

Issued June 8, 1916.

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, MISSISSIPPI GEOLOGICAL SURVEY.

SOIL SURVEY OF JEFFERSON DAVIS COUNTY,
MISSISSIPPI.

BY

By T. M. BUSHNELL, in Charge, and L. VINCENT DAVIS.

HUGH H. BENNETT, INSPECTOR, SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1915.]



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1916.

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,

Washington, D. C., January 10, 1916.

SIR: Under the cooperative agreement with the State of Mississippi a soil survey of Jefferson Davis County was carried to completion during the field season of 1915.

I have the honor to transmit herewith the manuscript report and map covering this work and to recommend their publication as advance sheets of Field Operations of the Bureau of Soils, 1915, as authorized by law.

Respectfully,

MILTON WHITNEY,
Chief of Bureau.

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

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MAP.

Soil map, Jefferson Davis County sheet, Mississippi.

SOIL SURVEY OF JEFFERSON DAVIS COUNTY, MISSISSIPPI.

By T. M. BUSHNELL, in Charge, and L. VINCENT DAVIS. HUGH H. BENNETT, Inspector.

DESCRIPTION OF THE AREA.

Jefferson Davis County, Miss., lies in the southern part of the State, about 40 miles south of Jackson and 85 miles north of the Gulf of Mexico. It is bounded on the north by Simpson County, on the east by Covington County, on the south by Marion County, and on the west by Lawrence County. The county has an area of 406 square miles, or 259,840 acres.

Jefferson Davis County lies entirely within the Coastal Plain. The topography of the uplands is gently rolling to hilly. The county occupies the watershed between the Pearl and Pascagoula Rivers, the crest of this divide extending through the county from near the middle of the north county line, where the elevation is over 500 feet above sea level, southward through Carson and Bassfield, and crossing the southern boundary line in range 17, where the elevation is slightly more than 400 feet. The Pearl River bottoms in the southwestern corner and those of Bowie Creek in the southeastern part of the county are less than 200 feet above sea level. The low levels reach far up toward the heads of the streams, while high ridges extend far down between the different lines of drainage. The grade of most of the hill slopes is gentle to moderate, although in a few places where the gullies lead down from the ridge tops it is quite steep.

The county is well drained through a network of creeks, draws, and gullies. There are only comparatively small areas of flat upland country into which drainage lines do not extend. Most of the streams have moderate flow except at very low stages, when the current is sluggish, or at high-water stage, when it is swift. The small streams

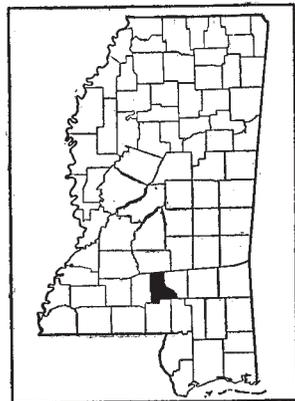


FIG. 1.—Sketch map showing location of the Jefferson Davis County area, Mississippi.

flow only for short periods after rainy weather, while the gullies are dry soon after the cessation of rain.

Much of the stream-bottom land is sufficiently drained for agricultural use. These bottoms are inundated for short periods by heavy rainfalls, but between rains they are fairly well drained. The bottoms of East Prong of Silver Creek, Bowie, White Sand, and Black Creeks are locally known as "swamp," but there are only a few areas of true swamp in the county, and they are very small.

The first settlement in the region now included in Jefferson Davis County was made over 100 years ago. The original Government land survey was made in 1811 and 1812, and a gradual settlement began about that time. The pioneers were largely from the States lying to the east and northeast. Their descendants constitute a large part of the present population. Jefferson Davis County was organized in 1906, from parts of Lawrence and Covington Counties. The Thirteenth Census gives the total population of the county in 1910 as 12,860, all of which is classed as rural, averaging 31.8 persons to the square mile. The population in 1910 is reported as 52.5 per cent negro.

Prentiss, with a population of 575 in 1910, is the county seat and largest town. Bassfield, Carson, Whitesand, Melba, and Lucas are small towns on the Mississippi Central Railroad, which is practically the only line of transportation in the county. This railroad gives access to outside markets through its connections with other railroads at Hattiesburg and Brookhaven. There are several spurs of railroad built by logging companies. The Gulf & Ship Island Railroad crosses the southwestern corner of the county and parallels, through almost its entire length, the western county line. New Orleans is the principal market for cotton, which until recently was practically the only product shipped out of the county. In the last few years potatoes have been shipped to northern markets in carload lots.

Public improvements in Jefferson Davis County are good, including a complete system of public roads. The interests of the county are mainly agricultural, with lumbering of some importance.

CLIMATE.

The climate of Jefferson Davis County is similar to that of the strip of piney-woods country which borders the Gulf of Mexico. The records of the Weather Bureau station at Brookhaven, in Lincoln County, just west of Lawrence County, which adjoins Jefferson Davis County on the west, show a mean annual temperature of 65.7° F. While the temperature has ranged from a minimum of -10° F.

to a maximum of 105° F., the average winter mean is about 50° F., and the summer mean about 81° F.

The mean annual precipitation is about 58 inches. The rainfall is well distributed throughout the year. It is lightest in the fall months, so that the distribution is favorable to the growth and harvesting of crops. Damaging storms are of rare occurrence.

The average date of the last killing frost in the spring is March 18 and of the first in the fall November 4. The normal growing season is thus 231 days. The latest recorded date of killing frost in the spring is April 7 and the earliest in the fall October 20.

The data in the following table, compiled from the records of the Brookhaven station, are fairly representative of the climatic conditions in Jefferson Davis County:

Normal monthly, seasonal, and annual temperature and precipitation at Brookhaven Lincoln 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.....	50.2	82	6	5.01	4.75	8.40
January.....	48.0	80	11	5.12	10.42	7.45
February.....	50.8	82	-10	5.94	5.37	10.45
Winter.....	49.6	82	-10	16.07	20.54	26.30
March.....	59.8	91	22	6.43	2.81	8.60
April.....	65.8	96	31	6.04	1.30	7.50
May.....	73.3	102	39	4.12	.65	1.10
Spring.....	66.3	102	22	16.59	4.76	17.20
June.....	79.5	104	50	5.09	4.97	5.20
July.....	81.7	105	59	5.49	7.20	3.30
August.....	81.2	105	58	5.26	3.95	6.70
Summer.....	80.8	105	50	15.84	16.12	15.20
September.....	76.4	103	38	3.61	2.00	6.40
October.....	65.6	99	28	2.40	.27	2.65
November.....	56.5	87	21	3.91	1.95	6.15
Fall.....	66.2	103	21	9.92	4.22	15.20
Year.....	65.7	105	-10	58.42	45.64	73.90

AGRICULTURE.

Originally the uplands of Jefferson Davis County supported an open forest of longleaf pine, while the bottoms had a thick forest of

sweet gum, black gum, beech, shortleaf pine, magnolia, bay, and water oak, with a tangled undergrowth of scented bay bushes, yellow jessamine, rattan, and other vines, and canebrakes. Generally the natural undergrowth of the piney woods was kept down through burning by the Indians.

The first settlers farmed small fields of the best drained bottom land, growing mainly corn and potatoes for home use. It is said the piney-woods land was considered unproductive, but later it was brought into cultivation and has given satisfactory results, especially with the aid of fertilizers. The terrace, or "second-hammock", land was preferred for agriculture.

Owing to the distance from railroads the forested lands of the county had a low value, and prior to 1889 large tracts of timberland were purchased by syndicates at low prices. Such land now sells for \$20 to \$35 an acre for the timber alone. There are several large areas of virgin forest, mainly in the southern half of the county. There is no large sawmill in the county.

The agriculture of Jefferson Davis County consists of the production of cotton as the chief money crop, with corn and forage crops next, though these are not grown in sufficient quantities to supply the local requirements.

Cotton became the staple money crop before the Civil War. Before the construction of the Mississippi Central Railroad in 1903 cotton was hauled to Brookhaven, Wesson, Mount Olive, or Hattiesburg and sold or exchanged for supplies, the trip generally requiring a week or more.

The 1910 census, taken before the arrival of the boll weevil, reports 26,382 acres in cotton, with a production of 11,420 bales. The cotton crop, including both lint and seed, was worth about \$1,000,000. Although cotton has declined in both acreage and yield as a result of the depredations of the weevil, it is still the most important crop. Plowing for cotton begins about the middle of March. Fertilizer at the rate of about 200 pounds per acre is distributed and plowed under before the seed is planted. Usually the methods of cultivation are good, the plants being grown on beds and cultivated with light harrows, sweeps, and hand hoes.

The census gives the area in corn in 1909 as 20,988 acres. The average yield was a little more than 13 bushels per acre. Many of the most successful farmers plant the crop late, and obtain yields of 30 to 40 bushels under favorable conditions, and the results of boys' corn club contests show that it is possible under the most intensive methods to obtain yields of 100 bushels or more per acre. Corn receives considerably less attention than cotton, though the land is prepared and cultivated in much the same manner as for that crop. When the field is "laid by," cowpeas or velvet beans

frequently are planted between the rows. These legumes furnish both grain and forage and also improve the soil. The vines afford good forage for stock.

The oat crop was the third in acreage in 1909, this grain occupying 1,879 acres. Oats have been increasing in importance recently. The crop usually follows corn or cotton, and is sowed between September and February, the latter part of October being considered the best time. The fields are usually used during the winter for pasture for hogs and other stock. The crop is harvested late in May, and corn, cotton, peanuts, cowpeas, and sweet or Irish potatoes planted on the stubble. Good pasturage is furnished by grasses which spring up after the grain is harvested, and lespedeza seeded in the oats in the spring furnishes both pasture and hay in the fall. The average yield of oats for the county is about 18 or 20 bushels per acre, but 30 to 40 bushels have been obtained under favorable conditions.

In 1909, 846 acres were planted to sweet potatoes, giving an average yield of 93 bushels per acre. Sweet-potato sets are transplanted in April or May on well-prepared ground, at intervals of 18 to 30 inches, in rows about $3\frac{1}{2}$ feet apart. Cultivation is about the same as that given cotton or corn. Potatoes ordinarily are ready to dig by June. This crop usually is well fertilized with manure or commercial mixtures. A second crop may be grown on the same land in August, producing better yields in October and November than the crop planted in the spring. A number of carloads of sweet potatoes are shipped from the county each year, the price received ranging from about 35 to 50 cents a bushel. This vegetable is also one of the staple articles of food grown for the home market.

Irish potatoes also can be made to yield two crops on the same field in one season. No large acreage is planted, but in the last few years there has been an effort to grow more for shipment to the northern markets, and several carloads are exported annually. The potatoes are planted in February or March and August and harvested in May and October or November. This crop usually is heavily fertilized with high-grade commercial fertilizers and carefully cultivated. The average yield per acre is about 80 bushels.

Peanuts are not grown extensively in this county. The census reports 219 acres in the crop in 1909. This legume is grown extensively and profitably as a field-forage crop in many parts of the Southern States on soils similar to those in Jefferson Davis County. Peanuts succeed on all the well-drained sandy soils of the county having a friable clay subsoil. They can be grown easily between corn rows, with but little additional cultivation, and after the corn is gathered hogs can be turned in to feed on the crop. In addition to fattening the hogs this also improves the soil.

It is the general custom in this county to strip "fodder" from the corn when the leaves begin to turn yellow. In this way about 400 pounds of forage per acre is obtained. Lespedeza is cultivated as a hay crop. This legume is usually sowed on oat land, and makes its growth after the oats are removed. It produces 1 to 2 tons per acre of good hay. Cowpeas and velvet beans are grown for both forage and grain. The latter are not grown extensively. They make a very heavy growth of vine, which binds cornstalks into a thick tangle. Cowpeas are commonly sowed between the corn rows just before the last cultivation, but are also planted in rows and cultivated like corn. The seed is often picked by hand, and yields of 5 to 15 bushels per acre are obtained. After the corn has been gathered the stalks and vines make good pasturage. The various leguminous crops are beneficial to the land and are grown to some extent for their enriching effect upon the soil.

Almost every farmer grows a small patch of sugar cane for sirup. This is the one crop whose soil requirements are definitely recognized. While it is grown on almost every soil type in the county, it is planted in low situations where the soil is moist and deep. Sugar cane occupied a total area of 515 acres in 1909. Yields range from 200 to 600 gallons an acre. A good grade of sirup sells for about 40 cents a gallon.

The fruit grown consists mainly of peaches, summer apples, figs, strawberries, and blackberries. Neither tree nor small fruits are grown in a commercial way. The Orangeburg soils, which are represented in this county, are used successfully for commercial peach growing in various other parts of the South. There are a few pecan trees in this county, and they are apparently well adapted to soil and climatic conditions.

Little attention is paid to stock raising in Jefferson Davis County. Hogs are kept in small numbers on almost every farm. Many of these are the small "razorback" hogs which range the woods and swamps, but there are some heavy animals of the standard breeds. In a few cases hogs of good grade are kept in pastures of such crops as oats, lespedeza, and cowpeas, and are fattened with corn and other grain. The census of 1910 reports a total of 7,833 hogs sold or slaughtered in 1909.

Like the hogs, the cattle largely graze in the woods. In some cases the cattle are fed, the feed consisting mainly of cottonseed meal and hulls and hay. The census reports 200 calves and about 1,200 other cattle sold or slaughtered in 1909.

Cows are kept on the farms to supply milk for home use, and there are a few small herds of selected native dairy cows in the county. Some cream is shipped to creameries outside the county.

The value of dairy products in 1909, excluding those used at home, is reported in the census as \$35,338. The cattle tick is a hindrance to the development of stock farming in this region. Cattle shipped in from the north are especially subject to attack by the Texas fever. There are several dipping vats in use.

Sheep and goats are raised to some extent. Sheep receive little attention, and owing to the lack of protection during the winter and the prevalence of sheep-killing dogs, their number is decreasing.

Poultry is found on every farm. The value of poultry and eggs is reported in the census as \$53,104 for the year 1909.

Cotton has been grown on all the various types of land in the county, but there is a tendency to plant it mainly on the better drained soils, and to grow corn on the rich, moist, alluvial stream-bottom and terrace soils. Some very rolling land occupied by the Ruston and Orangeburg soils is devoted to cotton and corn, although the steepest hillsides are mainly left in brush. The large area in the southeastern part of the county along Bowie Creek, where the topography is relatively smooth, has remained unsettled on account of the low productiveness of the predominant Susquehanna and Pheba soils. The smooth topography of the ridge-top land around Bassfield permits the use of binders and other improved machinery, and this possibility encourages the extensive production of oats in this locality.

The largest item of farm expense is for fertilizer. In 1910 about 90 per cent of the farms reported expenditure averaging \$48.15 each. The brands most commonly used contain 1 to 2 per cent of nitrogen, 8 to 10 per cent of phosphoric acid, and about 2 per cent of potash, and cost about \$20 a ton. Recently there has been some demand for higher grade fertilizers, containing more nitrogen and potash, particularly for the Irish-potato crop. The farmers make use of all available stable and of green-manure crops.

Labor is quite cheap and plentiful. Farm laborers are paid 50 cents a day, or about \$10 a month if hired for long periods. Expenditure for labor was reported by 385 farms in the census of 1910, and averaged about \$75 per farm reporting.

The census of 1910 reports 1,987 farms in Jefferson Davis County, averaging 79.3 acres in size, of which 37.1 acres are improved. Nearly 40 per cent of the farms are operated by tenants, and the percentage seems to be increasing. The average value of land in the county is given as \$10.20 an acre. The valuation as a basis for taxation is \$20 for timberland, \$10 for farming land, \$5 for stump land, and \$2 per acre for "swamp."

At the present time the agriculture of Jefferson Davis County is undergoing a noticeable change. The farmers are experimenting

to get the best yields of cotton under boll-weevil conditions. Such crops as oats, Irish potatoes, and truck crops are grown to an increasing extent. Silos are being erected and dairying put on a more substantial basis. The acreage of cleared land is steadily increasing, though many owners still have more land than they can handle properly. Farm land is comparatively cheap, but little changes hands. Much cut-over land owned by corporations is on the market, but is held at relatively high prices.

SOILS.

Jefferson Davis County lies in the Coastal Plain soil province. The upland soils, comprising 84 per cent of the area of the county, are derived chiefly from sedimentary materials of Coastal Plain formations, that is, from beds of sand, sandy clays, and heavy clays, with some local beds of gravel, consisting mainly of chert and quartz. The material of these beds is recognized to have been deposited under marine conditions. It was transported by water from land areas, probably from the Piedmont Plateau, the Appalachian Mountains, and limestone valleys and ridges to the north—in other words, from soils representing the decayed products of granite, schist, and other igneous rocks, sandstones, shale, and limestone. In the process of transportation and possible subsequent reworking by the agitated waters of the sea it is probable that the particles underwent some change from abrasion, and were assorted, the fine particles of clay and silt being deposited in deep or quiet water. The coarser particles, and possibly much of the finer material, are chiefly quartzose in character.

Since the recession of the water following uplift of the land changes have been brought about in the material 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.

On the small areas of flat ridge tops there is some very silty soil (Pheba) which may contain some material like that of the loessial areas to the west. It is possible that at one time considerable of the more recently deposited loessial material was present, but if so most of it has been removed by erosion.

The soils of the stream bottoms consist of alluvium, or recently deposited material, representing wash from the uplands of the county, and, along those streams rising beyond the county boundaries, from upland soils outside the county. This recent material laid down by overflow waters consists mainly of silt, fine sand, and clay. It contains considerable organic matter, and there is generally a less

marked difference between the soil and subsoil layers in the alluvial types than in the case of the upland soils, as material is deposited over the flat surface at every overflow, so that there has been no opportunity for the leaching and working out of the fine material from the surface portion, or for oxidation, as there has been in the rolling uplands. In case of the older alluvium, that on the terraces, or second bottom, where overflows occur no longer or only at long intervals, the material has undergone more change than in the first bottoms, and much of the soil on these terraces approaches, in characteristics, certain upland types.

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 through the uplands. The heavy clays are largely confined to the lower situations, especially stream slopes, where the heavy clay beds have been exposed through the cutting down of the valleys by erosion. In the small flat areas of ridge-top land, where drainage lines have not yet encroached, a silty soil, the Pheba silt loam, is encountered. In the area between the Bassfield-Melba Ridge on the one side and Bowie Creek on the other the Pheba, Caddo, and Susquehanna soils occur almost to the exclusion of other types. This is a lower area than the remainder of the uplands, with a more nearly level surface.

In Jefferson Davis County 16 soil types are encountered. These are grouped into 9 soil series.

The Orangeburg soils are friable and grayish in color, with red subsoils. In this county they occur, as a rule, on hillsides and on the slopes of stream valleys. The drainage is good and the soils are inclined to wash. They are derived from Coastal Plain deposits, consisting of marine sediments.

The Ruston series is characterized by the grayish color of the surface soils and the reddish-yellow to yellowish-red color and friable structure of the subsoils. The drainage is well established. These soils are derived from sedimentary material of the Coastal Plain.

The soils of the Pheba series are gray to brownish or yellowish gray, and the subsoils are yellow, mottled with gray and brown in the lower part. The structure of the subsoil ranges from friable to stiff, but at about 30 inches there is an impervious layer of very compact clay, containing dark-colored ferruginous material, this layer forming a distinct hardpan in places. The origin of the material in this survey is not clear. Whether it is purely of sedimentary origin or has been influenced by loess is not certain.

The soils of the Caddo series are characterized by the gray to yellow color of the surface soils and by the mottled gray and yellow or gray, yellow, and red color and rather stiff structure of the subsoil. Typically the areas of these soils contain low, sandy mounds or hummocks, but these surface irregularities are not developed in Jefferson Davis County. In some places the subsoil is mainly grayish in color while in others it is mottled yellow and gray. The Caddo soils are typically developed in slightly depressed upland areas having imperfect drainage, frequently occurring about the heads of streams. Some areas of the series occupy higher situations and have better drainage.

The types of the Susquehanna series have grayish surface soils and mottled reddish, grayish, and yellowish plastic, heavy clay subsoils. These soils are derived from beds of heavy clay of sedimentary origin.

The surface soils of the Cahaba series are brown to reddish brown, and the subsoils are yellowish red to reddish brown. The Cahaba soils occupy stream terraces lying largely above overflow, and represent the best drained land of such terraces. The component material consists of wash from Coastal Plain soils, with more or less admixture along the larger streams issuing from the Appalachian Mountains and Piedmont Plateau of material derived from the soils of those regions. This material is relatively old alluvium which was deposited when overflows covered the areas now occupied by these soils.

The Kalmia series is characterized by grayish soils and by yellowish moderately friable subsoils, mottled somewhat with gray in the lower portion. These soils occur on second bottoms which are very rarely or never overflowed. The material represents alluvium which was laid down from stream overflows.

The Ochlockonee soils are dark gray to brownish, with brownish or mottled brownish, yellowish, and grayish subsoils. The members of this series represent the brownish soils of the first or overflowed bottoms along the Coastal Plain streams. They are composed principally of wash from the Coastal Plain soils. Between overflows the drainage is fair to good.

The soils of the Bibb series occur in stream-bottom areas where the drainage is poor between overflows. On account of their poor drainage the soils have a gray or light-gray color and the subsoils a light-gray or mottled gray and yellow color. The material is of alluvial origin.

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

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Ruston fine sandy loam.....	136,000	52.3	Susquehanna fine sandy loam..	5,376	2.1
Caddo fine sandy loam.....	24,064	9.3	Kalmia silt loam.....	5,376	2.1
Orangeburg fine sandy loam...	23,296	9.0	Cahaba fine sandy loam.....	3,840	1.5
Bibb silt loam.....	12,608	4.9	Ochlockonee fine sandy loam..	3,712	1.4
Pheba silt loam.....	9,984	3.8	Susquehanna silt loam.....	3,584	1.3
Ruston sandy loam.....	9,600	3.7	Bibb fine sandy loam.....	2,688	1.0
Ruston silt loam.....	6,720	2.6			
Kalmia fine sandy loam.....	6,592	2.5	Total.....	259,840
Ochlockonee silt loam.....	6,400	2.5			

ORANGEBURG FINE SANDY LOAM.

The Orangeburg fine sandy loam is a brownish-gray to slightly reddish brown fine sandy loam, underlain at about 6 to 15 inches by red, friable sandy clay extending to a depth of 36 inches or more. In some places the soil is deeper owing to the colluvial wash from higher lying areas. On the steeper slopes, where erosion has been active, it is often of a more pronounced red color and shallow, the subsoil being near the surface. Such spots plow up a clay loam, and would be mapped as the Greenville clay loam if of sufficient size to warrant separation. In some places the surface soil is coarser than is typical, consisting of loamy fine sand. The lower subsoil is rarely sandy, although the deep substratum often consists of beds of sands.

Included with this type are several areas of Orangeburg silt loam, which were not extensive enough to map separately. They occur near Prentiss, west of Big White Sand Creek, and include somewhat smoother land and stronger soil than the typical Orangeburg fine sandy loam. There are also some included areas of Orangeburg sandy loam which are not mapped separately, on account of their small extent. These occur chiefly in the northern part of the county near Hebron. They differ from the fine sandy loam chiefly in the coarser texture of their soil, their steeper topography in general and their somewhat lower productiveness.

The Orangeburg fine sandy loam is confined largely to the northern part of the county. It occurs along most of the larger stream valleys. The surface ranges from gently rolling to gently and moderately sloping. The type is mainly well suited topographically to cultivation. Drainage is thorough, but with proper terracing of the fields erosion will not be destructive over most of the type, although some of the longer cultivated fields have been seriously injured by wash. The subsoil material is retentive of moisture.

Probably 80 per cent of the Orangeburg fine sandy loam has been cleared of its original timber and 60 to 75 per cent is under cultiva-

tion. Cotton production continues to be the principal branch of agriculture on this soil. Generally enough corn is grown to supply the needs of the farm, but live stock raising and dairying have not been developed to an important place. Cotton yields about one-half bale per acre on this soil. Yields of over 1 bale per acre were not uncommon before the advent of the boll weevil. Corn averages about 20 bushels per acre; when well fertilized and properly cultivated it often yields 35 to 40 bushels, and it is reported that one acre of this land yielded 214 bushels of corn in a boys' corn club contest. Commercial fertilizers are used in moderate applications for cotton, and to a less extent for corn.

Oats are a profitable crop on this soil. The average yield is about 20 bushels per acre, though 30 to 40 bushels are occasionally obtained. Peaches and strawberries are fruits which have proved successful on this type in various parts of the South, and it is well adapted to the legumes, including peanuts, velvet beans, cowpeas, and vetch. It has proved well suited to the raising of cattle and hogs. The soil is easily improved and kept in a high state of productiveness.

Cut-over land consisting largely of this type is worth \$8 to \$10 an acre. Farming land that is fairly free from stumps brings \$30 to \$40 an acre.

RUSTON SANDY LOAM.

The Ruston sandy loam differs from the Ruston fine sandy loam chiefly in the coarser texture of its surface soil. The typical soil probably is also lighter gray in color and looser than that of the fine sandy loam. The Ruston sandy loam typically consists of a gray sand or loamy sand passing at about 5 inches into light-gray sand or loamy sand, underlain at 12 to 18 inches by a reddish-yellow to dull-red, friable sandy clay. The heavier variation of this type is a grayish sandy loam which passes quickly into a pale-yellowish sandy loam, underlain at about 15 inches by dull-red to reddish-yellow, friable sandy clay. In some places the lower subsoil is a reddish-yellow, compact sandy clay, quite friable, and usually somewhat mottled with yellowish and grayish.

Mapped with this type are spots of Orangeburg gravelly sandy loam, too small to show separately. Also, scattered throughout the county, there are included some small bodies of the Ruston gravelly sandy loam, indicated on the soil map by gravel symbols. This type is of little importance, except that the material is used for surfacing roads.

The Ruston sandy loam occurs in a number of areas scattered over the county, mainly near the central section. It has a gently rolling to steeply rolling surface, occupying somewhat rougher situations than the Ruston fine sandy loam. The surface drainage is good to

excessive. On the steeper slopes the soil is subject to erosion, and careful terracing is necessary.

Cotton is the principal crop grown on this type. Corn is second in importance, and oats and cowpeas are grown to a small extent. The legumes are well adapted to this soil. The raising of live stock is incidental to other farming operations on this type.

In yields of the staple crops the Ruston sandy loam is equal to the Ruston fine sandy loam where the topography is favorable, but in the steeper and hillier areas it is not so productive. This land is farmed and handled in much the same manner as the Ruston fine sandy loam.

This soil in other localities has been successfully used in the production of early vegetables and truck, especially watermelons. Success, however, in trucking depends upon the location with reference to market and transportation facilities and upon an intensive system of farming, including the liberal use of manure or commercial fertilizer.

RUSTON SAND.

Mapped with the Ruston sandy loam and distinguished by inclusion symbol are a few small areas of the Ruston sand. This type consists of about 4 to 8 inches of grayish loose sand, underlain by reddish-yellow sand, which is slightly more loamy, especially in the lower subsoil. In places the subsoil is nearly as red as that of the Orangeburg. The sand beds are 3 feet or more in depth. The largest areas of this type are located east of Bowie Creek and southeast of Mount Carmel. It is of little value because of its loose, unretentive soil and the liability to erosion. The type has been partly cleared but is not cultivated.

RUSTON FINE SANDY LOAM.

The typical Ruston fine sandy loam is a grayish fine sandy loam, which passes at an average depth of about 5 inches into pale yellowish brown fine sandy loam. This, in turn, grades at about 8 to 15 inches into a dull-red or yellowish-red to reddish-yellow friable fine sandy clay. In some places the lower subsoil, below a depth of about 30 inches, is quite compact and more yellowish in color, with grayish and yellowish-brown mottlings. In places the soil is a gray, loamy fine sand or fine sandy loam, which passes abruptly into the fine sandy clay subsoil. In this county this type seems to average somewhat heavier in the surface portion than in large areas in many parts of the Coastal Plain. In the more nearly level situations the texture frequently is quite silty, and the sand particles are rather fine. In such places the depth to clay is not so great as in the typical development of the type, the structure is more compact, and

the subsoil is more yellowish. There are some eroded patches on the slopes consisting of sandy clay loam.

As mapped the type includes patches of other soils, such as the Orangeburg fine sandy loam, occurring about the heads of draws and on the steeper slopes; the Pheba silt loam, occurring on narrow ridges; and the Ruston sandy loam and gravelly sandy loam and Susquehanna soils, found along stream slopes in the southern part of the county.

The Ruston fine sandy loam is the predominating soil in all parts of the county except in the lower Bowie Creek Valley. The type is gently rolling to rolling. Only a small percentage of it is too steep for cultivation. The drainage is good.

A large part of the Ruston fine sandy loam is still in timber or brush, and furnishes pasturage for some hogs and cattle and a few goats and sheep. The live-stock industry, however, is not important. Probably 65 per cent of this type is included in farms and 35 or 40 per cent is under cultivation. It is a very important agricultural soil. Cotton is the leading crop. Corn is grown, but hardly to sufficient extent to supply the farm requirements. Cotton yields average one-half bale or more per acre, corn 13 or 14 bushels, and sweet potatoes 90 bushels.

Most of this land is farmed under the tenant system. It is mainly in "one-horse" farms, comprising about 20 acres each. Tillage operations on these farms are often inadequate and in many cases performed by hand. Cotton receives more attention than other crops. Corn is often neglected. Run-down fields usually are allowed to lie idle. Sometimes a rotation, including cowpeas or other legumes, is followed to build up the land. The annual expenditure for fertilizer on these tenant farms ranges from \$15 to \$25 each.

Land values vary largely with the topography, the stand of timber, improvements, and distance from towns. Cut-over lands may be bought for \$5 to \$10 an acre. Some well-improved farms, consisting largely of this type, are valued at \$40 to \$50 or more an acre.

RUSTON SILT LOAM.

The Ruston silt loam consists of a gray or light-gray silt loam grading at an average depth of about 3 inches into a pale-yellowish silt loam, which quickly passes into yellowish silty clay. The subsoil begins at 8 to 14 inches, and is a yellowish-red to reddish-yellow moderately friable clay or silty clay, which either extends to a depth of 3 feet without much change or becomes more compact in the lower subsoil and more yellowish, with some mottlings of gray. The surface soil usually contains appreciable quantities of fine sand or very fine sand, and in places ranges to a very fine sandy loam.

After rains the soil generally assumes a rather compact structure and clods if plowed. It is more inclined to become compact than the Ruston fine sandy loam, and on this account is more difficult to handle. It is easy to cultivate under proper moisture conditions.

This type is confined to the central and northern parts of Jefferson Davis County. Some of the largest and best areas are located near Prentiss. It occurs on level hilltops and very gentle slopes, the topography being favorable for farming. The drainage is good.

The type is not extensive and does not play an important part in the agriculture of the county. Probably 60 or 70 per cent of it is cultivated. It is a fairly productive soil, slightly more productive than the Ruston fine sandy loam. Cotton and corn are the principal crops grown. In topography and texture the soil is well adapted to oats, and a considerable acreage of this crop is grown. Average yields of about 25 bushels of oats, 15 bushels of corn, and one-half to three-fourths bale of cotton per acre are obtained.

Cut-over land of this type is valued at \$5 to \$10 an acre, while improved farm lands range in value up to \$45 an acre.

As is the case with most of the other soils in the county, it is beneficial to this type to grow the legumes and to incorporate green manures, in order to increase the store of organic matter and to improve the structure and general physical condition of the soil.

PHEBA SILT LOAM.

The typical Pheba silt loam is a grayish silt loam passing at about 3 to 5 inches into pale-yellow silt loam to silty clay loam, which in turn quickly grades into yellow, moderately friable clay. The lower subsoil characteristically is decidedly compact and mottled with gray and yellowish brown. In places this compact layer contains a large quantity of dark ferruginous material, enough to give it the character of hardpan, and usually brownish and black concretions are present. In many places the surface soil approaches quite closely a fine sandy loam or very fine sandy loam, and here the sub-surface is usually a grayish silty loam. Below the hard layer reddish Coastal Plain material usually is encountered.

A variation of this type occurs on the gentle lower slopes of the valleys in the southern part of the county, where the type is underlain by beds of stiff clay, like those giving rise to the Susquehanna soils. The yellow subsoil becomes more stiff and plastic with depth and mottlings of gray and sometimes of red occur in the lower part of the 3-foot section.

The Pheba silt loam occurs on the flattish tops of divides and is encountered almost entirely in the southern part of the county. The topography ranges from nearly level to gently undulating.

Most of the type has fair surface drainage, but the impervious substratum and relatively level topography cause poor drainage conditions in the subsoil. There are a number of small undrained areas, such as those just west of Carson or at Haw Pond School.

Although the topography is well suited to tillage and the type occurs mainly in fairly large areas, it is not important in the agricultural economy of the county, because of its low natural productivity. A large part of the type is still forested or has only recently been cut over. About 20 to 30 per cent is under cultivation. Cotton and corn are the principal crops. In the vicinity of Bassfield oats are grown to some extent. The type furnishes good pasturage for hogs and cattle. When first put in crops it gives poor yields, but when the land has been cultivated and fertilized for several seasons yields of one-third bale of cotton or about 10 bushels of corn per acre are obtained. Oats yield about 15 bushels per acre. All the manure available is used on this type, and commercial fertilizer is applied at the rate of 100 to 200 pounds per acre.

Cut-over land of this type is valued at \$3 to \$6 and farming lands at \$8 to \$20 an acre, according to improvements.

The Pheba silt loam is in need of organic matter. This can be supplied by adding manure or plowing under leguminous crops. In places it is necessary to improve the drainage by constructing a few surface ditches.

CADDO FINE SANDY LOAM.

The Caddo fine sandy loam consists of a grayish fine sandy loam, underlain at 5 or 6 inches by a pale-yellow fine sandy loam. This quickly passes into yellow fine sandy clay, resting at lower depths upon a compact stratum of mottled yellow and gray clay. The type differs from the Norfolk fine sandy loam in the presence of the compact, mottled layer in the lower subsoil.

A variation occurring on the lower lying areas east of the Bassfield-Melba Ridge has a yellow, heavy, plastic subsoil, mottled with gray and in some places with red at about 3 feet. The patches having the red mottling represent inclusions of the Susquehanna fine sandy loam.

The Caddo fine sandy loam is encountered mainly in the southern half of the county, though some areas of the type are associated with the Ruston soils in the northern part. Much of it occurs east of the Bassfield-Melba divide. The drainage ranges from fair to poor, as the type occupies comparatively low, gentle slopes or flat situations.

The Caddo fine sandy loam is comparatively undeveloped, the more productive soils being preferred for farming. Much of it is syndicate-owned timber land. Probably 30 per cent is cultivated.

Cotton and corn, with a small acreage of oats, are the principal crops grown on this type. Although this soil is naturally of low productiveness, it can be improved so as to produce, under average conditions, one-fourth to one-half bale of cotton or 8 to 15 bushels of corn per acre. This soil is handled in practically the same manner as the Ruston fine sandy loam, but it requires heavier applications of fertilizers to produce equal yields.

Cut-over land of this type is valued at \$4 to \$7 an acre. Farm land, depending mainly on the improvements, is held at \$10 or more an acre.

SUSQUEHANNA FINE SANDY LOAM.

The surface soil of the typical Susquehanna fine sandy loam is a grayish fine sandy loam, the color changing to yellowish at an average depth of about 5 inches. The subsoil is encountered at about 8 to 12 inches and consists of a dull-red, plastic clay, mottled with gray. The gray mottling becomes more pronounced with depth, the lower subsoil usually being intensely mottled with red and gray or drab. In many places gray or drab is the prevailing color in the lower subsoil, though frequently yellow or greenish yellow predominates. In places the upper subsoil is yellowish, with red and gray mottling appearing in the lower subsoil. The subsoil material when moderately moist is very adhesive. In places small quantities of gravel are present on the surface, and the type includes small areas of Susquehanna gravelly sandy loam. On the steeper slopes, where erosion has been active, spots of Susquehanna clay are included.

The Susquehanna fine sandy loam has a small development in Jefferson Davis County. It occurs in the southern half of the county on the lower slopes of the drainage basins of Bowie and Greens Creeks and other streams. The topography usually is gently to steeply sloping. The surface drainage is fair, and in places good, but the underdrainage is not well developed.

About 30 per cent of the type is cleared, and about half of this is in cultivation. Cotton and corn are the principal crops grown. It yields ordinarily one-fourth bale of cotton per acre, but considerably more where heavily fertilized. Yields of 6 to 12 bushels per acre of corn are obtained. The type is used to some extent for pasture.

Where farms consist largely of this type the land is valued at \$6 to \$10 an acre.

SUSQUEHANNA SILT LOAM.

The soil of the Susquehanna silt loam is a grayish silt loam to a depth of 3 or 4 inches, where it passes into pale-yellowish silt loam. At about 6 to 10 inches this grades into an intermediate layer of yellow silty clay loam or silty clay, which passes below into a mottled

red, gray, and yellow, very plastic clay. In places the soil is shallow, passing abruptly into red plastic clay, mottled with gray.

This soil is inextensive. It is typically developed along the lower, gentler slopes of the stream valleys. It occurs mainly in the vicinity of Bowie, Little White Sand, and Greens Creeks. While it has a better location for agriculture than the Ruston types, the soil is thin and cold natured, and though surface drainage is fair, the impervious clay substratum prevents good underdrainage and aeration.

This soil has been avoided as farming land. About 10 per cent of its total area is cultivated. It is used for pasture land and for the production of cotton and corn. About one-fourth of a bale of cotton per acre is considered a good yield, and the yield of corn is also low.

Where the soil is at least 5 or 6 inches deep over the intractable clay this land may be built up to a fair state of productiveness. Crop yields vary with the degree of fertilization.

This land affords very good pasturage where kept free from briars and brush.

Fair values of cut-over land of this type are \$2 to \$5 an acre.

CAHABA FINE SANDY LOAM.

The Cahaba fine sandy loam consists of a gray, brownish-gray, or reddish-brown loamy fine sand to fine sandy loam, underlain at about 6 to 14 inches by reddish-yellow to yellowish-red fine sandy clay. As mapped, there are included some patches of Cahaba silt loam and of a soil having a mottled, plastic clay subsoil, the latter soil representing the Leaf fine sandy loam, a type which was not mapped separately, on account of its small extent.

The Cahaba fine sandy loam is not extensive, but small areas occur along the larger drainage ways. It occurs on nearly level stream benches or second bottoms, sometimes locally called "hammock lands." The drainage is well established.

Although the Cahaba fine sandy loam is not extensive, probably 90 per cent of its area is cleared, and about 80 per cent is under cultivation. Owing to its level topography and its warm, productive, well-aerated soil this type is classed with the best land in the county for general farming. At the present time it produces lighter yields of cotton than formerly, owing to the fact that the boll weevil does more damage on valley lands, where the plants grow large and shade the ground and the crop makes a late growth, but even under this handicap yields of one-half bale or more per acre are obtained. Corn is well adapted to this soil and yields 20 to 40 bushels per acre with careful treatment and fertilization. Oats, cowpeas, peanuts, sugar cane, and other crops give proportionately good yields, but are grown only in small patches. This soil usually

receives careful cultivation and comparatively heavy fertilization, and its natural productiveness is not noticeably declining.

Well-improved farms of this type are valued at \$40 to \$50 an acre. Twenty to thirty dollars an acre is a fair average valuation. This was the type first farmed by the pioneer farmers, and some of the land has been under cultivation for nearly 100 years.

KALMIA FINE SANDY LOAM.

The Kalmia fine sandy loam is a gray to brownish-gray fine sandy loam or heavy fine sandy loam, underlain at about 8 to 12 inches by a pale-yellow or yellow silty clay loam which grades into yellow moderately friable, silty clay. The lower subsoil is frequently mottled with gray and is quite compact in places. There are some included areas of Kalmia fine sand and of Myatt fine sandy loam.

The total area of the Kalmia fine sandy loam in this county is not large. It is developed on the second bottoms of the larger streams, especially in the southern half of the county. The type is comparatively level, and the natural drainage is not well established.

About half the total area of the type is used for farming. It is less productive than the Cahaba fine sandy loam, but includes some good farm land. Cotton is the leading crop on this type. Corn is of only slightly less importance, and oats, sugar cane, cowpeas, and other crops are grown to a small extent. Cotton yields average nearly one-half bale per acre. Corn yields 15 to 30 bushels and oats 20 to 35 bushels per acre. Sugar cane grown on the lighter areas of this soil produces a clearer and better sirup than that grown on the heavier areas, though the yields are not so large.

The areas of this type in the southwestern part of the county, where it is derived from Ruston and Orangeburg material, are more valuable than those in the southeastern part, where the surrounding soils are the Caddo, Pheba, and Susquehanna.

Cut-over land of the Kalmia fine sandy loam is valued at \$3 to \$8 an acre. Land in farms ranges in price from \$15 to \$25 an acre.

KALMIA SILT LOAM.

The Kalmia silt loam consists of a grayish silt loam, underlain at 3 to 5 inches by pale-yellow or mottled yellowish and grayish silt loam to silty clay loam. This passes at about 6 to 10 inches into a yellow clay, which usually is quite plastic and mottled with gray in the lower part of the 3-foot section. In places the surface soil is grayish brown. Black concretions are of common occurrence, especially in the lower part of the subsoil. In the lower, less well drained situations there are included patches of Myatt silt loam.

This type occurs almost entirely in the southwestern part of the county in the Pearl River and Greens Creek bottoms. The surface is almost flat and the drainage is poor.

Probably not more than 15 per cent of this type is used for farming. Cotton and corn are the principal crops. Yields of one-fourth bale of cotton or 10 to 12 bushels of corn per acre are obtained. Lespedeza succeeds on this soil, and various native grasses valuable for pasturage grow abundantly. The soil is rather cold and wet and hard to keep in good tilth.

Most of the type is in second-growth timber and brush. In its present condition, with the valuable timber removed, it is valued at \$2.50 to \$6 an acre.

OCHLOCKONEE FINE SANDY LOAM.

The Ochlockonee fine sandy loam, to a depth of 8 to 14 inches, is a brown fine sandy loam, underlain by lighter brown or yellowish-brown heavy fine sandy loam to fine sandy clay. In some stream bottoms, especially along several small streams emptying into Big White Sand Creek above Prentiss, the subsoil has a decidedly reddish-brown to yellowish-red color. Such a variation would be mapped as the Hannahatchee if sufficiently extensive to warrant separation. There are included patches of Ochlockonee loam and Bibb silt loam, and along the outer edges or higher places small developments of Cahaba, Thompson, and Kalmia fine sandy loams.

The Ochlockonee fine sandy loam occurs along all the small streams which head in the areas of Ruston and Orangeburg soils in the northern half of the county and in the larger bottoms where the material was laid down by swift currents. The topography is practically flat. The type is subject to inundation, but is mainly well drained between floods.

Most of the small areas are cleared and cultivated. Probably 60 or 70 per cent of the type is utilized for farming. Cotton and corn are grown to about an equal extent. Cotton does fairly well in dry seasons, yielding about one-half bale per acre, and corn yields 15 to 30 bushels. Forage crops do well.

OCHLOCKONEE SILT LOAM.

The Ochlockonee silt loam is a brown to dark-brown, mellow silt loam, passing gradually into lighter brown or yellowish-brown silty clay loam to silty clay. In places the subsoil is slightly mottled with grayish brown or reddish brown, and pockets or thin layers of sandy material are sometimes encountered. As mapped, this type includes patches of the other first-bottom soils, there being many small areas of Ochlockonee loam.

The Ochlockonee silt loam occurs in the broader bottoms of streams, principally in the northern part of the county. Its surface is level, but more or less dissected by old stream channels. The drainage is fair, but the type is inundated after heavy rains.

This type is largely utilized for farming. It is a very strong and durable soil, and under favorable moisture conditions produces good yields. Corn and cotton are the principal crops. While heavy yields of cotton were formerly the rule, this crop now gives low returns, on account of the ravages of the boll weevil, which thrives under the moist, shady conditions resulting from the heavy growth of the plants on this soil. Corn yields 15 to 25 bushels per acre under normal conditions. Yields of this grain can be materially increased by improving the methods of cultivation. Sugar cane gives heavy yields, but the sirup is not so clear as that from the cane grown on sandier soils. Cowpeas, velvet beans, lespedeza, and various grasses make a good growth. Oats and forage crops do well. As the original forest growth was mainly gum, beech, and oak, with but little pine, the stumps rot quickly under the moist conditions, and the old fields are stump free.

The present value of this land ranges from \$20 to \$35 an acre.

BIBB FINE SANDY LOAM.

The Bibb fine sandy loam is a grayish fine sandy loam, underlain at about 5 to 8 inches by a light-gray or whitish fine sandy loam, which grades into mottled grayish and yellowish fine sandy loam to fine sandy clay. Some included areas vary considerably in the texture and color of the material on the surface and through the soil section. These areas would be mapped as Meadow if large enough.

This type occurs along White Sand Creek and several other streams. The drainage is poor. The type is unimportant both in extent and in agricultural value. The surface is dissected by old stream channels, and hummocks are of common occurrence. Little of the type is cleared, and it is mainly used as pasture. With drainage, land of this type has been used with some success in various parts of the South for corn, oats, and forage crops.

BIBB SILT LOAM.

The typical Bibb silt loam is a gray silt loam, which passes below into light-gray or whitish silty loam, and this into light-gray or whitish, compact silty clay or silty clay loam, mottled with yellowish brown and rusty brown, and containing usually some small black and brown concretions. Mottlings of rusty brown are present in both the surface and subsurface material. Along Bowie, Black, and

White Sand Creeks there are a few small areas in which the soil is mucky and swampy.

This type occupies the first bottoms of streams, and is wet throughout the year. The native growth is mainly sweet gum, pine, ironwood, maple, beech, and bay. The type is not cultivated in this county. It is used principally as pasture, the native grasses and lespedeza affording good grazing. At present it is best suited to use as pasture and hay land, but with proper drainage and protection from overflow it could be used for the production of oats and corn. This land has an average value of \$2 to \$5 an acre.

SUMMARY.

Jefferson Davis County is situated in southern Mississippi, on the divide between the Pascagoula and Pearl River basins. It has an area of 406 square miles, or 259,840 acres. The topography is pre-vaillingly rolling, but seldom too steep for cultivation. Drainage is well established.

This region was first settled over 100 years ago. The county was organized in 1906. The population of the county is reported in the 1910 census as 12,860. Prentiss, with a population of about 600, is the county seat and largest town.

Transportation facilities are inadequate. The system of public roads is being improved. Public improvements are in the main good. Agriculture is the most important interest of the county.

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

All of the uplands were formerly forested with longleaf pine, and the bottoms with shortleaf pine, beach, oak, gum, and various other trees. During the last 30 years probably 80 per cent of the merchantable timber has been removed.

The county has nearly 2,000 farms, of an average size of about 80 acres,¹ of which about 37 acres is improved. The average value of land is reported in the 1910 census as \$10.20 an acre.

No difficulty is experienced in obtaining farm labor. Laborers receive about 50 cents a day, with board.

Commercial fertilizer is in general use throughout the county. The annual expenditure for fertilizer amounts to about \$1.30 for each acre of improved land.

About 60 per cent of the farms are operated by owners, and the remainder almost entirely by tenants.

Cotton was by far the most important crop before the advent of the boll weevil in 1911. It is still grown extensively, although it is not so profitable as formerly. Corn is the second crop in importance in the county. Corn, as well as oats, is receiving increasing atten-

¹ The census tabulates each tenancy as a farm.

tion. Sweet and Irish potatoes, cowpeas, and sugar cane are grown to some extent. Peanuts, lespedeza, and velvet beans are crops of minor importance. Peaches are the principal fruit, but commercial peach growing has not developed.

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

Sixteen soil types are shown in the accompanying map. These represent nine soil series.

The Orangeburg series is represented by the fine sandy loam. This upland type includes some of the best land in the county.

The Ruston fine sandy loam is the predominant soil of the county. It is characterized by its reddish-yellow to yellowish-red subsoil. It is well suited to all the common crops. The Ruston sandy loam, sand, and silt loam occur in relatively small areas.

The Pheba silt loam has a characteristic yellow subsoil, with an indurated or heavy clay substratum. It is less productive and less valuable than the Ruston soils.

The Caddo fine sandy loam is grayish in color with a pale-yellow subsoil. It is poorly drained and not well developed.

The Susquehanna soils, the fine sandy loam and silt loam, have red, mottled with gray, heavy, plastic clay subsoils. They are of less value than the Pheba silt loam.

The Cahaba fine sandy loam occurs on level, well-drained second bottoms. It resembles Ruston fine sandy loam, but has a higher agricultural value.

The Kalmia fine sandy loam and silt loam are second-bottom soils, which are less well drained, somewhat less productive, and less valuable than the Cahaba soil.

The Ochlockonee fine sandy loam and silt loam are brown. They occupy overflowed bottom lands, and are highly productive, but are poorly suited to cotton under boll-weevil conditions.

The Bibb fine sandy loam and silt loam are prevailing gray, with mottled soils and subsoils. They occur in poorly drained overflowed bottoms. These soils are best used for pasture. They have a 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 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 advanced 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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