

Issued April 9, 1915.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF SOILS—MILTON WHITNEY, Chief.

IN COOPERATION WITH THE STATE OF MISSISSIPPI, EARL BREWER, GOVERNOR;
E. N. LOWE, DIRECTOR, STATE GEOLOGICAL SURVEY.

SOIL SURVEY OF JONES COUNTY,
MISSISSIPPI.

BY

A. L. GOODMAN, OF THE U. S. DEPARTMENT OF AGRICULTURE,
AND E. M. JONES, OF THE MISSISSIPPI
GEOLOGICAL SURVEY.

HUGH H. BENNETT AND W. EDWARD HEARN, INSPECTORS,
SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1913.]



WASHINGTON:
GOVERNMENT PRINTING OFFICE,
1915.

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
Washington, D. C., September 18, 1914.

SIR: In the extension of soil survey work in the State of Mississippi work was undertaken in Jones County during the field season of 1913. This work was done in cooperation with the State of Mississippi, and the selection of the area was made after conference with State officials.

I have the honor to transmit herewith the manuscript report and map covering this area, and to recommend their publication as advance sheets of Field Operations of the Bureau of Soils for 1913, as provided by law.

Respectfully,

MILTON WHITNEY,
Chief of Bureau.

Hon. D. F. HOUSTON,
Secretary of Agriculture.

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MAP.
Soil map, Jones County sheet, Mississippi.

SOIL SURVEY OF JONES COUNTY MISSISSIPPI.

By A. L. GOODMAN, of the U. S. Department of Agriculture, and E. M. JONES, of the Mississippi Geological Survey.

DESCRIPTION OF THE AREA.

Jones County is located in the southeastern part of Mississippi. It is bounded on the north by Smith and Jasper Counties, on the east by Wayne County, on the south by Perry and Forrest Counties, and on the west by Covington County. The county comprises an area of 696 square miles, or 445,440 acres. No base map was available, and the map used in plotting the various soils was constructed in the field as the soil survey progressed.

Jones County lies wholly within the Coastal Plain. The topography of the uplands is flat and undulating to gently rolling, rolling, and ridgy. In the eastern part of the county the surface is undulating to gently rolling and is admirably suited to cultivation without danger of severe erosion, yet sufficiently sloping to have good surface drainage. The slopes are gentle and regular, while the ridges and hillocks are rounded and in some places nearly flat.

In the western part of the county there is a large total area in which the slopes under cultivation are subject to erosion unless carefully handled. The deep sandy soils, however, are generally so absorptive of the rains that erosion is a negligible question. There are also a number of high ridges flanked with slopes too steep for safe cultivation. Here the heads of drainage ways have cut hollows and gullies into the sides of the ridges, in some places almost across the ridges, making the surface irregular to broken.

Here and there throughout the county rather small, flat and almost level areas occur on the ridge tops and in low situations where there is but little run-off because of lack of slope. This land can be cultivated without any danger of washing. Such areas occur in the forks of the Tallahoma and Tallahalla Creeks just south of Laurel and along Big Bogue Homo Creek south of Sandersville and east of Tucker.

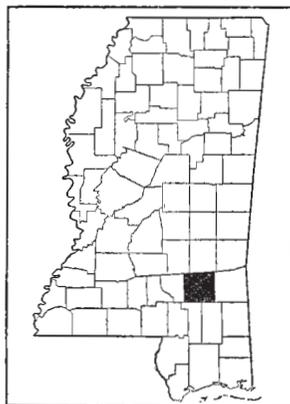


FIG. 1.—Sketch map showing location of the Jones County area, Mississippi.

In general the overflowed stream bottoms are level. They are locally interrupted by slight swales and hummocks and by abandoned stream channels. The second bottoms, or terraces, constitute higher and older flood plains of the streams. They are also prevalingly level, with minor surface irregularities. The bottoms and terraces are admirably suited to tillage operations without any possibility of erosion. The favorable surface configuration is offset to some degree, however, over a considerable area, by poor surface drainage.

The county is drained to the south, most of the large streams flowing from north to south. Practically all of the drainage is through the Leaf River, Tallahalla, Tallahoma, and Big Bogue Homo Creeks and their tributaries.

According to the census for 1910 Jones County has a population of 29,885, showing a remarkable increase during the last 20 years. In 1890 the population is given as 8,333, and in 1900 a population of 17,846 is reported. The county has two county seats—Laurel and Ellisville. Laurel, the largest town in the county, in 1910 had a population of 8,465. It has become one of the leading lumber manufacturing cities in southern Mississippi and its population has increased considerably in recent years. Ellisville has a population of 2,446, according to the 1910 census. Estabutchie and Sandersville, with populations of 631 and 604, respectively, are next in size. Other towns of more or less importance in the county are Ovet, Moselle, Crottstown, Monarch, Soso, Gitano, Maybell, Fox, Service, Errata, and Hawkes.

Jones County is traversed by three trunk line railroads. It is crossed from north to south by the New Orleans & Northeastern Railroad and the New Orleans, Mobile & Chicago Railroad. A branch line of the Gulf & Ship Island Railroad enters the county from the northwest, having a terminal at Laurel. The main line of this railway crosses the extreme southwestern corner of the county. A trolley line has recently been constructed between Laurel and Ellisville.

The county roads are in fair condition, and are being improved by grading and straightening and by applying gravel.

The county is well supplied with modern schoolhouses and churches and with rural free delivery mail routes. One of the State agricultural high schools is located at Ellisville.

Jones County contains many thousands of acres of recently cut-over lands especially adapted to trucking and general farming. This land when cleared of stumps and put into cultivation is capable of producing good yields.

Laurel and Ellisville, on the New Orleans & Northeastern Railroad, are in direct connection with Birmingham, Meridian, Hatties-

burg, Jackson, and New Orleans, so that excellent markets are available for all local products.

CLIMATE.

The climate of Jones County is typical of the warm Temperate Zone. The summers are long and hot, and the winters are short and mild. While the temperature sometimes drops to 8° or 10° F. in the winter, the cold periods are of short duration and the ground seldom freezes to a depth of more than an inch or two.

Under these conditions the land can be kept in cultivation throughout almost the entire year, and oats, rye, and other cover crops hardly cease making growths even during the coldest weather.

There is no Weather Bureau Station in Jones County, the nearest station being situated at Waynesboro, Wayne County, about 30 miles east of Laurel. The data in the following table have been compiled from the records kept at the Waynesboro station, and are fairly representative of climatic conditions in Jones County:

Normal monthly, seasonal, and annual temperature and precipitation at Waynesboro, Wayne County.

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	Inches.	Inches.	Inches.
December.....	48.6	80	8	4.53	3.45	7.30
January.....	47.2	79	14	4.47	5.16	2.25
February.....	50.1	82	.....	5.40	5.41	8.71
Winter.....	48.6	.....	.....	14.40	14.02	18.26
March.....	57.8	90	22	4.85	4.01	4.77
April.....	64.5	96	30	4.55	1.95	9.88
May.....	72.5	100	41	3.87	1.00	3.23
Spring.....	64.9	.....	31	13.27	6.96	17.88
June.....	78.5	102	50	5.28	2.45	17.28
July.....	81.0	105	58	5.01	4.80	5.05
August.....	80.5	101	56	4.87	6.54	3.30
Summer.....	80.0	.....	55	15.16	13.79	25.63
September.....	75.6	100	40	2.98	.50	5.05
October.....	64.5	98	29	1.83	1.25	6.78
November.....	55.0	89	20	2.86	2.22	.90
Fall.....	65.0	.....	30	7.67	3.97	12.73
Year.....	64.6	105	8	50.50	38.74	74.50

These records indicate an average annual temperature of about 65° F., which is also about the average for the spring and fall months, an average of 80° F. being recorded for the summer months, and about 49° F. for the winter months. The lowest temperature recorded, occurring in December, is 8° F., and the highest, in July, is 105° F. Such extremes, however, are rare.

The average annual precipitation for the county is about 50 inches. The rainfall is well distributed throughout the year.

The average date of the first killing frost in the fall is November 4, and of the last in the spring, March 20. The earliest date of killing frost recorded in the fall is October 20, and the latest in the spring, April 22.

AGRICULTURE.

The first important settlement in Jones County was made about 1820 near the site of the present city of Ellisville. Other settlements of importance were made shortly afterwards along the Ridge Road, about 5 miles northwest of Buffalo Hill. The first settlers came from South Carolina and Georgia and were mainly of Scotch descent. The county seat was located at Ellisville. The county was subsequently divided into two districts, with another county seat at Laurel.

During the early history of the county stock raising was the chief occupation. Practically all of the county supported a dense growth of virgin pine forest, with a heavy undergrowth of sedge grass which afforded pasturage for the cattle.

As the county developed some of the better red sandy land along the ridges was cleared and cultivated to cotton and corn. No fertilizers of any kind were used, and only moderate yields were obtained.

The census of 1880 reports a total of 118,740 acres in farms, 21,190 acres being improved. The average size of farms at this time was about 270 acres. The value of land, fences, and buildings is given as \$170,603, and of implements and machinery as \$8,368. During the year 1879 only \$95 was spent for fertilizers. The value of all farm products reported for the same year is \$101,640. The same authority reports 5,664 acres in corn, producing 47,269 bushels, 3,481 acres in oats, producing 30,992 bushels, and 2,794 acres in cotton, producing 624 bales. Hay, rice, sugar cane, sweet potatoes, Irish potatoes, and peas were also grown, but mainly for home consumption.

In 1882 the Northeastern Railroad was constructed through the county, opening up a considerable area. Small settlements sprang up at Laurel, Sandersville, Moselle, and Estabutchie. Prior to the construction of the Northeastern Railroad, Enterprise and Shubuta

were the two main market points, and all of the produce and supplies were hauled over bad roads for long distances.

No marked development took place in the county for the next 10 or 15 years. In 1900 small sawmills began operations throughout the county, and extensive areas were cleared and placed in cultivation. The 1900 census reports 218,314 acres in farms, an increase of 99,574 acres in 20 years. Of this total, 44,078 acres are reported as improved. The total value of farm land is reported as \$646,830, and of buildings as \$326,130. Implements and machinery were valued at \$75,370 and domestic animals at \$348,454. Corn still led in acreage, being grown on 17,107 acres, with a production of 278,110 bushels, and cotton had assumed second place in acreage with 11,714 acres and a yield of 5,891 bales.

The 1910 census reports 18,534 acres in corn, producing 227,486 bushels; 3,641 acres in oats, with a production of 44,686 bushels; and 25,117 acres in cotton, with a production of 10,509 bales. There were 121 acres devoted to Irish potatoes, with a yield of 8,535 bushels, and 1,451 acres to sweet potatoes, producing 115,587 bushels. Other vegetables occupied an acreage of 799 acres, sugar cane 1,010 acres, with a production of 90,545 gallons of sirup; cowpeas 1,602 acres, with a production of 5,477 bushels; and peanuts 553 acres, with a production of 7,411 bushels. Grains were cut green for hay from 1,005 acres, producing 1,062 tons. The value of all orchard products, including small fruits and nuts, is given as \$30,017.

In 1909 the Mexican boll weevil began to menace the cotton crops of the county. The farmers turned their attention to other crops, and this has resulted in a change in the agricultural development of Jones County.

The soils and climate of Jones County are adapted to a wide range of crops, and the natural conditions are favorable to its development into one of the richest agricultural counties in the State. Lumbering has been an important industry during the last 15 years. During the last 10 years there has been a marked increase in population and a rapid rise in land values. The lumber industry is still important, but the greatest development in the county is in connection with the agricultural utilization of the extensive area of cut-over pine land. The live-stock industry is not as important as it was in the earlier history of the county, much of the open range having been cleared, fenced, and brought under cultivation. Besides this, the Texas fever tick tended to discourage stock raising, and, although much of the land constitutes good pastures, very little has been used for this purpose. The eradication of the tick is now receiving attention, and the elimination of this pest will encourage the introduction of improved breeds of dairy and beef

cattle. Within the last five years considerable improvement has been made in the breed of hogs, the Tamworth, Berkshire, Poland China, and Duroc Jersey having largely displaced the "razor-back" stock.

In general, the agriculture of Jones County is in a transitory stage; more scientific methods are being introduced, and a greater variety of crops is being grown. One-horse farm implements are in general use, and the "bedding up" method of preparing the ground for planting is commonly practiced. The number of modern farm implements is increasing, however, and better methods of tillage are being followed.

Corn, cotton, oats, sugar cane, sweet potatoes, and truck are the chief crops, ranking in about the order named.

Corn yields vary from 15 to 50 bushels per acre, depending upon the fertility of the soil, quantity and kind of fertilizer used, and the character of cultivation given the crop. In by far the greater part of the corn fields velvet beans are grown between the rows. A number of farmers plant every other row in corn and velvet beans. Both methods result in improvement of the soil. The Ruston fine sandy loam, Cahaba fine sandy loam, and Orangeburg fine sandy loam are considered the best three soil types in the county for the production of corn. The yields are largest where the land is plowed deep in the fall, thoroughly pulverized in the spring at planting time, heavily fertilized, and the growing plants given a number of shallow cultivations. The varieties of corn most commonly grown are the Georgia Red Cob, Hastings Prolific, Mexican June, and Mosby's Prolific.

For many years, and until a comparatively recent time, cotton was the most important crop of the county. Since the invasion of the boll weevil, however, the production and acreage of cotton has been so reduced as to cause it to drop to second place. The crop gives best results on the sandy loam and fine sandy loams of the uplands and on the second-bottom or terrace soils. Only the early varieties are now grown successfully. Results are best where the cultural methods are designed to hasten the growth of the plant, and where wider spacing of the row is practiced, so that the ground may not be shaded. Many farmers throughout the county have reduced their acreage to a minimum, so that they can give the crop more careful attention, thoroughly cultivating it, and picking off squares as soon as punctured by the weevils. By following these methods, maximum yields are obtained. Heavy fertilization results in a quicker growth of the plants. Mixtures of 200 pounds of cottonseed meal and 100 pounds of acid phosphate are commonly used.

Although Jones County contains many soils adapted to oats, few farmers seem to realize that oats can be grown much more cheaply

than they can be purchased and shipped into the county. The Orangeburg, Ruston, Norfolk, Cahaba, and Kalmia soils are all suitable for the profitable production of this crop. The oat crop is not only valuable in itself, but it is one of the most valuable cover crops for protection of "piny woods" soils from the heavy winter rains and freezes, reducing both gullying and leaching. It fits well into a rotation with cotton and corn, and when carefully handled produces excellent feed for stock.

Sugar cane is another very important crop for the county. Low-lying areas of Ruston fine sandy loam, Orangeburg fine sandy loam, Norfolk fine sandy loam, Cahaba fine sandy loam, and Kalmia fine sandy loam when heavily fertilized yield from 350 to 500 gallons of sirup per acre.

The velvet bean, although a comparatively new crop for south Mississippi, ranks first in total area planted to the leguminous crops. Lespedeza is another legume of importance, growing wild on the Cahaba and Kalmia soils along Leaf River and Tallahalla, Tallahoma, and Big Bogue Homo Creeks. Soy beans are not as extensively grown in the county as the velvet bean. Cowpeas produce excellent yields on nearly every soil in the county, and are extensively grown, a large number of farmers planting this crop between the corn rows.

Strawberries, cucumbers, beans, sweet potatoes, Irish potatoes, melons, and fruits give profitable results on the Orangeburg, Ruston, Norfolk, and Cahaba soils.

About one-third of the county comprises recent cut-over lands or forested areas. Much of the cut-over land is for sale at \$5 to \$15 an acre, depending upon the quality of the soil and location. The removal of the stumps makes the clearing of such land rather expensive.

SOILS.

The upland soils of Jones County are derived from sedimentary deposits. The material was originally washed from land areas and laid down in water, where it was subjected to attrition and assorting by waves and possibly tides. Subsequently it was elevated above water to form new land areas. There was probably considerable variation in the character of the material, particularly in texture, as well as in the configuration of the surface at the time of emergence, but subsequently many changes have been wrought in the material through the processes of weathering, and in the character of the surface through erosion.

These sedimentary materials consist of unconsolidated sand, clay, and silt, with some gravel. The determining characteristics of the several series of soils occurring in the county are due, apparently,

to (1) the degree of weathering, especially the degree of oxidation as effected by drainage or aeration, and (2) the character of the original material. The reddish color of the subsoil material of the Orangeburg soils as compared with the yellow color of that of the Norfolk appears to be the result of a more advanced stage of weathering in the former, while the characteristically more plastic structure of the Susquehanna subsoil is probably due to the heavier nature—an original difference—of the parent clay giving the latter soil series.

In Jones County five distinct series of soils derived directly from these sedimentary deposits are found. These series are known as the Ruston, Norfolk, Susquehanna, Orangeburg, and Guin series. They are named here in the order of their areal importance, but the Ruston is by far the most extensive of these upland series, the four types found forming almost one-half the area of the county.

The alluvial soils of the county comprise two main divisions, (1) those derived from recent alluvium and found in the first bottoms of the streams, and (2) those derived from old alluvium and occupying the stream terraces. The material of both divisions represents stream-deposited sediments, washed from the upland soils of the county and from related or similar soils outside the county. That of the terraces was deposited by overflow waters over flood plains when the streams flowed at higher levels than at present. On these terraces weathering has changed the material from its original condition, the greatest change having taken place in the best drained part of the terrace. The differentiation of the terrace soils into series is based largely upon their drainage condition, which is the principal factor governing the stage of weathering. The terrace soils have been grouped into the Kalmia, Cahaba, and Leaf series.

Over the present flood plains overflows are continually distributing sediments, and weathering has been retarded by excessive moisture. Nevertheless some weathering has taken place in the soils of this division. For example, the Thompson soils are more weathered than the Bibb. This difference and differences in drainage have resulted in a number of different series of bottom-land soils, including, besides those just mentioned, the Ocklocknee series.

Meadow comprises first-bottom overflowed land having such a wide variation, even within small areas, that satisfactory separation into soil types can not be effected. It occurs mainly along small streams and is very poorly drained.

The following table gives the names and the actual and relative extent of each of the soils mapped in Jones County:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Ruston fine sandy loam.....	198,080	44.5	Ocklocknee silt loam.....	6,016	1.3
Norfolk fine sandy loam.....	40,576	9.1	Thompson loam.....	4,416	1.0
Ocklocknee loam.....	35,328	7.9	Leaf loam.....	2,432	.5
Kalmia fine sandy loam.....	26,752	6.0	Bibb silt loam.....	2,368	.5
Susquehanna very fine sandy loam.....	23,808	5.8	Ocklocknee clay.....	2,048	.5
Shallow phase.....	2,112		Guin sandy loam.....	1,856	.4
Cahaba fine sandy loam.....	24,896	5.6	Cahaba sand.....	1,856	.4
Orangeburg fine sandy loam...	17,216	3.9	Ocklocknee fine sand.....	1,216	.3
Thompson fine sandy loam....	14,592	3.3	Ruston gravelly sandy loam..	960	.2
Ruston sandy loam.....	13,888	3.1	Cahaba loam.....	768	.2
Meadow.....	9,088	2.0	Kalmia sand.....	768	.2
Kalmia loam.....	7,424	1.7	Ruston sand.....	192	.1
Orangeburg sandy loam.....	6,784	1.5	Total.....	445,440	.....

GRAY SOILS.

SEDIMENTARY MATERIAL—SANDS AND CLAYS.

NORFOLK SERIES.

The surface soils of the Norfolk series are prevailingly gray, ranging from light gray to grayish yellow. The subsoil is yellow sandy clay of friable structure. These soils occupy nearly level to rolling uplands throughout the Coastal Plain. The series is represented in Jones County by the fine sandy loam type.

NORFOLK FINE SANDY LOAM.

The surface soil of the Norfolk fine sandy loam is a gray loamy fine sand. It grades at about 5 to 8 inches into a pale-yellow fine sandy loam, which extends to a depth of 10 to 20 inches, beneath which the typical subsoil, consisting of a yellow, friable, fine sandy clay, is encountered. This extends to a depth of 3 feet or more. In a few places the surface soil to a depth of a few inches is dark gray, owing to the presence of an unusually large content of organic matter. In many areas the organic-matter content is decidedly low and the color correspondingly light. In the flatter situations the lower part of the subsoil frequently shows mottlings of gray or drab, and in a few places on the slopes and ridges the surface soil is mottled with red and reddish yellow. This is particularly true of areas bordering the Ruston or Orangeburg types.

The Norfolk fine sandy loam is the second type in extent in Jones County. The largest areas are encountered in the central part of

the county immediately west and northwest of Ellisville, and in the southeastern part of the county east of Landrum School and along the Wayne County line. Other areas of importance are located in the southwestern part of the county to the north and east of Wheelerville School.

This type occupies comparatively smooth country. The ridges are rounded or flat-topped and the slopes are gentle. The soil for the most part is well drained, yet the run-off is not so rapid as to cause severe washing or gulying. Only the flatter areas require artificial drainage, and this can be easily supplied by open ditches or tile drains. In a few of the poorly drained situations iron pebbles are present in both the soil and subsoil.

A large part of the Norfolk fine sandy loam is land recently cut over, which is covered with stumps, a few small bushes, and a dense growth of sedge grass. Some large bodies of the type are still forested with a heavy growth of longleaf pine. Only a small part of the type is used for crop production. Nearly all of the type is well situated with respect to transportation facilities.

The principal crops grown on the Norfolk fine sandy loam are cotton, corn, sweet potatoes, velvet beans, and cowpeas. The yields depend largely upon fertilization and cultural methods. Usually one-third to 1 bale of cotton per acre is obtained, from 10 to 25 bushels of corn, and large yields of late truck crops, berries, small fruits, melons, cantaloupes, and garden vegetables. Cowpeas, velvet beans, soy beans, vetch, and crimson clover are suitable legumes for this soil. After a few years of cultivation the organic supply ordinarily becomes depleted, but this soil, like many of the associated types, can easily be built up. The fertilizer used generally consists of an 8-2-2 mixture, which is applied at the rate of 200 to 400 pounds per acre. A higher-grade fertilizer, something like 8-4-5, produces better results. The unoccupied and cut-over lands of this type afford fair grazing.

Cut-over areas of the Norfolk fine sandy loam can be bought for \$5 to \$15 an acre. Areas under cultivation and those having a heavy growth of longleaf pine are held at much higher prices.

ORANGEBURG SERIES.

The Orangeburg soils are predominantly gray, ranging to reddish brown, and the subsoil is red and consists of friable sandy clay. This series is confined to the uplands of the Coastal Plain Province, being most extensively developed in a belt extending from southern North Carolina to central Texas. The series is represented in Jones County by the sandy loam and fine sandy loam types.

ORANGEBURG SANDY LOAM.

The Orangeburg sandy loam consists of a gray loamy sand to light sandy loam, with a subsurface layer of yellowish sandy loam, which passes at a depth of about 10 to 15 inches into a red, friable, sandy clay subsoil. In places the yellowish subsurface layer is not present, the gray, loose surface material being directly underlain at a depth of 8 to 10 inches by the red, friable sandy clay.

This type is most extensively developed in the northwestern part of the county northwest of Buffalo Hill, extending along the Ridge Road for a distance of more than 9 miles, and in the vicinity of Woodard Store along the Jasper County line. It occupies the crests of narrow, winding ridges, with steep slopes, the gentler slopes of stream valleys, and gently rolling to broken uplands.

The Orangeburg sandy loam in many places passes abruptly into the Ruston sandy loam, and a number of areas of the Ruston type, too small to be mapped separately, are included with the Orangeburg sandy loam.

The Orangeburg sandy loam has good surface drainage and under-drainage, and yet conserves sufficient moisture to supply the needs of crops adapted to the type throughout protracted droughts, provided the soil is managed properly. Owing to the high elevation of the type, erosion is a serious problem. Where the slopes are not terraced and protected from washing, deep, gorgelike gullies, or "caves," gradually encroach upon the field, eventually bringing about a topographic condition too broken for other than patchy cultivation. The gullies often have perpendicular walls, and generally range from 20 to 50 feet in depth.

Practically all of this type is now in cultivation to corn, cotton, velvet beans, and orchard crops. Peaches do especially well on this soil. Early truck crops, such as tomatoes, cabbage, squash, beans, watermelons, and potatoes, are successful crops.

As a general rule the soil is slightly deficient in organic matter, which can easily be supplied by applying commercial fertilizers. Mixtures of cottonseed meal, kainit, and acid phosphate are effective. Mixtures analyzing 8-4-2 and 8-3-3 give good results where applied at the rate of about 500 pounds for cotton, 300 to 400 pounds for corn, and 800 pounds for truck crops. Diversified farming and the rotation of crops are essential in the successful farming of this type. The soil is improved by growing winter cover crops and by planting legumes, such as velvet beans, soy beans, and cowpeas, between the rows of cotton and corn.

This soil is valued at \$15 to \$150 an acre, depending mainly on location.

ORANGEBURG FINE SANDY LOAM.

The Orangeburg fine sandy loam is a gray to grayish-brown fine sandy loam, underlain at a depth of a few inches by a yellowish to reddish-yellow fine sandy loam which grades at about 12 to 15 inches into a red, friable, fine sandy clay. This clay extends to a depth of 3 feet or more without any important change in color, texture, or structure.

This type occupies well-drained knolls, ridges, and slopes. The slopes are prevailingly gentle, and consequently are not inclined to wash so badly as the more sloping development of the type found in many of the counties of eastern Mississippi.

Some of the largest areas of this type are found in the vicinity of Union Church; near Bradshaw School; south of Summerland; east of Lux; near Sweetwater School; north of Bryant School; at Fairfield Church; and northwest of Whitfield Line School.

The Orangeburg fine sandy loam is derived from an upland stratum of sedimentary sands and clays. Thorough oxidation has probably brought about the bright-red color of the subsoil, the principal feature distinguishing the types of this series from the Norfolk soils.

The Orangeburg is considered one of the best agricultural soils of the county. Corn, cotton, and velvet beans are the crops most extensively grown, but truck crops, such as strawberries, tomatoes, beans, peas, cabbage, squash, and potatoes, do well on this soil. The type has been found to be particularly adapted to orchard fruits, such as pears, apples, the Elberta and other varieties of peaches, plums, and figs. There are now a number of small orchards on this type.

The Orangeburg fine sandy loam is very easily handled owing to its loose, friable nature, and is easily improved. Winter cover crops, such as oats, rye, vetch, etc., produce excellent yields and are effective in preventing washing and maintaining the fertility of the soil. Practically all of this type is in cultivation, a small part being forested with virgin pine. The value of the type ranges from \$15 to \$50 an acre, depending upon location.

RUSTON SERIES.

The Ruston soils are gray, varying to grayish brown. The subsoils are reddish yellow to yellowish red or dull red, and are moderately friable, consisting generally of sandy clay. Occasionally the lower subsoils are mottled with gray and shades of yellow. This series is intermediate between the Orangeburg and Norfolk series in the color of its subsoil, and between the Orangeburg and Susque-



TYPICAL AREA OF RUSTON FINE SANDY LOAM, SHOWING CLEARING OF LAND AND TOPOGRAPHY.

hanna in point of subsoil structure. The Ruston soils are closely associated with the Orangeburg and Susquehanna. In this series the sand, gravelly sandy loam, sandy loam, and fine sandy loam types are mapped.

RUSTON SAND.

The Ruston sand consists of a grayish-brown fine sand, underlain at a depth of about 5 to 8 inches by a yellow to slightly reddish yellow fine sand, which continues to a depth of about 20 to 24 inches, where it passes into a dull-red or yellowish-red loamy fine sand. The soil is well drained, and crops are likely to suffer from lack of moisture during dry spells.

The Ruston sand is characteristically developed in small areas on knolls and ridges. One of the largest areas is located in the northern part of the county, northwest of Lamar School. A few small areas are mapped in the southwestern part of the county. This type is not extensively developed in Jones County and is comparatively unimportant.

This soil is somewhat more productive than the looser, lighter colored, and more leachy Norfolk sand. Vegetables, potatoes, and melons do well. Heavy applications of complete fertilizers or barnyard manure are required for the production of good yields.

RUSTON GRAVELLY SANDY LOAM.

The Ruston gravelly sandy loam to a depth of 10 to 18 inches consists of a gray to grayish-brown loamy sand to coarse sandy loam, carrying from about 15 to 75 per cent of gravel of various sizes and shapes. Quite often the material to a depth of a few inches consists almost entirely of sand, but as a rule it contains more or less silt and clay, the proportion of which increases with depth. The subsoil is a brownish to reddish-yellow, friable sandy clay, containing a small amount of gravel. The coarse material consists mainly of rounded, oolitic gravel, pinkish and red flint gravel, brown chert, and some quartz gravel.

The topography ranges from hilly to broken, the type occupying narrow, winding ridges. The soil has an open structure, allowing the free circulation of both air and water, so that drainage is good. Two areas of the Ruston gravelly sandy loam mapped in the county contain a sufficient amount of gravel to be of commercial value as "gravel pits." One of these areas is located just north of Buffalo Hill along the Ridge Road, and the other is about $4\frac{1}{2}$ miles southeast of Ellisville. In each case the gravel deposit occupies the crest of a ridge and is about 20 feet in thickness, the strata dipping toward the southeast.

The type includes areas of Ruston and Susquehanna fine sandy loam too small to be mapped separately. Most of the areas support a growth of broom sedge, scrub oak, and pine. Because of unfavorable topography and excess of surface gravel, only a few acres are in cultivation.

RUSTON SANDY LOAM.

The soil of the Ruston sandy loam is a grayish-yellow or pale-yellow light sandy loam, grading at a depth of a few inches into a reddish-yellow sandy loam. The subsoil, beginning at about 10 to 15 inches, is a yellowish-red or dull-red, friable sandy clay.

The type occupies high winding ridges and slopes and their plateau-like crests, only the latter areas being considered well suited to cultivation. The type includes a number of "hollows" or winding drainage ways flanked with rather steep slopes, none of which are susceptible of easy cultivation.

The Ruston sandy loam has a patchy occurrence throughout the county, the larger areas occurring west of Leaf River in the vicinity of Maybell and along the Ridge Road near Mt. Roe School.

Drainage is excellent, owing to the sandy nature of the soil and the rolling topography. In some places it is excessive, and maximum crop yields are obtained on this type during wet seasons.

Owing to the lack of organic matter, applications of barnyard manure or green manuring crops are generally necessary. Barnyard manure, as well as mixtures of cottonseed meal and phosphoric acid or complete fertilizers, give good results.

The soil is suitable for the production of early truck crops. Only a small part of this type is in cultivation. Most of it comprises recently cut-over land and supports a dense growth of blackjack oak. Although of no commercial value, the timber is abundant on the shoulders of hills where the soil is very shallow, and prevents washing and gulying to a great extent. In the many cases where the areas are too steep for cultivation, they are suited for forestry or pasturage.

RUSTON FINE SANDY LOAM.

The Ruston fine sandy loam consists of a gray to grayish-yellow loamy fine sand, underlain at about 6 to 8 inches by a pale-yellow fine sandy loam which passes at about 10 to 18 inches into reddish-yellow or yellowish-red, friable fine sandy clay. The color of the subsoil ranges from the yellow of the Norfolk to the red of the Orangeburg, the type representing a gradational soil between the Norfolk and Orangeburg in such a way that the boundaries between the Ruston fine sandy loam and the Norfolk fine sandy loam on the one side and the Orangeburg fine sandy loam on the other side

are in many places difficult to establish accurately. The subsoil, especially in the lower part, is faintly mottled in many places with shades of yellow and, occasionally, with gray. As mapped the type includes patches of the Orangeburg fine sandy loam and Norfolk fine sandy loam too small to be shown separately.

This is the most extensively developed type in the county. It occurs in broad areas throughout the county, its continuity being broken by areas of the Norfolk fine sandy loam, Orangeburg fine sandy loam, Susquehanna very fine sandy loam, and of alluvial soils along the stream channels.

This soil generally occupies gently rolling and rolling country. (See Pl. I.) That having a prevailingly gently rolling topography is extensively developed north of Laurel between the forks of Tallahoma and Tallahalla Creeks and west and northwest of Ellisville. The divides in this portion of the county are usually rounded and broad, with flat or only slightly undulating crests and gentle slopes, the surface configuration being well suited to tillage operations. More rolling country is found in the areas in the neighborhood of Antioch Church and southeast of Ellisville, near Bradshaw School. These areas have a broken topography and may be termed heavily rolling or hilly. Here the slopes are in many places sufficiently steep to make cultivation somewhat difficult and to make the land more susceptible to erosion.

As a rule, the Ruston fine sandy loam is a well-drained type except in the vicinity of depressions. Wherever the drainage is not good, large quantities of iron concretions occur on the surface and in the soil.

The greater part of the unused land suitable for agriculture is Ruston fine sandy loam. About 40 per cent of the type is recently cut-over land, and the large sawmills at Laurel are rapidly removing the remaining merchantable timber. Most of this land can easily be brought under cultivation.

Only a comparatively small part of the Ruston fine sandy loam is farmed. Organic matter is needed to keep the land in good physical condition. The soil responds readily to all kinds of fertilizers and is easily improved. On the other hand, it quickly deteriorates if not cared for properly. In nearly all cases the soils of the Ruston series are deficient in organic matter.

The type is used in different parts of the South for the production of cotton, corn, oats, cowpeas, peanuts, soy beans, velvet beans, sugar cane, sweet potatoes, melons, many kinds of garden vegetables, and pecans. The crops most commonly grown locally are cotton, corn, sugar cane, and oats, with vegetables and sweet potatoes for home use. Maximum yields of any crop are obtained only where appli-

cations of commercial fertilizers are made. Complete mixtures analyzing about 8 or 10 per cent phosphoric acid, 2 per cent nitrogen, and 2 per cent potash are applied ordinarily at the rate of about 250 to 300 pounds per acre for cotton, sugar cane, and corn, very little fertilizer being used for other crops.

The yields on the Ruston fine sandy loam range from one-fourth to 1 bale of cotton, 10 to 50 bushels of corn, and 15 to 20 bushels of oats per acre. The large tracts of cut-over land support a dense growth of broom sedge and carpet grass, which afford pasturage for practically 11 months out of the year.

SUSQUEHANNA SERIES.

The Susquehanna soils are gray, ranging to reddish. The subsoils are mottled gray and red or gray, red, and yellow, and consist of plastic, heavy clay. The color of the subsoils varies, often being red, white, drab, yellow, and sometimes purple, although red practically always predominates, the other colors appearing only as mottlings in the lower part of the section. The Susquehanna series is most extensively developed in the higher part of the Coastal Plain from the vicinity of Chesapeake Bay to central Texas. This series is represented in Jones County by the very fine sandy loam type.

SUSQUEHANNA VERY FINE SANDY LOAM.

The Susquehanna very fine sandy loam, as developed in Jones County, is a gray very fine sandy loam to silty loam, underlain at a depth of 6 to 10 inches by a red, plastic clay which is mottled with gray and yellow at about 20 inches. The mottling is more intense with increasing depth, the lower part of the subsoil being characteristically a sticky, plastic, heavy clay, mottled with red, gray, and yellow, and frequently with purplish and brownish red and white. In many areas there is a subsurface stratum of yellowish fine sandy loam and very fine sandy loam, and in such places the heavy clay subsoil usually occurs at greater depths.

The type has a patchy occurrence in the county, usually occupying knolls and slopes about the heads of drainage ways. More extensive bodies occur along the slopes of streams and on the crests of ridges in the eastern and western parts of the county.

Topographically a large part of the type is suitable for cultivation, most of the areas having a more even surface and gentler slopes than the other upland types. In many places gravel is scattered over the surface, especially on the steeper slopes.

Owing to its topography the drainage is good, except in depressions. In these poorly drained areas the soil has a floury feel when

dry, owing to the high percentage of silt present. In the lower subsoil, which is less affected by weathering and oxidation, the clay is checked into angular fragments, or, less frequently, into rough, cubical granules. This granulation disappears almost entirely when the clay becomes saturated, so that the lower subsoil is resistant to the downward movement of water.

Only a small part of this type is under cultivation. This is due to the fact that this soil is more difficult to till and less productive than the Ruston, Orangeburg, or Norfolk soils. The chief cause of the low productiveness is the unfavorable moisture conditions resulting from the impervious nature of the lower subsoil.

The type is largely in virgin pine forest, comprising recently cut-over land, with a scattering of blackjack oak and an undergrowth of sedge grass. The land is valued at \$5 to \$12 an acre, depending mainly on location.

Susquehanna very fine sandy loam, shallow phase.—The soil of the Susquehanna very fine sandy loam, shallow phase, ranges in depth from 2 to 6 inches, and consists of a grayish-brown very fine sandy loam to a red stiff clay. The subsoil is a red to yellowish-red, heavy plastic clay, with decided mottlings of gray, yellow, and yellowish red at lower depths. The variations in the texture of the surface soil are due to the action of erosion since the type was cleared of timber. On some of the slopes all of the original surface material has been washed off, leaving the tough clay exposed. When wet the soil is plastic and tenacious, making cultivation very difficult. On the other hand, when the moisture content is just right the soil is friable and easily tilled.

The topography ranges from heavily rolling to nearly level, the hilly areas having good surface drainage. Owing to its heavy, plastic nature, the soil when once thoroughly saturated remains wet for long periods.

Some of the most extensive areas of this soil are encountered in the neighborhood of Pilgrim Church, southwest of Johnson School, east of Terrell Creek, and along Wildcat Creek.

Only a small part of this phase is in cultivation. A large area is forested with virgin pine or is in the state of recently cut-over land.

With heavy farming implements and proper cultural methods this soil can be made to produce fair crops of cotton, corn, and oats. Care is necessary to keep the soil supplied with as much vegetable matter and humus as possible, and a winter cover crop is essential to keep the soil from washing. This soil is well adapted to all kinds of grasses and can be profitably used for pastures. The land is valued at \$4 to \$5 an acre, depending upon location.

Below are given the results of mechanical analyses of samples of the soil and subsoil of the typical Susquehanna very fine sandy loam:

Mechanical analyses of Susquehanna very fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
422713.....	Soil.....	0.9	0.6	1.2	25.9	23.3	39.0	8.2
422714.....	Subsoil.....	.1	.2	.5	5.2	20.6	35.3	38.4

WATER-LAID MATERIAL (OLD ALLUVIUM)—MIXED DERIVATION.

KALMIA SERIES.

The surface soils of the Kalmia series are gray, ranging to grayish yellow, and the subsoils are mottled gray and yellow. The series is developed along streams of the Coastal Plain region on terraces lying largely above overflow, and most extensively in the Gulf Coastal Plain section of Mississippi and Alabama. They are derived largely from materials washed from Coastal Plain soils, although along the larger streams issuing from the Appalachian Mountains and Piedmont Plateau more or less material has been transported from those regions. In the better drained situations the subsoils are yellow, the soils of such areas resembling very closely the corresponding members of the Norfolk series. The Kalmia soils are closely related to the Cahaba, differing mainly in their poorer drainage and the consequent less oxidized condition of their subsoils. The surface is usually flat and the drainage deficient. The Kalmia series is represented in this county by the sand, fine sandy loam, and loam types.

KALMIA SAND.

The Kalmia sand is a gray to grayish-yellow or brownish-yellow sand, which at a depth of a few inches passes into a yellow sand of a rather loose structure. In the lower part of the 3-foot section the material is frequently a pale yellow, mottled with gray.

The type occupies well-drained, apparently level stream terraces, with small swells which do not materially affect the topography, at least not sufficiently to interfere with cultivation. On these slight elevations the soil is generally lighter in color and has a looser texture than on the level intervening flats, where spots of Kalmia fine sandy loam too small to map separately are sometimes encountered.

The Kalmia sand is of small extent, occurring along the second bottom of Leaf River. It is not overflowed except during periods of unusually high water.

Owing to the open structure of the soil, the moisture content is uncertain. Only a few small fields are in cultivation, giving poor results, except where heavily fertilized.

KALMIA FINE SANDY LOAM.¹

The surface soil of the Kalmia fine sandy loam consists of a gray or pale-yellow loamy fine sand to fine sandy loam, which usually extends to a depth of about 10 to 20 inches without any great change except that below a depth of a few inches the clay and silt content is greater. The subsoil of the typical areas is a yellow fine sandy clay, which in the better drained situations shows faint mottlings of red and brown, and in the poorly drained situations mottlings of gray, yellow, and drab. In the lower part of the subsoil the material in many places is noticeably more compact. An appreciable quantity of small black and brown oxide of iron concretions is generally found in the subsoil.

In the slightly depressed areas the material departs somewhat from the typical description. To a depth of 2 or 3 inches it here consists of a gray fine sandy loam having a subsurface stratum of mottled gray and yellow fine sandy loam and resting at a depth of about 8 to 14 inches upon a fine sandy clay or silty clay of an intensely mottled gray and yellow color.

The Kalmia fine sandy loam closely resembles the Norfolk fine sandy loam, but it is less well drained and more frequently mottled with gray in the subsoil. It also differs from the Norfolk type in having a practically level surface. These dissimilarities are traceable to the differences in the formative processes of the two types.

Some of the largest areas of the Kalmia fine sandy loam occur southeast of Laurel between the forks of the Tallahoma and Tallahalla Creeks, along Leaf River, in the vicinity of Moselle, near Parkers Store, northwest of Centerville School, and south of Sandersville, bordering the first bottom of Big Bogue Homo Creek. Small areas of minor importance are scattered throughout the county bordering the first bottoms of small streams. Southeast of Ovet and northeast of Sandersville there are a few small areas of terrace soil occupying a more elevated position and having better drainage than the greater part of the type.

The Kalmia fine sandy loam is developed on the second bottoms and high terraces which lie above normal overflow of the streams. The surface is predominantly flat and level, with only a few slight depressions or undulating to slightly hummocky areas. A large part of the type has poor natural surface drainage, but such areas

¹ Small spots of Kalmia fine sand and Kalmia loam of insufficient size to be separated on the map are included with this type.

can be reclaimed by means of ditches and tile drains, as the type is sufficiently elevated above the first bottoms to give an adequate fall. In some of the lower situations the run-off is very slow and the surface may be inundated for some time after heavy rains.

A part of the better drained soil is forested, mainly with longleaf pine, with a scattered growth of oak, black gum, sweet gum, and an undergrowth of gallberry bushes. In the wetter areas a growth of shortleaf pine, sweet gum, black gum, white oak, swamp maple, bay, and gallberry bushes is common. Such wet spots are locally known as "bays" or "slashes."

The greatest need of practically all of this type is artificial drainage. The soil is decidedly deficient in humus.

This soil where properly handled is well suited for the production of corn, oats, cowpeas, velvet beans, and sugar cane. Owing to the presence of the boll weevil, cotton, which matures late on this type, is no longer a profitable crop. The principal crops are corn, forage crops, and vegetables for home consumption.

The Kalmia fine sandy loam is valued at \$3 to \$12 an acre.

KALMIA LOAM.

The surface soil of the Kalmia loam consists of a gray to light-gray very fine sandy loam to silty loam, which grades into a yellowish-gray to almost white silty loam at 4 to 6 inches. The subsoil, beginning at about 10 to 15 inches, is a yellow silty clay or clay loam or yellow silty clay loam mottled with either brown or gray or fine sandy clay. Small spots of heavy fine sandy loam are included with the Kalmia loam, particularly near the inner borders adjoining the first bottoms, while in a few of the lower situations along the outer margin of this type the surface material is a dark-gray heavy loam. In slightly depressed areas where the surface drainage is poor, the subsoil is a mottled gray or drab and brown silty clay loam. Under a large part of this type a hard, compact layer of silty clay occurs at about 24 inches. This retards the percolation of rain water and interferes with the capillary rise of moisture from below, and is thus a factor unfavorable to agriculture.

This type has a comparatively small development in the county. The larger areas occur just south of Overtt, along the New Orleans, Mobile & Chicago Railroad at Crottstown, Fox, Monarch, and Tallahoma, southeast of Ellisville, along Rocky Creek, and between the forks of Rocky Creek and Tallahalla Creek. Other areas of importance are developed around Estabutchie and near Lux. The Kalmia loam is confined to the second bottoms along Leaf River and the large creeks of the county. The surface is uniformly flat and practically level, as a rule, the type lying at an elevation of about 5 to 10 feet above the first bottoms. By reason of the flat

surface and rather compact character of the subsoil the type has poor natural drainage, water standing on some areas for several days after heavy rains. Practically all of the type can be fairly well drained with open ditches.

This type supports a scattered growth of old-field pine, with some longleaf pine, black and sweet gum saplings, and a thick undergrowth of sedge and other wild grasses and weeds.

Occasional patches of this soil are cultivated, and fair yields of corn, sugar cane, and cowpeas are obtained. Where the soil is adequately drained, limed, and supplied with organic matter, good crops of cowpeas, velvet beans, and sugar cane may be expected. Under existing conditions the type affords some pasturage. The *Kalmia* loam is valued at \$4 to \$10 an acre.

LEAF SERIES.

The surface soil of the types included in the Leaf series is light gray to gray. The subsoils characteristically consist of gray or mottled gray and yellow, compact silty clay, which grades downward into a compact mottled red and gray or red and yellow, plastic clay. Iron concretions are common on the surface. These soils are developed on the stream terraces of the Coastal Plain region. In Jones County only the loam type is found.

LEAF LOAM.

This type is a gray to yellowish-gray loam to very fine sandy loam, grading at about 8 to 12 inches into a yellow loamy clay, which, in turn, passes at about 18 inches into a mottled gray or red or gray, yellow, and red, plastic, heavy clay, resembling the subsoil of the Susquehanna soils. Small iron concretions are of frequent occurrence in the soil. The surface of fields that have been in cultivation for several years usually has an ashy appearance, due chiefly to the high content of silt and the lack of humus. In forested areas the content of vegetable matter is usually very high in the first few inches of soil, making the soil very dark gray to black. This color seldom extends to a depth of more than 4 or 5 inches, where the typical grayish-yellow soil is encountered.

The type occupies poorly drained flat situations on the terraces of Tallahalla Creek and the Leaf River.

The type is generally associated with the *Kalmia* loam. Much of it remains inundated for considerable periods after heavy rains.

Very little of the Leaf loam is in cultivation. During favorable seasons fair yields of corn, cotton, and velvet beans are obtained, but crops are subject to injury owing to the compact nature of the subsoil, which does not permit proper air circulation and drainage.

Results of mechanical analyses of samples of the soil and subsoil of this type are given below:

Mechanical analyses of Leaf loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
422711.....	Soil.....	0.4	4.2	4.9	8.2	17.6	50.1	14.5
422712.....	Subsoil.....	.7	2.1	3.4	5.9	9.1	42.9	35.3

BROWN SOILS.

WATER-LAID MATERIAL (RECENT ALLUVIUM)—MIXED DERIVATION.

OCKLOCKNEE SERIES.

The Ocklocknee soils are prevailingly brown, ranging to dark gray. The subsoils are brownish or mottled brownish, yellowish, and gray. This series comprises the darker colored soils of the first bottoms of Coastal Plain streams. The soils are composed mainly of wash from the Coastal Plain soils. In general they are subject to overflow. This series is represented in the county by the fine sand, loam, silt loam, and clay types.

OCKLOCKNEE FINE SAND.

The Ocklocknee fine sand is a variable soil. The material consists mainly of a grayish-brown to brown fine sand, or loamy fine sand. The immediate surface soil is a brownish loam or fine sandy loam, and in many places layers of material heavier than fine sand occur at various depths throughout the 3-foot section. The surface is quite hummocky, with many swales and depressions.

The largest areas of this soil in the county are developed along the Leaf River and Big Creek, extensive deposits of white or yellowish-gray sand on the inner side of many of the sharp bends being included in this type. In places a white sandy surface soil and brownish-yellow subsoil is encountered. The type occupies overflowed bottoms and is heavily forested with gum, magnolia, beech, oak, and Cuban pine.

OCKLOCKNEE LOAM.

The Ocklocknee loam consists of a brown, mellow loam, underlain at about 6 to 10 inches by a yellowish-brown or light-brown silty clay loam or silty clay. The color of the subsoil becomes more yellowish with increase in depth, the lower portion being usually a yellow, moderately stiff silty clay. In some places the surface soil

is noticeably sandy, while in others it is very close to silt loam. These textural variations, owing to their intricate association, can not be shown satisfactorily on the map.

The Ocklocknee loam occurs in the overflowed first bottoms of the Leaf River and Big, Tallahalla, Tallahoma, Mill, Little Bogue Homo, and Big Bogue Homo Creeks, and the lower part of Tiger Creek.

None of the type is in cultivation. The greater part of it supports a dense growth of sweet gum, Cuban pine, longleaf pine, holly, ironwood, magnolia, bay, beech, white oak, slash pine, and swamp maple.

The Ocklocknee loam is naturally one of the most fertile alluvial soils in the county, but, owing to the excess of water during rainy seasons, crops can not be grown. The type can be reclaimed by straightening and deepening the stream channels and keeping them clear of brush, and made one of the best agricultural soils in the county, particularly for the production of corn, grasses, and forage crops.

OCKLOCKNEE SILT LOAM.

The soil of the Ocklocknee silt loam to a depth of from 6 to 8 inches is a brown to dark-brown, smooth and mellow, heavy silt loam. The subsoil is a heavy silty clay of a brownish color, generally mottled in the lower portion of the 3-foot section with gray or drab. Small areas of fine sand to loam fringe the stream banks.

This type is inextensive in Jones County, and is confined to the first bottoms of Big Bogue Homo and Dry Swamp Creeks. Its forest growth is similar to that of the Ocklocknee clay, with which it is closely associated. In its present undrained condition it is unfit for agricultural use.

This soil, like other members of the Ocklocknee series, is naturally a very strong and productive soil, and where reclaimed excellent yields of corn, oats, sugar cane, and other crops may be obtained with the use of little or no commercial fertilizer.

OCKLOCKNEE CLAY.

The surface soil of the Ocklocknee clay is a dark-brown to chocolate-brown clay, having a depth of about 5 to 8 inches. The subsoil is a brown or yellowish-brown silty clay or clay, generally of a somewhat plastic structure. In many places the lower part of the subsoil is mottled with gray. There is some variation in the soil, the texture in spots grading toward clay or silt loam, and in others, usually near the stream banks, toward a loam, fine sandy loam or even a fine sand. The type includes many sloughs or abandoned stream channels which hold water throughout a greater part of the year.

The Ocklocknee clay occurs along the first bottoms of Tallahalla and Big Bogue Homo Creeks 2 miles northeast of Sandersville and north of Hawkes. Like other members of the Ocklocknee series it is subject to heavy and frequent inundation.

The reclamation of this type can only be effected at considerable expense, as the construction of high levees is necessary, with pumping plants for removing the water.

All of the type is heavily forested with magnolia, beech, ironwood, holly, sweet gum, black gum, white oak, water oak, Cuban pine, and swamp maple.

THOMPSON SERIES.

The surface soils of the Thompson series are brown, in places being grayish brown, while the subsoils are predominantly yellow, with mottlings of gray and various shades of brown and yellow. The subsoil of the heavier members is slightly plastic, but not too compact to permit good underdrainage where drainage outlets are provided. These soils occupy the first bottoms of streams in the Coastal Plain region and are subject to overflow. They are characteristically poorly drained, although their drainage is somewhat better than that of the related Bibb soils. The Thompson soils consist of material washed largely from the Coastal Plain soils. In Jones County this series is represented by the fine sandy loam and loam types.

THOMPSON FINE SANDY LOAM.

The soil of the Thompson fine sandy loam is a grayish-brown or grayish fine sandy loam, underlain at a depth of a few inches by a pale-yellow fine sandy loam, which grades at about 8 to 15 inches into a mottled yellow and gray fine sandy clay. The subsoil in many cases is somewhat plastic, having at a depth of from 20 to 25 inches a rather impervious layer resembling the compact subsoil ("hardpan") of the Bibb soils.

The typical soil occupies the first bottoms of streams. A few strips are mapped in the western part of the county in low drainage ways or hollows where there is not much real alluvium, the material, especially near the heads of such areas, being colluvial. In these places the soil is permanently wet, owing to a compact, impervious substratum which prevents the escape of water entering the soil either from the surface or by underground seepage from adjacent slopes.

The Thompson fine sandy loam is typically developed along the first bottoms of Rocky, Spring, Horse, Dry, Chinkapin, Piney, and Brush Creeks, and the headwaters of Mill Creek. All of the type is badly in need of drainage, which can be established by deepening the main stream channels and constructing lateral ditches.

A large part of the type is heavily forested with pine and scrub timber, especially in the eastern part of the county, with a luxuriant growth of sedge grass and water-loving plants, such as the pitcher plant and gallberry bushes.

Only a small part of the Thompson fine sandy loam is under cultivation. It is one of the best lowland rice soils in the county.

THOMPSON LOAM.

The soil of the Thompson loam consists of a grayish-brown to light-brown loam, underlain at a depth of 6 to 8 inches by a yellow loam to silt loam, which grades at a depth of about 20 inches into a yellow mottled with gray and brown silty clay loam. Frequently within the 3-foot section a compact stratum of gray mottled with brown and yellow, impervious clay is encountered. This stratum resembles the "hardpan" of the Bibb soils and interferes with the circulation of both air and water.

The position of this type is similar to that of the Thompson fine sandy loam.

The Thompson loam is not under cultivation. The greater part of the type is either forested with virgin longleaf pine or supports a dense growth of sedge grass and water-loving plants. All of the type is badly in need of drainage, which can be established by deepening and straightening the main-stream channels. With proper drainage, good crops of corn, oats, velvet beans, and rice can be produced.

Below are given the results of mechanical analyses of samples of the soil and subsoil of the Thompson loam:

Mechanical analyses of Thompson loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	<i>Per cent.</i>
422721.....	Soil.....	0.2	0.7	1.0	21.9	25.8	39.3	19.6
422722.....	Subsoil.....	.4	1.0	.6	22.0	26.0	34.7	15.0

WATER-LAID MATERIAL (OLD ALLUVIUM)—MIXED DERIVATION.

CAHABA SERIES.

The surface soils of the Cahaba series are brown, ranging to reddish brown, and the subsoils are yellowish red to reddish brown. The Cahaba soils occupy old stream terraces, are largely above overflow, and comprise the best drained land of these terraces. They are most extensively and typically developed in the Coastal Plain region of Alabama and Mississippi. The soil material consists of wash from

the Coastal Plain soils, with some admixture along the larger streams from the Appalachian Mountains and Piedmont Plateau of material from the soils of those regions. The Cahaba sand, fine sandy loam, and loam are encountered in this county.

CAHABA SAND.

The surface soil of the Cahaba sand is a dark-brown sand about 6 inches in depth. It is underlain by a light-brown, loose, incoherent sand which extends to a depth of 3 feet or more. Occasionally the subsoil at a depth of 20 to 24 inches is a reddish-brown, sticky sand, and frequently at about 36 inches it grades into a sandy loam, which in turn usually rests upon a clay. This type includes a few areas of Cahaba fine sandy loam too small to be mapped separately. Such spots have about the same agricultural value as the typical soil.

The Cahaba sand is associated with the Cahaba fine sandy loam, and, like the latter type, it occupies the flat stream terraces lying above normal overflow along Tallahalla Creek and the Leaf River. It is composed of weathered material deposited by overflow waters when the streams reached higher levels than at present. In general, this type is slightly more elevated than the surrounding soils.

Owing to its loose and rather incoherent structure, this soil does not retain moisture well, and is droughty in its natural condition, so that crops are likely to suffer during dry seasons. On the other hand, the type is one of the earliest soils in the county, and with the addition of organic matter it can be made to produce excellent yields of early truck. The type is well suited to the production of water-melons, peanuts, sweet potatoes, and cowpeas. Sugar cane also does well where heavily fertilized.

CAHABA FINE SANDY LOAM.

The Cahaba fine sandy loam is a dark-brown to brownish-gray loamy fine sand or fine sandy loam, underlain at an average depth of about 8 inches by a dull-red, yellowish-red, or brownish-yellow friable fine sandy clay. The subsoil usually extends to a depth of 3 feet without much variation. In places it becomes redder with depth, while in others it becomes lighter or yellower as the depth increases. In places the soil is 15 to 20 inches in depth. Usually along the inner edges of areas of this type small areas of fine sand are encountered. These, however, are too inextensive to be mapped separately.

A part of this type occupies high, level to undulating terraces, closely resembling level uplands. Here the subsoil is prevailingly of a redder color and the surface drainage is better established than in the case of the lower lying, more typical areas. In such situations

the surface soil is practically similar to that of the lower areas, but the subsoil has undergone a higher degree of oxidation, owing to better aeration and drainage. These higher areas of the type are commonly known as "red flats," and the farmers generally recognize a difference between this land and that of the lower lying terraces.

The Cahaba fine sandy loam occurs mainly along larger streams. Large areas are encountered in the neighborhood of Sandersville, near Sherron Church, southwest of Laurel along Tallahoma Creek, and in scattered tracts along Leaf River, and Tallahalla and Big Creeks throughout their courses in the county.

This type lies above overflow, except in some of the lower situations which may be inundated for brief periods during unusually high floods. The topography is favorable to agriculture. Artificial drainage is unnecessary except in a few depressed areas.

The Cahaba fine sandy loam is naturally more productive than the Kalmia fine sandy loam, with which it is associated. Where heavily fertilized cotton yields from one-half to 1 bale per acre, corn from 20 to 75 bushels per acre, and sugar cane from 250 to 500 gallons per acre. In addition to these staple crops, the type is well suited for use in the production of watermelons, Irish and sweet potatoes, general truck crops, cowpeas, velvet beans, and oats.

Land of this type of soil is valued at \$10 to \$25 an acre.

CAHABA LOAM.

The Cahaba loam is a brown, mellow loam, underlain at about 6 to 10 inches by a yellowish-red to dull-red silty clay, which is fairly uniform to a depth of 3 feet or more in all respects except color, which becomes redder in the lower section. The subsoil is slightly plastic when wet, but moderately crumbly when only fairly moist.

Drainage is well established over most of the type, but the more nearly level areas are inundated for short periods after heavy rains. Ditching is generally beneficial, since the better drained areas are closely associated with the slight depressions and flat areas which need drainage.

The type occupies stream terraces, and is above normal overflow. It is of small extent. Some important areas occur along Tallahalla Creek in the vicinity of Ellisville and along the Leaf River west and northwest of Estabutchie.

The Cahaba loam is easily tilled and kept in good tilth, especially where vegetable matter is occasionally plowed under. Cotton and corn are the principal crops, of which good yields are obtained with moderate fertilization. Truck crops, including strawberries, do well. About half of the type is forested with gum, hickory, oak, and beech.

WHITE SOILS.

WATER-LAID MATERIAL (RECENT ALLUVIUM)—MIXED DERIVATION.

BIBB SERIES.

The types included in the Bibb series have white surface soils and white or mottled white and yellow, compact and plastic clay subsoils. These soils occupy the first bottoms of streams. They are subject to overflow, and the drainage is poor. The material is derived mainly from Coastal Plain soils. This series is represented by but one type in Jones County, the silt loam.

BIBB SILT LOAM.

The surface soil of the Bibb silt loam to a depth of about 6 to 8 inches is a white, compact silt loam, underlain by a grayish-white to yellowish-white, tough silty clay, which extends to a depth of about 18 inches. This in turn grades into a more compact stratum of practically the same material, resting upon a layer locally called "hardpan." This layer is very impervious and is largely responsible for the poor drainage of the type. Small, black, soft oxide of iron concretions are distributed throughout the subsoil. Small areas of fine sandy loam and very fine sandy loam, too small to map separately, are included with this type.

The Bibb silt loam is very inextensive, occurring only in a few small areas along Big Bogue Homo Creek and along the first bottoms of Reedy Creek and Long and Flat Branches. The surface is uniformly flat, and is only a few feet above the normal water level of the streams, the type being subjected to frequent and protracted overflows.

The Bibb silt loam generally supports a growth of palmetto, swamp maple, beech, magnolia, ironwood, Cuban pine, white oak, and water oak. None of this land is under cultivation and its reclamation is unlikely under present economic conditions. It is texturally a better soil for grasses than for cultivated crops. Lespedeza, water grass, and carpet grass are found on it in places.

MISCELLANEOUS MATERIAL.

MEADOW.

Meadow comprises those narrow, poorly drained strips of bottom land subjected to overflow, in which the soil material is so variable in texture and character as to be impossible of separation into distinct soil types. It includes soils ranging from sands to clays, in most cases the sand predominating along the upper branches of the streams. The silts and clays occur where the bottoms are wider.

Very often strata of sandy material are encountered in the silt loam subsoils, and of silty material in the sandy subsoils. The color of the material in the lower portion of the 3-foot section is predominately gray, mottled with shades of yellow and blue. Where the gray and blue predominate in the subsoil the land is generally crawfishy.

Nearly all of the Meadow mapped in Jones County is subject to overflow and is generally in a saturated or soggy condition. Some of the most extensive areas lie in the first bottoms of Reedy, Brush, Clearwater, Shelton, Providence, and Oak Wood Creeks.

Meadow supports a dense growth of water-loving grasses, underbrush, and scrub timber, and is practically unused for farming. A few small areas have been ditched and put under cultivation to sugar cane. Much of this type could be reclaimed by deepening and straightening the main stream channels. Its principal value at present is for pasture during the spring, summer, and fall months. With proper drainage a large part of this land is suited to corn, oats, melons, cowpeas, velvet beans, and sorghum.

GUIN SANDY LOAM.

The Guin sandy loam comprises several different sandy loams and sands. The material is extremely variable, and the areas are made up of patches of Ruston sandy loam, Ruston sand, Orangeburg sandy loam, Orangeburg sand, Norfolk sand, and Susquehanna very fine sandy loam.

Small bodies of this character are found in different parts of the county. The type is most extensively developed along the edges of a few drainageways leading from the Ridge Road northwest of Ellisville and in the northwest corner of the county.

Owing to the steepness of the slopes and the character of the surface material the type is nonagricultural. It includes the large, deep gullies which have been formed by erosion. The substratum in the Orangeburg areas is usually a sand, and this washes out and permits blocks of soil of immense size to drop, forming almost perpendicular walls. In other areas the substratum is composed of heavier material, and erosion has produced V-shaped valleys whose walls are generally quite steep. These slopes support a growth of blackjack oak which has no commercial value. Many of these gullies and canyon like depressions are increasing in size and depth, extending gradually into the good agricultural lands of the county. Unless steps are taken to check this progressive erosion much valuable land will ultimately be rendered useless.

SUMMARY.

Jones County is situated in the southeastern part of Mississippi, and has an area of 696 square miles, or 445,440 acres. It lies within the Coastal Plain, and its soils are consequently of sedimentary and alluvial origin.

The topography of the uplands varies from flat or gently undulating and rolling to hilly and ridgy. The stream bottoms and terraces or second bottoms are prevaillingly flat.

Three railroads traverse the county, affording good transportation facilities over a large part of the area and giving direct connection with such large markets as New Orleans, Mobile, Hattiesburg, Jackson, and Meridian.

The agriculture of the county is still in its infancy, although it has progressed far enough to demonstrate that the soils and climate are suitable for the development of a profitable general farming and trucking industry.

About one-third of the county consists of recently cut-over land and a few areas of virgin pine remain. The undeveloped cut-over land is valued at \$5 to \$20 an acre.

Jones County has a population of 29,885. There are two county seats, Laurel and Ellisville. Laurel has a population of about 8,465 and is an important lumber manufacturing town. Ellisville has a population of about 2,446.

The principal crops are cotton, corn, oats, sugar cane, sweet potatoes, cowpeas, and peanuts. The climatic and soil conditions favor the diversification of crops, especially along the line of trucking.

Twenty-four soils are found in the county. This includes upland, terrace, and bottom-land types of varied textures, inviting the multiplication of agricultural industries. The several types of soil have been grouped in the Ruston, Norfolk, Susquehanna, Orangeburg, and Guin series of the uplands; the Kalmia, Cahaba, and Leaf series of the terraces; and the Thompson, Bibb, and Ocklocknee series of the bottom lands.

The Ruston soils occur in the uplands, forming nearly half the area of the county. The soils of this series are well suited to truck and general farming.

The Norfolk series is the next of importance in the upland. Only one type, the fine sandy loam, occurs. It is also a good general farming type, although the texture particularly adapts it to certain special crops.

The Orangeburg series is the remaining group of agricultural importance in the upland. Two types of relatively small extent occur. They are good farming soils.

Only one type of the Susquehanna series is mapped, the very fine sandy loam. It is a soil difficult to till and less desirable than the other upland types on this account.

The Kalmia series includes terrace soils which are somewhat less well drained than the Cahaba soils and are not quite as productive. They are, however, good agricultural soils, when properly farmed.

The Cahaba series is the best of the terrace series. The soils are well suited to cotton, corn, peas, and melons.

The Leaf series is represented in Jones County by the loam type. This soil occupies flat, poorly drained areas, and very little of it is in cultivation.

The Ocklocknee soils occupy the first bottoms. All of these soils are subject to overflow. They form good agricultural soils where reclamation is feasible.

The Thompson soils occupy overflowed stream bottoms. They are poorly drained and are not considered valuable for agricultural purposes. Most of these types afford some pasturage.

The Bibb silt loam is the only member of the Bibb series recognized. This is a white, poorly drained soil, of low agricultural value.



[PUBLIC RESOLUTION—No. 9.]

JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following.

That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: *Provided*, That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture.

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils.]

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