

U. S. DEPARTMENT OF AGRICULTURE,

BUREAU OF SOILS—MILTON WHITNEY, Chief.

IN COOPERATION WITH THE STATE OF MISSISSIPPI, THEODORE G. BILBO,  
GOVERNOR; E. N. LOWE, DIRECTOR, STATE GEOLOGICAL  
SURVEY.

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SOIL SURVEY OF SIMPSON COUNTY,  
MISSISSIPPI.

BY

F. Z. HUTTON, IN CHARGE, W. E. THARP, AND CLARENCE  
LOUNSBURY.

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HUGH H. BENNETT, INSPECTOR, SOUTHERN DIVISION.

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[Advance Sheets—Field Operations of the Bureau of Soils, 1919.]



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1921.

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U. S. DEPARTMENT OF AGRICULTURE  
BUREAU OF SOILS  
WASHINGTON, D. C.

SOIL SURVEY OF SIMPSON COUNTY  
MISSISSIPPI

LETTER OF TRANSMITTAL.

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U. S. DEPARTMENT OF AGRICULTURE,  
BUREAU OF SOILS,  
*Washington, D. C., January 4, 1921.*

SIR: I have the honor to transmit herewith the manuscript report and map covering the soil survey of Simpson County, Mississippi, and to recommend that they be published as advance sheets of Field Operations of the Bureau of Soils, 1919, as authorized by law. This work was done in cooperation with the State Geological Survey of Mississippi.

Respectfully,

MILTON WHITNEY,  
*Chief of Bureau.*

HON. E. T. MEREDITH,  
*Secretary of Agriculture.*

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### MAP.

Soil map, Simpson County sheet, Mississippi.

# SOIL SURVEY OF SIMPSON COUNTY, MISSISSIPPI.

By F. Z. HUTTON, In Charge, W. E. THARP, and CLARENCE LOUNSBURY, of the U. S. Department of Agriculture.—Area Inspected by HUGH H. BENNETT.

## DESCRIPTION OF THE AREA.

Simpson County, Miss., lies in the southern half of the State and about midway between its eastern and western boundary lines. Mendenhall, the county seat, located almost in the center of the county, is 31 miles south of Jackson, the State capital, and about 126 miles north of Gulfport, on the Gulf of Mexico. In outline Simpson County is roughly a rectangle, being approximately 30 miles long from east to west and 18 miles wide from north to south. It has an area of 567 square miles, or 362,880 acres.

Simpson County lies within the Coastal Plain. A large part of the county is still covered with longleaf pine. The western and northern parts extend into the brown loessial belt of the State.<sup>1</sup> The county forms a part of the watershed of the Pearl River. Strong River, one of the largest tributaries of Pearl River, flows diagonally across the county from northeast to southwest, entering Pearl River in the southwestern part. The county represents a coastal plain which is cut in every direction by a ramifying system of small streams and drainage ways. The divides between the smaller streams are rarely more than a mile in width, and in many places the heads of drainage ways come together or nearly so, forming narrow hogback ridges. There are only comparatively small areas of flat upland country into which drainage lines do not extend.

Physiographically the county is a plain which has been thoroughly cut and dissected in all directions by streams and drainage ways. The county is divided into two main watersheds by a ridge entering the county on the east and following along the Raleigh-Mendenhall road to about 3 miles east of Weathersby, where it turns south toward Jaynesville. The Gulf & Ship Island Railroad crosses this ridge at the State sanatorium. The divide continues south from



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

<sup>1</sup> Hilgard's geological classification of the State.

here, leaving the county at Jaynesville. The streams on the north of this divide flow into Strong River, except the waters of Silver Creek in the southern part of the county, which find their way directly into Pearl River. The streams on the south side flow south and southeast and finally enter Leaf River. A number of large creeks empty into the Strong River, draining considerable areas through the central part of the county. These creeks, though short, have cut very deeply into the country through which they pass. The draws cut into the divides sharply for some distance, but later on they flatten out somewhat. In much of the rough country the ridges are rounded and are separated by valleys, commonly referred to as hollows, which are generally short, but vary in length with the size of the flanking ridges. In many sections the topography is strongly rolling, as in the country west of Saratoga and Harrisville, with major winding ridges from which minor ridges slope away in various directions, with still other minor ridges projecting from these. In some other parts of the county, as in the northeastern part and in the vicinity of Westville, much of the country is gullied and rough, having been eroded to such an extent that cultivation is impracticable over much of it. Here the erosion is proceeding actively, whereas in the region of more rounded surface features the erosion is arrested by the forest cover of longleaf pine.

In the less rolling and broken parts of the county most of the land is cultivated, although terracing is necessary to prevent washing on the slopes. There are sections with smooth or gently undulating land over the broader ridge crests, as in the vicinity of Magee, near Jaynesville, and in the eastern part of the county, in the vicinity of Martinville, where cultivation can be carried on with ease and without danger of damage from erosion.

The bottoms and second bottoms of the streams are generally flat, although in places hummocks, faint ridges, and depressions of abandoned stream channels make the surface somewhat uneven. Some of the higher terraces have been cut into by streams crossing them, but in general the surface is practically flat and well suited to cultivation.

Most of the streams have a moderate flow, except at very low stages, when the current is sluggish, or at high-water stage, when it is usually swift. The small streams generally go dry soon after rains, although many that are fed by springs flow practically all the year.

Much of the first-bottom land along the Strong and Pearl Rivers is well drained and forms the best agricultural land in the county. There are, however, large areas of low, flat bottom land along these streams, upon which water stands for long periods after rains and

during wet seasons. Such areas are used mainly for pasture. The bottom lands along Skiffer, Bowie, and Silver Creeks are well drained and practically all under cultivation. Many of the other streams, as Okatoma, Riles, Sellers, Limestone, Sanders, and Dobbs Creeks, have very little bottom land suitable for agriculture. These bottoms are either too poorly drained or are subject to overflow at frequent intervals during the crop-growing season. Most of the bottom land along the smaller creeks is locally called swamp, but there is no true swamp in the county.

The first settlers came to this county over 100 years ago. At the time the county was sectionized in 1813 the surveyors found scattered settlements. The pioneers came largely from the States to the east and northeast, many of them from North Carolina, South Carolina, Tennessee, and Georgia. The first settlers took up land along the creeks and small streams, where there was plenty of water and good pasture for their cattle. The direct descendants of these pioneers constitute a large part of the present population. The Fourteenth Census gives the total population of the county in 1920 as 18,109, all of which is classed as rural, averaging 31.5 persons to the square mile.

Mendenhall, with a population of 637, is the county seat. It is favorably located at the junction of the Columbia and the Laurel branches with the main line of the Gulf & Ship Island Railroad. Magee, situated 9 miles southeast of Mendenhall, on the main line of the Gulf & Ship Island Railroad, is the leading market in the county. Magee has a population of 730 and is in the center of a good farming community. The southeastern part of the county has a market in Mount Olive, just across the line in Covington County. In the northern part of the county Dlo and Braxton, railroad towns of 646 and 237 population, respectively, are good marketing points. A large lumber company has a mill at Dlo, which has added to its population. In the central-western part of the county are Merit, Pinola, and Shivers, towns on the Columbia branch of the Gulf & Ship Island Railroad. These towns are trading points for this part of the county. Farmers in the southern part of the county have a good market at New Hebron, in Lawrence County. The south-western part of the county has a railroad point at Rockport, in Copiah County. Harrisville and Pearl are small places, consisting of one or two stores and a post office, located in the northwestern part of the county, away from the railroad. Farmers in the central-western part of the county market their products at Georgetown, in Copiah County.

The railroad facilities for Simpson County are good for this part of the State. The Gulf & Ship Island Railroad is the only railroad

in the county, but it has several branches, which give shipping points in most parts of the county. The northeastern and northwestern parts alone are remote from railroads.

It is only within the last few years that any attention has been paid to improving the wagon roads of the county. In the past the wagon roads have been poorly cared for. Most of the roads consist of mere trails that wind about through the piney woods. Many of the roads follow ridges where possible. These are good during the drier portions of the year. In the winter and spring the roads become very poor, and where they cross stream bottoms they become impassable in places. At present the county is building two improved gravel roads, one of which is now practically completed. The people now realize the advantages of good roads and are demanding that better roads be built to all parts of the county. This year (1919) the people in nearly every district in the county have voted to build improved roads, and in a few years there will be many in the county.

#### CLIMATE.

The climate of Simpson County, like that of the longleaf-pine belt of southern Mississippi in general, is mild. Simpson County lies in that part of Mississippi called the "ozone belt," and it is considered among the healthiest parts of the State. The summers are long, but never excessively hot. July and August are the hottest months of the year according to the weather records. The proximity of this region to the Gulf coast has some influence on climatic conditions. While the sun may become hot during the day, the nights are generally cool. The winters are generally mild. Occasionally snow covers the ground for a few days at a time, but the cold spells are usually of short duration. January and February are the coldest months. The thermometer has been known to go as low as  $-7^{\circ}$  F., but such cold periods are of rare occurrence and of short duration. During the winter months there is a great deal of rain, and rainy weather sometimes lasts for several weeks. While the rainfall is heavy at times, the sandy nature of the soil permits it to absorb the water quickly, so that the excess water disappears within a few hours on days of sunshine, except in low bottom lands.

The records of the Weather Bureau station at Crystal Springs in Copiah County are applicable to Simpson. The range in temperature varies from  $-7^{\circ}$  F. in winter to  $105^{\circ}$  F. in summer. The average for the winter months is  $48^{\circ}$  F. and for the summer  $80^{\circ}$  F. The mean annual precipitation is 54 inches. The total amount of precipitation during the driest year was 42.44 inches and for the wettest year 65.28 inches. The rainfall is well distributed throughout the year, but the heaviest precipitation takes place during the winter,

spring, and early summer, which distribution is most favorable for crop growth. Long periods of drought are of rare occurrence. Convictional storms occasionally pass over this region, but these usually come in the early spring and at rare intervals.

The average date of the last killing frost in the spring is March 21 and of the first in the fall is November 4. This gives an average growing season of 228 days. The latest recorded date of killing frost in the spring is April 26 and the earliest in the fall is October 21.

The following table, compiled from the records of the Weather Bureau at the Crystal Springs station in Copiah County, is representative of the climatic conditions in Simpson County:

*Normal monthly, seasonal, and annual temperature and precipitation at Crystal Springs, Copiah County.*

[Elevation, 468 feet.]

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year (1899).	Total amount for the wettest year (1905).
	° F.	° F.	° F.	Inches.	Inches.	Inches.
December.....	47.8	85	11	5.61	7.96	4.00
January.....	47.9	80	9	4.69	8.89	5.83
February.....	47.9	83	-7	5.46	3.04	8.54
Winter.....	47.8	85	-7	15.76	19.89	18.37
March.....	58.3	90	22	5.01	4.06	5.34
April.....	65.1	93	30	4.79	1.93	9.87
May.....	72.7	100	40	5.29	.37	3.87
Spring.....	65.3	100	22	15.09	6.36	19.08
June.....	79.0	103	50	4.45	3.66	1.94
July.....	80.8	105	58	6.06	5.44	4.64
August.....	80.7	104	57	4.75	2.50	7.74
Summer.....	80.1	105	50	15.26	11.60	14.32
September.....	76.5	100	40	3.30	1.22	3.49
October.....	66.0	97	26	2.47	0.55	7.26
November.....	56.5	87	17	2.97	2.80	2.76
Fall.....	66.3	100	17	8.74	4.57	13.51
Year.....	64.9	105	-7	54.85	42.42	65.28

#### AGRICULTURE.

The first settlers in Simpson County found the rolling uplands covered with an open forest of longleaf pine and the relatively inextensive bottom lands forested with a thick growth of magnolia, bay,

water oak, white oak, shortleaf pine, sweet gum, black gum, and beech, with a tangled undergrowth of yellow jasmine, bay, star anise or "stink bush" (*Illicium floridanum*),<sup>2</sup> smilax, rattan, cross-vine (*Bignonia capreolata*), and canebrake.

The pioneers settled along the creeks and farmed small fields of the better-drained bottom lands, growing mainly corn and potatoes for home use. At first the uplands were considered unproductive, but were used as free range for cattle the greater part of the year, the open woods supporting a heavy growth of grasses that supplied good grazing. Many of the early settlers came here to raise cattle, and for that reason the first settlements were widely scattered. The settlers generally established homesteads from 10 to 20 miles apart, leaving large intervening areas on which to range their cattle. Later upland areas were brought under cultivation. The soils here have given satisfactory results with the use of fertilizers.

The vast area of longleaf-pine forests was a hindrance to agricultural development, and lumbering operations were delayed owing to the distance of the forests from railroads and shipping points. About 1898, just before the Gulf & Ship Island Railroad was built through the county, large tracts of forest were bought up by lumber companies at low prices, and at the present time practically all of the longleaf-pine land in the county is owned by lumber companies. Several large sawmills are situated in this and adjoining counties, and the good timber is being rapidly cut. In a few years most of it will be removed and the land probably offered for settlement.

The agriculture of Simpson County consists of the production of cotton as the chief cash crop, and corn, lespedeza, velvet beans, and other forage crops, and truck crops, chiefly to supply home needs. Cotton became the chief cash crop before the Civil War. Until the building of railroads it was hauled to Jackson or to Rockport and thence shipped by boat to New Orleans. Mules or oxen were used in hauling, and the trip required from one to two weeks.

The 1920 census reports 23,907 acres in cotton in 1919, with a production of 6,091 bales. Early in the last decade the boll weevil made its appearance and for a number of years following both the acreage and yield per acre of cotton declined sharply, in the worst years very little being produced; but in the last few years it has again advanced to its former place as the first crop of the county. Early maturing varieties have been introduced and better methods of cultivation practiced, so that even with the presence of the weevil, practically as much cotton is grown as before the weevil made its appearance.

Plowing for this crop usually begins in February or March, depending on the winter season. The bedding-up method of preparing

<sup>2</sup> Identified by Dr. E. N. Lowe.

the ground is practiced. Fertilizer at the rate of about 200 to 250 pounds per acre is distributed and plowed under before the seed is planted. The plants are usually cultivated with light harrows, sweeps, one-horse plows, and hand hoes. The cotton is planted as early as possible, and every effort is made, through careful preparation of the seed bed, fertilization, and cultivation, to advance the maturity of the crop as far as possible, as in this way damage by the weevil is reduced.

The census figures give the area in corn in 1919 as 30,195 acres, with an average yield of 12.3 bushels per acre. A great deal of corn is grown on bottom land, which is too wet for cotton, where many of the best farms produce from 40 to 50 bushels per acre. The early corn is considered best; late-planted corn is more likely to suffer for lack of moisture. For the last two years the corn crop has been rather short, owing to dry weather.

The land intended for corn is prepared and cultivated much the same as that for cotton. Usually when the field is "laid by," cowpeas or velvet beans are planted between the rows. These legumes furnish both grain and forage and also improve the soil. When velvet beans are planted in the corn, the fields are pastured during the winter season, the vines affording forage that is highly relished by stock. Velvet-bean meal is also used for fattening hogs.

The oat crop was third in acreage in 1919, occupying in that year 1,194 acres, from which were produced 14,717 bushels. Oats have been increasing in importance recently, owing to the efforts of farmers to raise more of the feed needed for the work stock and other animals. The crop usually follows cotton or corn. It is seeded between September and February, the middle of October being considered the best time. The fields are ordinarily pastured to some extent during the winter. The crop is harvested late in May, and corn, cotton, peanuts, cowpeas, and sweet or Irish potatoes are planted in the stubble. Lespedeza is often seeded in the oats in the spring to furnish pasture and hay in the fall. Results of experiments at the McNeill Branch Experiment Station indicate that winter oats is the best small-grain crop to grow in this section. The station recommends some rust-proof variety, such as Texas Rust Proof or Turf, and also recommends planting as early as possible. It is a common practice to cut the oats when in the milk stage for hay. Yields of  $1\frac{1}{2}$  to 2 tons of well-headed oat hay per acre are often obtained. The average yield of grain for the county is light, probably not much over 15 bushels per acre, but yields of 25 to 35 bushels or more have been obtained under favorable conditions.

In the last few years a little wheat has been grown. The yield of this grain depends upon the winter season. In years of low winter

rainfall it does well; in many seasons rust and smut reduce the yield to almost nothing. Wheat is therefore not a dependable crop for this section.

A great many farmers raise some rice for home use. Upland rice is grown. Flat, rather poorly drained lands are generally used for this crop.

Sweet potatoes rank first among the vegetables grown in Simpson County. In 1919 there were 1,076 acres planted to sweet potatoes and yams, yielding 121,484 bushels, an average of 113 bushels per acre. Sets are transplanted in April or May and the crop is ready to harvest by June. A second crop may be produced on the same land in August and harvested in October and November, the second crop often yielding better than the first. Through the efforts of the county demonstration agent, the farmers are building dry houses for storing the fall crop, which after curing can be shipped to northern markets. Last year about 30 cars of sweet potatoes were shipped to St. Louis and Chicago. Sweet potatoes yield as high as 250 to 300 bushels per acre where they are well cultivated and fertilized. If properly handled, there is promise of a ready market for all the surplus sweet potatoes that can be grown in this section.

Irish potatoes are also a promising future crop for this section. Early potatoes are ready for shipment by the middle of May. This year (1919) a number of carloads were sent to northern markets. Two crops of Irish potatoes can also be grown. The second crop is generally held for home use. The early crop is planted in February or March and harvested in May, while the late crop is planted in August and harvested in October or November. Irish as well as sweet potatoes are heavily fertilized with a commercial fertilizer. The yield of Irish potatoes averages from 80 to 100 bushels per acre. The 1920 census reports 144 acres of Irish potatoes yielding 11,375 bushels.

Peanuts are grown to some extent, but this crop has not received the attention that is given the crop in other sections of the South. In 1919 there were 226 acres in this crop. It is grown extensively as a field-forage crop in many parts of the Southern States, notably in southern Georgia and Alabama, on soils similar to those in Simpson County. Peanuts succeed on all the well-drained sandy soils of the county. They can be grown between corn rows, and after the corn is gathered hogs can be turned in to feed on the crop. In addition to fattening the hogs, the peanuts improve the soil. The Spanish is one of the best varieties to grow in this locality.<sup>3</sup> The peanut and Bermuda grass or lespedeza pasture form a cheap and excellent basis for the production of hogs.

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<sup>3</sup> Mississippi Report, The Cut-Over Lands of South Mississippi.

The chief sources of forage are lespedeza, cowpeas, velvet beans, and corn fodder. Lespedeza, generally seeded in oats in the spring, makes its growth after the oat crop is harvested, and produces from 1 to 2 tons of hay per acre. Cowpeas and velvet beans are commonly planted between the corn rows just before the last cultivation. They make a heavy growth of vine which binds the corn stalks into a thick tangle. Farmers generally pick enough seed by hand to supply their needs. The corn is then gathered, the fields being pastured during the winter months. Velvet beans are also ground and used for fattening hogs. In addition to making forage these crops greatly improve the soil.

Almost every farmer grows a small patch of sugar cane for sirup. Mississippi home-made cane sirup has a wide reputation and good prices are readily obtained for any surplus that the farmers may have. Sugar cane is usually planted in low places, where the soil is moist and deep. The crop occupied a total of 1,028 acres in 1919. Yields range from 200 to 600 gallons per acre.

The fruit grown in Simpson County consists mainly of peaches, figs, summer apples, pears, plums, blackberries, and strawberries. Peaches are the principal fruit grown. The peach does well here with very little attention, and seems to be well adapted to the soil and climate. While every farmer grows peaches for home use and many have a surplus for local markets, no commercial peach orchards exist in the county. Nearly every farmer has a few trees of the Horse apple, a medium early variety brought here originally from North Carolina and Tennessee. This apple is suitable for local use only. Blackberries grow wild everywhere. Strawberries are grown to some extent, but only for home use.

Many cattle are kept in the county. The large tracts of open timberland afford excellent range, upon which cattle are allowed to forage a large part of the year. In the past little attention has been paid to improving the herds. The present type consists largely of a mixture of dairy and beef breeds, the Red Polled predominating.

The Texas tick has been the great handicap to stock raising in the past. The practice of dipping cattle, which is required by the present law, is cleaning out the tick, good cattle and pure-bred sires are making their appearance, and in a few years a great improvement should take place in the cattle of this region. There are a great many more hogs in the county than cattle. The hogs also range in the open woods and swamps. The "razor back" type has almost entirely disappeared. Pure-bred boars have been introduced, and there are many improved herds. Cattle and hogs are shipped from the county in increasing numbers each year. A few cattle are fattened in the county, the feed consisting of cottonseed meal, hulls, and hay. Silos

also are coming into use in cattle feeding, and their use can well be extended.

Several herds of carefully selected native cows have been built up. Milk and butter are produced on most of the farms, there is a surplus for the local markets, and some cream is shipped to Jackson and other points outside the county. The value of the dairy products in 1919, excluding those used at home, is reported at \$136,273.

Sheep and goats are raised to some extent. However, owing to the absence of protection and the prevalence of sheep-killing dogs, their number is not increasing rapidly.

Poultry is found on nearly every farm. The value of poultry products is reported at \$114,898 for the year 1919.

Cotton is grown on all the main soil types throughout the county, but there is a tendency to plant it more largely on the lighter-textured well-drained soils of the uplands. The flat ridge tops therefore are planted mainly to cotton, while the alluvial bottom lands are devoted mainly to corn. Some cotton and corn are grown on the hillsides, although the steepest hillsides remain in forest, consisting in many places of scrub oak. The heavier silty soils of the upland are considered more desirable for corn, sugar cane, and winter oats than for cotton.

Among the larger items of farm expense is that for fertilizers. In 1919 90.3 per cent of the farms reported an outlay of \$55.03 each for commercial fertilizer. At the time of this survey (1919) fertilizers were expensive and the mixtures formerly used practically unobtainable. Instead of complete fertilizers the farmers were using goods containing only phosphoric acid and nitrogen. The brands most commonly used contained about 1 per cent nitrogen and about 10 per cent phosphoric acid. Many farmers were making their own fertilizer by mixing nitrate of soda, acid phosphate, and cottonseed meal in varying proportions. Barnyard manure is generally saved, though not as carefully as it should be. Green manuring crops are also turned under to enrich the soil by the more progressive farmers.

Labor is not as plentiful or as cheap as in former years. According to the 1920 census the average farm expended about \$63.07 per year for labor. In the last few years the sawmills have absorbed large amounts of labor. Many negroes left this section when the boll weevil first made its appearance, and in the last two years many have gone to northern industrial centers. In 1919 as much as \$2 a day was being paid for labor, and from \$20 to \$30 per month and rations when men were hired for long periods. The wages paid by sawmills and public works are higher than this.

The 1920 census reports 2,522 farms in the county, averaging 74.3 acres in size, of which 32.9 acres are improved. About 61.4 per cent of the farms are operated by the owners.

Farming lands are comparatively cheap in this section. Good farms can be bought for \$10 to \$20 an acre. As a rule the farms are small, and owing to the rolling character of the country contain considerable waste land. While one man may own as much as 500 acres, he generally farms from 150 to 200 acres or less. Many farmers cultivate from 50 to 100 acres.

A great change has been taking place in the agriculture of this county within the last few years. The farmers are raising more live stock, and better grades of cattle and hogs are being kept on the farms. The native stock is being improved by purebred sires. In addition to cotton, farmers are growing other crops for home consumption and for the markets, such as sweet potatoes, Irish potatoes, and some other truck crops. Last year (1918) 30 cars of sweet potatoes were shipped to northern markets, and this year probably at least 100 cars will be shipped. In the western part of the county, along Pearl River, near Georgetown Bridge, the growing of early tomatoes for shipment is becoming important.

In the past the condition of the country roads has greatly retarded agricultural development. During certain seasons many of the roads are impassable, except on horseback. Farmers have been unable to get their produce to market. The central and western parts of the county have good railroad facilities, and as soon as the roads are improved so that the farmers can readily haul such crops as Irish and sweet potatoes to a shipping point there will be a great increase in the amount and variety of produce sent from the county.

The acreage of cleared land is steadily increasing. Many of the larger farms are being divided and sold. There are still large tracts of timberland and cut-over land held by lumber companies. Much of this cut-over land is growing up to scrub oak.

For many years the farmer paid little attention to conserving the soil. The land was put in cultivated crops year after year. The rows were run across fields without much regard to topography. Under such practices the fields soon become eroded and gullied, especially in the more rolling areas. As soon as one field was exhausted it was allowed to grow up to pine and other fields were cleared. In late years farmers have been terracing their farms and planting winter cover crops to hold and build up the soil. Nearly every farm now is terraced to prevent erosion, and many of these terraces are of excellent construction from an engineering standpoint, having been laid out with a level and built up in a substantial manner by repeated plowing.

SOILS.<sup>4</sup>

The upland soils of Simpson County, comprising about 75 to 80 per cent of its total area, are derived chiefly from sedimentary materials of late Coastal Plain formation—that is, from beds of sand, sandy clays, and heavy clays, with many local beds of gravel, consisting mainly of chert and quartz.

Since the accumulation of this material, changes have been brought about through the influence of vegetation, leaching, and oxidation, and probably also through deoxidation in the more poorly drained situations, where an excess of moisture has prevented aeration.

The upland soils are derived from the beds of sedimentary sand, gravelly sand, and heavy clay. The Ruston and Orangeburg series are derived from the sandy and gravelly material and the Susquehanna from the heavy clay beds. The Caddo soils are derived from silty material containing considerable sand. In the northwestern part of the county there are some small areas of Grenada silt loam, a soil which contains very little sand but much silt and clay, and is derived from a mantle of material that may have been deposited by the wind.

The bottoms and second bottoms consist of alluvial material washed from the uplands of the region. The soils consist chiefly of silty and fine sandy types, differing from each other chiefly in color, the result of differences in drainage conditions. They contain considerable organic matter, and generally show a less marked difference between the soil and subsoil layers than do the upland soils. As material is deposited over the bottoms at nearly every overflow, there has been no opportunity for leaching and working out of the fine material from the surface portion or for advanced oxidation, as there has been in the older soils of the rolling uplands. In the case of the older alluvium—that on the terraces or second bottoms, where

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<sup>4</sup>In most places Simpson County joins up very well with Covington County, but there are some discrepancies along the boundary between Simpson County and Jefferson Davis County. Considerable Ruston fine sandy loam, as mapped in Jefferson Davis County, joins with Orangeburg fine sandy loam as mapped in Simpson County. Considerable Ochlockonee silt loam on Skiffers Creek in Jefferson Davis County joins Hannahatchee fine sandy loam in Simpson County. On Silver Creek a strip of something over one-fourth mile of Cahaba fine sandy loam in Jefferson Davis County joins with Ochlockonee fine sandy loam in Simpson County. Some Ruston sandy loam in Jefferson Davis County joins Ruston fine sandy loam in Simpson County north of Newsom School.

The main discrepancy, that between the Ruston and Orangeburg, is probably the result of difference in judgment on the part of the field men in cases where these soils grade into each other. Some of the Ruston approaches so closely the characteristics of the Orangeburg in these gradational areas that it is often difficult to draw sharp boundaries, or to determine just where the one soil stops and the other begins. The other discrepancies along the joining line are not of great importance. There seems to have been such a small extent of Hannahatchee in Jefferson Davis County that it was not considered necessary to map it, hence the failure to join.

overflows occur no longer or only at long intervals—the material has undergone more change, and much of the soil on these terraces approaches in characteristics certain upland types. The poorly drained soils of the uplands, bottoms, and second bottoms contain considerable amounts of dark-colored and rusty-brown concretions and concretionary material in the deeper subsoil, which is in most places compact, often having the nature of hardpan.

There is a certain relationship between the physiography and the soil distribution, but this is not everywhere definite or pronounced. The principal types have a rather wide distribution and a varying topography in the uplands. The more sandy soils are confined to the country of more rolling topography and to the steep slopes. In the small flat areas of ridge-top land, where drainage lines have not yet encroached, the silty soils of the Ruston and Caddo series are encountered. In many cases the Susquehanna soil areas occupy a narrow belt following around the slopes on the same general level. In general, the Orangeburg soils occupy the steeper slopes, while the Ruston soils occupy the higher portions and tops of the ridges. There are several exceptions, however, in which the Orangeburg soils occupy the top of the ridge, while the Ruston soils occur on the gentle slopes. In the eastern part of the county, in areas where the topography is not so rugged, the Ruston occupies both ridges and slopes, in places merging into Caddo or poorly drained Ruston near the base of the slope.

The first-bottom soils are considerably mixed along the smaller streams, which are subject to frequent heavy overflows. In the broader bottoms, lying along the larger creeks and streams, the lighter sandy soils generally occupy areas adjacent to the stream, while the heavier, poorly drained soils lie adjacent to the uplands.

In Simpson County 20 soil types were mapped. These are grouped into 12 series. The Ruston soils are characterized by the grayish color of the surface soils and the reddish-yellow to yellowish-red color of the subsoil. The subsoil is generally friable, though in places the lower part is somewhat compact, even where there is a higher content of sand, as is in many places the case, than in the upper subsoil. These soils are derived from sedimentary materials of the Coastal Plain.

The types in the Orangeburg series have friable, mellow, grayish-brown to light-brown surface soils and a red friable subsoil, which in some places is more sandy in the lower than in the upper part.

The Caddo series includes types characterized by the gray to ashy-gray color of the soils and by the mottled gray and yellow color of the subsoil. As a rule, the lower subsoil is compact, and in many

places it contains a considerable quantity of ferruginous material, which gives it somewhat the character of a hardpan. In Simpson County these soils are found in flat, poorly drained upland areas or on slopes adjacent to streams and around stream heads.

The Grenada series includes types having a light-brown surface soil underlain by reddish-yellow to yellow silty clay or silty clay loam, generally passing below into silty clay to clay. The lower subsoil is yellowish, with mottlings of gray and contains rusty-brown concretions and concretionary material. The mottled stratum is compact, in places resembling hardpan. The lower subsoil contains noticeably less sand than that of the Coastal Plain soils. The Grenada series occupies the tops of knolls and ridges. The material consists of a comparatively thin layer of what is believed to be loessial material deposited over the Coastal Plain sediments. The areas mapped in Simpson County represent remnants of the loess deposits that have not been removed by erosion. Aside from the higher silt and lower sand content, the Grenada silt loam resembles the Ruston soils.

The types included in the Susquehanna series have gray to light-brownish surface soils, change to yellow below, and grade into a subsoil of mottled red and gray, plastic, heavy clay. These soils are derived from beds of heavy clay of sedimentary origin.

The surface soils of the types included in the Cahaba series are brown to reddish brown, and the subsoils yellowish red to reddish brown or dull red. The series occupies stream terraces lying largely above overflow, and represents in this county the best drained lands of such terraces. The material giving the series consists of wash from the Coastal Plain uplands, and is relatively old, having been deposited when overflows covered the occupied areas.

The Kalmia series includes types having gray to grayish-yellow soils underlain by a yellow friable subsoil, which in the lower part is in most cases mottled yellow and gray. These soils occupy second bottoms which are rarely overflowed. They are closely related to the Cahaba soils, differing essentially only in their poorer drainage and the consequently less advanced oxidation of their subsoils. The surface is usually flat, and the drainage in most cases inadequate.

The types in the Myatt series have gray to dark-gray surface soils and gray to bluish-gray subsoils, mottled with yellow. The lower subsoil is usually bluish gray, compact, and impervious. The soils of this series represent the more poorly drained parts of the stream terraces. These soils now lie above overflow, but are so flat that water often stands on the surface for long periods after heavy rains. Occurring in close association with the Cahaba and Kalmia soils, they are composed of about the same material, and they differ principally

in their poorer drainage and lighter and more mottled color, the result of that condition.

The soils of the Leaf series are of a gray to light-brown color. The subsoil characteristically consists of mottled gray and yellow silty clay, which grades into mottled red and gray or red and yellow plastic clay. Iron concretions are of common occurrence on the surface. These soils are developed on the stream terraces.

The Ochlockonee soils are dark gray to brownish, with a light-brownish or mottled brownish, yellowish, and grayish subsoil. These soils occur in the first or overflowed bottoms of the streams. They are composed of wash from the Coastal Plain soils. The areas are subject to overflow, but between overflows the drainage is good.

The Bibb soils are light gray to almost white in the surface and almost white or mottled gray and yellow in the subsoil, the lower part of which is usually compact and impervious. These soils occur in the first bottoms of streams and are subject to overflow and to intermittent wet and dry stages. The material is derived from the Coastal Plain soils.

The Hannahatchee series includes soils of brown to reddish-brown color, with subsoils of a red color. The soils are well drained between overflows. The material is derived largely from Orangeburg soils, representing wash from the hills occupied by soils of that series.

The following table gives the name and actual and relative extent of each soil type mapped in Simpson County:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Ruston very fine sandy loam.....	105,856	30.4	Kalmia fine sandy loam.....	10,304	2.9
Rolling phase.....	4,288		Bibb silt loam.....	6,592	1.8
Orangeburg fine sandy loam.....	78,784	25.9	Myatt silt loam.....	6,080	1.7
Rolling phase.....	15,296		Cahaba fine sandy loam.....	4,480	1.2
Ruston fine sandy loam.....	34,240	10.5	Bibb very fine sandy loam.....	3,776	1.0
Rolling phase.....	4,096		Cahaba silt loam.....	2,880	.8
Ochlockonee fine sandy loam.....	18,944		Cahaba very fine sandy loam.....	2,176	.6
Susquehanna very fine sandy loam.....	13,760	4.9	Grenada silt loam.....	1,664	.5
Rolling phase.....	4,032		Ruston silt loam.....	1,472	.4
Kalmia silt loam.....	16,384	4.5	Caddo silt loam.....	576	.2
Orangeburg very fine sandy loam.....	16,000		Hannahatchee fine sandy loam..	512	.1
Ochlockonee silt loam.....	10,496	2.9	Leaf silt loam.....	192	.1
			Total.....	362,880	.....

RUSTON FINE SANDY LOAM.

The Ruston fine sandy loam, in its typical development, consists of a layer of gray to grayish-brown fine sandy loam or loamy fine sand about 5 inches thick, passing into a layer of pale-yellow fine

sandy loam extending to a depth of 10 to 12 inches. Below this occurs the typical reddish-yellow or yellowish-red friable sandy clay subsoil. In many places the lower subsoil is yellower, more compact, and mottled with gray and red. It usually contains less sand and is stiffer than that of the Orangeburg, though it is more sandy than the subsoil of the Susquehanna, which in general it resembles. In places the lower subsoil is more sandy than the upper subsoil, the texture ranging to a very sandy clay or sandy loam. Such areas generally occur in the more rolling country and on the steeper slopes. They usually contain more or less gravel, and the larger of these areas are indicated on the map with the gravel symbol. Some included patches on imperfectly drained slopes and flats show more mottling in the subsoil, such areas resembling the Caddo.

Large areas of this soil are still covered with virgin forest of long-leaf pine. Much of the land is too hilly to cultivate. Some of the smoother parts are cropped, and small bodies are included in fields with other types. Terracing should be practiced to prevent erosion.

The Ruston fine sandy loam is well suited to cotton. Where the land is properly terraced and well cultivated yields of one-half to three-fourths bale per acre are obtained. Under average conditions the yield is about one-fourth bale. A considerable acreage of corn is grown on the type, but corn "fires" during dry weather, especially where the supply of organic matter is depleted. Corn ordinarily yields from 10 to 15 bushels per acre. The type seems well adapted to early potatoes, which are harvested before dry weather sets in. In general the type is farmed several years to cotton and corn, then allowed to lie idle for a period. Some farmers seed the land to lespedeza for hay and pasture.

The Ruston fine sandy loam in other localities has been successfully used for the production of early vegetables and other truck crops, especially watermelons. In this section the farmers are beginning to grow Irish potatoes for the northern markets, and, as the county develops and better shipping facilities are provided, trucking should become one of the best uses for this soil. It is a good sweet potato and peanut soil. Velvet beans do well.

The soil seems to be deficient in organic matter. Larger amounts of stable manure and leguminous crops, such as cowpeas, velvet beans, and lespedeza, should be plowed under and worked into the soil.

*Ruston fine sandy loam, rolling phase.*—The rolling phase of the Ruston fine sandy loam differs from the typical soil in its rougher topography, and in having a somewhat more sandy or more gravelly nature. A large proportion of this land is too hilly for farming. The phase at present is either forested with longleaf pine or second-growth oak. It has some value as grazing land.

## RUSTON VERY FINE SANDY LOAM.

The Ruston very fine sandy loam consists of a brownish-gray very fine sandy loam passing at 5 or 6 inches into pale-yellow very fine sandy loam, which is underlain at an average depth of about 10 inches by reddish-brown or dull-red friable fine sandy clay. In places the lower subsoil is redder than the upper subsoil, while the converse is true in other places. In places the lower subsoil is yellow or pale yellow with gray and reddish-yellow mottling. This is especially true on the flatter ridge tops and along some of the stream slopes, where the type is rather poorly drained. In the more nearly level areas the texture of the soil is in many places quite silty, the depth to clay is not so great as in the more rolling areas, the structure is more compact, and the subsoil is more mottled.

As mapped the Ruston very fine sandy loam includes some patches of Orangeburg very fine sandy loam and of Susquehanna very fine sandy loam, these areas being too small to warrant their separation in the present survey.

The Ruston very fine sandy loam is the predominating soil in all parts of the county. Where the type occupies ridges or comparatively gentle slopes it is well drained, and nearly all of it is in cultivation. In some places it occupies benchlike positions on gentle slopes adjacent to small creeks and in such situations it may be rather poorly drained. Areas of this sort are found southeast of Braxton along Sanders Creek and 3 or 4 miles west of Dlo. Areas in the eastern part of the county along Dry Creek are of the same general nature. In these the soil approaches somewhat the character of the soils of the Caddo series. In the vicinity of Harrisville and west of the town for several miles the Ruston very fine sandy loam is found over unusually rough country.

A large part of the Ruston very fine sandy loam is still in forest, and used as pasture for hogs and cattle. Around Magee and Dlo most of the type is in cultivation. Cotton and corn are the leading crops, while cowpeas, velvet beans, lespedeza, sweet and Irish potatoes are all grown. Cotton yields an average of one-half bale per acre, though some of the better drained and well-improved areas average three-quarters bale. Corn yields well on this soil, and generally enough is grown to supply home needs. The better drained parts of the type are used for the production of sweet potatoes, which ordinarily yield from 150 to 200 bushels per acre. Cowpeas and lespedeza are grown, the latter in a small way, both for hay and to improve the soil. Velvet beans are grown to build up the soil and for winter forage. The more rolling areas are terraced to prevent washing. Commercial fertilizers are used for cotton and corn.

The Ruston very fine sandy loam is mostly owned in tracts of 40 to 300 or 400 acres, and is farmed by the owner with negro labor or rented to negro tenants in 20 to 40 acre tracts. Land values vary with the lay of the land, distance from towns, and the amount of cleared land. Most farms on this type are well improved with substantial houses and good barns. Very little land is changing hands. Some farms have sold recently for \$10 to \$15 an acre. Large areas of the type are still in virgin forest and owned by lumber companies.

*Ruston very fine sandy loam, rolling phase.*—This phase differs from the typical Ruston very fine sandy loam chiefly in its more rolling surface. A considerable proportion is too rolling or includes slopes that are too steep for cultivation, unless carefully terraced. The best use of the land is for pasture.

#### RUSTON SILT LOAM.

The Ruston silt loam consists of grayish-brown silt loam to a depth of from 8 to 10 inches, grading below into a yellowish-brown silty clay containing some very fine sand. The lower subsoil is mottled with red and rusty-brown spots and is of a crumbly structure. The surface soil is friable and crumbly and contains enough very fine sand to give it a mellow structure.

After rains the soil generally assumes a rather compact structure, and it clods somewhat if plowed too wet. It is easy to cultivate under proper moisture conditions.

The Ruston silt loam occurs on flat divides and very gentle slopes. Several small areas lie between Magee and Jaynesville and near Mount Zion School, all in the southern part of the county.

The type is not extensive and does not play an important part in the agriculture of the county. Not over 60 per cent of it is cultivated. Much of it has but recently been cut over. Cotton, corn, cowpeas, velvet beans, sugar cane, and lespedeza are grown. Cotton yields from one-half to three-fourths bale and corn from 20 to 30 bushels per acre. Cowpeas are grown for hay and velvet beans for winter roughage. The type is well suited to sugar cane, and sirup made from sugar cane grown on this soil is said to have a superior flavor. Cut-over land of this type can be had at \$10 to \$15 an acre.

#### ORANGEBURG FINE SANDY LOAM.

The Orangeburg fine sandy loam is a grayish-brown to light-brown fine sandy loam passing at 5 or 6 inches into reddish-brown fine sandy loam which becomes redder with depth, passing at an average depth of about 18 inches into friable sandy clay. Over much of the type the lower subsoil is lighter colored and more sandy, and in many places at 30 inches it is a reddish-yellow fine sandy loam or sandy loam, or in extreme cases loamy sand.

This soil is developed generally on the slopes of ridges whose crests are covered by the Ruston soils. The surface is generally very rolling or sloping, though on the broader slopes there are some smooth areas. The soil washes readily, and terracing must be practiced to prevent gullying of the fields. Even with the best of care the more rolling areas are often washed badly by heavy rains.

About half the type is cultivated, large areas being as yet with their original forest cover. Much of the cut-over land has grown up in scrub oak. Often after fields are cultivated for several years they become so eroded that they are allowed to revert to nature. Lespedeza, broom sedge, old-field pine, and oaks take possession of such land.

Where the type is not too rolling, good crops of cotton, sweet potatoes, cowpeas, and corn are obtained. Cotton is the crop grown most extensively on this soil. Cowpeas and velvet beans are sown as forage and as soil-improving crops. Corn is grown, but the yields are rather low, because of the droughty nature of the soil. Winter oats are grown to some extent. Under present methods of seeding rather poor stands of oats are obtained. Oats seem to do well, and with better methods of preparing the seed bed and more careful seeding good yields should be the rule. Ordinarily the yield ranges from 10 to 20 bushels or more per acre.

Much of the type still in forest is used as a range for cattle and hogs. With an increased number of live stock and a more systematic rotation of crops in which legumes find a place, this soil could be brought to a high state of productiveness.

*Orangeburg fine sandy loam, rolling phase.*—The Orangeburg fine sandy loam, rolling phase, differs from the typical soil in the more rolling character of the topography and the somewhat more sandy character of the soil. Most of the phase is too rough to cultivate. Many gravelly areas are found. There are deposits of almost pure gravel, which are valuable as building and road material. The more gravelly areas are shown on the map by symbols.

#### ORANGEBURG VERY FINE SANDY LOAM.

The Orangeburg very fine sandy loam consists of a grayish-brown to light-brown very fine sandy loam containing a relatively large percentage of silt. The surface soil extends to an average depth of about 10 inches, where the subsoil of deep-red fine sandy clay is encountered. This is somewhat stiff in the upper part, but becomes more friable with depth and in places below 30 inches is decidedly sandy.

The type, while not extensive, is well developed in several parts of the county. Important areas occur in the southern part of the

county near Stonewall Church and south of Shivers. Several small areas are found west of Goodwater School. The greatest development of the type is found east of Magee and along the divide from Magee to Martinville and to the north for several miles.

The Orangeburg very fine sandy loam occupies flat ridge tops and gentle slopes. It is one of the most productive upland soils in the county and is recognized by farmers as the best grade of "ridge land." It is practically all under cultivation, being used for the production of cotton, corn, lespedeza, cowpeas, velvet beans, sweet potatoes, and sugar cane. All these crops do well. Cotton averages around three-fourths bale per acre, and under the most favorable conditions as much as  $1\frac{1}{4}$  bales per acre is obtained. Corn is the next crop in importance, yielding ordinarily 20 to 35 bushels per acre. Cowpeas and velvet beans are often grown between the corn. Cowpeas are also grown alone for hay, yielding from 1 to  $1\frac{1}{2}$  tons per acre. Velvet beans are grown for winter roughage and for soil improvement. Some lespedeza is sowed for hay and pasturage. A greater use could well be made of this crop, as it has great value as a cover crop and soil-improvement crop, as well as for hay. Sweet potatoes are grown for home use and to some extent for market. They yield as much as 200 bushels per acre. On most farms some sugar cane is grown for the production of sirup. Apples, peaches, and berries are grown successfully for home use.

Farms on the Orangeburg very fine sandy loam are among the best improved in the county. They are generally well equipped and in a good state of cultivation. Well-improved farms on this soil are held at about \$45 an acre.

#### CADDO SILT LOAM.

The surface soil of the Caddo silt loam consists of two layers—a gray to grayish-brown silt loam about 2 inches deep and below this a pale-yellow silt loam extending to 6 or 8 inches. The subsoil is a yellow or pale-yellow silty clay containing some very fine sand, with gray mottling coming in at about 18 inches. Below 2 feet the material is more compact or consists of a tough gray clay. Concretionary material is found through the soil and subsoil. Yellowish friable clay concretions are commonly present in the compact subsoil layer.

The Caddo silt loam occupies poorly drained flat ridge tops and broad gentle slopes adjacent to streams. The poor drainage of the slopes is due in part to seepage water from higher lands. The type is found mainly in the eastern and northern parts of the county, where the areas lie on slopes. In the southern part several small areas occupy flat tops of ridges.

The Caddo silt loam is practically unimproved, the land being either in forest or in areas recently cut over. Farmers consider the type too cold and wet to be suitable for cultivation.

SUSQUEHANNA VERY FINE SANDY LOAM.

In virgin areas, which support a forest growth, the soil of the Susquehanna very fine sandy loam consists of a gray very fine sandy loam layer about 1 inch thick, underlain by a layer of pale-yellow very fine sandy loam which grades at depths of 6 to 10 inches into red or reddish sandy clay loam, passing abruptly into stiff plastic clay. At 15 inches the material is mottled with yellow or pale greenish yellow and the yellow mottling increases and the red decreases with depth. In most areas gray mottling appears at about 36 inches, although such coloration may be seen in some areas much nearer the surface. The substratum is normally mottled, yellowish, and gray or bluish gray, with fine spots of reddish material.

The type in general is rolling. Many areas occur as narrow strips or bands running around hills. Where only a few rods wide such strips have not been separated from the surrounding soil type, a number of them being included with the Ruston soils.

Little of the Susquehanna very fine sandy loam is cultivated. A few fields of cotton and corn are grown, but the yields are low and uncertain. The greater part of the type retains its cover of pine. Drainage is poorly established in most of the areas, and the type in general is cold and late. Where the merchantable timber has been removed the type has a second-growth hardwood forest.

*Susquehanna very fine sandy loam, rolling phase.*—The larger of the more rolling areas of the Susquehanna very fine sandy loam are shown on the soil map by the phase symbol, consisting of transverse ruling. Much of this land is rough and unsuitable for cultivation, being best adapted to grazing and to forestry. Lespedeza and a number of wild grasses afford fairly good summer pasturage.

GRENADA SILT LOAM.

The Grenada silt loam consists of a light-brown silt loam 6 to 10 inches deep, underlain by reddish-yellow silty clay or silty clay loam which passes abruptly into silty clay. The subsoil is yellowish in the lower part and shows mottlings of gray and stains of rusty-brown concretions and concretionary material. This mottled stratum is everywhere compact, and in many places resembles hardpan. The Grenada silt loam contains more chert or quartz gravel and noticeably less sand than the Coastal Plain soils.

The Grenada silt loam is not an extensive type in this county. A few small areas, covering in all about 2½ square miles, lie in the

northwestern part of the county, north of Palestine Church. These occupy the crests of ridges, knolls, or hills. This soil is used for the production of cotton and corn. Cotton yields from one-fourth to three-fourths bale per acre. In dry years corn is likely to burn badly, on account of the interception of ground water by the impervious subsoil. A large part of the soil is still covered with a forest of longleaf pine.

CAHABA FINE SANDY LOAM.

The Cahaba fine sandy loam consists of 10 to 15 inches of brown fine sandy loam, underlain by dull-red or yellowish-red, friable fine sandy clay.

Soil of this type occurs in terraces along Pearl and Strong Rivers and some of the smaller creeks, and is the best drained second-bottom soil in the county. The surface varies from level to gently undulating or billowy.

Owing to its good texture, its level surface, and its excellent drainage and aeration, this type is classed as one of the best soils in the county for general farming. Corn is the most important crop. The yield is above the average for the county, ranging from 25 to 50 bushels per acre. A relatively large acreage is devoted to cotton, which does best in dry seasons, yielding from one-half to 1 bale per acre. At times the boll weevil does considerable damage to cotton on this type, owing to the fact that the growth is rank and the ground shaded, a condition favoring multiplication of the insect. Winter oats, cowpeas, peanuts, sugar cane, velvet beans, and other crops give good yields, but are grown only in a small way for local and home use. Well-improved farms prevail on this type, and the soil is well cultivated.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Cahaba fine sandy loam:

*Mechanical analyses of Cahaba fine sandy loam.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>						
424423.....	Soil.....	0.4	1.0	3.0	37.2	17.9	34.8	5.8
424424.....	Subsoil.....	.0	.3	2.1	38.0	18.6	24.4	16.3

CAHABA VERY FINE SANDY LOAM.

Except for its finer texture, the Cahaba very fine sandy loam is similar to the fine sandy loam. This type occurs principally in the central part of the county, along the Strong River and its tributaries. Smaller areas lie on the creeks in the eastern part of the

county. In general, the type is not as well drained as the fine sandy loam. The same general farm crops are grown. A large proportion of the land is devoted to corn and velvet beans, to which it seems especially adapted. Corn yields are little larger in most years than on the Cahaba fine sandy loam.

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

*Mechanical analyses of Cahaba very fine sandy loam.*

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>						
424421.....	Soil.....	0.1	0.4	0.4	17.5	25.6	48.5	7.0
424422.....	Subsoil.....	.0	.1	.1	9.1	18.0	29.6	43.0

CAHABA SILT LOAM.

The Cahaba silt loam is a brown silt loam about 5 to 8 inches deep, overlying yellowish silty clay loam, which passes abruptly into yellowish-red or reddish-yellow silty clay. The lower subsoil of the more poorly drained areas is often mottled grayish and yellowish brown or rusty brown and is somewhat compact. The Cahaba silt loam occupies low flat areas and is not so well drained as the other Cahaba types. The soil seems well suited to corn, winter oats, lespedeza, and sugar cane. Tile drainage would probably improve this soil in many cases.

KALMIA FINE SANDY LOAM.

The Kalmia fine sandy loam consists of brown to brownish-gray fine sandy loam underlain at an average depth of about 6 inches by pale-yellow fine sandy loam, which passes below into yellow or pale-yellow fine sandy clay. In the poorly drained areas the lower subsoil is frequently mottled with gray. The texture of the surface soil ranges to very fine sandy loam in places. When dry the top layer of soil loses its brown color and has a gray or ashy-gray appearance.

This type is developed on nearly level terraces standing above overflow or above normal overflow of the streams. In some places it extends to the banks of the streams, the channels having been eroded to a depth which prevents overflow of what in comparatively recent times were the first bottoms of the stream. In other places the areas border the present flood plains. Some of the principal areas lie along Pearl River, Campbell Creek, Strong River, Westville Creek, and Middle Prong Silver Creek. A few other areas

occur elsewhere in the county. This soil does not form continuous strips, but is developed in detached areas of bench land. An extensive area is that at Dlo and northward up Campbell Creek.

The type has fair to good drainage, with the exception of occasional areas which are exceptionally poorly drained and which approach the characteristics of the Myatt soils. The drainage, however, is not so good as that of the Cahaba soils.

The Kalmia fine sandy loam is partly under cultivation, being used for the principal crops grown in this region. Yields somewhat lower than those obtained on the Cahaba fine sandy loam may be expected.

#### KALMIA SILT LOAM.

This is a gray silt loam 2 to 3 inches deep overlying pale-yellow silt loam, passing at 6 to 8 inches into yellow silty clay or silty clay loam, and this abruptly into silty clay. Below 15 to 20 inches the subsoil is usually mottled with shades of yellow and gray. In some places the texture becomes more sandy at about 30 inches.

Areas of this type lie chiefly along Pearl and Strong Rivers, Limestone and Dry Creeks, and the upper part of Dobbs Creek. The largest areas occur in the section north of the big easterly bend of Pearl River at Rockport Bridge, extending northward across Strong River and thence easterly to the vicinity of Pinola.

The type occupies flat, imperfectly drained terraces, on which water frequently stands for a considerable time after periods of wet weather. There are included with the type as mapped some areas of Myatt silt loam representing very poorly drained soil which was not separated on account of its patchy occurrence. Much of the type is timbered with shortleaf pine, oak, and sweet gum. Lespedeza and carpet grass are well distributed over uncultivated areas and afford good pasturage.

Probably this type can best be used in growing lespedeza, Bermuda grass, and carpet grass for hay or pasturage. Some of it is cultivated, the crops including chiefly cotton, corn, oats, and cowpeas. The yields are only fair, being rather low in wet years, but could be increased by ditching. Liberal use of fertilizers is necessary for the production of good crops. Some of the expenses for fertilizers can be avoided by growing the legumes, such as velvet beans and cowpeas. This soil is very well suited to the raising of cattle, hogs, and sheep, inasmuch as it is a good grass type and also is capable of producing an abundance of forage crops, such as cowpeas, velvet beans, and sorghum.

#### MYATT SILT LOAM.

The surface soil of the Myatt silt loam is a gray or mottled gray and brownish silt loam, passing at 3 to 5 inches into gray or bluish-gray

silt loam or silty clay loam mottled with pale yellow or yellowish brown. This grades at 10 to 12 inches into a bluish-gray or light-gray silty clay, mottled slightly in many places with yellow or yellowish brown. The subsoil contains iron concretions and is compact, and below 2 feet may have the character of hardpan. In some places the soil is a gray silt loam overlying ashy silty clay, passing into plastic, mottled gray and olive-drab clay. This type closely resembles the Bibb silt loam of the first bottoms, but occupies terraces and is older. It is not subject to overflow.

The Myatt silt loam is found chiefly on the second bottoms of Strong and Pearl Rivers and Big and Limestone Creeks. Areas three-fourths square mile or more in extent occur west of Pleasant Hill Church, southeast of New Hymn Church, west of Palestine Church, near Pearl, and south of Dlo.

The surface is flat and the drainage poor, water standing for long periods after rains or in extreme cases remaining water-logged through most of the year. In the summer, however, dry weather brings about a dry, hardened condition of the soil.

Most of this type is forested with slash pine, willow, oak, holly, sweet gum, black gum, ironwood, and red haw. Lespedeza and carpet grass thrive on most of it and afford good grazing. On account of its natural adaptation to these valuable pasture plants, the type is best suited to the raising of stock. With artificial drainage, chiefly by ditching, and with liberal applications of commercial fertilizer or barnyard manure, the land can be used with fair success in the production of corn and oats, and possibly for growing cotton.

#### LEAF SILT LOAM.

The Leaf silt loam consists of a brown to grayish-brown silt loam, 6 to 10 inches deep, overlying a stiff, heavy red clay, mottled with gray and yellow.

There is only a small area of this type of soil in the county. It occupies terraces, in places imperfectly drained. A large part of the type is still in forest, of gum, hickory, and water oak. The cleared areas are used in growing cotton and corn, the yields of which vary considerably with the seasons.

#### OCHLOCKONEE FINE SANDY LOAM.

The Ochlockonee fine sandy loam, to a depth of from 6 to 10 inches, is a dark-brown fine sandy loam. Below this to a depth of 3 feet or more the material is a light-brown or yellowish-brown fine sandy clay. Along the larger creeks and streams there are many places where the immediate surface consists of a loose fine sand, such areas representing deposits from recent overflows. There also is consider-

able variation in the type along the smaller streams, and many small areas of Bibb fine sandy loam and silt loam have been included. In the Skiffer Creek bottom and along several of the other creeks the subsoil has a decided reddish-brown to yellowish-red color. Such a variation would be mapped as Hannahatchee if developed in areas large enough to warrant a separation.

The Ochlockonee fine sandy loam occurs along all the small streams which head in areas of Ruston and Orangeburg soils in the southern part of the county. The type also is developed on the higher and better drained bottom lands along the Pearl and Strong Rivers, where the material was laid down by swift currents during times of overflow. Along the smaller streams the type is overflowed nearly every year, while in the Pearl and Strong River bottoms it is flooded only at rare intervals. The type is well drained between overflows. Much of the type along the smaller streams is in small clearings, while along the rivers it is practically all cleared. The topography is somewhat rolling, and in the river bottoms the surface is in many places cut by sloughs and old stream channels, producing a very uneven topography. Probably two-thirds of the type is cultivated and prized as corn and cotton land. The yields of cotton average three-fourths bale and of corn from 20 to 40 bushels per acre. Forage crops are also grown to some extent.

Several areas of Ochlockonee very fine sandy loam have been included with the Ochlockonee fine sandy loam on the soil map, on account of their small extent. The soil is a brown to grayish-brown very fine sandy loam, underlain at about 6 to 10 inches by a yellowish-brown to brown fine sandy clay. The texture of the subsoil varies somewhat from place to place. Here and there the lower subsoil is mottled pale yellow and gray and contains iron concretions. This soil is not as well drained as the fine sandy loam, and there is more gray and rusty-brown material in the subsoil.

The Ochlockonee very fine sandy loam is found along some of the smaller streams and in the larger bottoms along Pearl and Strong Rivers. In the river bottoms it lies in the broader, flat areas some distance from the river bank. The surface is generally level and the land not so well drained as the fine sandy loam, though better drained than the soils of the Bibb series. When cleared the land is used in growing corn and cotton. It is especially valued as corn land, yielding from 25 to 60 bushels per acre.

#### OCHLOCKONEE SILT LOAM.

This soil as mapped is quite variable from place to place, both on account of the inclusion of other soils of patchy occurrence and on account of the variation in the color and texture of the subsoil.

Along the smaller streams the soil is a brown silt loam showing in many places faint mottlings of yellowish brown and rusty brown. Below this is a layer of yellowish silt loam or silty clay loam with yellowish-brown mottling, and resting at about 2 feet on material of similar texture, usually mottled with grayish and yellowish colors. Rusty-brown concretionary material is usually present in the lower subsoil. In some places the upper subsoil is dark brown, even darker than the surface soil. In places sandy material is encountered in the lower part of the 3-foot section. In the lower, poorly drained areas along the smaller streams the gray and rusty-brown mottling is more conspicuous, and such areas may be Bibb silt loam. In the Pearl River and Strong River bottoms there is much less gray mottling, the soil here consisting of a brown mellow silt loam 10 or 12 inches deep, overlying light-brown silty clay which passes below into yellowish-brown silty clay.

There are many hummocks and depressions throughout the areas of this type. Along the smaller streams the type is generally overflowed several times each season, and here the type is practically all in forest. Oak, sweet gum, ironwood, pine, beech, maple, and holly are the principal trees, and with these there is much poison ivy, cross vine, star anise, and various shrubs. The bottom land generally supports a good growth of grasses, among them carpet grass and lespedeza. In the Pearl River and Strong River bottoms much of the soil is cleared and used for the production of cotton, corn, cowpeas, and lespedeza hay. This is one of the best soils in the county for cotton and corn. Cotton averages better than one-half bale per acre, and a yield of 1 bale is not uncommon. Corn yields from 30 to 60 bushels per acre. The type is easy to cultivate and easy to keep in a productive state. Cowpeas and velvet beans are generally plowed under to keep up the fertility of the soil.

#### HANNAHATCHEE FINE SANDY LOAM.

This is a brown to reddish-brown fine sandy loam which passes into reddish-brown or brownish-red fine sandy loam to fine sandy clay subsoil. There are some variations in the texture and color of the material from place to place at the surface and also through the vertical section. There are included patches of loam that were not separated on account of their small extent. This type is found chiefly in narrow belts in the bottoms of Skiffer and Riles Creeks. The material has been washed partly from upland soils whose red subsoils have been exposed by erosion.

The surface is flat, but the drainage between periods of overflow is well established.

This is a productive soil, well suited to the growing of cotton, corn, sorghum, and the other crops of the region that succeed on bottom-land soils.

BIBB VERY FINE SANDY LOAM.

The surface soil of Bibb very fine sandy loam consists of 4 to 8 inches of bluish-gray very fine sandy loam, underlain by plastic, impervious very fine sandy clay. The lower subsoil contains considerable quantities of iron concretions and concretionary material. There are also many iron concretions scattered about over the surface. This soil is locally called "white buckshot" land.

The Bibb very fine sandy loam occurs principally north and north-east of Mendenhall in the Strong River bottoms. The type is forested and in a swampy condition. Several small areas that have been cleared for some time are used as pasture. By diking and ditching some of the type could be brought under cultivation. Lespedeza and carpet grass do well on land of this character.

BIBB SILT LOAM.

The Bibb silt loam is a mottled gray and rusty-brown or gray and pale-yellow silt loam passing at 6 to 10 inches into a light-gray or bluish-gray silty clay loam to silty clay, mottled in many places with pale yellow or rusty brown, and containing rusty-brown concretions. The lower subsoil is characteristically compact and contains an abundance of concretions and concretionary material. In places it resembles a true hardpan.

This is a wet bottom-land type. Along the smaller streams there is often a mucky covering over the soil. Along Strong River and Dobbs and Sanders Creeks there are large areas of this soil. It is forested with sweet gum, ironwood, pine, willow, oak, and some bay. It is not cultivated. Lespedeza and carpet grass are abundant. Areas that have been cleared are used as pasture and hay land. Much of the type is in a swampy condition during a large part of the year.

SUMMARY.

Simpson County is situated in southern Mississippi. The county is in the Coastal Plain province and almost entirely in the Pearl River watershed. The topography is rolling to strongly rolling, with slopes in places too steep for cultivation. Drainage is well established. The county has an area of 567 square miles, or 362,880 acres.

The county was settled over 100 years ago. The population in 1920 was 18,109, being entirely rural. Magee, with a population of 730,

is the largest town. Mendenhall, with a population of about 637, is the county seat, located at the junction of two branches of the Gulf & Ship Island Railroad.

The railroad facilities are good for this section of the State. The Gulf & Ship Island Railroad crosses the county, with two branches running to different parts of the county. The public roads are poor, but are being rapidly improved. Agriculture and lumbering are the most important interests of the county.

The winters are generally mild and the summers long and warm. Rainfall is generally well distributed.

All of the uplands were formerly forested with longleaf pine, and the bottoms with shortleaf pine, beech, oak, gum, and various other trees. Within the last 15 years lumbering has become an important industry. At present the virgin timber is being rapidly cut out.

The county has 2,522 farms, of an average size of 74.3<sup>5</sup> acres, of which 32.9 acres are improved. The average assessed value of land as reported in the 1920 census is \$13.55 an acre.

Some difficulty is experienced in securing farm labor, owing to competition by the lumber interests. Laborers receive about \$30 a month and rations. Day labor is paid at a much higher rate.

Commercial fertilizer is in general use throughout the county. The annual expenditure for fertilizer amounts to about \$1.50 an acre per year for improved land.

About 61.4 per cent of the farms are operated by owners and the remainder by tenants.

Cotton is by far the most important crop in the county. For several years the boll weevil almost ruined the cotton crop, but cotton is again taking the leading place in the agriculture of the county. Corn is the second crop in importance. Corn and winter oats are receiving more attention each year. More sweet and Irish potatoes are being grown and shipped each year. Sugar cane is grown to provide sirup for home use and to supply local markets. Cowpeas, velvet beans, lespedeza and peanuts are receiving a great deal of attention as winter pasture, cover, and soil-improvement crops. Peaches are the principal fruit. A few apples are grown.

A large number of hogs, cattle, and some sheep are raised. Live stock is grazed mainly in the open woods. Poultry and dairy products are shipped to outside points in small quantities.

Twenty soil types are shown on the accompanying map. These represent 12 soil series.

The Ruston soils predominate in all parts of the county. The Ruston very fine sandy loam is one of the best agricultural types in

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<sup>5</sup> The census tabulates each tenancy as a farm.

the county. The Orangeburg series is generally more rolling than the Ruston, but includes some of the best ridge land in the county.

The Caddo silt loam is gray in color with a pale-yellow subsoil. It is poorly drained upland soil, and is not cultivated.

The Susquehanna very fine sandy loam has a red and gray mottled, plastic clay subsoil. The type is rolling and has a low agricultural value.

The Cahaba soils are developed along Pearl and Strong Rivers and some of the larger creeks. The soils of this series represent the best drained second bottoms. They resemble the Ruston soils somewhat, but they have a higher agricultural value.

The Kalmia fine sandy loam and silt loam are second-bottom soils that are not as well drained and not as productive as the Cahaba soils.

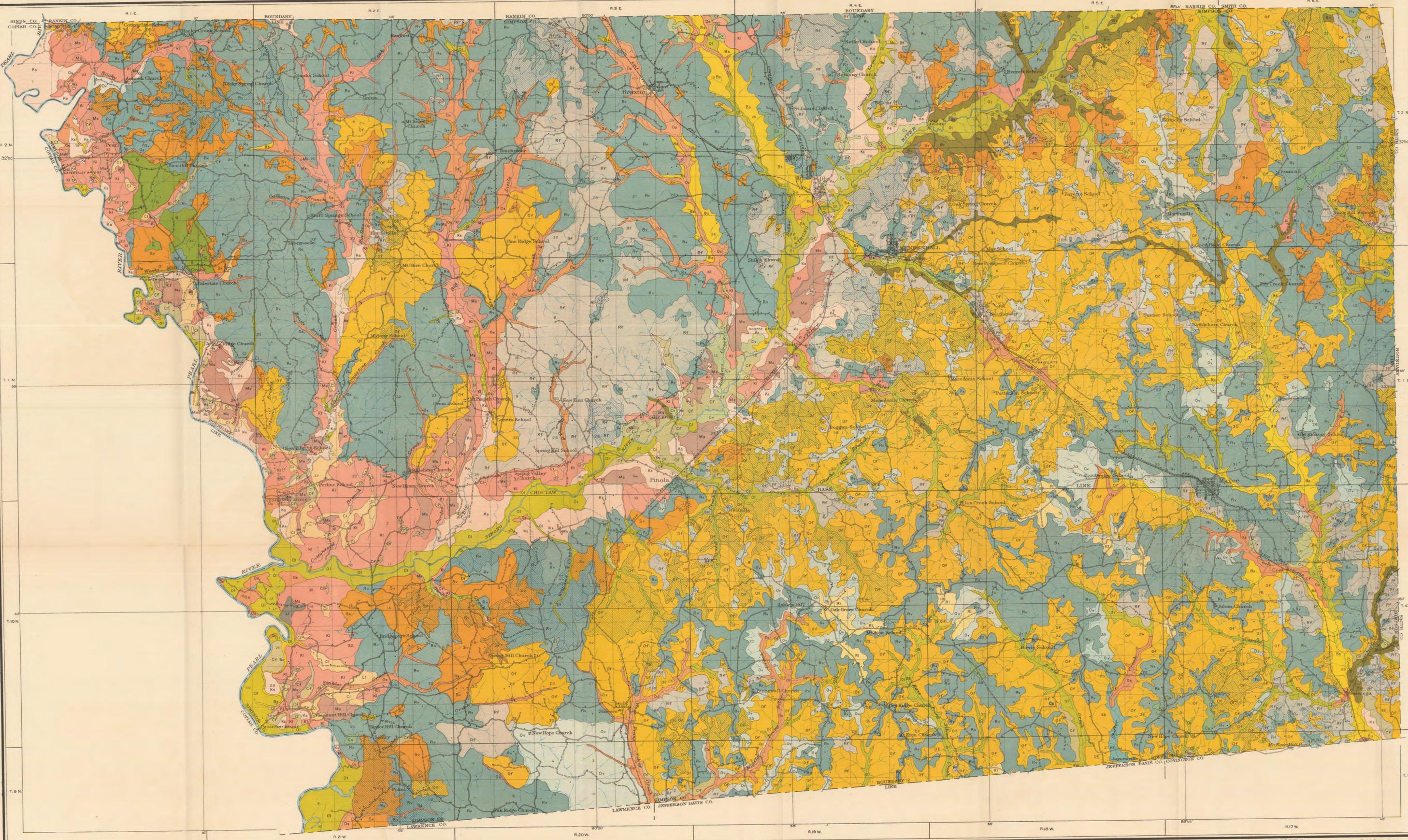
The Myatt silt loam has a gray surface with mottled gray and yellow impervious subsoil. The type is poorly drained and not cultivated.

The Leaf very fine sandy loam represents a soil with a light-gray surface soil and a compact, impervious, mottled gray, red, and yellow subsoil. The type is farmed to some extent to corn and cotton. The type is poorly drained.

The Ochlockonee soils are brown first-bottom soils. They are highly productive and used for the production of corn and cotton.

The Bibb silt loam and very fine sandy loam represent the more poorly drained first-bottom land. They have gray surface soils and mottled gray and rusty-brown subsoils. They are locally called "white buckshot" land on account of the amount of small iron concretions scattered about over the surface. These soils are used principally as pasture land. Much of these soils is forested and in a swampy condition.





Bibb very fine sandy loam	Ochlocknee fine sandy loam
Bibb silt loam	Ochlocknee silt loam
Caddo silt loam	Orangeburg fine sandy loam
Caddo fine sandy loam	Orangeburg very fine sandy loam
Cahaba very fine sandy loam	Orangeburg very fine sandy loam
Cahaba silt loam	Raton fine sandy loam
Genada silt loam	Raton silt loam
Humboldt fine sandy loam	Raton very fine sandy loam
Kalmia fine sandy loam	Raton silt loam
Kalmia silt loam	Raton silt loam
Leef silt loam	Savannah very fine sandy loam
Myatt silt loam	Savannah very fine sandy loam
Moss silt loam	Savannah very fine sandy loam

CONVENTIONAL SIGNS

CULTURE  
(Printed in black)

- City or Village, Roads, Railroads, Wharves, Jetties, Breakwaters, Levees, Lighthouse, Port.
- Secondary roads and trails
- Bridges, Ferry
- Food, Dam
- Mine or Quarry
- Stony and Gravelly areas
- Boundary lines
- Boundary lines
- Boundary lines

RELIEF  
(Printed in brown or black)

- Depression contours
- Sand, Wash and Sand dunes

DRAINAGE  
(Printed in blue)

- Streams
- Intermittent streams
- Swamp
- Lake, Bay, Intermittent lake
- Spring, Canal and Ditches, Flumes
- Submerged marsh
- Tidal flats

Hugh H. Bennett, Inspector Southern Division.  
Soils surveyed by F. Z. Hutton, in charge,  
W. E. Harp and Clarence Lowmrey.

Scale 1 inch = 1 mile

[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.]

