee River, crosstie	833.0
Gilmore	900.2
Vining's Station	945.7
McIver's	967.0
Smyrna	1,068.4
Ruff's	1,065.6
Marietta	1,133.4
Elizabeth	1,164.4
Big Shanty	1,107.8
Acworth	929.0
County Line	910.1
Allatoona Creek	877.7
Allatoona Station	879.6
Forty-one Junction	871.2
Bartow	847.8
Emerson	843.7
Etowah Junction	755.8
Etowah River	746.0
Cartersville	762.2
East & West Railroad Junction	748.0
Stream, 493 Mile-post	731.9
Rogers' R. R. Junction	740.0
Stream No. 40	744.0
" " 39	754.0
" " 38	758.9
Cassville	767.6

WESTERN & ATLANTIC R. R.[1] (*Continued*)

Station	Elevati
Stream No. 37	78
" " 36	75
Best's	75
Gaines' Mill	73
Two Run Creek, No. 35	72
Kingston	71
Cement	68
Hall's	78
Summit	80
Top of Grade	80
Oothcaloga River	73
Stream, 68 Mile-post	70
Adairsville	72
Oothcaloga River	68
County Line	67
McDaniel's	66
Oothcaloga River	64
Calhoun	66
Resaca	65
Oostanaula River	65
County Line	65
Tilton	66
Beardsley	668
Stream No. 24	727
Dalton	773
Rock Face	782
104 Mile-post	783
Tunnel Hill	850
County Line	823
Greenwood	794
Catoosa	789
Ringgold	794
Graysville	711
State Line	715

[1] Datum :— Atlanta elevation, Union Depot, 1,050 feet above sea-level.

[2] In feet.

GEORGIA, SOUTHERN & FLORIDA R. R.

Station	Elevation [1]
Station O	304.0
Switch	344.0
Southwestern Railroad	337.0
Macon & Birmingham Railroad	321.0
River Swamp, North Edge	287.0
" " proper	283.0
" " proper	278.0
Macon & Birmingham Railroad	279.0
Last Lake	278.0
Ridge between River and Tobesofkee Creek	309.0
Creek Swamp	277.0
Ridge between Echeconnee Creek and Tobesofkee Creek	332.0
Ridge, Section-house, No. 7	363.0
Ridge, Section-house, No. 8	289.0
Avondale	339.0
Echeconnee Creek	253.0
Section-house, No. 14	298.0
Joe Fredcrick	286.0
Willston, No. 16	295.0
Sandy Reed Creek	280.0
Mrs. McBride's, No 10	331.0
Section-house, No. 20	317.0
Ridge, 20½ Miles	344.0
Beaver Creek	292.0
Ridge, 23½ Miles	319.0
Sofkee Junction	335.0
Kathleen	318.0
Section-house, No. 26	290.0
Mossy Creek	258.0
Ridge between Big Indian and Mossy Creeks	288.0
Big Indian Creek	294.0
Limestone Creek	294.0
Hayneville Road	311.0

GEORGIA, SOUTHERN & FLORIDA R. R. (*Continued*)

Station	Elevation [1]
Section-house, No. 35	421.0
Top of Ridge, 35½ Miles	451.0
Holton Creek	400.0
Ridge, 38 Mile-post	426.0
Hawkinsville & Henderson Road	413.0
Big Creek	311.0
Ridge, 42½ Miles	410.0
John Croupler	400.0
Sub-grade, Macon & B. R'w'y	321.0
Section-house, No. 47	365.0
Fullington Mill	365.0
Vienna	319.0
Section-house, No. 58	336.0
Carnes Mill, 59½ Miles	342.0
Carnes Mill, 61¼ Miles	359.0
Savannah, Americus & Montgomery R. R. Crossing	361.0
Cordele	388.0
Section-house, No. 67	375.0
Wenona, No. 69	394.0
Vinton, No. 70	400.0
Grady (?) Brown Place	443.0
Arabi Station	399.0
James's Saw-mill	398.0
Bedgood & Ryan	404.0
Pate's House	396.0
Section-house, No. 80	408.0
Deep Creek	350.0
Section-house, No. 81	384.0
Peckville	446.0
Marion, No. 85	451.0
Branch, 86½ Miles	409.0
Sycamore	397.0
Inaha Station	417.0
Bottom, 92 Mile-post	396.0

[1] In feet.

GEORGIA, SOUTHERN & FLORIDA R. R.
(*Continued*)

Station	Elevation [1]
Brisham Road-grade	405.0
Cyclonetta	413.0
Wolf Pit	394.0
Section-house, No. 101	410.0
" " " 102	415.0
Brunswick & Western R. R. Crossing	373.0
Tifton Depot	379.0
Branch, 109½ Miles	361.0
Branch, 112¼ Miles	336.0
Hawell Mill	301.0
Laconte Station	307.0
120 Mile-post	272.0
121 Mile-post	276.0
Saw-mill and Still	275.0
122 Mile-post	273.0
123 Mile-post	276.0
Cypress Pond	261.0
Mill, 124½ Miles	247.0
Section-house, No 125	253.0
Sparks Station	244.0
Troupville Road	246.0
Turkey Creek	241.0
127 Mile-post	249.0
Adel Station	252.0
129 Mile-post	248.0
130 Mile-post	240.0
131 Mile-post	246.0
Oxmoor Station	252.0
135 Mile-post	232.0
136 Mile-post	229.0
137 Mile-post	221.0
138 Mile-post	236.0
Vicker's Creek	211.0
Withlacoochee River	140.0

GEORGIA, SOUTHERN & FLORIDA R. R.
(*Continued*)

Station	Elevation [1]
Water-surface	124.0
Savannah, Florida & Western R. R. Crossing at Valdosta	219.0
Florida Midland R. R	209.0
Center of Road-bed	205.0
Mike Bay	204.0
Mud Creek	176.0
154 Mile-post	203.0
155 Mile-post	204.0
156 Mile-post	190.0
157 Mile-post	182.0
Ulner's Mill	200.0
Long Pond	180.0
Lake Park	167.0
164 Mile-post	157.0
Wessenboke House	156.0
State Line	161.0
Tank, 171 Mile-post	151.0
Allapaha River	101.0
172 Mile-post	105.0

CENTRAL OF GEORGIA R. R.

Station	Elevation [1]
Savannah	46.0
Junction, Meldrim	39.3
Egypt	143.0
Oliver	140.0
Little Ogeechee	107.0
Halcyondale	112.0
Outland	110.0
Ogeechee Station	117.0
Horse Creek	136.0
Scarboro Station	157.0
Paramonis Hill	244.0

[1] In feet.

CENTRAL OF GEORGIA R. R.
(*Continued*)

Station	Elevation [1]
Ocains Branch	199.0
Ridge, 77 Mile-post	210.0
Millen Junction	156.0
Buckhead Creek	156.0
Rogers	162.0
Herndon	189.0
Sebastopol	201.0
Point, 98 Mile-post	207.0
Ogeechee River	205.0
Wadley Station	243.0
Bartow Station	237.0
Johnston Station	261.0
Davisboro	302.0
Sunhill Station	362.0
Tennille Station	477.0
Oconee Station	228.0
Toombsboro	237.0
Oconee River	221.0
McIntyre	264.0
Gordon	354.0
Pulaski	374.0
Griswold	476.0
Macon	310.0
River Flat	300.0
Point, 163 Mile-post	300.0
Top of Ridge	481.0
Summit	475.0
Passenger Depot, Macon	377.0
Switch-back, M. & W.	401.0
Holt Place	584.0
Howards	485.0
Mims House	598.0
Crawford	621.0
Winn Road-crossing	669.0
Trammell's	590.0

CENTRAL OF GEORGIA R. R.
(*Continued*)

Station	Elevation [1]
Mrs. Thomas's	759.0
Collier's Station	781.0
The Jossey Estate	777.0
Gardner	857.0
Goggins Station	842.0
Goodwins	905.0
Road-crossing, 232 Mile-post	933.0
Barnesville	903.0
Milner Station	894.0
Simms' Place	881.0
Gilbert Weaver's	882.0
I. Andrews'	944.0
B. F. Sorcircy	979.0
Cunningham	997.0
Thornton Station	915.0
Griffin	1,004.0
Cox Land	1,000.0
Pat Sullivan's	920.0
Ben. Barfield's	975.0
S. P. Campbell	937.0
G. Dorsey's	1,012.0
Love Ivy Station	1,002.0
J. McVickers	937.0
Jonesboro	995.0
Atlanta	1,085.0

EDEN EXTENSION, CENTRAL R. R.

Station	Elevation [1]
Meldrim Station	39.3
Black Creek	14.3
Ogeechee River	14.3
Ogeechee River, East Bank	30.3
Ogeechee River, West Bank	29.3
Cuyler	37.3

[1] In feet.

EDEN EXTENSION, CENTRAL R. R. (*Continued*)

Station	Elevation [1]
East Bank, Black Creek	45.3
West Bank, Black Creek	59.3
Road-crossing, 21¾ Miles	76.3
Section-house	74.3
Ellabell	93.5
Malden Branch	58.5
Savannah Road Crossing	76.5
Toney Branch, 26⅓ Miles	63.5
Toney Branch, 27 Mile-post	69.5
Main Run	79.5
Pembroke Station	101.5
Savage Creek	96.5
Sam Baconfield's	110.5
Gin Branch	99.5
John Baconfield's	107.5
Harvey Branch	106.5
Savannah Road Crossing	114.5
Dry Branch	107.5
Uphaupee Station	162.5
Cannouchee River	63.5
Conly Station	184.5
Mt. Vernon & Savannah Road Crossing, 45 Mile-post	180.5
Branch, 45½ Miles	155.5
Mt. Vernon and Savannah Road Crossing 48¾	194.5
Mt. Vernon and Savannah Road Crossing, 49¼ Miles	196.5
Bull Creek Ch. Road Crossing	194.5
Haw Pond	201.5
Bellville Station	186.5
Branch, 54½ Miles	206.5
Manassas Station	217.5
Collins Station	238.5
Branch, 61¾ Miles	196.5

EDEN EXTENSION, CENTRAL R. R. (*Continued*)

Station	Elevation [1]
Bracewell Creek, 62½ Miles	168.5
Bed of Bracewell Creek, 64 Mile-post	184.5
East Side of Valley	128.5
Ohoopee River	99.5
West Side of Valley	115.5
Ohoopee Station	187.5
Branch, 69½ Miles	149.5
Mill Branch, 76¼ Miles	127.5
Pendleton Creek	110.5
East Side of Valley	140.5
West Side of Valley	138.5
Branch, 72 Mile-post	153.5
Branch, 72¼ Miles	160.5
Branch, 72½ "	160.5
Lyons Station	254.5
McLeod's House	253.5
Branch, 81 Mile-post	257.5
Branch, 82¾ Miles	249.5
Branch, 83¼ "	246.5
Black Creek	244.5
Rocky Creek	258.5

AUGUSTA DIVISION, CENTRAL R. R.

Station	Elevation [1]
Millen	157.5
Buckhead Creek	145.0
Road-crossing, 82¾ Miles	182.0
Lawton	225.6
Hines' Mill Creek	199.2
Road-crossing, 84¾ Miles	212.2
Road-crossing, 88 Mile-post	252.0
Long Branch	242.0
Branch, 89¼ Miles	255.0
Ridge, 89¾ "	275.0
Public Road, 90¼ Miles	263.4

[1] In feet.

HIGH FALLS OF THE TOWALIGA, MONROE COUNTY, GEORGIA.

AUGUSTA DIVISION, CENTRAL R. R. (*Continued*)

Station	Elevation [1]
Lumpkin Station	264.4
Branch, 91 Mile-post	252.0
Carter's Branch	253.0
Proctor's Branch	277.2
Ship Ridge	283.5
Pond's Branch	277.9
Thomas Station	285.7
Road-crossing, 96¼ Miles	300.7
" " 97¼ "	302.2
McIntosh Creek	262.8
Waynesboro Station	286.7
Briar Creek	199.7
Gouns Cut	284.9
McBean Creek	140.9
McBean Station	134.6
Dickerson Canal	127.6
Little McBean Creek	117.2
McBean Mill	126.6
Barney Bluff	124.2
Valley, 119¼ Miles	122.1
Ridge, 120¼	140.9
Road-crossing, 121 Mile-post	133.6
Spring Creek	119.8
Allen's Station	139.2
Butter Creek	141.5

SOUTHWESTERN DIVISION, CENTRAL R. R.

Station	Elevation [1]
Passenger Depot, Macon	377.0
Starting Point	328.0
Tobesofkee Ridge	382.2
Tobesofkee Creek	313.0
Ridge, 198 Mile-post	396.9
Walden Station	390.6
Echeconnee Creek	303.1
Byron Station	515.6
Powersville	406.3
Fort Valley	531.3
Marshallville	500.0
Winchester	375.0
Montezuma	300.0
Flint River	303.1
Oglethorpe	313.0
Ridge, 249 Mile-post	398.0
Sweet Water Creek	366.0
Americus Ridge	469.0
Americus	350.0
Smithville Ridge	372.0
Smithville	319.0
Albany	184.4
East Albany	186.0

[1] In feet.

NOTE. — It is impossible to harmonize the data of all railroads, centering in Macon; because the points, whose elevations are given, cannot be definitely located and united, by a line of levels. These elevations have been tied, when possible, in regions of level ground, rather than in the hills of Middle Georgia, where a slight error in location would make a discrepancy of several feet in elevation. Waycross, Valdosta, Tifton, Albany, Smithville and Thomasville have been chosen, for the tie-points; but harmony, at the above named places, causes discrepancies at Macon and Atlanta, that can be explained, only on the theory of gross errors in working out the levels in the original surveys.

EUFAULA BRANCH, SOUTHWESTERN DIVISION, CENTRAL R. R.
(*Continued*)

Station	Elevation [2]
Smithville	319.0
Kinchafoonee Creek	265.0
East Chickasawhachee Creek	334.0
Middle Prong of Chickasawhachee Creek	334.0
West Prong of Chickasawhachee Creek	312.0
100 Mile-post	362.0
Station, 292 Mile-post	326.0
Creek, 295½ Miles	283.0
Station, 298 Mile-post	379.0
Double Branch	387.0
Pachitla Creek	340.0
Cuthbert Depot	432.0
Railroad Junction	469.0
125 Mile-post	274.0
Station, 319½ Miles	235.0
Stream, 321 Mile-post	212.0
Station, 324 Mile-post	289.0
Tobenannee Creek	214.0
Georgetown Depot	189.0
Near River, 332½ Miles	178.0
Beyond River, 333 Mile-post	199.0
Eufaula, Alabama	211.0

FORT GAINES BRANCH, SOUTHWESTERN DIVISION, CENTRAL R. R.[1]

Station	Elevation [2]
Junction, 311 Mile-post	469.0
126 Mile-post	424.0
Samocheehabbee Creek	161.0
Fort Gaines	252.0

MUSCOGEE R. R., SOUTHWESTERN DIVISION, CENTRAL R. R.

Station	Elevation [2]
Fort Valley	531.0
Flint River	337.0
Reynold's	433.0
52 Mile-post	506.0
Butler Station	650.0
Station, 250 Mile-post	666.0
Bostwick	669.0
Geneva	600.0
Upatoie	432.0
Upatoie Creek	413.0
Keaton	382.0
Station, 267 Mile-post	382.0
Far River	382.0
Kendall's Mill	392.0
Cox Creek	397.0
Station, 273 Mile-post	460.0
Randall Creek	313.0
Station, 276 Mile-post	460.0
Dozier Creek	439.0
Bull Creek	378.0
Station, 281 Mile-post	322.0
Columbus	262.0

MACON & DUBLIN R. R.

Station	Elevation [2]
2 Mile-post, Macon & North. R. R.	516.0
Swift Creek	536.0
Branch, 5 Mile-post	538.0
Bottom of Swift Creek	512.0
Cut, Crosstie, 5¼ Miles	545.0
" Ground Surface	575.0
Bottom of Branch, 7 Mile-post	539.0
" " " 8¼ Miles	570.0

[1] Datum : — Reduced to Fort Pulaski, Mean Low Tide, by adding constant 86 to all elevations.

[2] In feet.

MACON & DUBLIN R. R.
(*Continued*)

Station	Elevation [1]
Branch, 9 Mile-post	575.0
Branch Bottom	564.0
Dry Branch Station	589.0
Branch Bottom	659.0
1st Large Cut, 12 Mile-post	723.0
Ground-Surface	769.0
2nd Large Cut, 12½ Miles	752.0
Ground Surface	793.0
Pike's Peak Station	755.0
Branch Bottom, 12¾ Miles	713.0
Fitzpatrick Station	762.0
Branch, Ground Surface, 17¾ Miles	738.0
Branch, 18¾ Miles	767.0
Branch Bottom	751.0
Macon Road Crossing	745.0
Allentown Road Crossing	752.0
Jeffersonville Station	747.0
Road-crossing	734.0
24 Mile-post	710 0
Branch, 26½ Miles	634.0
Palmetto Creek Bottom	591.0
Gallimore Station	594.0
Turkey Creek, 29 Mile-post	575.0
Hughes Station	572.0
Allentown Station	651 0
Montrose Station	612.0
Elsie Station	546.0
Branch, 44 Mile-post	516.0
Turkey Creek, 46¾ Miles	439.0
Spring Branch Bottom	424.0
Moore Station	479.0
Dublin	452.0
Moore Street, Dublin	442.0
Lawrence Street, "	442.0
Jefferson Street, "	440.0

MACON & DUBLIN R. R.
(*Continued*)

Station	Elevation [1]
Oconee River Bluff	413.0
High-water Mark	400.0
West Bank of Oconee	394.0
Bottom of Oconee	362.0
East Bank of Oconee	396.0
12 Mile-post	772.0
13 " "	773.0
14 " "	772.0
15 " "	764.0
16 " "	783.0
17 " "	761.0
18 " "	765.0
19 " "	749.0
20 " "	764.0
21 " "	751.0
22 " "	750.0
23 " "	732.0
24 " "	710.0
25 " "	662.0
26 " "	598.0
27 " "	586.0
28 " "	575.0
29 " "	632.0
30 " "	664.0
31 " "	658.0
32 " "	643.0
33 " "	632.0
34 " "	632.0
35 " "	602.0
36 " "	608.0
Ravine, 55 Mile-post	409.0
Shaddock Creek	404.0
Mt. Vernon Road	408.0
Pugh's Creek Bottom	404.0
Branch, 67¾ Miles	445.0

[1] In feet.

MACON & DUBLIN R. R.
(*Continued*)

Station	Elevation [1]
Branch, 68½ Miles	509.0
Blackville Road	512.0
Alligator Creek	500.0
Branch, 72¼ Miles	495.0
" 73 Mile-post	484.0
Road, 74½ Miles	460.0
Branch, 75¼ "	453.0
Road, 77¼ "	457.0
Pendleton Creek	440.0
Branch, 78 Mile-post	442.0
Ridge, 80 Mile-post	489.0
Branch, 80 Mile-post	452.0
Red Bluff Creek	420.0
Ridge, 82 Mile-post	474.0
Branch, 82¼ Miles	449.0
Branch, 83 Mile-post	441.0
" 84½ Miles	461.0
" 86 Mile-post	477.0
" 88¼ Miles	411.0
" 89½ Miles	377.0
Low-grounds	366.0
Bottom of Ohoopee	354.0
High-water Mark	372.0
Ridge, 94 Mile-post	440.0
Jack's Creek	356.0
Branch, 97¼ Miles	371.0
" 97¾ "	388.0

MACON & DUBLIN R. R.
(*Continued*)

Station	Elevation [1]
Ridge, 98½ Miles	428.0
Branch, 98¾ "	400.0
Ridge, 99¼ "	421.0
Branch, 99½ Miles	400.0
Ridge, 100½ "	465.0
Road, " "	460.0
Wolf Creek	484.0
1st Ridge, 101½ Miles	453.0
2nd " " "	453.0
1st Branch of Wolf Creek	429.0
Branch, 103½ Miles	395.0
Ridge Road, 105¼ Miles	419.0
Branch, 105½ Miles	397.0
Road, 106 Mile-post	398.0
Cannouchee River	344.0
High-water Mark	348.0
Branch, 110¾ Miles	354.0
Reidsville Road	360.0
10-mile Creek	336.0
Road, 115¾ Miles	376.0
" 123¾ "	364.0
Lot's Creek	305.0
Road, 129 Mile-post	350.0
Bullock's Bay	328.0
Bay Gall	310.0
Road, 133¼ Miles	320.0
Road, 134¼ "	319.0

[1] In feet.

ELEVATIONS

The following are the elevations above the average sea-level of some of the prominent mountains and other points of interest in the State, determined by the United States Coast and Geodetic Survey: —

	Elevation in feet
Sitting Bull (middle summit of Nantahala, Towns county)	5,046
Mona (east summit of Nantahala, Towns county)	5,039
Enota, in Towns county	4,797
Rabun Bald, in Rabun county	4,718
Blood, in Union county	4,468
Tray, in Habersham county	4,403
Cohutta, in Fannin county	4,155
Dome, in Towns county	4,042
Grassy, in Pickens county	3,290
Tallulah (northwest summit), in Habersham county	3,172
Tallulah (southeast summit), in Habersham county	2,849
Yonah, in White county	3,167
Walker, in Lumpkin county	2,614
Lookout (at High Point), in Walker county	2,390
Pine Log, in Bartow county	2,346
Lookout (at Round Mountain), in Walker county	2,331
Pigeon (at High Point), in Walker county	2,329
Skit	2,075
Sawnee, in Forsyth county	1,968
Kennesaw, in Cobb county	1,809
Stone Mountain, in DeKalb county	1,686
Sweat	1,693
Lavender, in Floyd county	1,680
Cleveland Church, in White county	1,616
Taylor's Ridge, in Chattooga county	1,556
Dahlonega Agricultural College	1,518
Mt. Alto, in Floyd	1,505
Clarkesville Court House, in Habersham county	1,478
Carnes Mountain, in Polk county	1,296

APPENDIX

INTRODUCTION

By W. S. YEATES, State Geologist

Since the work of compiling the report on the *Water-powers of Georgia*, which forms the first part of this bulletin, was completed, a great deal of hydrographic work has been done in Georgia, by the co-operation of this Survey with the U. S. Geological Survey, mentioned in the letter of transmittal.[1] As indicated, in this letter, it was the intention of the State Geologist, to use the results of that work, in a second bulletin, to be published, as soon as sufficient field-data had been collected. As it has taken a much longer time to bring out this bulletin, than was at first anticipated, it is best to include, in the form of an appendix to the first report, the work since accomplished in the field, bringing the subject up to date.[2]

In the fall of 1895, Mr. B. M. Hall, who had been employed, by this Survey, as Special Assistant, to compile the report on the Water-powers of Georgia, embraced in the first part of this bulletin, was appointed Hydrographer for the U. S. Geological Survey, in charge of the work on the rivers of Georgia, Florida, Alabama and Tennessee, under the direction of Mr. F. H. Newell, Chief of the Hydrographic Division of the U. S. Geological Survey. Subsequently, the plan of co-operation, referred to, was agreed upon; and all work, done by the two Surveys, since Mr. Hall began, in the latter part of 1895, is here presented.

[1] See page 5.

[2] July 1st, 1897.

During this time, Mr. Hall has been regularly assisted, in the field-work, by Messrs. Max Hall, Olin P. Hall and P. A. Dallis; while the following river-observers have been employed, at the various stations, indicated:—

Observer	Station	River
Col. S. M. Carter	Carter's	Coosawattee
J. H. Lowry	Oakdale	Chattahoochee
C. E. Melton	West Point	"
J. P. Mercer	Macon	Ocmulgee
S. M. Barnett	Resaca	Oostanaula
Peter Pfeiffer	S. A. L. Bridge	Savannah
J. A. Low	Canton	Etowah
J. L. Cary	Carey	Oconee
U. S. Weather Bureau	Dublin	"
J. A. Moore	Molena	Flint

These gentlemen have been paid a small amount, as compensation for their services, except Col. Carter, who kindly consented, to act as observer at Carter's Station, without compensation; and they have made weekly reports, on daily observations, both to the U. S. Geological Survey and to the Geological Survey of Georgia. By courtesy of the U. S. Weather Bureau, observations at Dublin have been furnished, without cost to either Survey; but, as this station has been discontinued by the Weather Bureau, further observations, here, will require the employment of an observer.

The plan of co-operation has resulted in accomplishing a much greater work, for both Surveys; and it is proposed, to continue this plan, for collecting data, for our next bulletin, on this subject. It is the very liberal policy of the Director of the U. S. Geological Survey towards the State Surveys, that has made it possible, for the Geological Survey of Georgia to collect so much data, at so small an expense to the State; and further co-operation, along other lines of work, will probably be effected, in the near future.

METHODS AND RESULTS OF RECENT WORK

By B. M. HALL, Hydrographer

The following is a brief statement of the methods, adopted, and the results accomplished, in the field-work, done, since the foregoing report on the Water-powers of Georgia was compiled : —

This appendix deals, exclusively, with the amount of water, flowing in the streams, and gives a safe basis, for calculation of low-water volumes, at the separate water-powers, described in the foregoing report; the same being applicable, only to the driest years, ever known in this region. The work was begun, in the Autumn of 1895; and it has continued, without ceasing, to the present time. Its object has been to obtain a knowledge of the exact amount of water, flowing in the streams, at all seasons of the year, in order to arrive at their value for water-power, irrigation, mining, municipal supply etc. Certain convenient stations have been established on the important rivers. At each of these stations, a gauge-rod is set, to show the fluctuations of the stream; and a gauge-reader is employed, to observe the height of water on the gauge, every morning, at the same hour, and to make a weekly report of the same to the Hydrographer-in-charge. From time to time, the Hydrographer, or one of his field-assistants, visits the station, and makes an accurate discharge-measurement of the stream, noting the height of the water on the gauge, at the time the discharge-measurement is made. After a large number of discharge-measurements have been made, at different gauge-heights, a rating-table is made, from the data thus obtained, which gives the amount of water, flowing in the stream, at that station, for any gauge-height, shown on the rod. Thus, by inspection of the table of daily gauge-heights, the flow of

the stream is shown, for every day in the year, or years, covered by observations of gauge-height. As the main object of the work, so far, has been to get the value of the streams, for water-power, special attention has been given to low-water measurements; and the rating-tables do not cover the highest stages of water.

In making discharge-measurements, the velocities are taken, at all points of the section, with the latest improved electric current-meters; and accurate cross-sections are made, from soundings, 10 feet apart.

The minimum low-water measurements, given here, were made in the Autumn of 1896, when the streams were at the lowest stage, that they have reached, for many years — a minimum stage, that they probably reach, only once or twice in a century. This will be shown by a study of the Atlanta rainfall table, from July 1870 to December 1896, inclusive, published on page 18 of this bulletin, giving, for 26 years, an average annual rainfall of 50.96 inches. It gives positive evidence, that the streams of this region were lower, during the year 1896, than at any time since 1870. There has been a continuous accumulating deficiency since 1890, which, however, did not begin to make a visible impression on the streams, until 1893, though it naturally affected the supply of ground-water, available for the following years. But, on top of this deficiency, has come a period of four years, from 1893 to 1896, inclusive, in which the average annual rainfall was 39.35 inches, distributed as follows: — Spring — 9.87; Summer — 12.43; Autumn — 6.24; and Winter — 10.81. This distribution shows, that the greatest rainfall, during the period, named, has been in Summer, when the amount of water, taken up by vegetation and evaporation, was greatest. The fact, that these conditions have produced good crops, would naturally prevent most people from recognizing the years, named, as exceptionally dry ones; but it is stated, by the oldest inhabitants, that the streams and wells were lower, in the Autumn of 1896, than

they have ever seen them, since the year 1845. It must, therefore, be expected, that the minimum discharges, given below, will be much smaller, than those found by Mr. C. C. Anderson, late Assistant State Geologist, in 1891 and 1892, when the streams were at their average stage.

THE SAVANNAH BASIN

SAVANNAH RIVER

SEABOARD AIR LINE R. R. BRIDGE STATION, ELBERT COUNTY GEORGIA

On August 4th, 1896, a regular station was established on THE SAVANNAH RIVER, in Elbert county, Georgia, at the SEABOARD AIR LINE R. R. BRIDGE. The drainage area, or water-shed, above this point, is 2,695 square miles. Mr. Peter Pfeiffer of Calhoun Falls, S. C., the nearest railroad station, was made observer. The following represents the work done at this station : —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by.	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1896						
1	Aug. 4	Max Hall	16	2.40	2,278	1.170	2,665
2	Sept. 22	" "	11	1.77	1,488	0.980	1,531
3	Oct. 31	" "	11	2.10	1,889	1.090	2,054
	1897						
4	Jan. 20	B. M. Hall	8	2.90	2,173	1.935	4,204
5	Apr. 28	Max Hall	91	3.21	2,811	2.290	6,446
6	June 12	" "	11	2.80	2,606	1.714	4,469

DAILY GAUGE-HEIGHT[1]

PETER J. PFEIFFER, *Observer*

	1896					1897					
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1		2.00	2.00	2.20	5.60	2.50	2.80	3.00	5.40	3.80	2.20
2		1.90	1.95	2.15	5.00	2.40	5.20	2.95	6.90	5.65	2.15
3		1.85	1.90	2.05	4 95	2.40	4.00	2.80	5.20	4.30	3.05
4	2.40	1.80	1.95	3.00	5.15	2.40	3.60	2.80	4.75	3.95	4.40
5	2.30	1.95	1.90	5.65	5.00	2.35	3.25	2.75	11.60	3.85	4.10
6	2.15	3.85	1.85	7.15	4.05	2.35	6.00	2.65	13.35	3.80	3.10
7	2.10	3.00	1.90	4.75	3.50	2.30	8.55	6.80	8.15	3.70	2.95
8	2.00	2.90	1.75	3.00	3.75	2.25	7.20	4.65	4.95	3.65	3.05
9	2.05	2.40	1.70	2.60	3.65	2.25	5.05	4.20	4.05	3.40	3.25
10	2.10	2.25	1.70	2.45	3.20	2.25	4.10	4.00	4.00	3.29	3.05
11	2.05	2.20	2.00	2.30	2.85	2.20	3.85	4.40	4.15	3.15	2.95
12	2.00	2.30	2.20	2.20	2.60	2.20	5.15	5.50	4.10	3.08	2.80
13	1.95	2.15	2.50	5.60	2.45	2.30	4.40	7.75	4.00	3.00	3.00
14	2.80	2.10	2.40	4.10	2.55	3.05	4.10	7.25	3.95	3.05	2.85
15	3.10	2.05	2.15	3.60	3.85	2.75	4.00	6.00	3.95	3.10	2.80
16	2.30	2.00	2.00	3.25	3.20	3.60	4.05	5.20	3.85	3.15	3.00
17	2.10	2.00	1.95	3.00	3.40	2.55	3.95	4.15	3.80	3 10	3.05
18	2.05	1.95	1.90	2.90	3.10	3.35	3.80	3.85	3.75	3 05	2.95
19	2.05	1.90	1.85	2.65	3.00	3.10	3.65	3.50	3.65	3.00	2.85
20	2.00	1.85	1.80	2.40	2.85	2.90	3.70	4.00	3.50	2.95	2.80
21	1.90	1.80	1.80	2.25	2.80	5.40	3.50	5.35	3.40	2.90	2.70
22	1.85	1.75	1.75	2.35	2.75	3.95	3.35	4.40	3.35	2 90	2.65
23	1.80	2.50	1.75	2.30	2.65	3.60	4.05	4.10	3.30	2.85	2.55
24	1.75	2.40	2.15	2.30	2.60	3.20	3.80	4.00	3.25	2.75	2.55
25	1.75	2.35	2.05	2.30	2.55	3.10	4.00	3.90	3.25	2.70	2.45
26	2.00	2.25	2.00	2.25	2.50	3.00	3.90	3.65	3.30	2.60	2.50
27	2.45	2.00	1.95	2.25	2.45	2.95	3.45	3.05	3.25	2.55	2.40
28	2.00	1.90	1.90	2.20	2.40	2.95	2.20	3.40	3.20	2.40	2.30
29	1.95	1.95	1.85	2.30	2.40	2.90		3.25	3.25	2.35	3.50
30	1.90	2.00	1.95	2.95	2.40	2.90		3.25	3.40	2.25	2.95
31	1.85		2.10		2.35	2.75		3.30		2.20	

[1] In feet.

RATING-TABLE

Drainage Area, 2,695 Square Miles

Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second
1.70	1,480	2.20	2,260	2.70	3,700	3.20	6,350
1.80	1,580	2.30	2,470	2.80	4,230	3.30	6,880
1.90	1,700	2.40	2,690	2.90	4,760	3.40	7,410
2.00	1,850	2.50	2,930	3.00	5,290	3.50	7,940
2.10	2,050	2.60	3,230	3.10	5,820		

The minimum discharge per square mile of drainage area is 0.55 cubic feet per second.

AUGUSTA, GEORGIA

The only other discharge measurement, made on the Savannah River, so far, was at *Augusta, Georgia*, at the North Augusta bridge.

DISCHARGE MEASUREMENT

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet[1]	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1896 Oct. 3	B. M. Hall	8	5.42	3,178	0.992	3,154

[1] On Augusta city-gauge.

BROAD RIVER

CARLTON STATION, MADISON COUNTY, GEORGIA

This station, at the Seaboard Air Line bridge, over the North Broad River, was established, May 27th, 1897; and discharge measurements were then begun; but the gauge-observer Mr. S. P. Power, Jr., does not begin his regular duties, until July 1st. The measurements made, so far, are:—

DISCHARGE MEASUREMENTS

No	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1897						
1	May 27	Max Hall	91	2.10	594	1.004	596
2	June 22	" "	91	1.92	604	0.960	580

The great number of fine water-powers in the Savannah Basin are accessible by the Southern Railway and the Seaboard Air Line and the Georgia Railroads.

THE ALTAMAHA BASIN

OCONEE RIVER

Cary Station, Greene County, Georgia

This station was established, October 29th, 1896, at the Georgia Railroad bridge across the Oconee River, just below the mouth of the Apalachee River. The drainage area above this point is 1,346 square miles. This station is about 30 miles above Milledgeville. With Mr. J. L. Cary, as gauge-observer, the following work has been done at the station : —

DISCHARGE MEASUREMENTS

Drainage Area, 1,346 Square Miles

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1896						
1	Oct. 29	Max Hall	11	1.68	735	0.880	644
2	Nov. 17	B. M. Hall	8	2.08	702	1.190	836
3	Nov. 25	" "	8	1.90	715	1.110	795
	1897						
4	Jan. 18	B. M. Hall	8	4.95	1,344	2.468	3,318
5	Mar. 18	" "	91	5.15	1,417	3.000	4,257
6	Apr. 29	Max Hall	91	2.40	963	2.070	1,992
7	May 28	B. M. Hall	14	2.10	701	1.494	1,047
8	June 9	Max Hall	11	2.50	949	1.986	1,885

DAILY GAUGE-HEIGHT[1]

J. L. CARY, *Observer*

	1896			1897						
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	. .	2.10	5.10	2.10	2.50	3.20	3.30	4.00	2.10	. .
2	. .	1.90	4.80	1.90	3.80	3.20	4.90	3.80	2.10	. .
3	. .	1.70	4.40	2.10	3.70	3.10	6.10	3.30	2.10	. .
4	. .	2.10	4.20	2.00	3.60	3.90	5.60	2.80	2.20	. .
5	. .	2.70	3.70	2.10	3.30	3.00	8.80	2.60	2.20	. .
6	. .	2.30	3.40	2.00	4.60	2.90	14.40	2.50	2.30	. .
7	. .	2.20	3.20	2.10	5.00	6.40	12.40	2.30	2.20	. .
8	. .	1 80	3.00	2.10	4.60	7.80	7.30	2.30	2.20	. .
9	. .	1.80	2.90	1.80	3.80	6 80	5.40	2.30	2.50	. .
10	. .	1.80	2.70	1.90	3.30	4.40	5.50	2.30	2.30	. .
11	. .	1.80	2.60	2.00	3.10	4.00	4.50	2.20	2.20	. .
12	. .	1.90	2.50	1.90	5.90	4.20	4.00	2.30	2.00	. .
13	. .	1.80	2.40	2.00	6.60	7.70	3.50	2.30	1.80	. .
14	. .	1.90	2.30	2.70	5.30	10.40	3.50	2.40	1.70	. .
15	. .	1.90	4.00	4.30	4.40	12.20	3.30	2.30	1.70	. .
16	. .	2.00	2.80	4.20	4.00	11.60	3.30	2.30	1.60	. .
17	. .	2.08	2.40	3.40	4.20	8.60	3.30	2.30	1.60	. .
18	. .	2.00	2.20	4.50	3.60	5.50	3.00	2.20	1.60	. .
19	. .	2.00	2.40	4.80	3.30	4.20	2.90	2.20	1.80	. .
20	. .	1.90	2.30	4.00	3.00	5.30	2.80	2.20	2.40	. .
21	. .	1.80	2.20	6.00	3.80	5.50	2.70	2.00	2.10	. .
22	. .	1.90	2.20	7.80	4.00	4.60	2.70	1.90	2.00	. .
23	. .	2.00	2.10	6.80	3.80	4.60	2.60	2.00	1.70	. .
24	. .	1.95	2.00	4.30	4.70	4.70	2.60	2.20	1.50	. .
25	. .	1.90	2.00	3.30	5.30	4.20	2.70	2.10	2.20	. .
26	. .	1.90	2.10	3.10	5.20	3.70	2.50	2.10	2.00	. .
27	. .	1.80	2.00	2.80	4.20	3.20	2.50	2.10	1.80	. .
28	. .	1.90	1.90	2.80	3.50	3.20	2.50	2.00	1 60	. .
29	1.68	2.90	2.10	2.60	. .	3.00	2.50	2.10	1.50	. .
30	1.68	3.90	2.00	2.40	. .	3.00	2.90	2.10	1.60	. .
31	1.68	. .	2.00	2.50	. .	3.40	. .	2.20	. .	. .

[1] In feet.

RATING-TABLE

Drainage Area, 1,346 Square Miles

Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second
1.70	650	2.70	2,010	3.70	2,730	4.70	3,328
1.80	720	2.80	2,100	3.80	2,800	4.80	3,420
1.90	800	2.90	2,200	3.90	2,840	4.90	3,550
2.00	900	3.00	2,280	4.00	2,880	5.00	3,720
2.10	1,000	3.10	2,360	4.10	2,940	5.10	3,910
2.20	1,100	3.20	2,440	4.20	3,000	5.20	4,150
2.30	1,280	3.30	2,510	4.30	3,050	5.30	4,350
2.40	1,480	3.40	2,560	4.40	3,100		
2.50	1,560	3.50	2,620	4.50	3,170		
2.60	1,850	3.60	2,680	4.60	3,230		

The irregularity in this rating-table is caused by obstructions in the river, at the station, and by a mill-dam, about five miles below. For minimum discharge of river, see measurements at Milledgeville.

Dublin Station, Laurens County, Georgia

This station is located at Dublin, Ga., at the Iron Highway bridge, belonging to Laurens county. Discharge measurements were begun May 5th, 1897. The following is a statement of the work done to date: —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1897 May 5	B. M. Hall . . .	91	6.10	2,251	2.843	6,400
2	June 7	P. A. Dallis . . .	14	1.90	1,151	2.485	2,861
3	" 8	" " . . .	14	1.77	1,107	2.420	2,680
4	" 9	" " . . .	14	1.50	1,030	2.415	2,488
5	" 10	" " . . .	14	1.43	1,009	2.465	2,487

DAILY GAUGE-HEIGHT [1]

U. S. WEATHER BUREAU, *Observer*

	1896			1897			
	Oct.	Nov.	Dec.	Jan.	Feb.	March	April
1	NOTE: — Lowest water in six years was about the first of this month, — 1.20 feet.	0.50	3.20	2.10	2.70	12.80	8.10
2		0.10	6.70	2.10	3.20	13.50	10.80
3		0.40	9.50	2.10	5.40	12.30	12.00
4		1.10	10.70	2.00	6.20	9.50	14.00
5		5.40	11.40	2.00	6.20	7.50	15.50
6		7.70	12.80	1.90	6.90	7.00	15.60
7		9.30	13.10	1.90	8.00	7.20	15.00
8		10.50	12.40	1.80	8.70	8.10	14.80
9		10.20	10.10	1.80	9.20	8.80	16.00
10		7.50	7.30	1.80	9.80	9.60	16.70
11		3.40	6.50	1.80	9.70	10.00	16.10
12		2.50	5.60	1.70	10.80	10.80	14.80
13		2.50	4.50	1.50	11.60	11.00	13.50
14		3.60	4.10	1.50	13.00	13.00	12.10
15		3.70	4.10	1.50	14.30	15.50	9.90
16		3.90	4.00	1.60	16.10	20.50	8.00
17	1.10	3.50	8.00	4.80	16.00	22.70	7.20
18	1.10	2.50	8.90	5.00	14.60	21.40	6.80
19	1.10	1.70	9.70	4.60	13.10	20.00	6.40
20	1.20	1.50	8.10	5.20	11.70	18.00	6.60
21	1.20	1.30	5.30	6.00	10.20	16.00	6.40
22	1.20	1.10	4.10	6.00	9.20	14.70	5.00
23	1.20	1.00	3.70	7.20	7.60	15.50	4.50
24	1.20	0.90	3.20	7.80	7.50	16.20	4.40
25	1.10	0.80	3.00	8.40	7.80	17.00	4.30
26	0.60	0.60	2.80	8.40	9.90	17.70	4.10
27	0.20	0.50	2.50	6.40	10.50	17.00	4.00
28	0.10	0.60	2.30	5.20	12.00	15.50	4.00
29	0.20	0.60	2.30	3.80	. .	13.40	3.90
30	0.40	0.60	2.20	3.00	. .	10.80	4.20
31	0.60	. .	2.20	2.80	. .	8.50	. .

[1] In feet.

MILLEDGEVILLE, GEORGIA

The following discharge measurements have been made at Milledgeville, on the Oconee. The section is not suitable for a regular station; but the measurements are useful, as one of them was taken at minimum stage of water. The gauge-heights are given from a bench-mark.

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1895 Oct. 19	C. C. Babb . .	. . . . .	1.12	. . . . .	1.750	1,108
2	1896 Sept. 3	Max Hall . . .	11	0.70	344	1.810	623

Measurement No. 2 may be safely taken, as the minimum discharge of Oconee River at this point, as all the streams were at their lowest, at the time it was made. The important water-powers of the Oconee water-shed are reached by the Seaboard Air Line and the Georgia Railroad.

OCMULGEE RIVER

MACON STATION, MACON, GEORGIA

This station is at the Bibb County Highway bridge. It was established, as a station of this Survey, on October 18th, 1895, using the same rod, that the Weather Bureau had used, from 1893 to that time.

Mr. J. P. Mercer, who has been the Observer, from the time, the Survey station was established, to the present time, has been compelled, for business reasons, to resign; and Mr. W. T. Bass has been appointed in his stead.

The drainage area above Macon is 2,425 square miles.

The following is a statement of work done: —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1895 Oct. 18	C. C. Babb	. .	0.17	. . .	. . .	813
2	Dec. 13	" "	62	1.59	1,045	1.460	1,530
3	1896 Jan. 28	B. M. Hall	8	5.52	2,107	1.630	3,436
4	June 12	" "	8	—0.10	539	1.470	791
5	" 30	Max Hall	8	—0.82	372	1.190	442
6	Aug. 6	" "	16	2.97	1,559	1.230	2,045
7	" 31	" "	11	—0.13	837	0.776	651
8	Sept. 19	B. M. Hall	8	—0.85	625	0.640	404
9	Oct. 16	Max Hall	11	—0.61	667	0.680	459
10	1897 Mar. 15	B. M. Hall	91	16.75	5,862	4.356	25,535
11	May 4	" "	91	4.30	1,612	1.706	2,750
12	" 5	" "	91	3.50	1,412	1.623	2,275
13	" 18	Max Hall	11	2.10	1,092	1.458	1,592
14	June 11	P. A. Dallis	14	2.85	1,325	1.590	2,111
15	" 12	" "	14	1.85	1,045	1.415	1,479
16	" 29	B. M. Hall	91	0.90	829	1.213	1,005

MACON STATION — *Continued*

DAILY GAUGE-HEIGHT[1]

J. P. MERCER, *Observer*

1895							
	October	November	December		October	November	December
1	. .	0.50	0.50	17	. .	0.57	0.58
2	. .	0.77	0.50	18	. .	0.55	0.64
3	. .	0.85	0.55	19	. .	0.50	0.61
4	. .	0.67	0.62	20	. .	0.50	0.59
5	. .	0.55	0.54	21	. .	0.50	2.02
6	. .	0.45	0.51	22	. .	0.50	3.10
7	. .	0.36	0.44	23	0.21	0.50	2.68
8	. .	0.47	0.40	24	0.21	0.50	1.70
9	. .	0.55	0.46	25	0.17	0.49	1.48
10	. .	0.63	0.45	26	0.19	0.49	1.01
11	. .	0.65	2.50	27	0.18	0.47	1.00
12	. .	0.60	2.29	28	0.18	0.43	1.20
13	. .	0.77	1.51	29	0.17	0.55	1.30
14	. .	0.94	1.11	30	0.22	0.54	1.35
15	. .	0.72	1.01	31	0.50	. .	4.46
16	. .	0.65	0.72				

[1] In feet.

DAILY GAUGE-HEIGHT — *Continued* [1]

J. P. MERCER, *Observer*

1896												
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.81	3.00	2.50	3.10	0.89	0.08	—0.90	1.02	0.11	—0.82	—0.14	9.50
2	4.50	2.09	2.20	3.00	0.75	0.11	—1.00	1.50	0.12	—0.86	—0.08	11.08
3	2.20	3.20	2.10	4.60	0.63	0.56	0.10	1.82	0.11	—0.88	—0.02	12.60
4	1.70	3.00	2.00	4.40	0.90	0.85	0.15	2.22	0.28	—0.81	10.00	10.20
5	1.42	2.09	2.00	2.90	2.12	1.92	2.00	2.62	0.19	—0.75	14.20	8.00
6	1.08	13.50	1.90	1.80	2.73	1.52	4.00	3.00	0.19	—0.79	14.40	6.15
7	0.96	10.70	4.00	1.60	1.97	0.96	5.30	3.05	0.19	—0.78	8.80	4 52
8	1.72	7.50	6.00	1.10	1.62	0.73	11.00	2.78	0.12	—0.82	5.40	3.62
9	2.83	13.10	5.00	1.10	0.86	0.25	19.70	2.41	0.08	—0.82	3.22	3.00
10	2.77	11.30	4.00	1.40	0.61	0.01	19.40	1.88	0.04	—0.82	2.25	2.42
11	2.10	8.70	5.00	1.30	0.43	—0.05	15.00	1.48	—0.01	—0.73	1.50	1.98
12	1.60	7.00	7.20	1.10	0.30	—0.10	10.20	0.40	—0.01	—0.65	1.18	1.58
13	1.50	6.30	6.50	1.20	0.19	—0.17	8.20	0.20	—0.31	—0.75	10.00	1.26
14	1.20	6.50	6.20	1.20	0.11	0.29	7.10	0.13	—0.45	—0.73	8.10	1.12
15	2.00	5.00	6.00	1.13	0.09	0.32	7.00	0.25	—0.80	—0.65	5.32	11.70
16	2.50	4.80	6.00	1.12	0.07	0.20	6.20	1.08	—0.68	—0.77	1.53	6.00
17	7.20	4.20	5.50	1.09	0.05	0.25	16.00	0.50	—0.78	—0.80	1.14	4.62
18	5.00	3.40	5.30	1.05	0.03	0.25	18.20	0.60	—0.80	—0.83	0.97	3.94
19	4.50	3.20	5.00	0.98	—0.05	0.30	13.00	0.38	—0.82	—0.85	0.85	2.85
20	4.00	3.00	4.90	0.94	—0.10	0.40	7.05	0.20	—0.91	—0.88	0.63	2.38
21	3.90	2.90	4.70	0.86	—0.10	0.47	3.80	0.11	—0.90	—0.89	0.70	2.00
22	3.70	2.70	4.50	0.76	—0.15	0.56	3.20	0.08	—0.82	—0.90	0.62	1.90
23	9.40	2.60	4.20	0.71	—0.05	0.70	3.00	0.06	—0.41	—0.77	0.58	1.76
24	13.80	2.50	5.00	0.63	0.56	0.50	2.90	0.05	—0.48	—0.40	0.58	1.38
25	12.00	2.48	5.00	0.63	0.50	0.70	2.85	0.00	—0.61	—0.52	0.51	1.18
26	9.30	2.40	4.80	1.02	0.78	—0.20	2.60	0.03	—0.72	—0.25	0.51	1.11
27	7.00	2.30	4.70	2.90	0.52	—0.35	2.40	0.04	—0.78	—0.08	0.50	0.96
28	5.80	3.30	4.60	2.32	0.34	—0.35	2.10	0.07	—0.83	— 0.20	0.47	0.90
29	5.30	2.80	4.40	1.36	0.17	—0.75	1.92	0.07	—0.71	—0.32	0.44	0.83
30	4.80	. .	4.20	1.02	0.12	—0.85	1.60	0.09	—0.80	—0.23	0.32	0.78
31	3.20	. .	4.10	. .	0.12	. . .	1.41	0.12	. . .	—0.19	. . .	0.70

[1] In feet.

DAILY GAUGE-HEIGHT — *Continued* [1]

J. P. MERCER, *Observer*

1897													
	Jan.	Feb.	Mar.	Apr.	May	June		Jan.	Feb.	Mar.	Apr.	May	June
1	0.68	2.00	4.00	5.57	1.95	1.22	17	0.44	5.12	9.45	3.70	2.50	1.52
2	0.63	5.00	3.70	9.75	1.90	1.18	18	1.15	2.00	8.25	3.50	2.22	1.45
3	0.60	8.00	3.20	10.05	1.87	3.15	19	1.50	2.75	8.20	3.20	2.09	1.37
4	0.58	6.00	2.00	10.00	2.15	3.20	20	2.10	2.62	9.57	3.00	1.84	3.25
5	0.56	6.00	4.00	15.12	2.23	3.12	21	1.25	2.65	10.00	2.90	1.81	3.12
6	0.54	8.00	3.00	15.15	2.47	3.10	22	7.00	2.71	9.00	2.80	1.78	2.80
7	0.52	6.50	11.60	12.60	3.00	3.00	23	5.50	2.00	15.50	2.70	1.71	2.62
8	0.50	5.00	12.70	10.48	3.00	2.54	24	3.00	1.96	14.00	2.60	1.68	2.70
9	0.49	4.75	7.50	10.00	2.91	2.32	25	2.25	6.00	10.60	2.40	1.60	3.00
10	0.49	4.55	5.00	10.80	2.72	2.26	26	2.00	10.50	8.30	2.30	1.56	3.11
11	0.51	5.00	4.80	7.80	2.57	2.18	27	3.00	7.02	7.10	2.22	1.53	2.50
12	0.49	13.50	6.00	6.40	2.45	2.08	28	3.12	5.00	6.20	2.16	1.50	1.00
13	0.48	12.75	17.30	5.00	3.05	2.04	29	1.50	. .	5.57	2.08	1.47	0.90
14	0.53	7.00	18.00	4.70	3.15	2.01	30	1.25	. .	5.21	2.00	1.36	1.50
15	0.46	5.00	17.70	4.00	3.28	1.89	31	1.20	. .	5.20	. .	1.28	. .
16	0.44	5.00	13.00	4.00	3.00	1.73							

[1] In feet.

MACON STATION — *Continued*

RATING-TABLE

Drainage Area, 2,425 Square Miles

Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second
. .	. . .	1.00	1,200	3.00	2,050	5.00	3,090	7.00	4,600
—0.85	404	1.10	1,242	3.10	2,100	5.10	3,130	8.00	5,750
—0.80	426	1.20	1,285	3.20	2,150	5.20	3,210	9.00	7,250
—0.70	469	1.30	1,328	3.30	2,195	5.30	3,275	10.00	8,625
—0.60	512	1.40	1,371	3.40	2,240	5.40	3,340	11.00	10,300
—0.50	555	1.50	1,414	3.50	2,285	5.50	3,400	12.00	11,975
—0.40	598	1.60	1,457	3.60	2,330	5.60	3,460	13.00	14,000
—0.30	641	1.70	1,500	3.70	2,375	5.70	3,530	14.00	16,750
—0.20	684	1.80	1,543	3.80	2,420	5.80	3,600	15.00	19,750
—0.10	727	1.90	1,586	3.90	2,470	5.90	3,675	16.00	23,000
0.00	770	2.00	1,629	4.00	2,520	6.00	3,750	16.75	25,535
0.10	813	2.10	1,672	4.10	2,575	6.10	3,825	17.00	26,200
0.20	855	2.20	1,715	4.20	2,630	6.20	3,900	18.00	29,375
0.30	898	2.30	1,758	4.30	2,685	6.30	3,985	19.00	32,750
0.40	941	2.40	1,801	4.40	2,740	6.40	4,070	19.70	35,150
0.50	984	2.50	1,844	4.50	2,800	6.50	4,155	20.00	36,200
0.60	1,027	2.60	1,887	4.60	2,860	6.60	4,240	. .	. . .
0.70	1,070	2.70	1,920	4.70	2,915	6.70	4,335	. .	. . .
0.80	1,113	2.80	1,963	4.80	2,970	6.80	4,430	. .	. . .
0.90	1,156	2.90	2,006	4.90	3,030	6.90	4,515	. .	. . .

YELLOW RIVER

ALMON, NEWTON COUNTY, GEORGIA

Macon is the only regular station, on the Ocmulgee water-shed; but the following discharge measurements have been made on YELLOW RIVER, AT ALMON, NEWTON COUNTY, at the wagon bridge, just below the Georgia Railroad bridge. A rod has been set there, for the comparison of different measurements.

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1896 Sept. 19	Max Hall	11	0.75	38	1.63	62.4
2	1897 Mar. 27	B. M. Hall	91	3.91	469	1.86	876.0
3	1897 June 21	Max Hall	91	2.50	305	0.94	287.0

Measurement No. 1 was made, at the time of lowest water; but, as there are mill-ponds above, it, probably, does not represent the full volume of the river. The numerous water-powers of the Ocmulgee water-shed are reached by the Southern Railway System and the Georgia Railroad.

APALACHICOLA BASIN

FLINT RIVER

MOLENA STATION, MOLENA, GEORGIA

This station, which is at the bridge of the Georgia Midland Division of the Southern Railway, on the line of Pike and Meriwether counties, was established May 21st, 1897.

The gauge-observer, Mr. J. A. Moore, began his duties June 7th; but the list of gauge-heights is, thus far, too short to publish.

DISCHARGE MEASUREMENTS

No	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1897						
1	May 21	B. M. Hall	91	1.50	791	0.810	641
2	June 7	Max Hall	91	1.75	869	0.815	707
3	" 23	B. M. Hall	91	1.70	837	0.832	697

On June 23rd, 1897, a discharge measurement was, also, made on Red Oak creek, at its mouth, which creek is a large tributary, entering Flint river, about three miles above Molena Station. Its discharge was found to be 101 cubic feet per second, while that of Flint river, at Molena Station, was 697 cubic feet per second.

Reynolds, Georgia

The only other discharge measurement, made on the Flint river, was at Reynolds, where the Central Railroad crosses; and it is as follows: —

DISCHARGE MEASUREMENT

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1897 June 11	B. M. Hall	14	0.95 [1]	1,332	1.36	1,810

[1] On Weather Bureau rod.

CHATTAHOOCHEE RIVER

OAKDALE STATION, FULTON COUNTY, GEORGIA

Oakdale Station, at the bridge of the Georgia Pacific Division of the Southern Railway, in Fulton county, was established October 15th, 1895, with Mr. J. H. Lowry, as gauge-observer. The drainage area above Oakdale Station is 1,560 square miles. The following is a statement of work done at this station: —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1895						
1	Oct. 15	C. C. Babb	. . .	0.40	. . . . .	. . . . .	1,096
2	Dec. 14	" "	62	0.69	. . . . .	. . . . .	1,380
	1896						
3	Jan. 14	B. M. Hall	8	0.70	888	1.530	1,361
4	June 15	" "	8	0.00	704	1.400	985
5	" 20	" "	8	0.33	792	1.450	1,153
6	" 22	" "	8	1.01	. . . . .	. . . . .	1,530
7	" 23	" "	8	0.55	841	1.480	1,250
8	" 24	Max Hall	8	0.28	729	1.540	1,126
9	July 9	" "	8	18.05	. . . . .	. . . . .	24,100
10	" 10	B. M. Hall	8	12.80	. . . . .	. . . . .	16,200
11	" 13	Max Hall	8	3.01	1,161	2.550	2,957
12	" 15	" "	8	1.88	961	2.150	2,066
13	" 17	" "	8	4.61	1,471	3.150	4,640
14	" 24	" "	8	2.22	1,028	2.400	2,470
15	Aug. 29	" "	11	—0.18	517	1.880	958
16	Sept. 9	" "	11	—1.55	422	1.760	744
17	Oct. 17	" "	8	—0.50	420	1.840	775
	1897						
18	Apr. 24	" "	91	2.90	1,244	2.520	3,065
19	" 27	" "	16	2.70	1,164	2.320	2,703

DISCHARGE MEASUREMENTS — *Continued*

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1897						
20	May 22.	B. M. Hall	91	1.65	873	2.350	2,055
21	" 25.	" "	14	1.50	911	2.200	2,014
22	" 31.	Max Hall	91	1.35	844	2.373	2,003
23	" 31.	" "	14	1.35	844	2.283	1,927
24	June 9.	B. M. Hall	91	1.44	889	2.240	1,991
25	" 16.	P. A. Dallis	14	0.94	831	1.833	1,523
26	" 28.	Max Hall	70	0.57	676	1.931	1,306

DAILY GAUGE-HEIGHT [1]

J. H. LOWRY, *Observer*

1895							
	October	November	December		October	November	December
1	. .	0.75	0.50	17	0.35	0.55	0.55
2	. .	1.70	0.50	18	0.30	0.60	0.50
3	. .	1.00	0.55	19	0.25	0.50	0.40
4	. .	0.60	0.60	20	0.30	0.55	0.50
5	. .	0.50	0.60	21	0.20	0.50	0.65
6	. .	0.55	0.50	22	0.25	0.50	1.00
7	. .	0.45	0.45	23	0.20	0.50	2.00
8	. .	0.40	0.40	24	0.30	0.50	1.20
9	. .	0.60	0.40	25	0.25	0.50	1.00
10	. .	0.80	0.60	26	0.20	0.55	0.55
11	. .	1.00	1.30	27	0.25	0.55	0.80
12	. .	1.35	1.10	28	0.25	0.70	0.75
13	. .	1.00	1.00	29	0.30	0.75	0.70
14	. .	0.75	0.65	30	0.50	0.45	2.00
15	0.40	0.60	0.60	31	0.50	. .	2.95
16	0.40	0.60	0.55				

[1] In feet.

DAILY GAUGE-HEIGHT — *Continued* [1]

J. H. LOWRY, *Observer*

1896												
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.20	1.70	1.40	1.40	0.75	0.25	—0.35	0.45	—0.40	0.20	0.50	0.50
2	2.00	1.50	1.35	1.70	0.75	1.40	—0.40	0.50	—0.60	0.10	0.50	1.10
3	1.00	1.75	1.40	2.75	0.75	1.45	—0.45	1.40	—0.60	0.05	0.65	1.30
4	1.20	2.10	1.45	1.85	0.70	2.10	0.15	1.70	—0.60	—0.20	1.00	3.20
5	1.10	2.20	1.40	1.35	0.65	1.60	0.20	0.75	—0.60	—0.30	1.60	2.30
6	1.00	2.80	1.35	1.30	3.15	1.15	—0.15	0.40	—0.60	—0.35	1.40	1.30
7	0.80	3.70	1.95	1.10	1.70	0.60	2.00	0.20	—0.60	—0.40	1.20	1.15
8	0.95	4.30	1.75	1.15	1.20	0.40	12.25	0.15	—0.55	—0.50	1.10	1.00
9	1.20	5.80	1.55	1.05	0.90	0.70	17.70	0.15	—0.55	—0.50	1.00	1.00
10	1.25	6.55	1.50	1.05	0.75	0.70	18.45	0.10	—0.50	—0.50	1.05	1.00
11	1.00	4.30	1.75	1.05	0.65	0.65	4.75	0.05	—0.50	—0.60	1.05	0.90
12	0.85	3.30	1.85	1.00	0.60	0.50	3.25	0.05	—0.55	—0.60	1.20	0.70
13	0.80	2.80	1.55	1.00	0.50	0.30	3.10	0.30	—0.60	—0.55	3.80	.60
14	0.75	2.95	1.35	0.90	0.50	0.20	3.90	0.25	—0.60	—0.55	4.60	.65
15	0.70	4.10	1.20	0.90	0.40	—0.05	1.95	0.05	—0.60	—0.55	2.60	.70
16	0.85	2.90	1.25	0.90	0.30	0.05	3.00	0.10	—0.65	—0.55	1.50	.65
17	2.40	2.55	1.10	0.85	0.30	—0.05	4.40	0.10	—0.65	—0.55	1.00	.65
18	2.35	2.20	1.35	0.85	0.25	0.10	2.70	0.10	—6.65	—0.55	0.80	.65
19	2.10	2.10	1.70	0.85	0.25	0.15	1.75	—0.10	—0.65	—0.55	0.60	.65
20	1.50	1.80	1.65	0.85	0.20	0.55	1.90	—0.25	—0.65	—0.55	0.50	.65
21	1.25	1.60	1.45	0.75	0.15	1.60	1.65	—0.30	—0.50	—0.55	0.40	.60
22	1.80	1.45	1.35	0.75	0.20	0.45	1.90	—0.30	—0.15	—0.50	0.40	.55
23	6.30	1.55	1.40	0.65	0.20	0.50	2.45	—0.30	0.40	—0.35	0.30	.50
24	9.80	1.60	1.45	0.70	1.10	0.30	2.40	—0.30	0.60	—0.05	0.25	.50
25	9.95	1.50	1.40	0.65	1.55	0.20	1.50	1.00	—0.10	0.05	0.20	.45
26	5.10	1.40	1.35	0.65	0.65	—0.10	1.30	—0.10	—0.40	0.10	0.20	.45
27	3.55	1.35	1.25	1.40	0.85	0.45	0.90	—0.30	—0.40	0.15	0.20	.40
28	2.65	1.30	1.20	1.70	0.65	—0.10	0.80	—0.30	0.20	0.25	0.20	.35
29	2.30	1.55	1.25	1.15	0.95	—0.20	0.80	—0.30	0.45	0.90	0.20	.35
30	2.10	. . .	1.20	0.85	0.40	—0.25	0.50	—0.35	0.30	0.65	0.20	.30
31	1.80	. . .	1.20	. . .	0.35	. . .	. . .	—0.40	. . .	0.50	. . .	.25

[1] In Feet.

DAILY GAUGE-HEIGHT — *Continued* [1]

J. H. LOWRY, *Observer*

	1897												
	Jan.	Feb.	Mar.	Apr.	May	June		Jan.	Feb.	Mar.	Apr.	May	June
1	0.20	3.10	2.00	2.80	4.10	1.00	17	2.40	2.40	5.45	3.50	1.70	0.55
2	0.20	4.50	1.80	4.10	3.20	1.00	18	4.00	2.10	6.10	2.20	1.50	1.00
3	0.20	4.90	1.80	5.00	2.80	1.15	19	4.60	1.90	5.80	3.05	1.45	1.05
4	0.30	3.25	2.00	7.00	2.50	1.35	20	5.50	2.50	5.55	3.00	1.35	0.55
5	0.40	3.70	1.90	12.80	2.40	1.15	21	7.50	2.50	5.00	2.80	1.35	1.35
6	0.40	4.10	9.00	17.00	2.25	1.05	22	6.85	2.90	4.30	2.75	1.40	0.75
7	0.35	5.50	9.20	8.00	2.15	1.00	23	3.90	5.10	4.50	2.70	1.40	0.55
8	0.35	5.00	5.50	5.40	2.05	0.85	24	3.20	4.50	4.00	2.70	1.35	0.45
9	0.30	3.10	4.45	6.00	2.00	1.10	25	2.00	3.60	3.90	2.65	1.30	0.90
10	0.30	2.40	4.05	5.00	1.95	1.00	26	1.65	2.90	3.35	2.60	1.20	0.55
11	0.20	3.40	3.60	4.60	1.90	1.00	27	0.45	2.40	3.10	2.40	1.10	0.45
12	2.20	4.00	6.40	4.10	1.90	0.85	28	1.10	2.05	3.00	2.10	1.05	0.30
13	0.40	5.30	12.60	4.00	1.85	0.75	29	1.25	. .	2.75	2.00	1.00	1.00
14	3.00	4.00	10.00	4.55	1.90	0.65	30	1.50	. .	2.70	2.20	1.05	0.75
15	3.70	2.60	8.40	4.05	2.35	0.55	31	2.00	. .	2.15	. .	1.10	. .
16	2.80	2.60	6.80	4.00	1.85	0.50							

[1] In inches.

RATING-TABLE

Drainage Area, 1,560 Square Miles

Gauge-height in feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second
. .	. .	1.00	1,528	3.00	2,956	5.00	5,170
. .	. .	1.10	1,586	3.10	3,044	. .	. .
. .	. .	1.20	1,646	3.20	3,133	. .	. .
. .	. .	1.30	1,707	3.30	3,223	. .	. .
—0.55	744	1.40	1,769	3.40	3,315	. .	. .
—0.50	775	1.50	1,832	3.50	3,410	. .	. .
—0.40	821	1.60	1,896	3.60	3,508	. .	. .
—0.30	856	1.70	1,961	3.70	3,608	. .	. .
—0.20	895	1.80	2,027	3.80	3,711	. .	. .
—0.10	938	1.90	2,085	3.90	3,817	. .	. .
0.00	985	2.00	2,155	4.00	3,928	. .	. .
0.10	1,035	2.10	2,227	4.10	4,040	. .	. .
0.20	1,086	2.20	2,301	4.20	4,154	. .	. .
0.30	1,138	2.30	2,377	4.30	4,271	. .	. .
0.40	1,191	2.40	2,455	4.40	4,391	. .	. .
0.50	1,245	2.50	2,535	4.50	4,514	. .	. .
0.60	1,300	2.60	2,616	4.60	4,640	. .	. .
0.70	1,356	2.70	2,698	4.70	4,768	. .	. .
0.80	1,412	2.80	2,782	4.80	4,899	. .	. .
0.90	1,469	2.90	2,868	4.90	5,033	. .	. .

The minimum discharge, per square mile of drainage area, is 0.48 cubic feet per second.

West Point Station, West Point, Georgia

The station at West Point was established July 30th, 1896, at the iron highway bridge, though one measurement was made by Mr. C. C. Babb, of the U. S. Geological Survey, in October, 1895. Mr. C. E. Melton was appointed gauge-observer. The drainage area above this point is 3,300 square miles. The following statement shows the work done at this station: —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1895 Oct. 22	C. C. Babb	76	1.76	2,802	0.510	1,404
2	1896 July 30	Max Hall	16	2.45	3,249	0.748	2,430
3	Aug. 14	" "	16	1.72	3,077	0.515	1,594
4	Sept. 5	" "	11	1.20	. .	0.352	1,050
5	" 25	B. M. Hall	8	1.15	2,792	0.370	1,030
6	Oct. 28	Max Hall	11	1.75	2,883	0.570	1,642
7	1897 Jan. 23	B. M. Hall	11	6.66	4,597	2.593	1,192
8	Apr. 26	Max Hall	91	3.70	3,855	1.413	5,448
9	May 4	" "	11	4.13	4,082	1.526	6,230
10	" 19	" "	91	3.00	3,556	1.000	3,557
11	June 5	" "	14	2.90	3,552	0.915	3,253
12	" 29	" "	91	2.59	3,407	0.861	2,934

DAILY GAUGE-HEIGHT [1]

C. E. MELTON, *Observer*

1896											
	Aug.	Sept.	Oct.	Nov.	Dec.		Aug.	Sept.	Oct.	Nov.	Dec.
1	2.70	1.30	4.10	1.70	4.20	17	1.60	0.85	1.10	3.00	3.00
2	3.90	1.20	4.00	2.00	4.00	18	1.55	0.80	1.10	2.60	3.00
3	4.50	1.10	3.00	2.25	3.75	19	1.50	0.80	1.10	2.55	2.90
4	6.00	1.05	2.60	8.00	3.60	20	1.45	0.80	1.10	2.40	2.80
5	5.50	1.00	2.40	9.20	3.40	21	1.40	0.80	1.15	2.25	2.70
6	5.00	1.00	2.00	7.60	3.20	22	1.40	3.30	1.10	2.25	2.60
7	3.65	1.00	1.90	5.50	3.10	23	1.30	3.00	1.50	2.20	2.40
8	3.20	1.05	1.50	4.30	3.10	24	1.20	2.50	1.75	2.20	2.20
9	2.75	1.10	1.30	3.45	3.05	25	3.00	2.00	1.75	2.90	2.15
10	2.60	1.05	1.25	2.80	3.00	26	2.00	1.70	1.70	1.90	2.10
11	2.20	0.95	1.25	2.00	2.90	27	1.80	1.60	1.65	1.80	2.10
12	2.00	0.85	1.20	2.15	2.80	28	1.75	1.40	1.60	2.00	2.05
13	1.85	0.85	1.15	6.30	2.65	29	1.60	3.60	1.50	4.00	2.00
14	1.70	0.90	1.15	5.00	2.50	30	1.50	4.20	1.50	4.30	1.95
15	1.60	0.90	1.15	4.50	3.00	31	1.40	. .	1.45	. .	1.90
16	1.60	0.85	1.15	3.30	3.10						

[1] In feet.

DAILY GAUGE-HEIGHT — *Continued*

C. E. MELTON, *Observer*

1897													
	Jan.	Feb.	Mar.	April	May	June		Jan.	Feb.	Mar.	April	May	June
1	1.90	3.15	3.65	4.00	3.90	2.65	17	4.05	4.60	10.90	5.30	3.10	2.50
2	1.90	4.40	3.60	4.00	4.00	2.70	18	3.35	4.50	10.00	5.00	3.00	2.90
3	1.90	7.00	3.50	3.95	3.80	2.80	19	3.30	4.50	9.00	4.50	3.00	2.70
4	1.95	7.40	3.50	4.40	3.75	2.85	20	5.40	4.35	8.50	4.20	2.90	2 60
5	2.00	7.10	3.60	8.50	3.65	2.90	21	8.20	4.35	8.30	4.20	2.85	2.55
6	2.00	6.00	4.10	10.20	3.60	2.95	22	7.30	4.40	8.10	4.10	2.80	2.55
7	2.00	6.00	10.97	11.00	3.60	2.80	23	6.50	4.85	8.00	4.00	2.75	2.50
8	1.95	5.20	9.30	10.50	3.60	2.70	24	4.80	4.60	8.50	3.80	2.70	2.50
9	1.95	5.00	7.10	8.00	3.55	2.60	25	3.70	4.50	7.60	3.85	2.70	2.50
10	1.90	4.70	5.50	7.10	3.50	2.60	26	3.50	4.00	5.00	3.70	2.70	2.60
11	1.90	4.90	5.30	6.50	3.50	2.65	27	3.20	3.90	4.95	3.65	2.70	2.30
12	1.95	7.12	6.20	6.30	3.55	2.65	28	3.00	3.80	4.70	3.60	2.65	2.15
13	1.95	6.50	10.70	6.00	3.75	2.60	29	3.00	. .	4.50	3.60	2.65	2.00
14	2.10	6.10	14.10	5.80	3.60	2.50	30	2.95	. .	4.30	3.80	2.65	1.90
15	2.20	4.70	12.90	5.70	3.40	2.45	31	3.20	. .	4.00	. .	2.65	. .
16	4.00	4.65	11.00	5.50	3.20	2.40							

[1] In feet.

RATING-TABLE

Drainage Area, 3,300 Square Miles

Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second
. .	. .	2.00	1,890	4.00	5,830	6.00	10,550
. .	. .	2.10	2,010	4.10	6,066	6.10	10,786
. .	. .	2.20	2,140	4.20	6,302	6.20	11,022
. .	. .	2.30	2,280	4.30	6,538	6.30	11,258
. .	. .	2.40	2,425	4.40	6,774	6.40	11,494
. .	. .	2.50	2,585	4.50	7,010	6.50	11,730
. .	. .	2.60	2,760	4.60	7,246	6.60	11,966
. .	. .	2.70	2,940	4.70	7,482	6.70	12,202
. .	. .	2.80	3,125	4.80	7,718	6.80	12,438
. .	. .	2.90	3,310	4.90	7,954	6.90	12,674
. .	. .	3.00	3,505	5.00	8,190	7.00	12,910
. .	. .	3.10	3,725	5.10	8,426	7.10	13,146
1.20	1,060	3.20	3,950	5.20	8,762	7.20	13,382
1.30	1,150	3.30	4,180	5.30	8,998	7.30	13,618
1.40	1,250	3.40	4,414	5.40	9,234	7.40	13,854
1.50	1,350	3.50	4,650	5.50	9,470	7.50	14,090
1.60	1,455	3.60	4,886	5.60	9,706	7.60	14,326
1.70	1,560	3.70	5,122	5.70	9,942	7.70	14,562
1.80	1,665	3.80	5,358	5.80	10,178	7.80	14,798
1.90	1,775	3.90	5,594	5.90	10,314	7.90	15,034

Shallow Ford, near Gainesville, Hall County, Georgia

Two measurements have been made at Shallow Ford, on the Chattahoochee river, four miles from Gainesville, as follows: —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1896 Mar. 26	B. M. Hall	8	1.20	362	2.016	730
2	Sept. 2	" "	8	0.40	182	1.950	356

On the tributaries of the Chattahoochee river, the following discharge measurements have been made: —

CHESTATEE RIVER

Leathers' Ford, Georgia

DISCHARGE MEASUREMENT

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1896 Sept. 2	B. M. Hall	8	0.80	102	1.372	140

PEACHTREE CREEK

PEACHTREE ROAD BRIDGE, NEAR ATLANTA, GEORGIA

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1897 May 24	B. M. Hall	91	0.20	35.9	1.560	56
2	June 30	" "	14	0.00	35.5	1.135	40

SWEETWATER CREEK

STRICKLAND BRIDGE, NEAR AUSTELL, GEORGIA

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second.
1	1896 Sept. 4	B. M. Hall	8	. .	120	0.450	54.5
2	1897 June 12	" "	91	. .	138	0.666	92.0

The Southern Railway System, the Western & Atlantic Railroad, the Atlanta & West Point Railroad and the Western Railway of Alabama give easy access to the many fine water-powers of the Apalachicola Basin. The Central Railroad, the Macon & Birmingham Railroad and the Chattanooga, Rome & Columbus Railroad, also, come near a few of these water-powers.

MOBILE BASIN

ETOWAH RIVER

CANTON STATION, CANTON, GEORGIA

The station at Canton, Cherokee county, was established, as a Geological Survey Station, September 9th, 1896, using the Weather Bureau gauge-rod. It is located at the Cherokee County iron highway bridge, near the railroad depot, in Canton, with Mr. James A. Low, as gauge-observer. The drainage area above this point, is 573 square miles. There is a long record of gauge-heights, for previous years, in the Weather Bureau office. The following is a statement of work done by this Survey: —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1896						
1	April 29	B. M. Hall	8	0.05	459	2.280	590
2	July 7	" "	8	0.59	536	1.607	862
3	Sept. 9	" "	8	—0.65	390	0.560	218
4	Oct. 28	" "	8	0.45	523	1.400	733
5	" 28	" "	8	2.25	715	3.250	2,327
6	Nov. 27	" "	8	—0.05	453	0.991	449
	1897						
7	March 17	" "	91	2.60	754	3.320	2,656
8	May 5	Max Hall	11	0.75	541	2.336	1,264
9	June 16	" "	11	1.27	610	2.675	1,632

DAILY GAUGE-HEIGHT [1]

J. A. Low, *Observer*.

1896									
	Sept.	Oct.	Nov.	Dec.		Sept.	Oct.	Nov.	Dec.
1	. .	0.00	0.00	1.00	17	— 0.65	— 0.40	0.40	0.20
2	. .	— 0.20	— 0.10	1.00	18	— 0.75	— 0.40	0.20	0.00
3	. .	— 0.30	— 0.10	0.60	19	— 0.75	— 0.40	0.00	0.00
4	. .	— 0.30	0.00	0.30	20	— 0.75	— 0.50	0.00	0.00
5	. .	— 0.40	2.80	0.30	21	— 0.75	— 0.50	0.00	0.00
6	. .	— 0.40	0.80	0.20	22	— 0.60	— 0.50	0.00	0.00
7	. .	— 0.50	0.60	0.10	23	— 0.10	— 0.50	0.00	0.00
8	. .	— 0.50	0.60	0.10	24	— 0.30	0.00	0.00	0.00
9	— 0.65	— 0.50	0.40	0.10	25	— 0.40	— 0.10	0.00	0.00
10	— 0.60	— 0.30	0.40	0.10	26	— 0.60	— 0.10	0.00	0.00
11	— 0.60	— 0.30	0.40	0.10	27	— 0.60	— 0.10	0.00	0.00
12	— 0.65	— 0.40	0.90	0.00	28	— 0.60	0.00	0.00	—0.10
13	— 0.70	— 0.20	3.60	0.00	29	— 0.60	1.10	0.00	—0.10
14	— 0.75	— 0.30	1.00	0.00	30	— 0.70	1.00	1.00	—0.10
15	— 0.60	— 0.40	0.70	0.20	31	. .	0.00	. .	—0.10
16	— 0.55	— 0.40	0.70	0.40					

[1] In feet.

DAILY GAUGE-HEIGHT—*Continued* [1]

J. A. Low, *Observer*

1897													
	Jan.	Feb.	Mar.	Apr.	May	June		Jan.	Feb.	Mar.	Apr.	May	June
1	—0.10	0.60	0.80	1.60	2.00	0.10	17	0.50	0.70	2.60	1.80	0.40	1.00
2	—0.10	2.20	0.60	2.00	1.80	0.10	18	2.00	0.60	2.40	1.40	0.40	0.80
3	—0.10	1.00	0.60	2.00	1.80	0.70	19	1.60	0.60	2.00	1.40	0.40	0.60
4	—0.10	0.80	0.60	2.60	1.60	0.50	20	3.60	0.60	2.80	1.20	0.40	0.40
5	—0.10	0.80	0.60	11.20	0.70	0.50	21	3.00	0.80	2.00	1.20	0.30	0.40
6	—0.10	0.90	3.60	5.00	0.70	0.50	22	2.00	0.80	1.00	1.00	0.30	0.30
7	—0.10	0.80	4.00	3.00	0.70	0.40	23	1.00	1.60	1.80	1.00	0.20	0.30
8	—0.10	0.80	2.00	2.00	0.60	0.40	24	0.80	1.00	1.80	1.00	0.10	0.30
9	—0.10	0.80	1.80	3.00	0.60	0.30	25	0.70	1.00	1.60	1.00	0.10	0.30
10	—0.10	0.80	1.80	2.60	0.50	0.30	26	0.70	0.80	1.60	0.80	0.10	0.20
11	—0.10	0.80	1.80	2.40	0.50	0.20	27	0.70	0.80	1.40	0.80	0 10	0.10
12	—0.10	0.80	2.80	2.20	0.50	0.10	28	0.60	0.80	1.20	0.80	0.10	0.10
13	—0.10	0.80	7.20	2.00	0.50	0.10	29	0.60	. .	1.20	1.00	0.10	0.10
14	2.20	1.00	6.80	2.00	0.40	0.10	30	0.60	. .	1.20	1.00	0.10	0.10
15	1.80	0.80	4.00	2.00	0.40	0.00	31	0.60	. .	1.20	. .	0.10	. .
16	0.90	0.80	3.60	1.80	0.40	3.00							

[1] In feet.

RATING-TABLE

Drainage Area, 573 Square Miles

Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second
. . . .	. .	1.00	1,180	3.00	3,225
. . .	. .	1.10	1,250	. .	. . .
—0.75	200	1.20	1,340	. .	. . .
—0.70	210	1.30	1,430	. .	. . .
—0.60	240	1.40	1,520	. . .	. . .
—0.50	270	1.50	1,610	. .	. . .
—0.40	320	1.60	1,700	. .	. . .
—0.30	360	1.70	1,790	. .	. . .
—0.20	410	1.80	1,880	. .	. . .
—0.10	470	1.90	1,970	. .	. . .
0.00	510	2.00	2,060	. .	. . .
0.10	565	2.10	2,160	. .	. . .
0.20	625	2.20	2,260	. .	. . .
0.30	680	2.30	2,370	. .	. . .
0.40	750	2.40	2,480	. .	. . .
0.50	810	2.50	2,590	. .	. . .
0.60	870	2.60	2,700	. .	. . .
0.70	950	2.70	2,830	. .	. . .
0.80	1,025	2.80	2,960	. .	. . .
0.90	1,110	2.90	3,100	. .	. . .

The minimum discharge, per square mile of drainage area, is 0.35 cubic feet per second.

The other discharge measurements, that have been made, on the Etowah river, are as follows: —

Ladd's, East & West R. R., near Cartersville, Georgia

DISCHARGE MEASUREMENT

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1896 Aug. 22	Max Hall	16	0.90	317	1.40	444

Rome,[1] Georgia

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1896 Sept. 24	Max Hall	8	0.50	609	1,370	834
2	1897 May 1	" "	11	2.90	1,055	2,468	2,604

[1] 2nd Avenue Bridge.

OOSTANAULA RIVER

RESACA STATION, GORDON COUNTY, GEORGIA

This station was established, as a Geological Survey Station, on July 27th, 1896, using the Weather Bureau gauge-rod. It is located at the Western & Atlantic Railroad bridge at Resaca; and Mr. S. M. Barnett, has been the observer, since the station was established. The drainage area, above this point, is 1,527 square miles.

There is a long record of gauge-heights, for previous years, in the Weather Bureau office. The following is a statement of work done by this Survey at the station: —

DISCHARGE MEASUREMENTS

Drainage Area, 1,527 Square Miles

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1896						
1	July 27	Max Hall	16	2.90	919	1.230	1,133
2	Aug. 19	" "	16	1.47	700	0.700	492
3	Oct. 13	" "	11	1.70	724	0.830	601
	1897						
4	May 25	Olin P. Hall	16	3.48	1,070	1.435	1,535
5	" 29	" "	16	3.26	998	1.392	1,389
6	June 23	" "	16	2.44	865	1.124	972

DAILY GAUGE-HEIGHT [1]

S. M. BARNETT, *Observer*

1896											
	Aug.	Sept.	Oct.	Nov.	Dec.		Aug.	Sept.	Oct.	Nov.	Dec.
1	2.10	1.20	6.50	1.50	9.25	17	1.70	1.00	1.35	3.30	3.30
2	2.30	1.25	3.70	1.40	6.70	18	1.70	1.00	1.30	3.00	3.00
3	2.65	1.20	2.05	1.40	4.65	19	1.50	0.95	1.20	2.70	3.00
4	2.40	1.25	1.65	1.35	3.90	20	1.35	0.90	1.15	2.60	2.90
5	2.15	1.15	1.50	1.90	3.50	21	1.30	0.90	1.15	2.50	2.80
6	2.00	1.55	1.40	3.15	3.20	22	1.25	0.85	1.20	2.35	2.60
7	1.90	1.30	1.30	2.10	3.00	23	1.20	1.95	1.20	2.40	2.55
8	1.80	1.10	1.30	2.00	2.90	24	1.50	1.55	1.35	2.35	2.55
9	1.75	1.10	1.30	2.10	3.00	25	3.20	1.25	1.90	2.25	2.40
10	1.75	1.05	1.20	1.85	3.50	26	2.80	1.20	1.60	2.20	2.30
11	1.65	1.00	1.20	1.70	3.30	27	1.95	1.10	1.50	2.10	2.25
12	1.65	1.00	1.20	3.00	3.10	28	1.70	1.10	1.40	2.15	2.20
13	1.75	1.50	1.55	13.65	2.90	29	1.50	1.70	1.60	3.80	2.20
14	1.60	1.25	1.65	11.35	2.80	30	1.40	8.35	1.95	8.70	2.20
15	1.60	1.10	1.50	11.10	4.20	31	1.30	. .	1.55	. .	2.20
16	1.70	1.05	1.45	4.25	3.90						

[1] In feet.

DAILY GAUGE-HEIGHT — *Continued* [1]

S. M. BARNETT, *Observer*

1897													
	Jan.	Feb.	Mar.	Apr.	May	June		Jan.	Feb.	Mar.	Apr.	May	June
1	2.20	3.80	4.60	7.30	5.40	4.25	17	4.10	5.40	25.30	7.00	4.70	2.70
2	2.20	13.90	4.40	11.30	5.05	3.50	18	5.40	4.70	23.80	6.20	4.40	2.90
3	2.20	14.00	4.20	12.30	4.60	3.50	19	5.20	4.50	21.30	5.80	4.10	2.75
4	2.20	13.28	4.30	12.50	4.40	3.65	20	4.40	4.50	18.90	5.50	3.95	2.60
5	3.00	8.70	5.90	18.50	4.25	3.35	21	9.60	5.00	18.20	5.30	3.85	2.60
6	3.05	6.20	10.50	20.30	4.10	3.15	22	8.70	4.60	18.40	5.10	3.80	2.45
7	2.75	7.30	18.00	19.60	4.00	3.00	23	6.10	11.40	17.50	4.90	3.75	2.35
8	2.50	7.60	18.80	16.30	3.95	2.90	24	5.00	12.00	12.70	4.80	3.60	2.35
9	2.40	7.00	19.00	10.10	3.85	3.00	25	4.40	10.60	8.40	4.80	3.50	2.45
10	2.30	6.00	16.20	10.40	3.85	3.15	26	4.00	6.70	7.60	4.70	3.35	2.45
11	2.25	5.80	10.70	8.60	3.95	2.90	27	3.70	5.70	6.70	4.70	3.30	2.30
12	2.25	8.60	16.50	7.60	4.90	2.75	28	3.40	5.10	6.60	4.60	3.25	2.25
13	2.25	9.80	21.70	6.80	5.45	2.70	29	2.70	. .	6.00	4.40	3.25	3.50
14	5.45	7.70	21.70	6.40	8.45	2.60	30	2.10	. .	6.00	4.30	3.15	2.90
15	7.50	6.40	24.60	6.80	8.75	2.55	31	3.50	. .	6.00	. .	3.50	. .
16	5.10	5.70	26.00	8.20	5.70	2.60							

[1] In feet.

RATING-TABLE

Drainage Area, 1,527 Square Miles

Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second
0.85	345	1.70	601	2.60	995	3.50	1,547
0.90	355	1.80	640	2.70	1,050	3.60	1,615
1.00	375	1.90	675	2.80	1,105	3.70	1,684
1.10	400	2.00	715	2.90	1,162	3.80	1,755
1.20	427	2.10	760	3.00	1,225	3.90	1,827
1.30	454	2.20	802	3.10	1,287	4.00	1,900
1.40	485	2.30	850	3.20	1,350		
1.50	525	2.40	898	3.30	1,414		
1.60	565	2.50	948	3.40	1,480		

The minimum discharge, per square mile of drainage area, is 0.226 cubic feet per second.

As there is a Weather Bureau gauge on the Oostanaula river, at Rome, with a long record of gauge-heights, it has been thought advisable, to make a series of discharge measurements at Rome. But, as the gauge-height, at this point, is not entirely governed by the amount of water, flowing in the stream, being perceptibly affected, by the condition of the Etowah river, which unites with the Oostanaula a short distance below, the following discharge measurement cannot be used to make a rating-table: —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1896						
1	Sept. 24	Max Hall (at 5th Ave. bridge)	8	0.20	726	0.517	375
2	Oct. 15	Max Hall (at 5th Ave. bridge)	11	0.35	741	0.770	572
	1897						
3	May 7	Max Hall (at 5th Ave. bridge)	11	2.75	1,170	1.753	2,042
4	Oct. 15	Max Hall (at 2nd Ave. bridge)	11	0.35	766	0.770	591

COOSAWATTEE RIVER

CARTER'S STATION, CARTER'S, MURRAY COUNTY, GEORGIA

This station was established August 15th, 1896. It is at the head of navigation; and it has large water-powers immediately above it. Col. S. M. Carter is the observer. The drainage area, above this point, is 532 square miles. The following is a statement of the work done at station: —

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	Gauge-height in Feet	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
	1896						
1	Aug. 15	Max Hall	16	0.90	244	1.310	320
2	" 17	" "	16	0.95	240	1.320	319
3	Oct. 10	" "	11	0.55	197	1.150	228
	1897						
4	May 22	" "	16	2.10	379	2.150	815
5	" 24	" "	16	1.95	369	2.089	771
6	" 26	Olin Hall	16	1.88	352	2.020	712
7	" 28	" "	16	1.85	346	2.017	698
8	June 1	" "	16	1.90	358	2.020	723
9	" 15	" "	16	1.50	312	1.745	544
10	" 28	" "	16	1.33	290	1.634	474

DAILY GAUGE-HEIGHT[1]

COL. S. M. CARTER, *Observer*

	1896					1897					
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	. .	0.75	1.25	0.80	2.50	1.30	1.40	1.05	4.05	4.00	1.90
2	. .	0.75	1.10	0.85	2.25	1.25	4.00	1.95	4.10	3.25	1.90
3	. .	0.75	1.00	1.00	2.00	1.25	3.00	1.85	5.00	3.75	1.90
4	. .	0.70	0.95	1.05	2.00	1.25	2.15	1.85	9.00	2.50	2.20
5	. .	0.70	0.95	3.10	1.90	1.20	2.40	1.80	15.00	2.40	2.00
6	. .	0.65	0.90	1.25	1.80	1.20	2.40	9.00	4.50	2.35	1.90
7	. .	0.65	0.80	1.00	1.80	1.20	2.50	5.10	4.00	2.30	1.80
8	. .	0.60	0.70	1.00	1.75	1.20	2.55	4.00	3.50	2.20	1.80
9	. .	0.60	0.60	0.90	1.65	1.15	2.55	3.50	3.50	2.15	1.70
10	. .	0.65	0.50	0.90	1.60	1.15	2.50	3.50	5.50	2.20	1.60
11	. .	0.70	0.50	6.05	1.50	1.15	2.50	3.60	5.00	2.50	1.60
12	. .	0.65	0.80	3.50	1.40	1.20	2.70	19.30	4.50	2.50	1.60
13	. .	0.60	0.90	2.60	1.40	4.15	2.50	11.50	4.30	2.50	1.50
14	. .	0.55	0.80	1.40	1.35	2.20	2.50	11.25	4.00	2.50	1.50
15	0.90	0.55	0.75	1.00	2.50	2.10	2.10	10.00	3.50	2.40	1.50
16	0.90	0.55	0.70	0.90	2.50	2.15	2.10	8.00	4.50	2.30	2.70
17	0.95	0.50	0.65	0.95	2.35	2.20	2.05	5.50	3.50	2.30	1.80
18	0.90	0.50	0.65	0.90	2.20	2.00	2.00	5.00	3.30	2.30	1.60
19	0.85	0.45	0.60	0.90	2.05	2.00	2.00	6.00	3.25	2.20	1.50
20	0.80	0.50	0.55	0.90	2.00	2.15	2.00	6.00	3.20	2.20	1.50
21	0.80	0.50	0.55	0.85	1.85	4.10	2.05	5.10	3.10	2.10	1.50
22	0.80	0.55	0.60	0.85	1.85	2.15	2.10	5.00	3.00	2.10	1.40
23	0.75	0.65	0.80	0.85	1.80	2.10	7.00	4.80	3.95	2.00	1.40
24	0.95	0.75	1.30	0.90	1.70	2.00	3.50	4.50	3.95	2.00	1.50
25	0.95	0.65	0.95	1.00	1.60	2.00	2.50	4.00	3.90	1.90	1.40
26	0.95	0.60	0.60	1.00	1.50	1.90	2.40	3.75	3.80	1.90	1.40
27	0.90	0.60	0.60	0.95	1.50	1.70	2.30	3.50	3.70	1.80	1.40
28	0.90	0.55	0.70	1.25	1.45	1.50	2.20	3.35	3.65	1.80	1.40
29	0.85	1.60	1.25	1.25	1.40	1.40	. .	3.25	3.60	1.80	2.50
30	0.85	1.40	0.90	3.50	1.40	1.30	. .	3.10	3.50	2.50	1.50
31	0.80	. .	0.80	. .	1.35	1.20	. .	3.00	. .	2.00	. .

[1] In feet.

RATING-TABLE

Drainage Area, 532 Square Miles

Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second	Gauge-height in Feet	Discharge in Cubic Feet per Second
0.45	202	0.90	337	1.40	504	1.90	723	2.40	973
0 50	215	1.00	338	1.50	544	2.00	771	2.50	1,026
0.60	242	1.10	400	1.60	585	2.10	820		
0.70	269	1.20	433	1.70	628	2.20	870		
0.80	296	1.30	468	1.80	675	2.30	921		

The minimum discharge, per square mile of drainage area, is 0.38 cubic feet per second.

In order to establish the value of the water-powers on the Coosawattee river, above the mouth of Talking Rock creek, a large tributary, which enters the river, about a half mile above Carter's Station, the following measurements have been made on this creek, at its mouth, the gauge-heights, referred to, being those on the river, at Carter's, at the times the measurements were made. The drainage area of Talking Rock creek is 150 square miles.

DISCHARGE MEASUREMENTS

No.	Date	Measurement Made by	Meter Number	River Gauge-height in Feet [1]	Area of Section in Square Feet	Mean Velocity in Feet per Second	Discharge in Cubic Feet per Second
1	1896 Oct. 10	Max Hall	11	0.55	28	1.250	35
2	1897 May 24	" "	16	1.95	75	1.565	117
3	June 28	Olin P. Hall	16	1.33	45	1.253	56

[1] At Carter's Station.

A discharge measurement was also made on Salacoa creek, near its mouth, at Nesbitt's bridge, in Gordon county, on June 23d, 1896, when the gauge at Carter's stood at 1.40 feet, and the gauge at Resaca, at 2.35 feet. Measurement made by Olin P. Hall; meter number, 16; area of section, 84 square feet; mean velocity, 0.40 feet per second; discharge, 34 cubic feet per second.

This completes the statement of the work, done on the Mobile Basin, in Georgia.

Very extensive measurements have been made on this basin, in Alabama, on the Coosa and Tallapoosa rivers, whose head-waters come from Georgia.

The railroads, that give access to the water-powers of the Mobile Basin, in Georgia, are the Atlanta, Knoxville & Northern, the Western & Atlantic, The Southern, The Chattanooga, Rome & Columbus, and The East & West.

TENNESSEE BASIN

There is a regular station of the U. S. Geological Survey at Murphy, N. C., on the Hiawassee river; and discharge measurements have been made on the same river, at Reliance, Tennessee. A great part of this water comes from Georgia; and the measurements will be useful, in the future, for furnishing a water-shed formula, to apply to Georgia streams of the water-shed. These rapid mountain streams in Georgia, which furnish a great part of the waters of the Hiawassee and Ocoee rivers, will be measured, at low-water, during the coming autumn, by this Survey. The only measurement made, so far, on these streams, is at Mineral Bluff, on the Ocoee river (also called the Toccoa river). This measurement was made at extreme low water by the writer, on October 15th, 1896, with meter No. 8. Area of cross-section, 332 square feet; mean velocity, 0.443 feet per second; discharge, 148 cubic feet per second. The Georgia water-powers of the Tennessee Basin are mainly in Fannin, Union and Towns counties, and are reached by the Atlanta, Knoxville & Northern Railroad.

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