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U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS—MILTON WHITNEY, Chief.

SOIL SURVEY OF LAFAYETTE PARISH, LOUISIANA.

BY

A. H. MEYER AND N. M. KIRK.

HUGH H. BENNETT, INSPECTOR, SOUTHERN DIVISION.

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



WASHINGTON:
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1916.

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
Washington, D. C., October 29, 1915.

SIR: In the extension of the soil survey in the State of Louisiana during the field season of 1915 a survey was made of Lafayette Parish.

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

Respectfully,

MILTON WHITNEY,
Chief of Bureau.

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

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MAP.

Soil map, Lafayette Parish sheet, Louisiana.

SOIL SURVEY OF LAFAYETTE PARISH, LOUISIANA.

By A. H. MEYER and N. M. KIRK.

HUGH H. BENNETT, *Inspector.*

DESCRIPTION OF THE AREA.

Lafayette Parish lies in the southern part of Louisiana, about 130 miles west of New Orleans, and about 30 miles north of the Gulf of Mexico. The parish is bounded on the north by St. Landry and St. Martin Parishes, on the east by St. Martin and Iberia Parishes, on the south by Vermilion Parish, and on the west by Acadia and St. Landry Parishes. In a number of places the parish line could not be definitely located. The survey comprises an area of 276 square miles, or 176,640 acres.

Lafayette Parish lies mostly in the Coastal Prairie region of the Gulf Coastal Plain Province. By far the greater portion consists of the uplands, or terrace, the surface of which is, for the most part, practically level.

The uplands represent what appears to be an old terrace of the Mississippi River: the bottoms comprise the later stream flood plains. The uplands range from about 25 to 30 feet above the first bottoms and have an average elevation of about 35 feet above sea level, with a slight dip to the southwest. The surface of the upland, or terrace, is prevailingly flat, with only slight inequalities, and appears as a plain without any appreciable slope. In detail, however, the topography is relieved by such minor features as numerous shallow ponds, basins, faint ridges, and depressed areas along small drainage ways. The stream valleys are mostly shallow, and the slopes, produced by erosion, are gentle and in places scarcely perceptible, though the valleys of the larger streams are narrow and have rather steep slopes. Near some of these deeper valleys enough erosion has taken place to give rise to strips of rolling land. Along Bayou Vermilion the flood plain is about 20 feet below the upland, and the slopes are precipitous in a number of places.

The line of separation between the upland or terrace and the main bottom along the eastern side of the parish (at the outer edge of the



FIG. 1.—Sketch map showing location of the Lafayette Parish area, Louisiana.

Mississippi bottoms) is marked by a steep slope. The bluff enters the parish at a point about $3\frac{1}{2}$ miles northeast of Carencro and passes in a southerly direction to Landry, where it swings rather sharply to the east. Along the bluff numerous streams have cut back into the higher uplands and produced narrow strips of gently rolling to undulating topography. In a few places only are the slopes too steep for cultivation.

In general, that part of the parish south of Broussard is the most uneven in surface. This section has numerous slight ridges, lower lying flats, and large depressions along streams, giving it a rather undulating topography, though in general it is termed flat land. The stream valleys here are rather wide in proportion to the size of the drainage ways and their bottoms are about 10 feet lower than the surrounding land. They have the appearance of abandoned stream channels. Somewhat similar channels are found in other parts of the parish.

Another notable surface feature is the flats, locally called "Foreman Flats," in the western part of the parish. These are strips of land, about 4 miles wide, running due north and south through Duson and Ridge, with surface almost level, relieved only by a few shallow stream channels. After heavy rains a large part of this land is under water.

In the northeastern part of the parish there are inextensive low terraces, which slope almost imperceptibly to the main bottoms but are marked at their outer or western edge by a sharp rise to the higher or main terrace or upland.

The area of first-bottom land is relatively small in Lafayette Parish. In addition to the main bodies in the eastern part of the parish there are usually narrow strips along the streams, especially in the southern part. The surface of the bottom land is flat, depressed, and swampy, and traversed only by a few sloughs. Some of the imperfectly developed drainage ways are bordered by strips of wet land, which represent shallow depressions where material has been washed in from near-by areas. Through some of these water flows sluggishly, covering comparatively wide strips without definite channels.

The lowest elevation in the parish, about 8 feet above sea level, occurs in the swamps immediately east of Landry, and the highest point is in the northern part of the parish, where the approximate elevation is 42 feet. There is a total range of about 34 feet. The general surface dip and the trend of the drainage are to the southwest.

The drainage system of Lafayette Parish is fairly comprehensive, but the gradient of many of the smaller streams is so slight that the flow is sluggish, and there are considerable areas which have inadequate drainage outlets. The parish is drained by two prin-

cipal streams, Bayou Vermilion and Bayou Queue de Tortue. The former drains about seven-eighths of the area. In a general way the eastern border of the "Foreman Flats" forms the divide between these two drainage systems. The immediate watershed extends practically due north and south. There are numerous small, shallow ponds and lakes throughout the parish which, like most of the streams, are intermittently wet and dry. The lowest bottoms are covered by water the greater part of the year.

The first settlement in Lafayette Parish was made about 1760 or 1765 by Acadian exiles from Nova Scotia, Canada. About the same time a few Americans from the Carolinas and Virginia settled in the western part of the parish on Bayou Queue de Tortue. The Acadians settled along the banks of Bayou Vermilion and Bayou Carencro and at a point east of the village of Carencro, locally known as "Beau Bassin." The present population consists largely of descendants of the Acadians and descendants of negro slaves. Lafayette Parish was set off from St. Martin Parish in 1823 and organized as a separate parish. In 1844 Vermilion Parish was formed from the southern part of Lafayette Parish.

The population of Lafayette Parish in 1910 is given by the census as 28,733. Of this population 77.8 per cent is rural. There are about 80 inhabitants to the square mile. The percentage of negro population in the parish is comparatively low.

La Fayette, with a population of 6,392 in 1910, is the largest town and the parish seat. It is located in a rich agricultural section in the eastern part of the parish. It has a sugar mill, 2 cottonseed-oil mills, 3 sirup factories, 1 canning factory, a broom factory, 2 cotton gins, and a brickyard. The Southwestern Louisiana Industrial School is located here. Carencro, with a population of 609, in the northern part of the parish, is the second largest town, and Broussard, in the southeastern part, is almost as large. Scott, Milton, and Duson are railroad villages, and Ossun, Vatican, and Ridge are small inland towns.

Lafayette Parish has good railroad accommodations and no point is more than 8 miles from a station. The Southern Pacific Railroad crosses the parish from east to west and gives direct communication with New Orleans. A branch of the same system extends from La Fayette to Alexandria and another from La Fayette to Baton Rouge. Bayou Vermilion is navigable for small boats as far upstream as La Fayette.

The parish is well supplied with public roads, all of dirt construction. In general, the main roads are kept in good condition, though in winter they may be impassable in places for short periods. The less traveled roads are not given much attention. On the heavier soils it is difficult to keep the roads in good repair in rainy seasons. Most

of the roads follow land lines or section lines. Practically all the streams are bridged. There are no toll roads in the parish.

New Orleans, Baton Rouge, and Alexandria afford good markets. There is a good home market for eggs, dairy products, and poultry.

Rural mail delivery and telephone service extend to practically all localities. In general, the rural schools are modern and well equipped. Practically all are consolidated district schools.

CLIMATE.

The climate of Lafayette Parish approaches the subtropical. Owing to the proximity of the Gulf of Mexico, the climate is comparatively equable. The autumns are long and delightful, the winters chilly and rainy with much cloudy weather, the springs mild with numerous thundershowers, and the summers hot and humid.

The mean annual temperature at Lafayette is 67.6° F. December and January are the coldest months, each with a mean temperature of about 52.5°, and August is the warmest, with a mean of 81.5°. July is only 0.3° lower. The range of monthly means is thus only 29°. The lowest temperature recorded is 6° and the highest 107° F., making an absolute range of 101°. The temperature seldom rises as high as 95° F. Freezes occur at times with northerly winds, but cold spells seldom last longer than three days.

The average date of the last killing frost in spring is March 3 and of the first in fall November 13. The date of the latest killing frost recorded in the spring is March 30 and that of the earliest in the fall October 20. The average growing season is 255 days, which is long enough to permit the growing of several crops in the same field in a single season.

The mean annual precipitation is 54.1 inches. The precipitation is heaviest in June, July, and August and lightest in September, October, and November. For the summer season the rainfall averages 18.97 inches and for the period from September to November only about half as much, or 9.95 inches. The annual rainfall has varied from 37.25 inches in the driest year to 82.02 inches in the wettest year. As a rule the distribution of rainfall is favorable and long droughts rarely occur.

Snow is uncommon in Lafayette Parish, though sleet occasionally is recorded. Snow usually melts as it falls. In 1895, however, a fall of about 14 inches occurred in one storm and traces remained on the ground for five days. On the other hand, there have been continuous periods of six years with no snowfall.

The winds are prevailingly southerly. The velocity is seldom high. March and September have the most severe winds. Tornadoes are unknown, though the region is occasionally visited by destructive hurricanes.

The humidity is high, and for this reason the heat is more oppressive than in regions where higher temperatures are accompanied by low humidity. There are about 135 clear days and 88 rainy days in an average year.

The following table gives the normal monthly, seasonal, and annual temperature and precipitation as recorded at the Weather Bureau station at La Fayette:

Normal monthly, seasonal, and annual temperature and precipitation at La Fayette.

Month.	Temperature.			Precipitation.			
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.
	° F.	° F.	° F.	Inches.	Inches.	Inches.	Inches.
December.....	52.7	89	14	4.42	5.02	3.82	.....
January.....	52.3	89	16	4.19	1.35	5.15	.....
February.....	53.8	84	6	4.66	4.06	10.26	0.9
Winter.....	52.9	.....	.....	13.27	10.43	19.23	.9
March.....	62.3	89	26	3.87	2.57	7.00	.....
April.....	68.1	92	32	4.04	3.41	8.95	.....
May.....	74.4	98	43	4.00	1.98	5.04	.....
Spring.....	68.3	.....	.....	11.91	7.96	20.99	.....
June.....	80.0	103	53	6.55	2.12	18.52	.....
July.....	81.2	107	60	6.97	2.90	7.31	.....
August.....	81.5	102	53	5.45	2.04	2.09	.....
Summer.....	80.9	.....	.....	18.97	7.06	27.92	.....
September.....	77.6	99	41	3.59	4.33	5.03	.....
October.....	67.8	96	34	2.96	3.09	3.17	.....
November.....	60.1	89	22	3.40	4.38	5.68	.....
Fall.....	68.5	.....	.....	9.95	11.80	13.88	.....
Year.....	67.6	107	6	54.10	37.25	82.02	.9

AGRICULTURE.

Lafayette Parish was originally covered with a luxuriant growth of prairie grasses, with marginal areas of timber along streams and larger areas in the swamps. The first settlers located along streams, where there was an abundance of fuel and game to supply their immediate needs. At first subsistence crops, such as corn, Irish and sweet potatoes, and garden vegetables, were produced, and advancement in agriculture was slow. Hemp and indigo were grown, but were soon abandoned as unprofitable. Stock raising was an important industry in the early agriculture of the parish, and continued so until the prairies were broken up for the production of farm crops.

Cotton and sugar cane were grown as early as 1800 and 1825, respectively, and the production of these staples continued to expand until the Civil War. Cotton was the chief money crop and corn was largely grown for home consumption. In 1860 cotton, corn, sugar cane, Irish potatoes, sweet potatoes, and rice were the main crops. Agriculture was completely paralyzed by the Civil War, and it was about 1872 before conditions were readjusted and progress in agriculture renewed.

According to the United States census of 1880, there were 21,713 acres of corn in 1879, with a production of 350,604 bushels, and 12,517 acres in cotton, producing 3,489 bales. There were 783 acres in sugar cane, 469 in sweet potatoes, 110 in rice, 13 in hay, and 24 in tobacco. Corn and cotton were by far the most important crops.

Within the next decade there was a remarkable increase in the acreage under cultivation and in the crop range. The 1890 census reports 27,703 acres in corn, with a production of 430,247 bushels, and 25,414 acres in cotton, producing 10,495 bales. Sugar cane was the main money crop, and the census reported 431,100 pounds of sugar produced. The acreage in rice had increased to 843 acres, that of sweet potatoes to 935 acres, and hay to 505 acres.

In 1893, owing to panic conditions, many sugar plantations suffered heavily, and the production of sugar cane was greatly reduced. An acreage of only 8,104 acres, producing 26,140 gallons of sirup, was reported for 1899. The acreage of cotton was slightly higher at this time than at the preceding census, and the production of corn had greatly increased, the latter having superseded sugar cane to a considerable extent. The acreage of rice had been extended to 1,494 acres. The production of hay and forage was much larger, 2,849 tons being cut from 5,355 acres.

Another setback was given to agriculture in the advent of the boll weevil in 1904. The acreage of cotton materially decreased, but the farmers soon learned to grow cotton profitably under boll-weevil conditions.

The present agriculture of Lafayette Parish consists mainly of the production of corn, cotton, sugar cane, hay, and forage, sweet potatoes, rice, and Irish potatoes, ranking in the order named. The system of farm practice is not uniform throughout the parish. In the eastern and southeastern parts sugar cane is the chief money crop; in the northern part and in a strip west of the sugar-cane belt cotton and corn are the main crops, while in the western part of the parish considerable attention is directed to the production of rice. The present tendency is to abandon the one-crop method for a more diversified system.

In point of acreage, corn is the most important crop in Lafayette Parish. About one-half of the improved farm land is devoted to it.

It is grown chiefly on the Lintonia, Olivier, and Crowley silt loams, Lake Charles silty clay loam, and Iberia clay. A production of 1,229,782 bushels from 67,317 acres is reported in the 1910 census. The average yield for the parish is about 18 bushels an acre. A native yellow variety, locally known as "Creole corn," is most commonly grown. However, it is being superseded by Calhoun Red Top, a variety which yields better and has a softer grain.

The greater part of the corn is fed to live stock. Some is ground for meal. A small part is sold, and a few farmers grow corn as a cash crop.

Corn is grown in rotation with sugar cane, cotton, and rice, but chiefly with the former two. The seed bed for corn is prepared as for sugar cane and the seed planted with a drill or by hand. It is usually planted in the latter part of February or in March. Where rotated with other crops it is seldom grown more than one year in succession, but where it is grown as a money crop it is planted in the same field for a number of successive years.

Cotton is second to corn in acreage. The 1910 census reports 19,929 acres in cotton, with a production of 5,655 bales, as compared with a production of 12,829 bales from 26,835 acres in 1899, before the advent of the boll weevil. Under existing conditions cotton is profitable only where a variety is grown which matures before the weevil does serious damage. The Simpkins fulfills this requirement and it is grown almost to the exclusion of other varieties.

Cotton is strictly a cash crop and is exceeded in money value only by sugar cane. It is chiefly grown on the Olivier and Crowley silt loams and to a less extent on the other reclaimed types.

Sugar cane, though third in acreage, is the main money crop of Lafayette Parish. The acreage has fluctuated considerably. The 1910 census reports a total of 12,218 acres in sugar cane, with a yield of 171,059 tons. Sugar cane is planted at two seasons. The first planting is in October; the second is begun about the middle of January and lasts to the 1st of April. The length of the planting season depends largely on the weather.

As a rule beds 6 feet apart from center to center are prepared with a turning plow in the fall. At planting time the beds are opened with a double-moldboard "lister" and two rows of seed cane laid in the furrow. The seed stalks are cut in lengths of 15 to 24 inches by hand with a sharp knife made for the purpose, and are covered and rolled, being buried 3 or 3½ inches below the surface when the operation is completed. The planting is good for two seasons, the young plants growing from the old stalks the second year. The old stubble fields are "barred off" and a shaver is run over the foot-wide remaining strip, leaving the live ends of the stubble flush with the surface. This operation is followed by a stubble digger, which loosens the soil

and hastens the growth of the sprouts. The planted cane is also "barred off" with a plow which throws the soil away from the bed on both sides until a strip about a foot wide remains. The soil is scraped off the ridge to within $1\frac{1}{2}$ inches of the seed in order to hasten the growth.

On the most successful farms sugar cane is cultivated about every tenth day until the crop is too high to cultivate, which is usually about the latter part of July. In the first cultivation the earth is thrown away from the rows and as soon as the plants are several inches tall the soil is worked back. The final cultivation consists of turning the soil against the row with a turning plow. In addition the crop is given several hoeings.

Harvesting begins in the middle of October and sometimes lasts until the 1st of January. The cane is hauled to derricks along railroads or railroad spurs built for handling it. From here it is taken to sugar mills, where it is manufactured into crude sugar. Three sugar mills are located in Lafayette Parish—one at La Fayette, another at Billeaud, and a third at Youngsville. Some of the cane is handled in Iberia Parish.

The average price received for sugar cane is \$3.50 to \$4 a ton, and the average gross return per acre is about \$50. With proper fertilization and thorough cultivation considerably higher returns are obtained. On the average the cane runs about $11\frac{1}{2}$ to $12\frac{1}{2}$ per cent sucrose. The test basis is not used in buying cane.

Most of the cane is grown on the Lintonia and Olivier silt loams. It does best on the former soil. The crop is grown two years in succession and is usually followed by one year of corn.

The chief varieties of sugar cane grown are the "native" red or purple, D-74, and D-75. The D-74 is the most profitable and the heaviest in yield.

Rice was grown in the early history of the parish, but it was not until 1885, after rice had been grown successfully on a large scale by means of irrigation in the vicinity of Crowley, that much interest was directed to it. Its production spread eastward to the western part of the parish. According to the census, there were 2,508 acres of rice, with a return of 85,234 bushels, in 1909. The average yield for the parish was about 34 bushels per acre. The Honduras and Japan varieties are grown.

For the growing of rice the land is first leveled and then plowed about 2 inches deep. The soil is double disked and double harrowed before the seed is drilled. Sowing usually begins the 1st of April. Water is put on the land as soon as the rice reaches a height of 4 inches and is kept on until the rice turns yellow, about two weeks before harvesting. The crop is cut the latter part of August or early in September, and is handled similarly to wheat and thrashed

in the field. Rice is strictly a cash crop and most of it is sold directly from the thrashing machine to the mill at Rayne, just outside the parish. The average price is \$3.50 for a 210-pound sack.

The culture of rice is entirely confined to the western part of the parish. It is mainly grown on the Crowley silt loam and the Lake Charles and Edna silty clay loams. It does best on the Lake Charles silty clay loam. This crop is usually sown three years in succession, after which the land is either used two years for pasture or is put in corn one year and cotton one year. It is necessary to rotate in order to extirpate weeds that are injurious to the rice crop, among which the principal is red rice. Rice also is liable to injury from green and black smut, blast, and brown grain spot.

Oats are receiving increased attention, though only a few fields were seen during the progress of the soil survey. Oats furnish a valuable pasture crop during the winter months, in addition to their value as a grain crop. The crop is harvested in the latter part of May or early in June.

With the adoption of a more diversified system of agriculture hay and forage crops are becoming more important. These crops do well, but not nearly enough hay and forage are grown to supply local demands. Practically all the virgin prairie has been broken. According to the census, 9,257 tons of hay and forage were cut from 5,073 acres in 1909. Grains cut green, prairie grasses on the few scattered areas remaining, clover, timothy and clover, and timothy alone are the main hay crops. Lespedeza, or Japan clover, grows wild and does well on all the cultivated soils. It could well be more generally grown. In normal seasons it yields 2 to 4 tons an acre in two cuttings. White clover thrives and furnishes excellent pasturage in the early spring.

Cowpeas are the most important nitrogen-gathering plant grown in Lafayette Parish. They constitute the main soil-improving crop. The seed is sowed broadcast at the rate of about 1 bushel to the acre, just before the last cultivation of corn. The corn is snapped and as much of the fodder is gathered as desired; the remainder is plowed under. For some reason cowpeas do not bear well and the seed must be purchased. Different causes are assigned for the failure of the plants to produce seed, but it seems probable that a weevil which attacks the flower is largely responsible for this failure. The Clay pea is the most popular variety, though the Whippoorwill and New Era are also grown.

Considerable attention has been directed to the production of an early variety of Irish potato for the northern market. In the season of 1914 about 20 carloads were shipped from La Fayette and 6 from Broussard. They are shipped chiefly to Kansas City, St. Louis, and Dallas. The average price received is about 85 cents a bushel.

Most of the potatoes are grown on the Lintonia silt loam in the vicinity of La Fayette and Broussard. On the average, 60 bushels an acre is the yield, though with proper fertilization as much as 100 bushels is obtained. An application of 400 pounds of acid phosphate increases the yield about 30 per cent, according to reports from planters. Potatoes are usually planted the latter part of February or early in March and harvested early in May. Blue Triumph is grown almost to the exclusion of other varieties. According to the census, 494 acres were devoted to potatoes in 1909, with a production of 33,662 bushels.

Almost every farmer grows a small patch of sweet potatoes to supply the home demand. Scarcely any are grown for commercial purposes, except to supply the local markets. Sweet potatoes do fairly well, but are better suited to lighter textured soils. For 1909 the census reports 3,174 acres in this vegetable, with a production of 218,226 bushels. The Pumpkin Yam is the variety most commonly grown.

Vegetables are grown on a commercial scale near the towns and villages, but trucking is in general given very little attention. Nearly every farmer has a small garden, but it is often too small to supply even the requirements of the family. A total of 583 acres in miscellaneous vegetables is reported by the census of 1910.

Scarcely any attention has been given to orcharding. Peaches, though grown in only small quantity, are the fruit most generally cultivated. They do not do well. Pears succeed if not injured by blight, to which disease they are very susceptible. Plums thrive, but are grown only to a small extent. Figs do excellently and produce a fruit well suited to the manufacture of preserves. Orange trees can be grown, but the fruit is not cultivated on a commercial scale.

Small fruit receives almost no attention. The wild blackberry grows luxuriantly along roadsides and in uncultivated tracts throughout the parish. The farmers are beginning to set out pecan trees, but the present supply of the nut comes mostly from the swamps. The value of all orchard products, including small fruits and nuts, is given in the 1910 census as \$5,047.

Nearly every farmer keeps from four to six milch cows in addition to his young stock. Scarcely any attention is given to the dairy industry, and on many farms not enough dairy supplies are produced to supply home needs. There are a few large dairies in the vicinity of La Fayette. Milk sells for 10 cents a quart the year round. Most of the farmers have grade dairy cows, generally with some Jersey blood, and in some cases crosses of native stock and the Durham. There are only three or four silos in the parish. According to the census, the value of dairy products, excluding home use, amounted to \$19,599 in 1909.

Since the breaking up of the prairies, beef production has been carried on only in a minor way. The 1910 census reports the number of calves sold or slaughtered in 1909 as 99 and of other cattle 2,846.

More attention is paid to the breeding and raising of horses and mules than to any other live-stock industry. A number of purebred Percheron stallions have been imported. Most of the farm work is done with mules. In the raising of mules care is exercised in the selection of heavy, sound mares and well-developed jacks. There are some small flocks of sheep in the parish. Sheep and goats are reported to the number of 1,478 and 395, respectively, in 1910.

The 1910 census reports 30,628 head of hogs in the parish. Hogs are raised in small numbers on each farm, mainly to supply home needs, as pork products are marketed commercially only on a small scale at near-by towns.

Poultry constitutes a valuable asset on most farms. Nearly every farmer raises 50 to 100 chickens, and in this way supplies the family with fresh eggs and meat. A large number of ducks and geese, and some guineas are raised. The value of poultry of all kinds, and eggs, raised or produced in 1909 is reported by the census as \$186,672.

The adaptation of crops to soils has been studied very little by farmers. However, it is recognized that sugar cane does best on the Lintonia silt loam and rice on the Crowley silt loam and the Lake Charles and Edna silty clay loams, and that corn is better suited to the darker colored soils. As yet no effort has been made to determine which crops or series of crops can be grown most profitably on each soil type.

No systematic crop rotation is practiced. Fields in which sugar cane, corn, or cotton has been grown uninterruptedly for a number of years are not uncommon. Ridge cultivation is practiced exclusively, except in rice culture, where flat plowing is done. Cotton seed and a small quantity of barnyard manure are used as fertilizers, but scarcely any commercial fertilizer is used, except on the larger plantations. The census reports the expenditure for commercial fertilizers in 1909 as \$12,492, only 238 farms, 7.4 per cent of the total number, reporting outlay.

As a whole, the farm improvements in Lafayette Parish are above the average for the State of Louisiana. On farms operated by owners the buildings are usually well kept. On the smaller farms the buildings are not nearly so substantial and the tenant houses are usually small and uncomfortable. Most of the fields are fenced with barbed wire, but on the better farms woven wire is coming into use. The Cherokee rose is used as a hedge to a considerable extent and in a few places the Osage orange. Most of the farmsteads have a grove of chinaberry trees for fuel as well as for shade.

Most of the farm work is done by the family, and during the busy seasons it is not uncommon to see women and children working in the field. On the large plantations most of the labor is performed by negroes, while on the small farms the laborers are mainly white. Most of the labor is hired by the day. As a rule, the wage is \$1.25 during the harvesting season and 75 cents a day without board at other times. Where board is furnished the daily wage is about 25 cents a day less. As a rule, plenty of laborers can be had, but it is difficult to get really efficient labor. An expenditure of \$191,546 for labor in 1909 is reported for the parish by the last census, 875 farms reporting.

There are 162,329 acres in farms in Lafayette Parish, according to the census of 1910, of which 141,762 acres are improved. The average size of farms is given as 50.5 acres,¹ which is 36.1 acres less than the average size of farms in Louisiana. The size of farms has decreased considerably since 1880, when it was 110 acres, though in the last decade there has been no decrease. There are many large land holdings in Lafayette Parish.

The tenant system of farming is most common in the parish, 43.3 per cent of the land being operated by owners, 56.4 per cent by tenants, and 0.3 per cent by managers. The share system is in most common use. Cash rent varies from \$2 to \$6 an acre, depending upon the soil and the improvements. Under the share system the division of crops depends largely on the kind of crop and the part taken by the owner in the cooperation. The owner's share varies from one-fourth to one-half. A large quantity of sugar cane is produced with hired day labor.

The average land value in 1910 was \$45.69 an acre, which is an increase of \$27.28 over the value in 1900. Of the total value of all farm property 71.7 per cent is represented by the land, 11.1 per cent by the buildings, 2.9 per cent by implements and machinery, and 14.2 per cent by domestic animals. At present land values range from \$5 to \$100 an acre, depending on the soil, improvements, and location.

As a whole the agriculture of Lafayette Parish is in a prosperous condition. The advantages of diversified farming over the one-crop system are realized, and systematic rotations are beginning to be practiced by the more progressive farmers. They are beginning to make use of the advantages afforded by the dairy and beef industries in utilizing the waste products of the farm and in increasing the productiveness of the soil. More care is being exercised in the selection of cotton and corn seed. There is a general lack of sufficiently thorough cultivation, deep plowing, and proper handling of the soil to conserve moisture.

¹ Each tenancy is tabulated as a "farm" by the census. The average size of individual holdings is therefore much greater than this.

SOILS.

Lafayette Parish is crossed by the dividing line between what is considered old Mississippi alluvium or terrace and the Coastal Prairie division of the Gulf Coastal Plain. The dominant soils are derived from the old alluvium and occur on the terrace or the uplands of the parish to the east of the Coastal Plain soils. The material is believed to have been deposited by streams—the Mississippi or other streams associated with the development of the Mississippi bottoms—when flowing at higher levels than at present. These terrace soils are adjacent to and above the first-bottom, or more recent, alluvial soils, which occur along the eastern part of the parish, and on the west they pass without any sharp line of separation into the characteristic Coastal Prairie soils.

The Coastal Prairie soils can not be classed as stream deposited, but represent marine sediments. They comprise a broad, level belt extending from the western part of Lafayette Parish westward along the Gulf coast of Louisiana and Texas.

The first-bottom soils consist of comparatively recent alluvium, and over them, or at least over most of their area, sediments are being added from time to time by overflows. Along Bayou Vermilion there are some narrow strips showing the pronounced reddish-brown color characteristic of the Red River alluvium, that is, alluvium carrying enough material washed from the Red Beds region at the upper source of the Red River to impart to it a peculiar reddish color. A considerable part of the bottoms on the east side of the parish apparently represents alluvium derived in part from Mississippi overflows. The material of the smaller streams is composed of wash derived wholly or largely from the local upland or terrace soils, such as the Olivier and Lintonia types.

The soil material of the entire parish is fine textured and the dominant soils are silt loams. There is very little sandy land.

More than 75 per cent of the parish is included in what is known as the uplands, and by far the greater part of this is included in the terrace soils, the Olivier, Lintonia, and Iberia series. The remaining upland series, the Crowley, Lake Charles, and Edna, represent the Coastal Plain soils, and the Portland, Sharkey, and Collins series and Muck and Swamp are the first-bottom soils.

Lime concretions are present in abundance in some of the types, particularly in the subsoil sections, and ferruginous concretions are plentiful, especially in the more poorly drained soils. The organic content appears to be at least moderately high in nearly all of the types, and in the black soils it is very high. Much of the more poorly drained material shows acid in the litmus test.

The various soils are grouped in series according to color and structural characteristics, mode of origin, and drainage. The types, or members of the series, are separated on the basis of texture.

The more extensive series are the Lintonia, including types derived from old alluvium, with light-brown or yellowish-brown soils and a somewhat lighter colored subsoil; the Olivier, of similar derivation, with grayish-brown to brown soils and mottled yellowish and drab subsoils; the Crowley, derived from Coastal Plain deposits, with ash-gray to light-brown soils and mottled brown, yellow, and red subsoils; and the Lake Charles, similar in derivation to the preceding series, but with dark-gray to black soils and a mottled yellow and red subsoil. These four series, each represented by a single type, cover more than 80 per cent of the area of the parish and include the best agricultural lands.

In the following chapters the several soils are described in detail and their relation to the general agriculture discussed.

The names and actual and relative extent of the several soils mapped are given in the table below:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Olivier silt loam.....	63,872	38.6	Collins silt loam.....	5,056	2.9
Depression phase.....	4,288		Swamp.....	2,752	1.5
Lintonia silt loam.....	45,312	25.6	Iberia silt loam.....	1,600	.9
Crowley silt loam.....	19,456	11.0	Portland very fine sandy loam.....	1,280	.7
Lake Charles silty clay loam..	13,952	7.9	Muck.....	384	.2
Edna silty clay loam.....	7,168	4.1			
Iberia clay.....	5,952	3.4	Total.....	176,640	.....
Sharkey clay.....	5,568	3.2			

LINTONIA SILT LOAM.

The Lintonia silt loam is prevailingly a brown, mellow silt loam, 8 to 12 inches deep, underlain by a yellowish-brown silty clay loam which changes but little within the 3-foot section. Locally the lower subsoil shows faint mottlings of gray. Though the subsoil is compact, it is very friable and breaks down readily between the fingers. Where exposed in cuts, the subsoil in places shows a faint reddish tint, which, however, is not revealed in borings. The reddish tint, so common in the upper subsoil of the Lintonia as mapped in many other areas, is not so common here. The color of the soil varies from light brown in the more undulating areas to dark brown in the flatter positions. The soil is rich in organic matter and is acid, according to the litmus test. The subsoil does not seem to be quite so light in color nor so heavy as the Richland silt loam, a somewhat similar soil mapped in the northern part of the State.

As a whole, this type is remarkably uniform throughout its development, and only two phases are worthy of mention. Along the bluff,

where erosion has been rather active, the subsoil has been exposed and has given rise to a yellowish-brown silty clay loam soil, in areas which are too small and patchy to be shown on the map. At the foot of the slope along the first bottoms there are included strips, 50 to 200 feet in width, of a colluvial nature, where the material has been washed from the slopes. The soil consists of a dark-brown to black, mellow silt loam, 20 to 24 inches deep, underlain by a drab, gray, or bluish-gray silt loam mottled with yellowish brown. In the upper part of the subsoil the structure is compact, but with depth it soon becomes loose and friable. The lower part of the subsoil carries a relatively high percentage of very fine sand. A large part of this phase is under cultivation and is largely devoted to the production of corn and sugar cane, which do well.

The Lintonia silt loam differs from the Olivier silt loam in having a subsoil with a solid yellowish-brown color instead of a gray or drab subsoil mottled with yellowish brown. Areas of Olivier silt loam too small to map are included with the Lintonia.

This type is the second most extensive soil in the parish, covering 70.8 square miles. It occurs chiefly as a narrow belt, averaging 4 miles in width, along the bluff in the eastern part of the parish. Numerous smaller areas are encountered in the southern part of the parish and a few throughout the remainder of the uplands. Three areas are found on the low terrace in the northeastern part of the parish. On the west the main body of this type gives way to the Olivier silt loam and on the east to the low-lying bottom lands.

The surface of the Lintonia silt loam is predominantly flat. Where it occurs in small areas it usually lies a little higher than the surrounding more poorly drained soil. Except along the edge of the bluff, the stream channels are shallow and the slopes very gentle. In general the type is well drained, though local "sags" and depressed places are greatly benefited by artificial drainage.

This is a prairie soil, and practically all of it, except narrow, forested strips along drainage ways, was originally covered with a thick growth of prairie grasses.

Approximately 95 per cent of the Lintonia silt loam is under cultivation. At present it is the chief sugar-cane producing soil in the parish. In the season of 1915 about one-half of this type was devoted to this crop, and the remainder largely to corn, with small fields in cotton. The type is well suited to sugar cane, and ordinarily yields 12 to 20 tons an acre, though with proper fertilization and thorough cultivation much higher yields are obtained. Corn is a very important crop on this type and does well, yielding 20 to 30 bushels an acre. Owing to the prevailing low price of cotton, scarcely any of this crop was planted in the season of 1915. Cotton yields on the average about one-third bale to the acre. Lespedeza does well,

but only a small acreage is devoted to this legume. Ordinarily two cuttings, with a total yield ranging from 2 to 4 tons, are obtained. In the vicinity of La Fayette and Broussard Irish potatoes are grown on a commercial scale and in normal seasons are profitable. Nearly every farmer on this type grows enough sweet potatoes to supply home needs.

No definite rotation is practiced on this type, but the general tendency seems to be to keep the land two years in sugar cane, alternated with one year of corn. Cowpeas are planted with corn and turned under.

This soil works up into an excellent tilth and can be worked under a wide range of moisture conditions. Even when cultivated while very wet the soil clods little. Improved machinery is commonly used in farm operations.

Farm values on this soil range from \$30 to \$100 an acre, depending upon location, improvements, and condition of the land.

Only a small quantity of barnyard manure and commercial fertilizer is used. According to experiments carried on by the industrial school at La Fayette, an acreage application of 200 to 300 pounds of acid phosphate and about 100 pounds of cotton seed has proved very good for corn and cotton. No increase in yield resulted from the application of potash fertilizers. Nitrogen is advantageously supplied by introducing cowpeas and velvet beans in crop rotations. Owing to the acid condition of the soil, a liberal application of lime would likely prove beneficial. On account of its high content of organic matter and friable, silty texture, the soil withstands drought well, provided proper attention is given to the conservation of soil moisture. Under the present system of farming the soil is gradually diminishing in fertility.

OLIVIER SILT LOAM.

The typical Olivier silt loam is a brown to dark-brown silt loam, grading into lighter brown silt loam and underlain at about 8 to 12 inches by grayish or drab, somewhat compact silty clay loam, usually showing some mottling of yellowish brown. In places there is a sub-surface layer reaching down to about 15 to 20 inches, which consists of gray or drab silt loam mottled with yellowish brown. Often the lower subsoil is a quite compact and impervious clay. There are many places where the lower subsoil is yellow or yellowish brown, with only slight mottlings of gray or drab, but usually showing considerable rusty-brown, friable, concretionary material. On the other hand, there are places where the upper subsoil is quite yellowish, the gray or drab mottling not appearing except in the lower depths.

Small iron concretions are characteristically present from the surface downward. The soil is fairly high in organic matter but apparently not so rich as the Lintonia silt loam. It is acid, according to the litmus test.

The areas having the compact, impervious clay in the deep subsoil occur in the less well drained situations. The soil here is a light-brownish silt loam, about 6 to 10 inches deep, underlain by light-gray silt loam with scarcely any yellowish-brown mottlings. This light-gray stratum is rather friable and consists of silt loam to silty clay loam. Yellowish-brown mottlings appear below, and become more conspicuous with depth. This layer rests on a compact, impervious drab or gray clay, mottled with yellowish brown.

A forested variation, occurring chiefly as a narrow strip along Bayou Vermilion, has a lighter color in the surface soil than the typical soil. In places it approaches the characteristics of Calhoun silt loam. It is chiefly covered with red and white oak, with some pecan and magnolia.

There are some small patches of Calhoun silt loam and Lintonia silt loam included in this type as mapped.

The Olivier silt loam is the most extensive soil in the parish, covering 38.6 per cent of its area. It occurs as a belt, with an average width of 5 miles, west of the Lintonia silt loam strip and in small areas scattered throughout the parish. Three areas occur on the low terrace east of the bluff. On the west it gives way to the Lake Charles silty clay loam and the Crowley silt loam. In the southern part of the parish it is more or less interspersed with small areas of Lintonia silt loam.

The surface of this type is prevailingly flat, but is relieved by depressions, shallow stream channels, low ridges, and draws. There are numerous shallow, intermittent ponds on this type. The drainage of the surface soil is apparently good, but the subsoil is obviously inadequately drained and aerated. Owing to the shallow, obstructed, and crooked stream channels with very low gradient, the water is removed slowly from this type after heavy rains. Many shallow ditches have been constructed to remove the surface water, but experience indicates that a standard system of ditches with tile is necessary for the best results.

The boundary line between the Lintonia silt loam and the Olivier silt loam is not sharp, as there is not everywhere a distinct topographic change from one to the other. However, as a rule, the Olivier silt loam occupies more nearly level and more depressed positions.

Most of this type was originally covered with a thick growth of prairie grasses, of which only a few scattered patches remain. About 90 per cent of the Olivier silt loam is under cultivation. Corn, sugar cane, and cotton are the principal crops. Corn does well and ordinarily yields 20 to 25 bushels an acre. The type is well suited to sugar cane, though it does not do so well as on the Lintonia silt loam. The average yield is 12 to 15 tons per acre. Cotton produces

from one-fourth to one-half bale per acre. The total production is at present materially decreased on account of the prevailing low prices. Lespedeza does very well, but is not extensively grown. As a rule, only enough sweet potatoes are produced to supply the home needs. The yield is from 30 to 60 bushels an acre.

Most farmers do not follow any systematic crop rotation. A rotation followed by some farmers consists of one year corn and cowpeas, one year oats and lespedeza, followed by one year cotton, or two years of sugar cane. The cowpeas are planted with the corn and the corn-stalks and pea vines are plowed under as soon as the corn is harvested. The land is then sowed to oats in the fall, with lespedeza sowed some time in March as a nurse crop. The oats are harvested in May and the lespedeza occupies the land until fall. Usually three cuttings of lespedeza are obtained. The oat crop is pastured during the winter months.

This soil can be cultivated under a wide range of moisture conditions. Only small quantities of manure and commercial fertilizer are applied. On the larger plantations commercial fertilizers are more generally used. The fertilizer requirements are practically the same as those of the Lintonia silt loam. The productive capacity of this soil has been impaired by the one-crop system of farming.

The value of farm land on the Olivier silt loam varies from about \$25 to \$50 an acre, depending on improvements and location.

Olivier silt loam, depression phase.—The Olivier silt loam, depression phase, is a grayish-brown to dark-brown, rather heavy silt loam, underlain at about 6 to 10 inches by dark-gray to black, friable, heavy silt loam, sparingly mottled with yellowish brown or rusty brown. At any depth from 18 to 24 inches a compact silty clay loam is encountered, which has a mottled dark-gray and rusty-brown color and contains numerous brownish iron concretions. In places it is noticeably friable or powdery when loosened with the soil auger. The layer is 3 or 4 inches thick and passes into a dark-drab, tough, plastic clay, mottled with bright yellow, yellowish brown, and rusty brown. The drab shade becomes lighter and also the mottlings become lighter in color with depth. In some borings the heavy subsoil is not reached above 40 inches and in others it lies as close to the surface as 15 inches. Iron concretions are common on the surface and throughout the soil section, occurring in the lower subsoil as black iron oxide. The soil is rich in organic matter.

This phase is very limited in extent and occurs in shallow basins and in depressions at the heads of and along streams, chiefly in the Lintonia and Olivier silt loam types. The basins are shallow, with an average depth of 2 or 3 feet, though occasionally they reach 10 feet. The same is true of the depressions along watercourses, and in some cases the slope between the depression and the surrounding type is so

slight as to be imperceptible. This phase is poorly drained and water stands on the soil for a long time after heavy rains, the areas appearing as small ponds or lakes.

Scarcely any of the soil is under cultivation. Where the areas are large enough they are utilized for pasture, to which use they are well suited. Most of the phase could be reclaimed by a comprehensive drainage system. The larger areas should prove valuable land for rice growing, owing to their impervious subsoil.

CROWLEY SILT LOAM.

The soil of the Crowley silt loam consists of a brown to brownish-gray silt loam, underlain at an average depth of about 8 inches by a light-gray, rather pulverulent silt loam, mottled sparingly with yellowish brown and occasionally with red. As a rule the change in color from soil to subsoil is sharp. The subsoil, beginning at about 15 to 20 inches, is a moderately tough, plastic, impervious clay of a dark-drab or drab color, mottled with red, reddish yellow, yellowish brown, and yellow. In places the red disappears with depth, but where the soil is typically developed it becomes more conspicuous downward. Generally the drab color and the mottlings become lighter with depth, and in places the subsoil becomes lighter in texture with increasing depth, changing to a silty clay loam in the lower part. Its plastic and impervious structure and its red mottlings, which vary from yellowish red to bright red and from moderately to intensely conspicuous, are the distinguishing features of the subsoil of the Crowley silt loam. Where the soil approaches or borders the Olivier silt loam there is considerable similarity of material, except in the red mottlings of the Crowley. Small iron concretions are abundant on the surface and throughout the soil section. The type is in an acid condition, according to the litmus test.

A forested phase of this type is developed in narrow strips along Bayou Queue de Tortue and Indian Bayou, and along Granges Coulée and Coulée Ile des Canne. The soil here consists of a gray silt loam, mottled with yellow, to the depth of 15 or 20 inches, where it passes abruptly into drab or gray silty clay mottled with red, yellow, and yellowish brown. The subsoil is similar to that of the typical Crowley silt loam. The red mottlings seem to be less conspicuous along the streams. In places there is a shallow layer of grayish-brown silt loam on the surface. Along streams this phase occurs as slopes, but adjoining the typical Crowley silt loam it is flat and is not so well drained. It is not uncommon to find several inches of water standing on the more nearly level areas. Where the type is cultivated it assumes the characteristics of the typical Crowley silt loam. The principal growth is white and red oak, with some gum, mayhaw, and other moisture-loving trees.

The Crowley silt loam is the third most extensive soil type in the parish, covering 30.4 square miles. It occurs only in the western and southwestern parts. The largest area is in the extreme western part and extends into Acadia Parish, where it is the predominating soil type, and also into Vermilion Parish. The second largest area lies a few miles east of Ridge. There are five small areas in the vicinity of the larger tracts.

This soil is generally flat and has good surface drainage, but the subsoil is rather poorly drained and shows effects of the lack of thorough aeration. Small basinlike areas and depressions are common on this type. The installation of a standard drainage system is probably necessary for the best crop returns.

Most of the type was originally covered with the various grasses common to the prairie section of southern and southwestern Louisiana. Practically all of it is under cultivation and most of it is devoted to corn, cotton, and rice. At present corn is the principal crop, and in favorable years it does well, yielding 15 to 25 bushels per acre. Considerable cotton was grown previously to the season of 1915, when, owing to the low prices of this fiber, the acreage was materially reduced. Ordinarily one-fourth to one-third bale of cotton is the acreage yield. The production of rice is, as yet, carried on in a small way, but the growing of this cereal could be profitably extended over the whole type. Owing to its impervious subsoil, which would retard the percolation of irrigation water, this type is naturally suited to the production of rice. On the average 40 to 50 bushels an acre are obtained, and with the best fertilization and culture yields are much higher. As a rule, enough sweet potatoes are produced to supply the home demands. The virgin prairies are cut over for hay.

As on the other soil types, no systematic crop rotation is followed. On farms where corn and cotton are grown they are usually alternated at the choice of the individual farmer. The more progressive farmers follow the same rotation as is practiced on the Olivier silt loam type. On rice farms more attention is given to crop rotation, largely because of the necessity of keeping down weeds in the rice field. There are two rotations followed here. One consists of keeping the land three years in rice and two years in pasture, returning to rice; in the other a cultivated crop, either corn or cotton, is grown for two years in place of pasturing.

Only a small quantity of commercial fertilizer or barnyard manure is used. According to the rice experiment station at Crowley, this type is largely in need of organic matter and phosphatic fertilizer. The organic matter is applied in the form of cottonseed meal and the phosphorus in the form of acid phosphate.

This soil is easy to handle and not much difficulty is experienced in obtaining a good, mellow seed bed. This soil clods more easily than the Olivier silt loam.

The Crowley silt loam is valued at about \$25 to \$40 an acre, depending on improvements and location.

LAKE CHARLES SILTY CLAY LOAM.

The Lake Charles silty clay loam is a very dark brown to black silty clay loam, passing abruptly at an average depth of about 12 inches through brownish silty clay into yellowish-brown or yellowish-drab, somewhat plastic silty clay, mottled sparingly with yellowish brown. The yellow increases with depth until the lower subsoil becomes characteristically quite yellow, with a greenish tint in places. In places the immediate surface soil is a silt loam. The subsoil is highly calcareous, the lime existing chiefly in the form of concretions. In numerous cuts it was noticed that the concretions were often concentrated in a thin layer about 20 or 24 inches below the surface. Iron concretions occur on the surface and throughout the 3-foot section, though they are not nearly so abundant as on the Olivier silt loam. As the color indicates, the soil is rich in organic matter. It is neutral, or nearly neutral, to litmus paper.

This type is rather inextensive. It occurs mainly in a belt about 4 miles wide, running north and south through Duson and Ridge, in the western part of the parish. Other areas are found close to this belt and there are two northwest of Carencro.

The surface of the Lake Charles silty clay loam is flat, without any apparent slope, and drainage is imperfect. Owing to its high content of organic matter and its heavy texture, the soil rarely suffers from drought if properly handled.

Practically all of this soil was originally covered with water-loving prairie grasses and sedges. Approximately 92 per cent of it is now under cultivation, largely devoted to corn, cotton, and rice. It is well adapted to corn and is frequently spoken of as "corn soil." Ordinarily it yields 25 to 35 bushels an acre. Cotton does well and yields from one-fourth to three-fourths bale to the acre. Increasing attention is being devoted to rice culture on this soil. Rice yields are higher on this type than on the Crowley silt loam; 40 to 80 bushels per acre are obtained with proper care. The soil is too heavy for good results with sweet potatoes, though Irish potatoes do fairly well.

The Lake Charles silty clay loam is rather difficult to handle, mainly on account of its imperfect drainage. When cultivated while too wet it forms clods which are difficult to reduce, though under favorable moisture conditions the soil works into a rather mellow seed bed. On account of the high lime content, clods formed by wet plowing crumble upon drying. Scarcely any barnyard manure and no commercial fertilizers are used.

The establishment of systematic drainage with tiles about 3 or 4 rods apart will be necessary for the most successful use of this type.

Land values on the Lake Charles silty clay loam range from \$35 to \$40 an acre.

EDNA SILTY CLAY LOAM.

The soil of the Edna silty clay loam to a depth of 4 to 6 inches consists of a brownish-drab, gray, or drab silty clay loam, mottled with rusty brown or yellowish brown. This is underlain by a drab to light-drab, plastic silty clay, which becomes lighter in color with depth. The subsoil is sparingly but distinctly mottled with yellowish brown. Small iron concretions and rusty-brown ferruginous material are commonly present. When dry the soil has a decidedly grayish cast. The soil is neutral, or nearly so, to the litmus test.

The Edna silty clay loam differs essentially from the Lake Charles silty clay loam in having a lighter colored surface soil and less perfect drainage.

This type is of small extent, covering 11.2 square miles, and is intimately associated with the Lake Charles silty clay loam. It occurs in poorly drained depressed positions. The stream channels traversing this type are very shallow and ill defined. The type was originally covered with tall, water-loving sedges and reeds.

About 50 per cent of the Edna silty clay loam is under cultivation, the remainder being in virgin prairie. It is devoted entirely to the production of rice, as the soil is too poorly drained for the growing of corn and cotton. Rice does well and yields ordinarily 30 to 50 bushels an acre.

Owing to the imperfect drainage of this type, much difficulty is often experienced in preparing the land for rice. Under favorable moisture conditions the soil works up into a mellow seed bed, but when wet it becomes very cloddy.

Drainage is the paramount problem on this soil. The soil is too poorly drained for proper preparation, and also for the harvesting of rice. Some drainage is necessary for the most profitable production even of rice on this soil.

Land of this type sells for \$20 to \$30 an acre, depending on the drainage improvements.

IBERIA SILT LOAM.

The soil of the Iberia silt loam consists of a dark-brown to almost black, heavy silt loam, approaching in places a silty clay loam. It ranges in depth from 6 to 10 inches. The surface soil rests on a dark-drab silty clay to silty clay loam, mottled conspicuously with yellowish brown. This stratum is underlain at about 15 to 20 inches by a lighter textured layer of drab or gray color, highly mottled with bright yellow or reddish yellow. The subsoil is rather plastic in the upper portion, but becomes less plastic with depth and is moderately friable in the third-foot level. Iron concretions are abundant throughout the soil section as well as on the surface. The soil is rather high in organic matter.

The Iberia silt loam differs from the Olivier silt loam in having a darker surface soil and a heavy subsoil becoming lighter in texture with depth. In color of subsoil the two types are similar.

This type is minor in extent. It occurs as a single area in the northwestern part of the parish, developed on a low terrace about 10 feet above the level of the Sharkey clay. The surface is flat, but in general the drainage is good.

The type was originally covered with a luxuriant growth of prairie grasses. Practically all of it is now under cultivation, largely to corn and cotton. Corn does well and ordinarily yields 20 to 30 bushels an acre. On the average cotton yields one-third bale to the acre. Sugar cane does well on this type, but it is produced only for sirup for home consumption. This type lies too far from railroad accommodations for the profitable production of sugar cane for sugar. The soil is suited to the production of lespedeza, bur clover, cowpeas, and vetch.

At present no regular system of rotation is practiced, except that cotton and corn are frequently alternated. Only a small quantity of barnyard manure and cotton seed and scarcely any commercial fertilizers are used.

The value of this type ranges from \$30 to \$40 an acre, depending largely on improvements.

IBERIA CLAY.

The soil of the Iberia clay consists of a black waxy clay, 8 to 15 inches deep, underlain by a drab, sticky, plastic clay, mottled with yellowish brown and yellow, which continues to the depth of 3 feet. The subsoil becomes lighter in color with depth, and in places has a decidedly bluish cast. The change from soil to subsoil is gradual, and generally the transitional zone is a drab clay mottled conspicuously with yellowish brown, though in some borings the mottling is reddish brown. There are a few iron concretions in the subsoil. The subsoil is highly calcareous, the lime occurring in the form of concretions. A high percentage of organic matter gives the soil its characteristic dark color. The Iberia clay is locally styled "terre gras."

There are in this type lighter colored spots with lighter textured subsoil. These consist of a brown silty clay, underlain by sticky, plastic clay, mottled with yellow and sparingly with reddish yellow. Below about 24 inches the subsoil becomes lighter in texture, changing to heavy silt loam or silty clay loam mottled drab and yellowish brown.

This type covers 9.3 square miles. It is entirely confined to the eastern part of the parish, on low terraces. It is very seldom overflowed, except during abnormal floods of the Mississippi River. The surface of this type is nearly level and drainage is imperfect.

The native vegetation consists of prairie grasses, with timber along the margins of the areas.

This type is preeminently a corn soil and one of the best in the parish where well drained. Owing to the rank late growth of cotton, a greater loss is caused by the boll weevil than on the lighter textured soils. Corn yields 25 to 35 bushels and cotton one-fourth to one-half bale per acre.

Much of the Iberia clay is now used solely as pasture, but it is rapidly coming under cultivation. Some of the land northeast of Broussard is being put in rice. Lespedeza, sweet clover, and cowpeas succeed on this soil. As a whole the soil is in need of better drainage, especially for the best production of corn.

The soil is sticky when wet. If worked when the moisture conditions are most favorable, that is, just after the soil has dried sufficiently not to be sticky, it breaks up into granules, but if cultivated when too wet the granules coalesce and form intractable clods. These, however, owing to the high lime content, disintegrate or pulverize rapidly on drying out. No fertilizers of any kind are used. This soil has proved very durable.

The type has a value of \$30 to \$50 an acre, depending mainly on drainage conditions.

PORTLAND VERY FINE SANDY LOAM.

The Portland very fine sandy loam consists of a light-brown to grayish-brown very fine sandy loam, somewhat reddish in the subsurface material and underlain at about 24 to 30 inches by yellowish to light brownish red clay.

This type is of small extent and occurs only as narrow, interrupted strips along Bayou Vermilion, only a few feet above the Sharkey clay and Swamp. The soil has good drainage, although it is inundated during abnormally high water stages.

The natural growth on this type is practically the same as that on the Collins silt loam along Bayou Vermilion. Cotton, corn, sweet potatoes, and Irish potatoes are the principal crops. Cotton yields about one-fourth to one-half bale and corn 20 to 30 bushels an acre. Sweet potatoes yield about 100 bushels to the acre. The soil is well suited to Irish potatoes and peanuts, though neither crop has received much attention. It is also well suited to the growing of tomatoes, melons, and other vegetables.

The Portland very fine sandy loam is valued at \$15 to \$30 an acre, depending on its liability to overflow.

SHARKEY CLAY.

The Sharkey clay is a dark-drab to gray plastic clay, mottled with yellowish brown, and underlain by drab plastic clay mottled with brownish yellow, the mottling becoming more conspicuous and lighter with depth. Lime concretions are present, being abundant in the subsoil of some areas. The soil has a characteristic granular structure when dry.

The Sharkey clay is the most extensive bottom-land soil in the parish. Its occurrence is entirely in the Mississippi first bottoms. The type is almost level and sometimes depressed, being interrupted by low ridges, sloughs, and cypress brakes. It is not well drained, and the surface water is removed slowly after heavy rains. In areas adjoining the blufflike slope from the higher land water stands during the winter and spring months. Most of the land is subject to annual overflow.

The type, in general, supports a growth including white oak, red oak, water oak, tupelo gum, sweet gum, black gum, pecan, and cypress. It is used largely for the ranging of cattle and hogs. A few small, higher lying areas are used for growing corn and cotton. Owing to the poor drainage, the yields of these crops are low.

With proper drainage, corn, forage and hay crops, and rice could be successfully grown, though the type when reclaimed is difficult to handle, being in this respect similar to the Iberia clay.

Land of this type ranges in price from about \$5 to \$20 an acre, depending on the cost of improvement. A large portion of the wood for fuel used in the parish is obtained from this type.

COLLINS SILT LOAM.

The Collins silt loam is a brown, mellow silt loam which passes at about 8 to 10 inches into dark-brown to black silt loam or silty clay loam, this in turn grading at variable depths, usually at about 14 to 24 inches, either into compact, brittle silty clay, mottled grayish, rusty brown, and yellowish brown, or into plastic clay, mottled yellowish brown and drabish brown, with reddish yellow in places. There are places also where the lower subsoil is a drab, compact silty clay loam. The lower subsoil is rather impervious, yet the soil portion has fairly good drainage.

Along some of the small streams there are included strips of soil which lie only a few feet below the level of the adjoining soils, and the material of which largely represents inwash from the adjoining soils, probably with little true alluvium. These strips are included with the Collins silt loam, although they are recognized as really representing a phase of the type. The soil in these places consists of a dark-brown to dark-drab silt loam, underlain at variable depths, usually between 12 and 24 inches, by drab, compact silty clay loam, frequently mottled with rusty brown and containing small, black concretions. The lower subsoil is more grayish or lighter drab and in places is more silty and friable. Also in places the soil is somewhat mottled with dark drab and rusty brown and the subsoil consists of mottled drab and yellowish-brown silty clay, passing into drab silty clay. There are situations where the texture ranges to silty clay loam, e. g., in an area bordering the parish line about 1 mile southeast of Milton.

There are numerous iron concretions on the surface and throughout the soil section, as well as numerous black iron concretions in the lower subsoil. The type is rich in organic matter.

The Collins silt loam is of small extent, covering only 7.9 square miles. It occurs in the first bottoms along Bayou Vermilion and smaller streams and is largely confined to the southern part of the parish.

The type has a flat topography, though in general the soil portion has fairly good drainage. The subsoil is rather poorly drained, owing to its impervious character. Following heavy rains the type is subject to overflow, but the inundations are usually of short duration.

The material composing this type is largely of alluvial origin. It is derived mainly from wash from the Lintonia and Olivier silt loams. Some colluvial material has been washed over this type along the margin of the first bottom.

The areas occurring along Bayou Vermilion support a forest growth of oak, gum, cypress, etc., and the remaining areas were originally covered with tall sedges and water-loving plants. A large proportion of this type is used for pasture and the remainder for the production of corn, cotton, and sugar cane. Where properly drained these crops do well. Ordinarily corn yields 20 to 30 bushels per acre, cotton one-third to one-half bale, and sugar cane 12 to 18 tons.

Little attention is given to systematic crop rotation. Scarcely any commercial fertilizer or manure is used. Owing to its flat topography, silty texture, and friable structure, the soil is easily handled.

MUCK.

The type mapped as Muck consists largely of partially decomposed vegetable matter carrying variable quantities of washed-in soil material. It varies in depth from a few inches to 3 feet or more. The earthy material increases with depth and the lower portion of the soil section carries a high percentage of clay, being in many instances a mucky clay. As a rule, at some level from about 18 to 24 inches light-gray fine sandy loam to fine sand is encountered. In places the subsoil is a bluish-gray, plastic clay and in others it is a bluish-gray compact sandy clay.

Muck occurs in wet, swampy strips along the outer margin of areas of Swamp and of Sharkey clay, adjoining the bluff. The soil is wet the year round, owing to seepage from higher lying land. It is usually inundated by backwaters from the bayous during the winter and spring months. Two areas are mapped, one immediately east of Landry and the other about 3 miles east of Carencro.

The material owes its origin to the accumulation of organic matter from the remains of vegetation. The soil supports a thick growth of cypress and gum. Extensive drainage reclamation will be necessary to put this land in condition for cultivation.

SWAMP.

Swamp as mapped in Lafayette Parish embraces the forested bottom-land areas which were from 2 to 6 feet under water during the progress of the soil survey. From reports of farmers this is the normal condition during the winter and spring seasons. The water disappears the latter part of May and the Swamp remains dry until the first part of December. As far as can be ascertained from borings made from boats along the margin of the Swamp, the soil is a black, waxy clay to the depth of 4 to 8 inches, underlain by a plastic, impervious, gray or drab clay, mottled with yellowish brown. There is considerable mucky material over the surface in places.

This type supports a growth of gum, oak, cypress, pecan, etc. The Swamp mapped is confined to two small areas north of Broussard. The land is valued at \$3 to \$5 an acre.

SUMMARY.

Lafayette Parish, Louisiana, lies about 30 miles north of the Gulf of Mexico. It has an area of 276 square miles, or 176,640 acres. The topography is prevailingly flat, existing relief being only slight.

The parish is drained by two principal streams, Bayou Vermilion and Bayou Queue de Tortue, and their tributaries. The general direction of flow is to the southwest, and in general the drainage is fairly good.

The first permanent settlement in Lafayette Parish was made about 1760 or 1765, and the parish was organized in 1823. The first settlers were largely Acadian exiles from Nova Scotia, Canada. According to the 1910 census, the population is 28,733.

La Fayette is the principal town, located in the eastern part of the parish. It is the parish seat and has a population of 6,392.

The railroad facilities in Lafayette Parish are good. No point is more than 8 miles from a station.

The climate of Lafayette Parish is almost semitropical. The annual precipitation averages 54.1 inches, and the mean annual temperature is 67.6° F. The normal growing season is long enough to permit the growing of several crops in a season.

Corn, cotton, and sugar cane are the principal crops. In the western part of the parish rice is grown, chiefly on the Crowley silt loam and the Lake Charles and Edna silty clay loams. Considerable attention is given to the growing of potatoes on a commercial scale in the vicinity of Broussard and Lafayette. The production of beef, pork, and dairy products is becoming more important. Truck crops are produced on a small scale.

No definite crop rotation is practiced, and the adaptation of crops to the various soils has been studied little.

Excluding Muck and Swamp, 10 soil types and 1 phase, representing 9 series, are recognized in Lafayette Parish. They are classed in

two main groups—upland soils and first-bottom (recent-alluvial) soils. The uplands include the old-alluvial terrace covering the greater part of the parish, and the Coastal Prairie division of the Coastal Plain province developed in the western part of the parish.

The Lintonia silt loam is the second type in extent, and the best agricultural soil in the parish. It is the principal sugar-cane soil, and is considered good also for corn and cotton.

The Olivier silt loam is the first type in extent. It is largely under cultivation and is used for all the staple crops. The depression phase is unimportant and is used principally for grazing.

The Crowley silt loam is confined to the western part of the parish. Corn, cotton, and rice are the principal crops. Owing to its flat topography and heavy, impervious subsoil, this type is naturally well suited to the production of rice. It is a leading rice soil of Louisiana and Arkansas.

The Lake Charles silty clay loam is a dark-colored prairie soil. It is chiefly devoted to corn, which does excellently where the soil has proper drainage. Rice does well, and larger yields are obtained than on the Crowley silt loam. Some cotton is grown.

The Edna silty clay loam is a light-colored prairie soil, occupying the poorly drained, lower lying positions in association with the Lake Charles silty clay loam. Owing to its imperfect drainage, only a small portion of the type is utilized for farm crops. Rice is practically the only crop grown.

The Iberia silt loam belongs to the lower terrace group, lying at the edge of the Mississippi first bottoms. Corn and cotton are the chief crops grown.

The Iberia clay occurs on higher lying levels in the Mississippi first bottoms. It is best suited to corn. This soil, together with the Sharkey clay, is the most difficult soil in the parish to handle.

The Portland very fine sandy loam occurs chiefly as low levees along Bayou Vermilion. Corn, oats, sweet potatoes, and truck crops do well on this soil.

The Sharkey clay is the most extensive first-bottom soil. It is developed in the Mississippi bottom lands. The greater part of the type is unreclaimed and is used for the ranging of hogs and cattle.

The Collins silt loam is an alluvial soil of the first bottoms. A large part is pastured. The remainder is largely utilized for the growing of corn, sugar cane, and cotton.

Muck consists of decaying accumulations of organic matter. It is not an extensive type. It occurs in poorly drained strips along the outer margin of the Mississippi first bottoms.

Swamp includes forested wet land which can not be separated into soil types. It is normally under water a large part of the year.

[PUBLIC RESOLUTION—No. 9.]

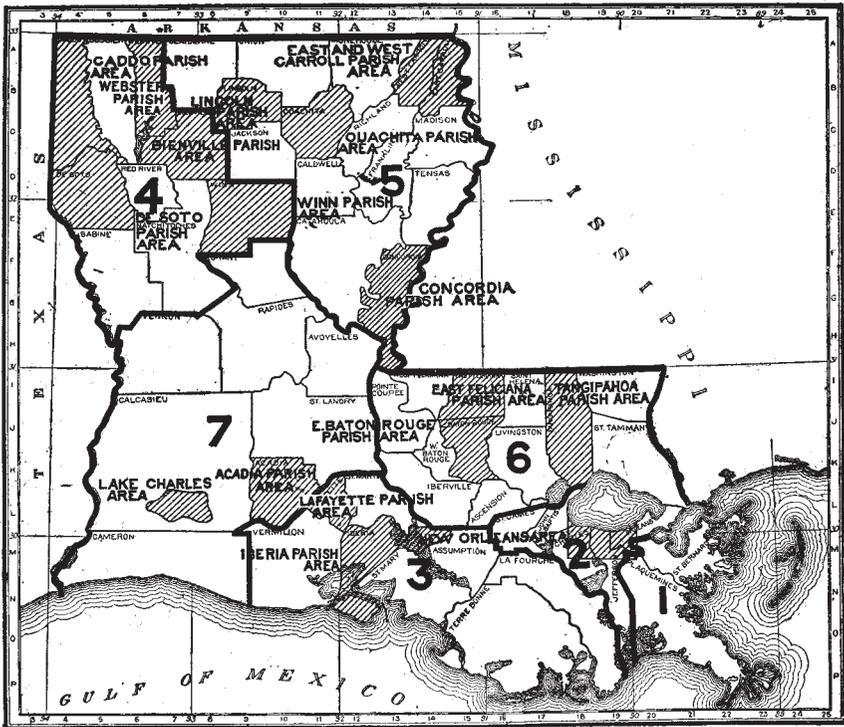
JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, providing "for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

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 Louisiana.

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