

U. S. DEPARTMENT OF AGRICULTURE,

BUREAU OF SOILS—MILTON WHITNEY, Chief.

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

SOIL SURVEY OF PEARL RIVER COUNTY, MISSISSIPPI.

BY

E. MALCOLM JONES, OF THE MISSISSIPPI GEOLOGICAL SURVEY,
IN CHARGE, AND G. W. MUSGRAVE, OF THE
U. S. DEPARTMENT OF AGRICULTURE.

HUGH H. BENNETT, INSPECTOR, SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1918.]



WASHINGTON:
GOVERNMENT PRINTING OFFICE,
1920.

BUREAU OF SOILS.

MILTON WHITNEY, *Chief of Bureau.*
ALBERT G. RICE, *Chief Clerk.*

SOIL SURVEY.

CURTIS F. MARBUT, *In Charge.*
G. W. BAUMANN, *Executive Assistant.*

COMMITTEE ON THE CORRELATION AND CLASSIFICATION OF SOILS.

CURTIS F. MARBUT, *Chairman.*
HUGH H. BENNETT, *Inspector, Southern Division.*
W. EDWARD HEARN, *Inspector, Southern Division.*
THOMAS D. RICE, *Inspector, Northern Division.*
W. E. MCLENDON, *Inspector, Northern Division.*
MACY H. LAPHAM, *Inspector, Western Division.*
LOUISE L. MARTIN, *Secretary.*

U. S. DEPARTMENT OF AGRICULTURE,

BUREAU OF SOILS—MILTON WHITNEY, Chief.

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

SOIL SURVEY OF PEARL RIVER
COUNTY, MISSISSIPPI.

BY

E. MALCOLM JONES, OF THE MISSISSIPPI GEOLOGICAL SURVEY,
IN CHARGE, AND G. W. MUSGRAVE, OF THE
U. S. DEPARTMENT OF AGRICULTURE.

HUGH H. BENNETT, INSPECTOR, SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1918.]



WASHINGTON:
GOVERNMENT PRINTING OFFICE,
1920.

LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
Washington, D. C., February 19, 1920.

SIR: I have the honor to transmit herewith the manuscript report and map covering the survey of Pearl River County, Mississippi, and to recommend that they be published as advance sheets of Field Operations of the Bureau of Soils, 1918, 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.

CONTENTS

	Page.
SOIL SURVEY OF PEARL RIVER COUNTY, MISSISSIPPI. By E. MALCOLM JONES, OF THE MISSISSIPPI GEOLOGICAL SURVEY, IN CHARGE, and G. W. MUS- GRAVE, OF THE U. S. DEPARTMENT OF AGRICULTURE.....	5
Description of the area.....	5
Climate	7
Agriculture.....	9
Soils.....	15
Orangeburg fine sandy loam.....	17
Ruston sand.....	19
Ruston fine sandy loam.....	20
Susquehanna fine sandy loam.....	22
Susquehanna silt loam.....	23
Susquehanna clay.....	24
Caddo very fine sandy loam.....	24
Norfolk fine sandy loam.....	25
Plummer very fine sandy loam.....	26
Plummer silt loam.....	27
Cahaba fine sandy loam.....	28
Kalmia sand.....	28
Kalmia fine sandy loam.....	29
Kalmia silt loam.....	30
Myatt fine sandy loam.....	31
Myatt silt loam.....	31
Leaf silt loam.....	32
Ochlockonee very fine sandy loam.....	33
Ochlockonee silt loam.....	34
Bibb very fine sandy loam.....	35
Swamp.....	36
Summary	36

ILLUSTRATIONS.

PLATES.	Page.
PLATE I. Fig. 1.—Savannah Consolidated School. Fig 2.—Typical long- leaf-pine forest of Pearl River County.....	8
II. Fig. 1.—Corn and velvet beans on the Ruston fine sandy loam near Poplarville. Fig. 2.—Rice growing on the Plummer soils near Steep Hollow School.....	16

FIGURE.	Page.
Fig. 1. Sketch map showing location of the Pearl River County area, Miss.	5

MAP.

Soil map, Pearl River County sheet, Mississippi.

SOIL SURVEY OF PEARL RIVER COUNTY, MISSISSIPPI.

By E. MALCOLM JONES, of the Mississippi Geological Survey, In Charge, and
G. W. MUSGRAVE, of the U. S. Department of Agriculture.—Area Inspected by
HUGH H. BENNETT.

DESCRIPTION OF THE AREA.

Pearl River County is situated in the extreme southern part of Mississippi, being separated by only one county from the Gulf of Mexico. It is bounded on the west by the Pearl River, which separates it from Louisiana. The county has a maximum length, north and south, in the western part of 37 miles, and an average width in the upper two-thirds of about 26 miles. The lower third averages about 12 miles in width. The total area is 797 square miles, or 510,080 acres.

Pearl River County lies within the coastal plain. The upland comprises three main topographic divisions, as follows: (1) Rolling uplands, in which the surface is mainly rolling, but including some gently rolling and flat areas; (2) flatwoods, in which the surface is nearly level; and (3) gently rolling uplands, including some flat areas. The more rolling country is largely confined to the northern part of the county, and roughly to that part north of a line through Derby; the gently rolling country extends southward down to the lower or flatwoods country in the southwestern part of the county. At Cybur there is an abrupt drop from the level uplands to the lowlands or flatwoods country which continues to the coast. The change is marked and the resulting escarpment is called "the foothills of Mississippi."

Very little of the upland is too steep for easy cultivation, but much of it requires terracing to prevent erosion. North of Henely Field Church and bordering the second bottom of Pearl River is a prominent ridge that extends for a short distance northward. This ridge is very much eroded and in places rises rather abruptly 100 to 150 feet above the river bottom.

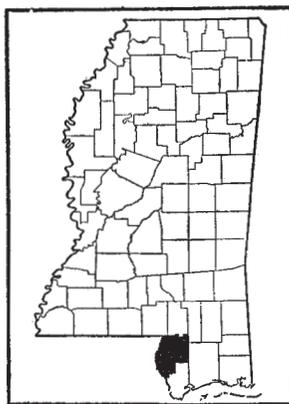


FIG. 1. Sketch map showing location of the Pearl River County area, Mississippi.

The bottoms and second bottoms of the streams are flat, except for slight hummocks and depressions. Their width varies from one-half mile to over 3 miles along the larger streams and from a few rods to about one-fourth mile along the smaller ones. The bottom land along Pearl River is several miles wide in most places, but occasionally the bluff of the second bottom rises abruptly very near the river, there being practically no first bottom on the Mississippi side. Many of the streams have cut deep channels, and do not overflow except during periods of unusually high water, but as a rule the channels are shallow, and after each rain wide overflows occur for short periods. There is often a succession of terraces along the larger streams, consisting of narrow steplike benches ranging from a few feet to 20 feet or more above the first bottom. In the bottoms of the larger streams there are numerous swampy areas and depressions which hold water in wet seasons.

The average elevation of the rolling section of the county is about 290 feet above sea level, while the lower uplands average about 100 feet. The elevation at Poplarville is given as 316 feet above sea level, and that at Picayune, the lowest place whose elevation is recorded, as 65 feet.

Tributaries emptying directly into Pearl River drain the western part of the county. Hoblochitto Creek drains the central part and empties into Pearl River at the southern boundary of the county. Wolf River and its tributaries drain the eastern part of the county. It flows southeastward through Harrison County and empties into St. Louis Bay. Numerous tributaries extend to nearly all parts of the county, with the exception of small areas in the flatwoods division. Outside the flatwoods area nearly every farm is connected with one or more drainage ways, and even in the flatwoods there are a few slightly elevated areas where the run-off and underdrainage are both good. Near the streams, where the slopes are abrupt, the drainage is in places excessive, but usually the rise from the valleys to the upland is quite gradual. The terraces along some of the larger streams have poor run-off and underdrainage. The streams that are fed by springs, as in the northern section of the county, are usually deep, narrow, and swift flowing, but in the flatwoods and the more nearly level parts of the upland they are shallow and sluggish.

The first settlement in this territory was made more than a century ago, the settlers coming principally from States to the east and northeast. About 1871, the New Orleans & Northeastern Railroad (now the Southern) was built through this county, and the lumber industry began to assume great importance. Before the coming of the railroad, logs were cut near the streams and floated to Logtown (in Hancock County), where they were sawed into lumber. The population has not increased rapidly, and even now settlement is sparse except near the railroad. The total population of the county

in 1910 was 10,593. It is all classed as rural, there being no town in the county with a population of 2,500. In the last three years there has been considerable immigration from other sections of the South, owing to the growth of the lumber industry and the high wages paid mill labor.

Poplarville is the county seat and the largest town, with a population in 1910 of 1,500. It is supported by the lumber industry and by a surrounding farming community. The town has three sawmills, a cotton gin, and other important industries. The county agricultural high school is situated at Poplarville. Picayune is the second largest town in the county, with a population of about 1,000.¹ It is almost entirely a lumber town, having one of the largest mills in the county.

A line of the Southern Railroad traverses the center of the county north and south, connecting with the Mississippi Central and Gulf & Ship Island Railroads at Hattiesburg and with numerous railroad and ocean lines at New Orleans. At Lumberton there is a branch road of the Gulf & Ship Island, which connects the Southern Railroad with the main line of the Gulf & Ship Island to the east and the New Orleans Great Northern to the west.

The public roads in general can be traveled the year round. Most of them are graded, and a few of the most important are surfaced with gravel. Some of the roads which traverse the bottoms of Pearl River and other streams become almost impassable in wet seasons. The Jackson Highway closely parallels the Southern Railroad through the county. All the highways are gradually being improved.

Telephone lines follow along the railroads connecting the towns, but the rural communities are so thinly settled that only a few are supplied with this convenience. The county has a good public-school system. Plate I, figure 1, shows a typical consolidated school.

Poplarville is the principal local market for farm products, and New Orleans and Hattiesburg the principal outside markets. Truck crops are shipped to northern and eastern markets. Lumber and crossties are shipped to northern and eastern markets and to Gulf Coast points. Pine knots are shipped in large quantities to Gulf ports for the use of creosote plants.

CLIMATE.

Pearl River County has a climate characteristic of much of the Gulf Coast region, the extremes of both summer and winter being tempered by proximity to the Gulf of Mexico. This is especially noticed in the summer, when winds from the south are often delightfully cool. The summers are long but not oppressively warm. The winters are mild and the few cold spells are always of very short duration.

¹ Since this report was written the preliminary announcement of the population of Pearl River County and its civil divisions in 1920 has been issued by the Bureau of the Census, as follows: Pearl River County, 15,468; rural, 15,468; Picayune, 2,479; Poplarville, 1,290.

The mean annual temperature is about 67° F., which is nearly the seasonal mean for both spring and fall. The mean annual temperature for the winter is 53.3° F.; and for the summer, 80.4° F.

The mean annual precipitation is 64.37 inches. The heaviest precipitation occurs in the summer, the average being 20.99 inches, and the least in the fall, the average being 11.22 inches. The driest year recorded at the McNeill station was 1910, with a total of only 50.60 inches, and the wettest was 1909, with a total of 80.04 inches.

Killing frost has been recorded as late in the spring as April 4, and as early in the fall as October 29. The average date of the last killing frost in the spring is March 12, and that of the first in the fall November 12, giving a growing season of 245 days. The winters are usually so mild that all kinds of farming operations can be carried on throughout this season, and many vegetables can be grown. Collards, cabbage, onions, and other hardy vegetables are grown in December and January, while all kinds of truck are successfully produced in the late winter and early spring, and put on the market just after the Florida and Louisiana crops. The season is sufficiently long for the growing of two crops of certain kinds on the same land in one season. A crop of oats (sown in fall or late winter) may be cut and the land immediately put into cowpeas, sorghum, sweet potatoes, or corn and soy beans. Lespedeza sown with oats makes a second crop after the oats are cut. Early potatoes may be followed the same season by almost any crop except cotton. Watermelons may be followed by cowpeas and soy beans. Radishes, peas, lettuce, potatoes, and strawberries are usually ready for market between the last of March and the middle of April. Oats are harvested early in May. Watermelons are ready for market from the middle to the last of June, and sweet potatoes are ready in July.

The following table, compiled from the records of the Weather Bureau station at McNeill, gives the more important climatic data :

Normal monthly, seasonal, and annual temperature and precipitation at McNeill.

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year (1910).	Total amount for the wettest year (1909).
	° F.	° F.	° F.	Inches.	Inches.	Inches.
December.....	52.3	78	20	5.14	3.65	7.90
January.....	53.6	81	15	4.25	2.81	2.48
February.....	54.1	80	21	5.34	5.13	5.91
Winter.....	53.3	80	15	14.73	11.59	16.29
March.....	61.6	90	28	5.51	.97	6.50
April.....	68.9	91	33	5.76	.42	6.25
May.....	73.5	98	45	6.16	4.57	12.20
Spring.....	68.0	98	28	17.43	5.96	24.95



FIG. 1.—SAVANNAH CONSOLIDATED SCHOOL.

Typical of the better class of consolidated schools. The pupils are conveyed to and from these schools in public vehicles.



FIG. 2.—TYPICAL LONGLEAF-PINE FOREST OF PEARL RIVER COUNTY.

Normal monthly, seasonal, and annual temperature and precipitation at McNeill—Concluded.

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year (1910)	Total amount for the wettest year (1900)
	° F.	° F.	° F.	Inches.	Inches.	Inches.
June.....	79.7	101	56	5.82	10.09	10.48
July.....	80.6	100	61	8.48	10.75	7.64
August.....	81.0	103	62	6.69	3.06	7.42
Summer.....	80.4	103	56	20.99	23.90	25.54
September.....	77.8	98	47	6.14	3.11	8.49
October.....	68.0	94	30	2.59	4.17	3.76
November.....	59.8	87	23	2.49	1.87	10.1
Fall.....	68.5	98	23	11.22	9.15	13.26
Year.....	67.4	103	15	64.37	50.60	80.04

AGRICULTURE.

Originally the uplands of Pearl River County which are now in cultivation supported a heavy growth of longleaf pine. At present the county probably has, in its combined tracts of timber, the largest area of open virgin pine forest in Mississippi. Especially in the southern and southwestern parts of the county are there tracts of timber embracing many square miles, interrupted only here and there by small farms. The higher elevations or ridges support a growth of white oak, red oak, dogwood, and some shortleaf pine. Black hickory, sweet and black gum, post oak, blackjack oak, and numerous other trees and shrubs grow in other places in the upland. A typical view of the longleaf pine forest is shown in Plate I, figure 2.

The undergrowth of the pine forest has always furnished good grazing, and the raising of sheep and cattle has been carried on from the first settlement. Wild oat grass 3 or 4 feet high grew throughout the piney woods, it is said, until 10 or 15 years ago, when the land was first regularly burned over.

The early settlers came largely from the Carolinas and Georgia. A few plantations were opened up 75 to 80 years ago on some parts of the "hammock" lands of Pearl River and Hobolochitto and West Hobolochitto Creeks, and on the adjoined piney-woods uplands. The average homestead, however, long continued to be a cabin with only a few acres of cleared land adjoining. Little attempt was made to grow more than enough corn, potatoes, and a few other products to supply the family. Most of the settlers soon acquired herds of sheep

and cattle. The open, grass-carpeted woods, and numerous canebrakes afforded splendid grazing the entire year, and the stock, except sheep, which had to be penned at night as a protection against wolves, required no care. Game was plentiful, and the settlers spent much of their time in fishing and hunting.

Cotton and tobacco were grown almost exclusively for home use, and the sale of hogs, cattle, and sheep was the principal source of income. The stock generally found a ready sale to drovers who went through the county, but in some cases the animals were driven to market at Mobile. For many years the annual drives of live stock to that town and the return trip with the necessary home supplies were features of pioneer life. In the early days no fertilizers were used, but stock were penned for short periods on different areas of the cultivated land.

The timber near the streams was cut in the early days and floated down the river in rafts. About 40 years ago the pine began to attract attention, and in a few years the forested lands were taken into private ownership. Some of it, mainly small tracts, was acquired by residents of the county, either by purchase or homesteading, but northern capitalists bought the greater proportion of it. Mills were started in various sections along the railroad about 10 years later. The forests have gradually been combined into large holdings in this and adjoining counties, and a few companies now own vast tracts. The greater part of the residents who had homesteaded the forest land sold it to northern capitalists, for a price as low as 25 cents an acre in some instances.

In 1910 only 3 per cent of the county was improved land, and probably not over 10 per cent is under cultivation at the present time. The remainder is mostly virgin forest and cut-over land. The most serious problem connected with agricultural development is the clearing of the land, the cost of which is represented largely in the removal of the stumps. Fields are usually cultivated while stumps still remain, the owners removing a few of them each year. Stump-pulling machines and blasting powder are used on some farms, but the most popular method is burning. The cost of removing all stumps varies from \$3 to \$15 per acre.¹ The life of longleaf pine stumps is almost indefinite, as they contain a high percentage of preservative resin. Recently creosote plants have recognized the value of the pine stumps, and have begun to engage to remove them without cost to the owner of the land. This may solve the problem of clearing.

The following table, compiled from the census, shows the acreage and production of the principal crops at the last three censuses:

¹ Bul. No. 159, Miss. Agr. Expt. Sta., Clearing Pine Lands.

Acreage and production of principal crops, Pearl River County, 1890-1910.

Crop.	1889.		1899.		1909.	
	Area.	Production.	Area.	Production.	Area.	Production.
	<i>Acres.</i>	<i>Bushels.</i>	<i>Acres.</i>	<i>Bushels.</i>	<i>Acres.</i>	<i>Bushels.</i>
Corn.....	1,797	27,316	3,394	60,450	5,899	91,611
Oats.....	278	3,055	813	9,680	384	5,544
Cowpeas.....		140	541	3,779	109	1,220
Beans (dry).....		2	2	14	198	3,904
Peanuts.....	4	68	42	704	50	982
Wheat.....						5
Potatoes.....	2	113	27	1,376	49	2,852
Sweet potatoes.....	406	33,815	583	43,331	1,351	103,300
		<i>Pounds.</i>		<i>Pounds.</i>		<i>Pounds.</i>
Tobacco.....		10		200		40
Rice.....	26	11,780			4	81
		<i>Bales.</i>		<i>Bales.</i>		<i>Bales.</i>
Cotton.....	759	357	412	165	2,399	933
		<i>Tons.</i>		<i>Tons.</i>		<i>Tons.</i>
Hay.....	46	25	543	645	1,061	1,318
		<i>Gallons.</i>		<i>Gallons.</i>		<i>Gallons.</i>
Sugar cane.....	61	6,684	51	4,613	266	38,287
Sorghum.....	2	120	5	340	1	7
	<i>Trees.</i>	<i>Bushels.</i>	<i>Trees.</i>	<i>Bushels.</i>	<i>Trees.</i>	<i>Bushels.</i>
Apples.....	110	66	669	345	369	160
Peaches.....	2,325	3,967	4,391	725	4,659	2,727
Pecans.....					941	5,346
						<i>Pounds.</i>
Figs.....					1,141	23,648
			<i>Vines.</i>	<i>Pounds.</i>	<i>Vines.</i>	
Grapes.....			345	5,300	1,665	23,601

Corn is grown entirely for farm consumption, being used to feed work animals and for making meal, hominy, and grits, which constitute an important part of the food of almost every family. Corn is also fed to hogs and cattle to some extent. During the last few years the acreage of corn has been materially increased, especially so during 1918, when a campaign for the production of more subsistence crops was undertaken. Many farms now produce 30 bushels per acre, and some prize acres have yields of 75 to 100 bushels.

Cotton comes second in acreage, the area planted ranging from 759 acres in 1889 to over 2,399 acres in 1909, at which time, owing to the presence of the boll weevil, both the acreage and yield had been greatly reduced below what they had been a few years before. Cotton is the principal money crop. The seed formerly was used for feed and fertilizer, but present high prices prohibit its use for these purposes.

Velvet beans are probably at present the third most extensively grown crop, and they are considered by many farmers as important as corn or cotton. The crop is used principally to supply forage for

stock or as a soil builder. It is probable that the velvet bean will become a money crop, as it can be sold for seed, as a source of oil, and for making ground feed. Many of the mixed feeds on the market now contain a high percentage of velvet-bean meal. Velvet beans give especially good results when grown in combination with corn. A good growth of velvet beans and corn, on an upland soil near Poplarville, is shown in Plate II, figure 1.

Oats have declined in acreage since 1900, but in the last two or three years there has been an increase in the acreage devoted to this crop. It is grown to supply winter and spring pasturage and as a winter cover crop. The crop is usually fed in the sheaf. The Texas Red Rustproof and Hastings Hundred Bushel are the varieties of oats most extensively grown and giving best results. Yields of as much as 3 tons of well-headed oat hay per acre have been obtained, and the crop generally matures in May or in the early part of June, when weather conditions are favorable for saving the hay. For best results oats are seeded in the fall, from the first of October to the middle of November, and harvested in May. Cowpeas, or corn and cowpeas, may be seeded after the oats are harvested, making two crops in a single year.

From the earliest days sweet potatoes have been an important crop, grown principally for home use. There has been a steady increase both in the acreage and the yield. In 1889 only 406 acres were in sweet potatoes, but over 1,000 acres were planted in 1909, and to-day a large acreage is grown, both for home consumption and for the market. Some farmers have potato houses where the crop can be kept through the winter, and sold when the market is most favorable. Dairy cattle and hogs are often fed potatoes with good results. The sweet-potato industry of southern Mississippi is steadily developing as northern markets realize the fine flavor of the potato. The average yield ranges from 65 to 100 bushels per acre, but much larger yields are often obtained. The experiment station at McNeill has produced 250 bushels per acre on newly cleared land. The crop does not require an especially rich soil, and the quality and yield obtained on the sandy types of this county are usually all that could be desired.

Sugar cane is grown on practically every farm in the county, and the sirup is a staple article of daily food. In 1909 sugar cane was grown on 266 acres, and averaged about 144 gallons of sirup per acre. The acreage has increased since that time, and the yields are somewhat larger. The experiment station has produced as much as 50 tons of cane per acre, and a ton roughly should produce about 20 gallons of sirup. The quality of the sirup is said to be superior to that of the sirup made from cane grown on the heavy alluvial soils of Louisiana.

Very few acres were planted to peanuts until recently. In 1910 there were reported only 50 acres, but practically every farmer now grows more or less peanuts, principally to supply field forage for hogs. With the development of hog raising, the peanut is certain to be grown more extensively. The Spanish variety is the most popular. Peanuts are often planted between the rows of corn.

In 1910 the census reported only 1 acre in strawberries. Many small patches scattered over the county are now devoted to producing strawberries for the local markets. At the experiment station a plot of 2 acres gave a return of \$200 per acre for three successive years from a single setting of plants.

Cowpeas are grown quite extensively throughout the county. They may be planted between the rows of corn and cultivated with it or sowed broadcast when the corn receives its last cultivation. In many cases velvet beans are planted every third row and cowpeas drilled beside the two remaining rows of corn. This not only furnishes an abundance of forage for cattle, sheep, and hogs, after the corn is gathered, but greatly improves the soil. Cowpeas are often sown after oats, and cut with a volunteer growth of grass for hay.

Crops grown on a small scale on many farms include rice, sorghum, potatoes, beans, and various fruits. Rice produces well in this region. Upland rice seems to be giving a net return of over \$35 per acre at present prices. A splendid crop of rice on a Plummer soil is shown in Plate II, figure 2. Sorghum is grown on a small acreage for the making of early sirup, but it is grown chiefly for hogs and to a small extent for silage. Potatoes, beans, and fruits are grown for home consumption. Some trucking is carried on near McNeill, and beans, watermelons, and cabbage have been shipped to northern markets. Many pecan trees are found here and there over the county, and a few groves have recently been planted. The nuts are sold locally and bring good prices. Mulberries, both wild and cultivated, do well. Some use has been made of the leaves for feeding silkworms.¹ Peaches and other fruits do well where properly cared for and sprayed. One farmer near McNeill has a thriving peach orchard of different varieties, and sells fruit both locally and to northern markets.

The census reports 274 calves sold or slaughtered on farms in 1909, 3,111 head of other cattle, 5,135 hogs, and 585 sheep and goats. The value of the dairy products, excluding those used at home, amounted to \$14,165 in that year. Recently considerable attention has been given to dairying, and farmers are building up their dairy

¹Mr. Ferris, Director of the McNeill experiment station, states that a successful experiment in silk production has been carried on near McNeill by Syrians, who have used the leaves of the native mulberry trees for feeding the silkworm. They report very satisfactory results, and claim that conditions are as favorable for the production of silk as in their native country.

herds by the use of native cows and registered males. The Jersey seems to be the favorite dairy breed. Sheep raising is an important industry, and the increased interest taken within the last few years has resulted in an improvement in the stock, both in the size of the animals and in the quality of the wool. The conditions for raising sheep are excellent. Among the many grasses which afford good grazing are lespedeza, Bermuda grass, crab grass, carpet grass, and sedge. There has been some improvement of the hogs, but it has been rather slow, and the razorback type still predominates.

Well-drained terrace and upland soils having deep-red subsoils are generally recognized as the best types for corn. Warm or light-textured upland soils are used for cotton since the invasion of the boll weevil, as they mature the crop earlier. Peaches do better on the red upland soil (Orangeburg).

One-horse implements are generally used in plowing, and the land is broken to a depth of 3 or 4 inches only. Two-horse teams are used to some extent, the land being flat broken to a depth of 4 or 5 inches. In growing cotton and corn, the land is bedded and the seed planted on the ridges. Some of the corn is planted in the water furrow, but very seldom on the level surface. It usually receives three or four cultivations, depending on the season. The farm equipment in general is poor. There are a few good houses, barns, and silos, but there is a great need for more and better buildings and farm implements. Little attention is paid to crop rotation. A few farmers change their cotton field each year, alternating that crop with corn.

In 1909, 81 per cent of all the farms of the county used fertilizer, the expenditure amounting to \$26,532, or an average for each of \$41.40. Fertilizer is used about equally on cotton and corn. Various grades of ready-mixed fertilizer are used at the rate of 200 to 300 pounds per acre. Acid phosphate alone is used by many farmers, who report that where the field was in velvet beans the year before as good results are obtained as when cottonseed meal and phosphate both are applied.

Most farms are worked by the operator and his family. Farm labor is scarce, as the sawmills pay better wages than the farmers can offer. Farm hands are paid \$20 to \$25 a month and board. With the present high prices of cotton has come an increased cost of gathering the crop. Cotton pickers are paid 75 cents to \$1.25 a hundred pounds.

Farms range in size from 20 to several hundred acres. In 1910 there was a total of 789 farms, averaging 106 acres each, with 19.6 acres of improved land per farm. Over 85 per cent of the farms

are operated by owners, the remainder being worked by tenants as share croppers.

Uncleared cut-over land may be purchased at prices as low as \$6 an acre. Cleared and improved land ranges in price from \$12 to \$35, but very little improved land is for sale.

SOILS.

Pearl River County is situated within the Coastal Plain province, and in that part of Mississippi known as the Longleaf Pine region. The soils of the upland are derived from Coastal Plain deposits, including two principal kinds of material—sandy clay and heavy clay. The sandy clay strata, occurring at the higher horizon, give rise to the Orangeburg, Ruston, and Norfolk soils, while the heavy clay strata, usually lying beneath the sandy clay, give rise to the Susquehanna soils. The Plummer subsoil probably is derived in part from the heavy clay, but the surface soil and upper subsoil probably consist of material washed down by running water from adjacent higher soils, including those derived from both the heavy clay and from the sandy clay strata.

Differences in drainage and in consequent oxidation appear to have had much to do with the difference in color of the Ruston, Orangeburg, and Norfolk soils. The Orangeburg soils usually occupy the better drained situations—that is, the slopes—while the Norfolk soils occupy the flats and lower, gentle slopes, not having such good drainage as the areas occupied by Orangeburg or Ruston types. The Ruston apparently occupies an intermediate position in point of drainage. The Susquehanna is found in various topographic positions and owes its characteristics to the nature of the material from which it is derived and not to drainage. Rounded gravel of chert and quartz are present in places in the Ruston, Orangeburg, and Susquehanna soils.

The alluvial soils, occupying both first and second bottoms, are composed of material washed from the upland. They vary with differences in drainage. The better drained first and second bottom soils are yellowish to brownish and reddish in the subsoil, and have a more uniform color, while the more poorly drained associated soils are grayish or mottled grayish and yellowish in the subsoil. The first-bottom soils in many places vary considerably in texture and color within narrow limits, so that more generalization is necessary in mapping than in the case of the upland soils.

Pearl River County includes 20 soil types, grouped into 12 series, besides Swamp. The upland soils are classed in the Orangeburg, Ruston, Susquehanna, Caddo, Norfolk, and Plummer series.

The surface soils of the types classed in the Orangeburg series are predominantly grayish, ranging to brown, with a red, friable sandy clay subsoil. The drainage is good.

The Ruston soils are gray, varying to grayish brown, and are underlain by a reddish-yellow to yellowish-red or dull-red, moderately friable subsoil. The subsoil is intermediate in color between the Orangeburg and Norfolk subsoils. Drainage is well established.

The Susquehanna soils are grayish to reddish in color, underlain by a mottled red and gray, or red, gray, and yellow, plastic, heavy clay subsoil. Drainage is imperfect on the more nearly level areas and lower slopes, but the rolling areas have at least good surface drainage.

The Caddo soils are grayish in the surface portion and mottled gray and yellow in the subsoil. A mottled, compact layer, in places having the compactness of hardpan, occurs in the lower subsoil. The members of this series occupy level to gently undulating situations.

The Norfolk series is characterized by a grayish surface soil, and a pale-yellow, friable subsoil. In this county the Norfolk soils are most extensively developed in the flatwoods, where they occupy level to undulating country, fairly well drained.

The Plummer soils are gray in the surface portion, and light-gray to bluish-gray, mottled with yellow and reddish-yellow, in the subsoil. In some places there is a high content of organic matter in the surface soil, causing the immediate surface layer to be black in color. These soils occur in low-lying, poorly drained situations.

The alluvial soils of the first and second bottoms are classed in six series. The Cahaba, Kalmia, Myatt, and Leaf soils occupy the second bottoms or terraces, and the Ochlockonee and Bibb series and Swamp the first bottoms, or present flood plains.

The members of the Cahaba series are light-brown to brown in the surface soil, and dull-red or reddish-brown, and friable in the subsoil. The drainage is good.

The Kalmia soils are grayish to light-brown in the surface portion, with a yellow and fairly friable subsoil. The drainage is fair.

The surface soils of the types included in the Myatt series are gray to whitish, with some pale-yellow mottling. The subsoil is bluish-gray mottled with yellow, and in many places contains small concretions. The lower subsoil in many places is quite compact. The Myatt soils occupy poorly drained situations in the second bottoms.

The Leaf series is characterized by light-grayish to gray surface soils, with mottled gray and yellow clay subsoils, which grade downward into mottled red and gray or red and yellow, plastic clay. The drainage is imperfect.



FIG. 1.—CORN AND VELVET BEANS ON THE RUSTON FINE SANDY LOAM NEAR POPLARVILLE.



FIG. 2.—RICE GROWING ON THE PLUMMER SOILS NEAR STEEP HOLLOW SCHOOL.

The Ochlockonee soils are prevailingly brown, ranging to dark-gray. The subsoils are brownish or mottled brownish, yellowish, and gray. These types are subject to overflow.

The Bibb soils are white when dry, and are underlain by a whitish, light-gray, or mottled white or bluish-gray and yellow subsoil. Iron stains and black concretionary material are usually found in the lower subsoil. The Bibb soils are subject to overflow, and are poorly drained between the overflows.

Swamp is the term used to represent areas occupying very wet stream bottoms, in which the soil is variable. It is mainly a black mucky soil or a mixture of Muck and the Ochlockonee and Bibb soils.

The following table gives the name and the actual and relative extent of each of the soils mapped in Pearl River County:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Ruston fine sandy loam.....	237,376	46.5	Cahaba fine sandy loam.....	2,496	0.5
Susquehanna fine sandy loam.....	57,920	11.4	Caddo very fine sandy loam.....	2,368	0.5
Norfolk fine sandy loam.....	45,760	9.0	Susquehanna clay.....	2,368	0.5
Kalmia fine sandy loam.....	35,200	6.9	Plummer silt loam.....	2,304	0.4
Ochlockonee silt loam.....	23,232	4.6	Kalmia sand.....	2,048	0.4
Orangeburg fine sandy loam.....	22,464	4.4	Kalmia silt loam.....	1,920	0.4
Plummer very fine sandy loam.....	20,672	4.0	Ruston sand.....	1,216	0.2
Bibb very fine sandy loam.....	19,776	3.9	Leaf silt loam.....	1,152	0.2
Swamp.....	16,576	3.2	Myatt fine sandy loam.....	896	0.2
Ochlockonee very fine sandy loam.....	8,000	1.6			
Susquehanna silt loam.....	3,776	0.7	Total.....	510,080
Myatt silt loam.....	2,560	0.5			

ORANGEBURG FINE SANDY LOAM.

The Orangeburg fine sandy loam in virgin areas is a gray to brownish-gray, loamy fine sand, 3 or 4 inches deep, overlying pale-yellow loamy fine sand or fine sandy loam which grades beneath into reddish fine sandy loam. The latter is underlain at about 8 to 14 inches by red, friable sandy clay, which frequently becomes more sandy in the lower part of the 3-foot section. In cultivated fields where the soil has been in cultivation under good farming methods, including the growing of humus-supplying crops and the application of barnyard manure, the surface soil has a dark-brown color, resembling that of the Greenville series. In many places the type is gray to brownish gray in the upper 6 inches, and underlain by a dull-red, friable sandy clay that does not change in color or texture to a depth of 3 feet or more, often to 12 feet or more. In some areas small iron concretions are scattered on the surface and through the soil.

There are some included patches of coarser material, where the surface soil ranges from a sandy loam to a medium sand. These areas are not mapped separately on account of their small size. Some of them are darker colored and more productive than much of the typical soil. This is especially true of those near McNeill and on the McNeill Experiment Station farm. Here some of the type resembles the Greenville sandy loam.

The Orangeburg fine sandy loam is distributed over most of the county except the extreme southern part, or that section known as the flatwoods. It is found in patches at the head of stream courses and in larger areas elsewhere throughout the upland. The largest areas are those at Poplarville, Henely Field Church, McNeill, south of Stewart School, and near Orvisburg.

The topography ranges from nearly level to hilly. North of Henely Field Church, adjacent to the river bottom, the type occupies a ridge whose slopes are very much eroded, while on the crest of the divide some of the areas are level. Near McNeill the type ranges from gently rolling to nearly level, and in other sections it is rolling. The natural drainage, both surface and internal, is usually good, on account of the rolling surface and the granular structure of the subsoil. Even in the more nearly level situations there is usually sufficient fall to remove the surface water, though a few flat areas would be remedied by open ditches leading to some of the natural drainage ways.

Where it occupies level areas this is an important soil, much preferred to those types with a yellow or lighter colored subsoil. The red clay seems to have natural productiveness superior to that of clays of any other color. The farmers recognize this, and where possible this is the first type brought under cultivation. Much of it is still forested, but a large percentage is cultivated. The areas at the head of drainage ways and on eroded slopes are of little agricultural value, except as pasture land. The forest growth consists chiefly of longleaf pine, but it is notable that this type also supported a scattering growth of hickory and oak.

Cotton, corn, and velvet beans are the principal crops on this soil, but near McNeill and in the vicinity of the railroad it is used for truck crops such as sweet potatoes, Irish potatoes, cabbage, peas, and watermelons. It warms up early in the spring, and crops can be planted earlier than on most soils, which is a great advantage in trucking. Oats, peanuts, cowpeas, sugar cane, and rice are crops of some importance, and all produce good yields. East of Lumberton, but in Pearl River County, one of the most successful dairy farms in south Mississippi is located on this soil. Hogs are raised in small numbers on this type, but as a rule they are turned on the open range and in the near-by pine forest to find their sustenance.

They are gathered during the late fall and put in the fields to clean up the remnants of the velvet bean, sweet potato, and other crops left after the harvest. Later they are fattened on corn for a short time before killing.

The yield of cotton on the Orangeburg fine sandy loam ranges from one-fourth to one bale per acre, depending upon the variety, the amount of fertilizer used, the condition of the field, and the activity of the boll weevil. Corn yields on an average from 20 to 30 bushels, and as much as 50 to 60 bushels has been obtained. Velvet beans yield from 1,200 to 2,000 pounds in the pod. Sweet potatoes and Irish potatoes yield 150 to 300 bushels per acre. Peaches do well on this soil.

Farming methods are about the same as on the Ruston fine sandy loam. Barnyard manure is used wherever available. A mixture consisting of two parts of phosphoric acid and one part of cottonseed meal is applied for most crops at the rate of about 300 pounds per acre.

The selling price of land of this type of soil, where cut over, ranges from \$5 to \$10 an acre. It brings \$25 to \$40 an acre when in a good state of cultivation and improvement.

The McNeill Experiment Station is situated on this soil and many methods of cultivation and different cropping systems have been used to improve it. Farmers who cultivate this soil would do well to investigate the practices employed at the station. Deep plowing, the incorporation of organic matter by turning under green-manure crops, and the application of lime at the rate of 2 tons per acre would add to its productiveness. In other areas in this State, under similar climatic conditions, sloping and hilly areas of the Orangeburg soils are used in many places for the production of peaches and pecans.

RUSTON SAND.

The Ruston sand consists of a grayish-brown or light-brown sand passing into yellow or yellowish-brown sand and below this into reddish-yellow or dull red sand, usually somewhat loamy. In some places the type supports a mixed growth of pine, oak, and hickory, and on slopes where there is such a growth the soil is decidedly brownish, as a result of organic matter derived from the leaf mold. Such areas will be quite productive, at least for a number of years, following their clearing.

The Ruston sand occurs in small areas on high ridges and knolls throughout the uplands. Areas are mapped in the northwestern part of the county, near Sand Ridge School, 5 miles east of Orvisburg, west of Nortac, and near the Lamar County line. On account of the sandy nature of the surface soil and the loose, open character

of the subsoil, the Ruston sand has adequate and, in fact, excessive drainage. In general, it is not a very productive soil. Until recently the greater part of it supported a fairly good growth of longleaf pine, but the marketable timber has been cut and in its place a growth of scrubby blackjack oak and scattered post oak has sprung up. It is difficult to estimate the average selling value of this soil, but it would probably bring the same price as areas of the recently cut-over Ruston fine sandy loam. Where cultivated, the type is found well adapted to the production of early vegetables.

RUSTON FINE SANDY LOAM.

The typical Ruston fine sandy loam consists of a gray to grayish-brown loamy fine sand or fine sandy loam, passing at 3 or 4 inches into pale-yellow loamy fine sand or fine sandy loam, and this, in turn, at any depth from about 8 to 15 inches, into dull-red or reddish-yellow, friable fine sandy clay. Frequently the lower part of the 3-foot section is more sandy and more friable than the upper subsoil, but in many places there is little change through the subsoil, except that the lower few inches of the 3-foot section may be mottled yellow and reddish or pale yellow and reddish yellow. This mottled clay resembles the Susquehanna subsoil, but it is more sandy and, although quite compact in places, it is not nearly so plastic as the Susquehanna subsoil.

In some places the surface soil is a very light gray fine sand, with a subsurface layer of pale-yellow fine sand, this grading into yellow fine sandy loam which is underlain by reddish-yellow, heavy sandy loam to sandy clay. Much of this lighter-colored variation is deeper than the typical soil, the clay or heavy sandy loam not coming in above 15 to 20 inches. Here blackjack oak is plentiful. Several areas of this variation occur five miles southwest of Lumberton.

Occasionally yellow-brownish concretions of a ferruginous nature occur through the subsoil, and in these areas the subsoil is often somewhat stiffer than typical. Such areas are very noticeable on the Jackson Highway, near the northern county line, and on the same road in the southwestern part of the county, near the edge of the flatwoods. The soil resembles the members of the Tifton series, which is mapped extensively in southern Georgia, but does not contain so many concretions.

Some chert and quartz gravel is present on the surface, and through the soil and subsoil in places. Areas in which the gravel is most abundant are indicated on the soil map with gravel symbols.

A number of small areas of Ruston sandy loam are included with the fine sandy loam. They occupy widely separated areas, and often occur in narrow, broken strips on slopes. They are included with

the fine sandy loam on account of their small extent and similarity in agricultural value.

The Ruston fine sandy loam is the most extensive soil in the county. It occurs throughout the upland, above the flatwoods country. Nearly all of it has a surface favorable to the use of modern farm machinery. It occupies gentle slopes, rolling upland, and a number of flat areas on the crests of divides. The type as a whole has good run-off and underdrainage. It is easy to cultivate and keep in good tilth.

Among the crops that give excellent yields are velvet beans, soy beans, sweet potatoes, and peanuts. Corn does very well with fertilization and on fields that have been improved by growing such crops as velvet beans and cowpeas. Cotton also gives good results where not damaged by the boll weevil. Velvet beans and corn are the principal crops. (See Pl. II, fig. 1.) A large acreage is devoted to sweet potatoes which are grown in part for shipment.

At present a very large area of this soil is covered with a splendid stand of longleaf pine, but in the near future this will have been cut over and a vast area of stump land left. This can be used as range for cattle and sheep, as a number of native and introduced grasses afford fairly good grazing. Cattle and sheep are raised by an increasing number of farmers, but the development of stock raising is insignificant as compared with the possibilities of the soil. Hogs could be raised cheaply in very large numbers, with sweet potatoes, peanuts, and velvet beans grown as field forage crops and cowpeas, sorghum, and Bermuda grass grown to supply forage and pasturage. Peanuts and velvet beans can be grown between rows of corn with little additional cultivation, and it is on this plan that hogs are raised in large numbers on the same and similar soil in southern Georgia, as in Brooks and Colquitt Counties. After the corn is gathered, hogs are turned in to root up the peanuts and gather the velvet beans. Peanut-fed hogs must be hardened on corn just before marketing, but there will be no difficulty in growing the necessary supply of corn on this and the associated soils for a large number of hogs. Peanuts for the production of oil and meal are grown on a rapidly increasing scale on a sandy soil of central Texas which is texturally similar to the sandy types in Pearl River County.

At the present time this land can be bought in the logged-off condition at very low prices—from \$5 to \$10 an acre. The price is steadily rising; such land could have been bought for less than \$5 an acre a short time ago. Where the type lies favorably for cropping and is under cultivation, with few stumps and some improvements, it commands a higher price. In fact, few farms on this type whose fields are free from stumps are for sale.

SUSQUEHANNA FINE SANDY LOAM.

The Susquehanna fine sandy loam in its typical development is a grayish loamy fine sand or fine sandy loam passing at 2 or 3 inches into pale-yellow loamy fine sand or fine sandy loam, which is underlain abruptly at any depth from 8 to 15 inches by stiff, plastic, heavy clay, red in the upper part and mottled with yellow, and then with yellow and gray, below. Often the upper subsoil is mottled red and yellow, the red predominating in one place and yellow in another. As a rule the mottling increases with depth, the red becoming less and the yellow more conspicuous with depth, the yellow changing to pale-yellow and then to gray.

In the larger areas of this type there are some patches where the surface soil has been removed by erosion, giving rise to the Susquehanna clay. There are also some slight depressions in which the surface soil contains only a small percentage of sand, the texture being either a silt loam or very fine sandy loam. These small areas are of such minor importance that they are included with the predominating fine sandy loam. Where of sufficient size to justify their separation, however, they are mapped as Susquehanna silt loam or clay.

The Susquehanna fine sandy loam occurs mostly on slopes, but some areas are flat, undulating, or gently rolling. It is the second most extensive type in the county. It is mainly confined to the upper half of the county, the largest areas occurring southeast of Buck Branch School, west of Derby, east and northeast of White Sand Church, east of Orvisburg, and south of Hickory Grove School. The type characteristically occurs below the level of the Orangeburg and Ruston soils, often occupying the lower slope with the Ruston or Orangeburg on the upper slope.

The topography ranges from level or gently undulating to hilly. The type may occur as a fringe around the heads of small streams, or in situations intermediate between the more sandy soils of the uplands and the first or second bottoms of the lowlands. In the level or undulating areas it often merges into the Norfolk fine sandy loam. Many borings show Norfolk material to a depth of 20 to 24 inches, and below this a stiff, plastic, heavy red clay, mottled with yellow and gray.

The type is probably not so well suited for deep-rooted crops as the Ruston and does not drain out so quickly after rains. Nevertheless, it ranks as a fairly good cotton soil. Only a small percentage of the type is under cultivation. Most of it supports a heavy growth of longleaf pine, while other areas are in the cut-over state. To produce good yields the soil has to be supplied with commercial fertilizer and manure. It shows acidity, and some farmers have applied lime with good results. This not only neutralizes acidity, but corrects

to some extent the unfavorable physical condition of both soil and subsoil.

The selling value of this land is about the same as that of cut-over areas of the Ruston soils, and ranges from \$5 to \$15 an acre.¹

SUSQUEHANNA SILT LOAM.

The surface soil of the Susquehanna silt loam is a grayish to grayish-brown silt loam, 5 or 6 inches deep, overlying pale-yellow silt loam or silty clay loam, which passes abruptly at 8 or 10 inches into plastic, heavy, red clay mottled with yellow and gray. While there is a range in the soil from very fine sandy loam to silt loam, the material is in all cases decidedly fine, the very fine sand not being sufficiently coarser than the silt to have any marked effect upon the texture.

The Susquehanna silt loam occurs in scattered areas over the county. Some of the largest are mapped just west of Millard, 1 mile southeast of Derby, $3\frac{1}{2}$ miles east of Red Top, 4 miles east of McNeill, and west and southwest of White Sand School. The type occupies level and slightly depressed areas, and the drainage is poor. The subsoil is such a close, tenacious, and sticky clay when wet that it retards the downward movement of water, resulting in very deficient under-drainage.

The type in its natural condition is less desirable for crops like cotton and corn than the fine sandy loam, especially in wet years. It has a tendency to remain soggy in wet seasons, and in very dry seasons it assumes a compact structure unless liberally supplied with organic matter. Only one small area seems to be in cultivation at present (1918). Most of the type is still in virgin longleaf pine or has been recently cut over.

In all places both soil and subsoil are distinctly acid, according to tests with litmus paper, and lime should be applied. At present the type produces an abundance of native grass, which affords free range for cattle, sheep, and hogs. Where it is to be put under cultivation it should be constantly supplied with organic matter, which will give it better aeration and lessen the tendency to become compact.

With large areas of the more sandy soils available it would seem that, for the present at least, this type could be used to best advantage as pasture land. Where the burning off of the native grass is not permitted the type will grow excellent pasture grasses such as lespedeza, Bermuda grass, and carpet grass. The recommendations made for the improvement of the Susquehanna fine sandy loam apply with equal force to this type. Surface drainage could probably be improved by open ditches.

¹ The prices of cut-over land on all the soils are about the same, as little attention is given at present to the individual productiveness of the different upland soils.

SUSQUEHANNA CLAY.

The Susquehanna clay is a red or mottled red and yellow, stiff, plastic, heavy clay, more mottled in the lower part with red and yellow or red, pale yellow, and gray. Usually there is a thin covering of grayish-brown silt loam, silty clay loam, or very fine sandy loam at the surface. In many eroded areas the surface veneer has entirely disappeared, leaving the heavy clay exposed. Where the gray mottled material is exposed the soil is locally called "bald prairie," owing to the grayish to whitish color and lack of vegetation.

The Susquehanna clay is found north of Byrds Chapel, northeast of Progress School, south of Millard, and northeast of Derby. Small areas are scattered elsewhere over the county. The type has a level to undulating topography. Where eroded it seems to occupy small knolls. Drainage is practically everywhere poor. Owing to its impermeable nature, the type absorbs little water.

This is a difficult soil to till, requiring heavy draft for even shallow breaking. It ranks as a soil of very low agricultural value. It has a narrow range of crop adaptation, and probably should be either used for pasture or allowed to become reforested. Where erosion is not excessive it supports a growth of longleaf pine; here, owing to the heavy clay, the roots do not penetrate very deep and the lateral roots are exposed at the surface.

CADDO VERY FINE SANDY LOAM.

The typical Caddo very fine sandy loam is a gray to brownish-gray very fine sandy loam, 2 or 3 inches deep, overlying pale-yellow very fine sandy loam, which gives way at 8 or 10 inches to a pale-yellow fine sandy clay or fine sandy loam. This at 20 to 24 inches is mottled with gray and contains some small yellowish-brown and reddish-yellow concretions. In all cases, at a depth ranging from about 20 to 30 inches, there is encountered a compact layer which varies in thickness from 3 inches in some places to 6 or 8 inches in others. This compact layer in places is practically a hardpan. Beneath is a fine sandy clay to silty clay, usually containing enough sand to have a distinctly friable structure. On the slightly higher situations the soil is lighter colored, while in the depressions it is dark colored and deeper and has more gray coloring in the subsoil. In the virgin areas there is a surface covering of 2 or 4 inches of dark-gray loam or very fine sandy loam. As mapped the type includes some areas of Caddo loam, Caddo silt loam, and Plummer loam, which are so closely associated that an accurate separation is not considered practicable.

The Caddo very fine sandy loam is confined to the southern part of the county, in the vicinity of Picayune and George Ford Church. It occurs closely associated with other types of the flatwoods and

lies slightly higher than the Plummer soils. The topography ranges from level to gently undulating. Drainage in most places is imperfect, owing to the level surface and to the hardpan layer in the subsoil. Where the type is not so flat the drainage and aeration are much better.

This type is recognized by farmers of the flatwoods as more desirable than the Plummer soils, and probably 50 per cent of it is under cultivation. The remainder is either in pasture or recently cut-over land. A few areas still support a growth of longleaf pine, but this will soon disappear with the increasing demand for lumber.

The principal crops grown on this type are corn, cotton, velvet beans, sugar cane, sorghum, cowpeas, and peanuts. Average yields are not as good as on some of the better-drained soils of the county. Fertilizers consisting largely of phosphates and cottonseed meal are generally used for all crops.

Open ditches in the flatter areas would aid the drainage, and the application of ground limestone at the rate of 2 tons per acre would prove beneficial in correcting the acidity and improving the aeration in both soil and subsoil. On the more nearly level or flat areas rice growing probably could be carried on successfully. Apple and pear trees seem to do well in some of the better-drained situations.

NORFOLK FINE SANDY LOAM.

The Norfolk fine sandy loam consists of a gray fine sandy loam or loamy fine sand, about 3 inches deep, overlying pale-yellow fine sandy loam, this passing at 8 to 15 inches, usually, into yellow fine sandy clay which is friable but somewhat stiffer than the subsoil of the typical Ruston fine sandy loam. It often contains a considerable quantity of silt. Frequently the sand is so fine that it can scarcely be distinguished from the silt when the soil is wet. This is especially noticeable in some of the flat or slightly depressed places, where also the subsoil is lighter colored and less permeable than in the more undulating areas.

In places there is considerable organic matter in the first few inches, which imparts a dark color to the soil, but under cultivation this dark color usually disappears in a year or two. Where the type occurs closely associated with the Caddo and Plummer soils, and where the drainage is not so good, gray and occasionally reddish-yellow mottlings appear in the subsoil at a depth of about 30 inches. In some localities a scattering of ferruginous concretions is found on the surface.

The Norfolk fine sandy loam is an extensive soil in the flatwoods section near Industrial School, Caesar, Ozona, Nicholson, and Cybur, south of Picayune, and occurs in small patches in the northeastern part of the county.

The larger areas of the type are level or very slightly undulating. Usually it occupies slightly elevated positions adjoining the Caddo or Plummer soils. In the uplands it is found in flat situations. The topography ranges from level to undulating. Drainage, of both soil and subsoil, is better than that of the Caddo and Plummer series. The heavy bedded clay, from which much of the type is undoubtedly derived, usually lies too far below the surface to exert any undesirable influence upon the moisture content of the subsoil. Little of the type requires artificial drainage; the flat areas would be benefited by open ditch or tile drains.

At present only a small percentage of the Norfolk fine sandy loam is under cultivation. The greater part of it remains covered with a virgin forest of longleaf pine or lies idle as recently cut-over land. The type is well adapted to general farming, and owing to its level topography up-to-date 2-horse implements can be used with success, when once the stumps are removed. The soil responds well to fertilization and can be cultivated safely under as wide a range of moisture conditions as the more sandy types.

Cotton, corn, velvet beans, sugar cane, and forage crops are grown with fair success on this soil. In some sections of the South the Norfolk soils are used extensively in the production of tobacco. The turning under of green-manure crops, the application of all the available barnyard manure, and a systematic crop rotation would increase the productiveness.

This type usually sells as cut-over land at prices ranging from \$5 to \$15 an acre.

PLUMMER VERY FINE SANDY LOAM.

The Plummer very fine sandy loam consists of a gray, very fine sandy loam passing beneath into light-gray, fine sandy clay which frequently gives way to a heavier clay in the lower part of the 3-foot section. In places the surface soil texture ranges to a loam or silt loam. Yellow mottlings are common in the subsoil. Frequently there is a dark-gray to black surface layer ranging from 1 to 3 or 4 inches deep. Where this exists the type resembles the Portsmouth, but this dark soil is confined to small patches scattered over the type. The blackish color is probably due to organic matter remaining from decaying vegetation.

The Plummer very fine sandy loam occurs mainly in the flatwoods section of the country, where it is closely associated with Caddo and Norfolk soils. Large areas are situated near Picayune, Cybur, and Gibson School, and others near the stream courses and at their heads. The type has a flat surface, and lies somewhat lower than the Caddo and Norfolk soils. Drainage is poor, and after heavy winter rains water often stands on the surface for a considerable time.

The broad, level areas of this soil in the flatwoods originally supported a growth of longleaf pine, which has recently been cut. There are a few depressions which support a little cypress. The type now occurs as cut-over land or stump land supporting a good growth of sedge and other grasses which afford fairly good grazing. Gallberry bushes and pitcher plants are plentiful. Only one or two small patches seem to be in cultivation.

In its present wet condition this soil is of little agricultural value except for pasture. Drainage would be unprofitable unless done on a large scale. The type as a whole seems to be best adapted to the growing of rice, and it is probable that this type and the flat Caddo soils could be profitably used for commercial rice production. Nearby streams and wells would furnish an abundant supply of water for irrigation should this be desired in connection with the future development of this soil for rice growing. The possibilities of rice growing on the Plummer soils are well brought out in the crop shown in Plate II, figure 2.

PLUMMER SILT LOAM.

The Plummer silt loam consists of a gray or bluish-gray silt loam passing into bluish-gray silty clay loam which frequently contains some pale-yellow mottling in the lower part and gives way, as a rule, to a brown, bluish-gray, or mottled bluish-gray, yellowish, and reddish clay (often like the Susquehanna subsoil) in the lower subsoil or below the 3-foot section. In places there is a noticeable content of fine or very fine sand. The immediate surface soil is dark brown to black in some places.

The Plummer silt loam occurs in poorly drained swales about the heads of streams and in depressions kept wet by seepage or through which drainage finds its way without definite channels. Some of the areas are typical flats. The type is mapped on the south side of Red Creek just north of Thomas School, west of Silver Run School, northeast of Derby, near Nortac, and in small patches scattered over the county.

Drainage of both soil and subsoil is poor as a result of the flat topography and the impervious underlying clay stratum. The type is not important, none of it apparently being in cultivation. It supports a number of grasses which offer good pasturage except during long, dry spells, when the soil hardens. Pitcher plant and other water-loving plants and grasses are plentiful. There are numerous crawfish holes and the type is locally called "crawfish land."

Where the surface soil is dark brown to black, rice could probably be grown successfully in seasons of normal rainfall.

CAHABA FINE SANDY LOAM.

The Cahaba fine sandy loam has a surface soil of grayish-brown to brown loamy fine sand to fine sandy loam, about 5 to 6 inches deep, overlying yellowish fine sandy loam which passes at 10 to 15 inches into reddish-yellow to reddish-brown, friable fine sandy clay. A few patches are included whose surface soil contains a high percentage of silt.

The type is not extensive, being confined to small areas along the larger drainage ways. It is mapped west of Buck Branch School, northwest of Industrial School, north of Picayune, near White Sand Church, near Derby, and west and northwest of Cybur. It occurs on nearly level stream benches or second bottoms, where it was deposited before the streams had cut their channels to the present levels, and when the flood plain was much wider than at present. The type is overflowed only at times of unusually high water. Drainage of both surface soil and subsoil is good.

The Cahaba fine sandy loam is the most productive of the soils on the second bottoms or terraces. Owing to its productiveness and good tilth under a wide range of moisture conditions, it is an important soil agriculturally, despite its small extent. Probably 80 per cent of it is under cultivation, while the rest supports a growth of longleaf pine, water oak, willow oak, red oak, white oak, and some Cuban pine. Lespedeza, Bermuda grass, and carpet grass make a rank growth.

Corn, cotton, oats, sweet potatoes, peanuts, velvet beans, and sugar cane are the principal crops. Corn yields an average of 20 bushels per acre; cotton, under favorable conditions, one-fourth to three-fourths bale; and oats 15 to 25 bushels. Velvet beans are generally grown as a forage crop and left for the stock to gather; the average yield of beans in the hull is about 1 ton to the acre, or 600 pounds of seed. Sirup made from the sugar cane gives an average yield of 200 gallons per acre.

Commercial fertilizers composed of a mixture of 100 pounds of acid phosphate and 200 pounds of cottonseed meal are used for most crops, at the rate of 200 pounds per acre. Where velvet beans have been grown on the field the year before, the phosphate alone gives fairly good returns. This land ranges in price from \$12 to \$20 an acre.

KALMIA SAND.

The Kalmia sand consists of a light-brown to brownish-gray sand to loamy sand, passing at 5 or 6 inches into yellowish-brown to yellow sand, which usually becomes pale yellow or even grayish in the lower part of the 3-foot section. There are some small areas, resembling the Cahaba loamy sand, where the surface covering to a depth of

6 to 8 inches has a brown color, as a result of organic matter derived from decaying leaves.

Areas of Kalmia sand are mapped along Pearl River, in the northwestern part of the county, occupying terraces lying well above normal overflow, but somewhat lower than the associated Kalmia soils. Drainage is excessive in both soil and subsoil.

This is an inextensive soil of little agricultural importance. None of it seems to be under cultivation. The forest consists of willow oak, water oak, scrub oak, and a scanty growth of pine. The type might be used for extra-early vegetables and watermelons. Where well fertilized and liberally supplied with vegetable matter, it will produce fair yields.

KALMIA FINE SANDY LOAM.

The Kalmia fine sandy loam consists of a dark-gray to brownish-gray loamy fine sand to fine sandy loam, passing at 3 or 4 inches into pale-yellow fine sandy loam and this at 10 to 14 inches into yellow fine sandy clay, which usually shows some gray mottlings in the lower subsoil, and occasionally some reddish mottlings. The subsoil is mottled yellow and gray throughout. In some places there is encountered a compact layer in the lower subsoil. In the more poorly drained areas the subsoil contains small dark-colored concretions and iron stains. In the better drained areas there are generally brownish-yellow or brown tints to a depth of 8 or 10 inches. These are more pronounced along the banks of streams, where the channels are well defined. The type includes some patches of Myatt soils and very narrow strips of Leaf fine sandy loam, which can not be satisfactorily separated.

The Kalmia fine sandy loam occurs on the terraces or second bottoms along the larger streams. Large areas are mapped in the southwestern part of the county along Pearl River, east of Leighdon Bluff Ferry, north of Picayune, along Wolf River and its tributaries and Hobolochitto Creek, and on the north side of Red Creek.

The topography ranges from level to slightly undulating. Drainage in general is fairly good, but there are some slight depressions and very flat areas where both surface run-off and underdrainage are imperfect. In such places the subsoil usually contains a high percentage of the finer particles and but moderate amounts of the coarser grades.

Probably 30 per cent of the Kalmia fine sandy loam is under cultivation. The greater part of the type is covered with a rather open forest of pine and some oak, the latter of inferior size and quality. There is generally a good undergrowth of grass and gallberry bushes. Where the underdrainage is best there is often a covering of carpet grass and a thin stand of pine. The type is not

as desirable a soil as the Cahaba fine sandy loam, and as yet it is not important agriculturally.

Corn, velvet beans, cotton, cowpeas, and sugar cane are the leading crops on this soil at present. It was very noticeable that the fruit trees in the small orchards are mostly apple, with a few pear. Pecans do well on this soil. Yields of all crops are lower than on the Cahaba fine sandy loam, but fair or even good yields have been obtained where the soil is well drained and given liberal fertilization.

Cut-over land of the Kalmia fine sandy loam is valued at \$4 to \$8 an acre. Areas in farms range in price from \$15 to \$20 an acre.

In farming this soil the first requisite is better drainage. This can be established most cheaply by ditching. There should be little difficulty in determining the proper place for the ditches, as the surface configuration readily suggests the general plan of drainage suited to individual areas. Practically all of the type has sufficient elevation to insure adequate fall to the main ditches without extending them very far. If relieved of excess surface water the soil would respond well to good tillage and fertilization.

The type is deficient in organic matter, and would be greatly improved by growing the legumes, such as cowpeas and velvet beans, and turning under green-manure crops. In other parts of the State this type of soil has been brought to a high state of productiveness by means of a thorough system of drainage, the use of ground limestone, and the growing of legumes.

KALMIA SILT LOAM.

The Kalmia silt loam consists of a grayish-brown silt loam underlain at about 6 inches by pale-yellow silt loam which at 10 to 15 inches passes into yellow, friable silty clay loam to clay. At about 30 inches it is mottled with gray and reddish yellow. There is in most cases some compaction in the lower subsoil. Black concretions are of common occurrence, especially in the lower part of the subsoil.

The Kalmia silt loam occurs in small areas on the second bottoms along streams. It is mapped 2 miles west of Buck Branch School, north of White Sand Church, near Ford Creek Church, and in the fork of Little Hell Creek and Big Branch.

The surface is almost flat, with slight depressions here and there, and the drainage is not as good as that of the Kalmia fine sandy loam.

This is not an extensive soil, and practically none of it is under cultivation. Most of it supports a forest of pine, with an undergrowth of gallberry and sedge grass. Water oak and willow oak grow in places.

The selling value of this type is about the same as that of the Kalmia fine sandy loam.

For the agricultural development of this type the same methods should be employed as recommended for the Kalmia fine sandy loam, as the two soils are very similar.

MYATT FINE SANDY LOAM.

The Myatt fine sandy loam has a surface soil of a dark-gray to gray fine sandy loam, 2 or 3 inches deep, overlying light-gray fine sandy loam mottled with yellow. Stiffer fine sandy clay is encountered in the lower subsoil, mottled somewhat with reddish yellow. The surface soil on drying out presents an ashy-gray color. At a depth of 18 or 20 inches there is encountered a compact layer of fine sandy clay, mottled with rusty brown and containing dark-colored concretionary material. Usually there is also an abundance of these concretions scattered over the surface.

Small areas of this type are mapped near Amacker Church, west of Buck Branch School, near Derby, and elsewhere. It occurs in small, poorly drained areas on the terraces or second bottoms. The topography is flat and in some cases basinlike, and drainage, both surface and underground, is very imperfect. The soil is acid and low in organic matter.

None of the type apparently is in cultivation. Gallberry bushes and grasses that are usually found on acid, poorly drained soils make up the principal growth. Some scattered pine occurs here and there. In places there is a fair growth of lespedeza, and the type probably is best suited to the growing of grasses for pasture.

MYATT SILT LOAM.

The Myatt silt loam consists of a light-gray silt loam, rather compact when dry, underlain at 6 to 10 inches by mottled yellow and gray or drab clay, which passes below into light-gray or drab, plastic, heavy clay. In nearly all cases the subsoil contains a considerable quantity of black, soft, ferruginous concretions. These may be encountered as layers in the subsoil at varying depths, occurring in the upper part of the subsoil in some places and in others only in the lower subsoil. The type is distinctly acid and is locally called "crawfish land" or "cold land."

This Myatt silt loam occurs on the terraces, either on low-lying second bottoms or in slightly depressed, poorly drained areas on the more elevated terraces occupied mainly by the Kalmia soils. The surface is either flat or basinlike, and drainage of both surface and subsoil is poorly developed. The streams flowing through the type or adjacent to it are sluggish, and here and there swampy strips are encountered. Over much of the type, especially where the slight depressions occur, the water escapes mainly by evaporation.

This is not an important soil agriculturally, only a few small areas being in cultivation. It supports a forest consisting principally of post oak and white oak, but with some admixture of pine. The undergrowth consists of sedge grass and gallberry bushes. In the more open areas lespedeza grows well. The type is best suited for pasturage, but small areas in farms could be used in a limited way for the growing of strawberries. It produces a berry of fine quality, both in taste and firmness. The land must first be drained by open ditches or tiles. This soil in another part of the State is used quite extensively for the growing of strawberries.

Rice could be grown by following the methods suggested for rice production on the Plummer soils. A small area of this type seeded to Japan rice in 1916 produced an average of 44 bushels per acre. Heavy rainfall in July caused the crop to be overflowed several times, which was probably the cause of the high yield, and the results seem to indicate that with irrigation rice could be grown successfully on a commercial scale.

LEAF SILT LOAM.

The Leaf silt loam consists of a light-brown to grayish-brown fine silty loam, 2 or 3 inches deep, overlying pale-yellow or yellowish-brown silt loam which passes at 6 or 8 inches into pale-yellow silty clay. This quickly grades into stiffer, heavy clay, mottled pale yellow, grayish, and red. The lower subsoil is a mottled grayish and yellowish stiff clay.

The color of the subsoil ranges from light gray, or almost steel gray, to mottled red and gray or red and yellow. The mottled coloration is indicative of the poor underdrainage and aeration from which practically all the type suffers. Where there is no tree growth the surface soil appears almost white, as the type is very deficient in organic matter.

This soil occupies second bottoms or terraces lying for the most part at a somewhat lower level than those occupied by the Kalmia soils. Areas are mapped east of Strahans Ferry, west of Gibson School, north of Picayune, and south of Progress School.

The surface is flat to gently undulating, and drainage is invariably poor, owing in part to the dense, impervious subsoil. The type is decidedly acid, and small iron concretions are of common occurrence.

The Leaf silt loam resembles the Susquehanna soils of the upland. It supports a thin growth of longleaf and shortleaf pine, with gallberry bushes and sedge grass usually forming the undergrowth. The type is not in cultivation, and it would seem to be better suited for pasture than for cultivated crops. A combination of lespedeza and carpet grass should give good pasturage.

OCHLOCKONEE VERY FINE SANDY LOAM.

The surface soil of the Ochlockonee very fine sandy loam is a brown very fine sandy loam, passing at 8 to 12 inches into brown or mottled brownish and grayish material, ranging from silty clay loam to very fine sandy loam or fine sandy loam. In some of the higher parts of the bottoms the surface soil is grayish and the subsoil brown, but the subsoil is in places yellowish. It is decidedly variable in character. Nearer the larger streams it ranges from a rather plastic fine sandy clay, mottled yellow and drab or bluish gray, to sticky silty clay loam or silty clay. Along the smaller streams, however, the subsoil averages a very fine to fine sandy clay.

There are narrow strips of soil, bordering the larger stream channels, whose elevation is somewhat higher than the main body of the bottom land. These strips or slight embankments usually are more in evidence on the outer side of many of the short curves. The surface soil in these strips ranges in texture from a loose coarse sand to a loose very fine sand, and varies in depth from only a few inches to 24 inches. The subsoil of such areas is a very fine sandy loam to silt loam. The soil in these strips represents a more recent deposit over heavier material, which was laid down while the current flowed more swiftly. Along Pearl River considerable deposits of sand are found. This really represents Riverwash, as its elevation is always lower than that of the bottom land proper. It presents the appearance of a sand beach, varying in width from 200 feet in some places to one-eighth mile or more in others.

The Ochlockonee very fine sandy loam is confined to the first bottoms of streams. Some of the largest areas occur along Pearl River west of Cybur, northwest of Jacksons Landing, west of Richardson, and 2 miles southeast of Derby. The type is subject to inundation, but is generally well drained between floods. The surface is uniformly level, except for abandoned stream channels and sloughs.

Very little of this type seems to be in cultivation. Most of it is covered with a growth of Cuban pine, willow oak, water oak, beech, hickory, holly, ironwood, bay, birch, and magnolia. The undergrowth over the greater part of the type consists of cane, vines, and shrubs, and in many places has the density of typical jungle vegetation. Where the type has been cultivated it produces good crops. Cattle, sheep, and hogs find abundant forage in the fall and winter on the cane and mast, and in summer on the shrubs and grass.

With cooperation among land owners on this type and the Ochlockonee silt loam, and with the forming of a drainage district, it

would be possible to reclaim much of the area of these soils, and thus to open up some of the most productive land in the county.

OCHLOCKONEE SILT LOAM.

The typical Ochlockonee silt loam is a deep-brown silt loam grading at about 10 inches into a lighter brown silty clay loam and below this into yellowish-brown silty clay that shows no important change to a depth of 3 feet or more.

Over a considerable part of the type, however, as, for example, near Strahans Ferry and southward in the Pearl River bottoms the surface layer silt loam is only 3 to 4 inches thick and the brown silty clay loam, which lies near the surface, becomes lighter brown to a depth of 12 inches, and passes into a yellowish-brown or yellow silty clay. This grades into mottled yellowish and gray or bluish-gray silty clay usually containing some rusty-brown and dark-colored concretions and concretinary material. This lower mottled subsoil is often compact at depths of 26 to 36 inches, sometimes having the nature of hardpan. Thus, the type as mapped here, and in most other counties, includes this distinct variation, which represents a gradation between the typical Ochlockonee and the typical Bibb soils. It could not be mapped separately because of its extremely intricate association with the typical soil and the impossibility of detailed mapping under such unfavorable conditions as overflows and the presence of a dense swampy growth over a large part of the type. Areas of even the gray Bibb soils, the silt loam and the silty clay loam, which are less productive than this mottled-subsoil variation of the Ochlockonee, are included with the Ochlockonee in numerous small areas, owing to the impracticability of separation.

A few small included areas consist of a dark-brown clay to a depth of 4 to 6 inches, passing into a brown to light-brown silty clay which in turn is underlain at a depth of 10 inches by a yellow, mottled gray or bluish-gray silt loam. This heavier material probably was deposited during recent overflows.

The Ochlockonee silt loam occurs in the first bottoms along streams, where it is subject to frequent overflows. Most of the bottom land of Pearl River is occupied by this type. The typical Ochlockonee silt loam is well drained between overflows, but the mottled-subsoil variation does not have such good underdrainage. It is, however, sufficiently drained for successful crop production, although not so good average results may be expected as on the typical soil. The surface is often hummocky, the soil on the hummocks, especially near the banks of streams and abandoned channels, being in many cases lighter textured, consisting of Ochlockonee fine sandy loamy, very fine sandy loam, and loam. In shallow de-

pressions including the Bibb silt loam, and deeper depressions representing former stream channels, water often stands the year round. There are also numerous bayous, small lakes, and swampy areas, which hold water in wet seasons. The largest of these ponds and lakes are shown on the map. Characteristically, the surface is flat and well suited to cultivation when cleared of the forest. The principal trees are magnolia, willow oak, tupelo gum, black gum, cypress, swamp white oak, sweet gum, ironwood, holly, bay, dogwood, beech, and Cuban pine, with a jungle of grapevine, smilax vine, star anise, and yellow jasmine. Near the banks of the streams there is found some birch, sycamore, and willow. Shagbark hickory and laurel are scattered through the swamps. Hogs are given free range and find abundant mast.

This is inherently one of the most productive soils in the county, if not the most productive, but very little of it is under cultivation. Cutting of the timber has begun, and as the forest is cleared away this type will probably play an important part in the future agriculture of the county. The same soil in some portions of the South produces excellent yields of corn and hay. Cotton makes a good growth, but the fruit is scanty at times, especially when the boll weevil is abundant. With the forest removed, this land could all be used for pasture and a large proportion could be used for the production of lespedeza and Bermuda-grass hay without any expensive drainage operations. It is said that the stumps rot out rapidly in the bottoms.

This type is valued mainly for its timber, but it could probably be bought in the cut-over state for an average price of \$15 to \$20 an acre.

BIBB VERY FINE SANDY LOAM.

The typical Bibb very fine sandy loam has a surface soil of gray very fine sandy loam underlain at 3 or 4 inches by light-gray to nearly white very fine sandy loam, which passes at 10 or 12 inches into light-gray or bluish-gray fine sandy clay to silty clay. Dark-gray and brownish iron concretions are of common occurrence, especially in the subsoil.

There are some included areas in which the surface texture is a sandy loam, fine sandy loam, or silt loam, but which are of insufficient size to map separately. In narrow strips along the better-drained areas the surface soil may be a grayish, loamy fine sand, 3 or 4 inches deep, overlying pale-yellow fine sandy loam which passes into yellow fine sandy clay. These strips of soil are really the Thompson fine sandy loam. They are usually slightly elevated.

The Bibb very fine sandy loam occurs in the first bottoms of Hobolochitto, Prices, Jump Off, Wolf, and Murder Creeks and other

streams. The topography is level except for occasional slight depressions and a few swells and hummocks. Most of the stream channels are shallow, and after each rain short overflows spread out over the type. The downward movement of water is slow, and during parts of the year the soil is generally wet. Apparently the slow alternations from saturation to partial dryness prevent the accumulation of organic matter, either in the form in which it occurs in normal soils or in those almost permanently wet.

None of the type seems to be in cultivation. It supports a good growth of water-loving grasses, and where the drainage is fairly thorough carpet grass is noticed. The forest growth consists of tupelo gum, black gum, white oak, bay, and magnolia. Star anise, laurel, and various vines are the principal plants in the undergrowth. A scanty growth of switch cane exists in places where some organic matter has accumulated.

The type might be used as hay land as the agricultural development of the county progresses. At present, however, it would seem best to use it only for pasture.

SWAMP.

Areas mapped as Swamp include very wet stream bottoms in which the soil is variable but consists mainly of black mucky loam and very fine sandy loam (Johnson series) and dark-grayish or grayish fine sandy loam and very fine sandy loam (Bibb series). In some places the soil is a dark-colored mucky silt loam, while only a few rods away rather coarse material of a lighter color exists.

Swamp, as mapped, comprises the first bottoms of streams throughout the county. The surface is level, and both soil and subsoil are very wet, generally being almost constantly saturated.

Most of the type is densely forested, especially along the larger drainage ways. Here black gum, water oak, bay, swamp pine, poplar, sycamore, and cottonwood are encountered. The densely-shaded portions have very little undergrowth, but on the outer edges of the bottoms there is a thick undergrowth of titi, vines, and water-loving grasses.

All of the areas mapped as Swamp are subject to overflow and can not be economically reclaimed until the higher land is more extensively developed. Those areas having a black mucky loam soil could be used in a small way for rice and celery, if the water could be controlled at small cost.

SUMMARY.

Pearl River County lies in the extreme southern part of Mississippi, in the Gulf Coastal Plain. It has a total area of 797 square miles, or 510,080 acres.

The topography in general is rolling to flat. Drainage, outside the flat areas, is well established, and the flat areas could be easily drained under a comprehensive plan.

This county, in an agricultural sense, is quite young, though it was first settled more than a century ago, the early settlers coming from the Carolinas and Georgia to engage in stock raising and turpentine. The rural population is increasing, but rather slowly. Large areas of recent cut-over land are available for cultivation.

A line of the Southern Railroad traverses the county from north to south, affording transportation facilities for a large part of its area. Good schools are conveniently situated throughout the county. The public roads in general are good, and improvement of all the roads is being accomplished.

The winters are mild and the growing season long, favoring a widely-diversified agriculture. The heat of the long summer season is tempered by breezes from the Gulf.

Agricultural development has been slow, but recently there has been a greater interest taken, and the cut-over land is gradually being put in cultivation. Cotton is the main cash crop, with sheep and wool second as sources of income. Dairying and stock raising are fast displacing the one-crop system of farming. Lumbering and turpentine production are still the most important industries, but as they decline development of the agricultural resources must take place. The county offers a variety of soils, and is well suited to diversified farming. Nearly every crop raised in the South can be produced.

Pearl River County includes three physiographic divisions, uplands, terraces or second bottoms, and first bottoms or present flood plains. The upland soils are of residual origin, while those of the terraces and first bottoms consist of alluvium deposited by the streams along their courses. Twelve soil series are recognized in the county, including 20 different types, besides Swamp.

The Orangeburg and Ruston soils of the upland are desirable agricultural types. The Ruston fine sandy loam is the most extensive soil in the county. The Susquehanna soils cover a considerable total area, but they are practically undeveloped agriculturally. About 50 per cent of the Caddo very fine sandy loam is in cultivation. The Norfolk fine sandy loam is well adapted to general farming, but only a small percentage is used for crops.

The Plummer very fine sandy loam and silt loam of the flatwoods are not under cultivation, owing largely to their poor drainage, but they could apparently be made to produce profitable yields of rice.

The Cahaba fine sandy loam is the most productive of the terrace soils. The Kalmia sand is rather excessively drained, but the fine sandy loam and silt loam could be made desirable soils. The Myatt

fine sandy loam and silt loam are poorly drained and of little importance. The Leaf silt loam is a flat, poorly drained soil none of which is under cultivation.

The Ochlockonee soils of the first bottoms are inherently very productive types, but they are subject to overflow. With reclamation they would be adapted to a wide range of crops. The Bibb very fine sandy loam is poorly drained and slow to dry out after inundations, and is best adapted to use as pasture.



[PUBLIC RESOLUTION—No. 9.]

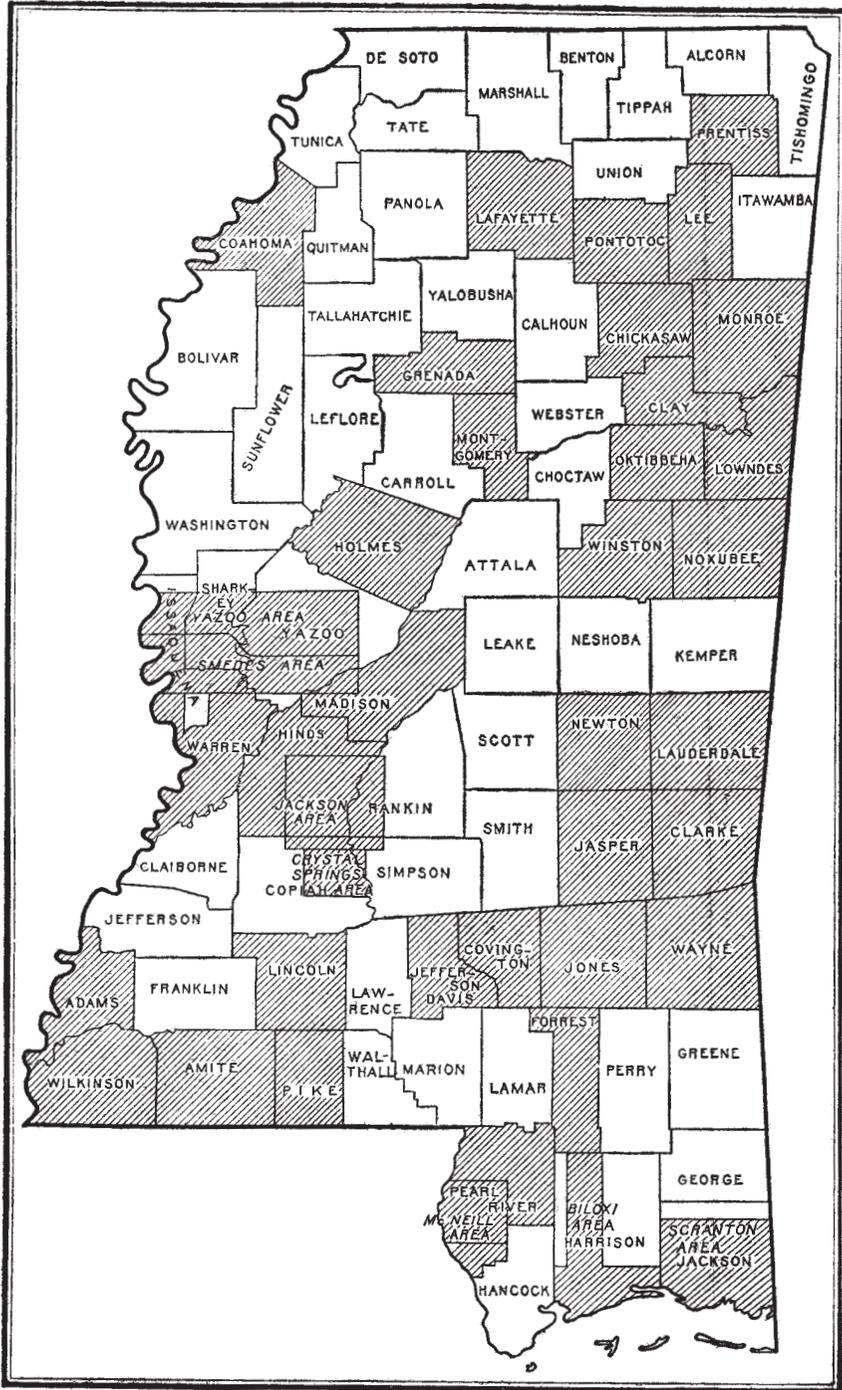
JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

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.]



Areas surveyed in Mississippi.

Accessibility Statement

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at (800) 457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at <http://offices.sc.egov.usda.gov/locator/app>.

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers. If you believe you experienced discrimination when obtaining services from USDA, participating in a USDA program, or participating in a program that receives financial assistance from USDA, you may file a complaint with USDA. Information about how to file a discrimination complaint is available from the Office of the Assistant Secretary for Civil Rights. USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.)

To file a complaint of discrimination, complete, sign, and mail a program discrimination complaint form, available at any USDA office location or online at www.ascr.usda.gov, or write to:

USDA
Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, S.W.
Washington, DC 20250-9410

Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender.

Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).