

SOIL SURVEY OF LEE COUNTY, SOUTH CAROLINA,

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DESCRIPTION OF THE AREA.

Lee County, S. C., is situated in the north central part of the State, and entirely within the Coastal Plain. It is bounded on the north by Darlington, Chesterfield, and Kershaw counties, on the west by Kershaw and Sumter counties, on the south by Sumter County, and on the east by Darlington and Florence counties.

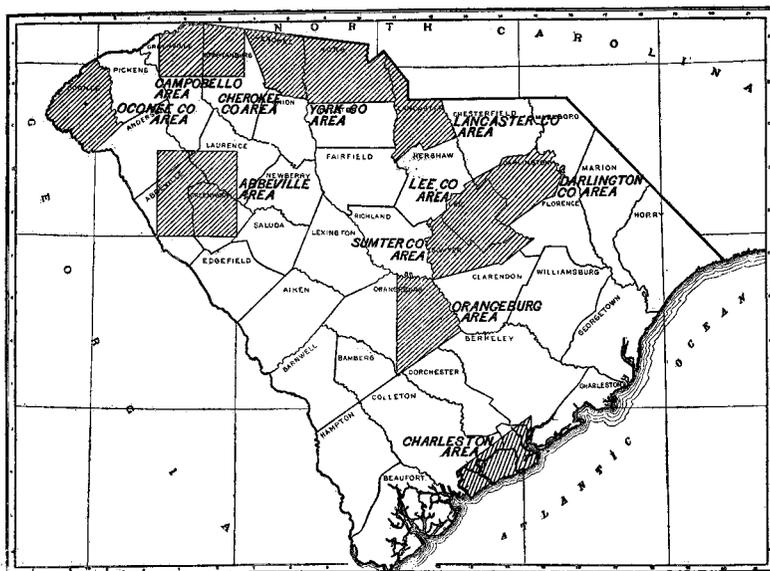


FIG. 10.—Sketch map showing location of the Lee County area, South Carolina.

The surface varies from flat to hilly, the flat areas being poorly drained. A line drawn northeast and southwest through the town of Bishopville, on the east side of Lynches River, separates in a general way the hill country from the flat country, the hills lying to the north and west of this line.

As one passes north the elevation increases until the hills are reached, the rise being nowhere abrupt, but a gradual upward sweep.

The hills have good drainage, being cut by V-shaped valleys. In the Sandhill sections the hills rise to considerable height and are very steep. In general, the southern part of the county is poorly drained, although ridges from 6 to 20 feet in elevation follow the stream courses. These ridges are well drained and suitable for cultivation. The elevation of St. Charles is 165 and of Elliott 169 feet above tide. These are the only definite elevations available, and both towns are in the southern part, where the country is lowest. In the hills the elevation above Bishopville probably reaches 300 or 400 feet.

The main streams of the county flow almost south. The eastern side of the county is drained by Lynches River, which follows a very tortuous channel. Its tributaries are very small, except in the northern part, where the drainage from the Sandhill areas enters. The drainage of the central part has its outlet principally through Black River, while that of the western part is carried off through Black River and Scape Oer Swamp. Cowpen Swamp also drains a part of the southwestern corner, but Scape Oer Swamp, which rises just at the northern edge of the county, probably carries more of the drainage waters of the county than any other stream. Most of the streams have their sources in the hill country. In the southern part of the county they become very crooked and sluggish, so that the drainage of this section is slow.

South Carolina was first divided into districts, and Lee County was included in Sumter district. The first settlements took place about the year 1750 along Lynches River. The settlers came principally from Virginia and North Carolina, but a few came directly from Scotland. The present population is composed largely of direct descendants of these early settlers.

The transportation facilities are fairly good. They are better in the southern than in the northern part of the county. All of the railroads belong to the Atlantic Coast Line system. There are two lines crossing the southern part of the county, almost parallel to each other and about 5 miles apart. The line passing through Lynchburg is a main line; the one passing through Elliott extends from Sumter, S. C., to Fayetteville, N. C. At Elliott there is a branch line passing through Bishopville, its eastern terminus being at Lucknow.

The county roads, as a general rule, are fair. Some in clay areas are difficult to travel in the winter, and others in the region of the Sandhills are very sandy. Much interest has been taken in the building of good roads in the last few years and the road system is rapidly being extended and improved. Road material is at hand in the shape of the sandy clay which underlies the region.

The chief town of the county is Bishopville, the county seat, with a population between 2,000 and 2,500. It is situated a little east of the center of the county. This town has been the county seat only

since 1902, has made a wonderful growth, and has many new public and private buildings. It is the only town of any size and receives the bulk of the trade, although other smaller towns, including Lynchburg, do a good business. Some of the trade in the southwestern part of the county goes to Sumter, which is nearer this section than Bishopville.

CLIMATE.

The climate of Lee County is mild and equable. Sometimes the temperature drops below freezing, but such a condition only lasts for one or two days. The summer days are frequently quite hot, but the nights are usually very pleasant, especially in the hill section. The growing season is long and vegetables can be grown during almost the entire year. The crops in the flat section of the county are generally about a week in advance of those in the hill section.

The rainfall is ample for all crops and is well distributed throughout the year. As there is no Weather Bureau station in Lee County, the figures given below are taken from the records of the station at Stateburg, in the adjoining county of Sumter, and represent fairly well the climatic conditions of Lee County.

Normal monthly, seasonal, and annual temperature and precipitation at Stateburg, S. C.

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.....	47	75	6	3.0	2.5	2.0	0.2
January.....	45	78	12	3.4	2.5	2.9	1.0
February.....	49	80	3	4.2	1.5	7.3	3.9
Winter mean.....	47			10.6	6.5	12.2	5.1
March.....	55	87	20	3.7	4.4	4.2	T.
April.....	62	91	32	3.1	1.4	3.0	0.0
May.....	72	101	44	3.3	3.1	1.7	0.0
Spring mean.....	63			10.1	8.9	8.9	T.
June.....	77	100	53	4.9	5.4	18.4	0.0
July.....	79	104	59	5.0	4.8	3.6	0.0
August.....	78	105	58	5.4	2.1	7.5	0.0
Summer mean.....	78			15.3	12.3	29.5	0.0
September.....	71	99	42	3.2	2.0	4.8	0.0
October.....	61	89	33	3.1	2.0	3.0	0.0
November.....	54	84	21	2.1	0.9	1.6	0.0
Fall mean.....	64			8.4	4.9	9.4	0.0
Annual mean.....	63	105	3	44.4	32.6	60.0	5.1

Dates of first and last killing frosts.

Year.	Stateburg.		Year.	Stateburg.	
	Last in spring.	First in fall.		Last in spring.	First in fall.
1898.....	Apr. 28	Nov. 25	1903.....	Apr. 5	Nov. 7
1899.....	Apr. 5	Dec. 5	1904.....	Mar. 16	Oct. 24
1900.....	Apr. 1	Nov. 9	1906.....	Apr. 24	Oct. 11
1901.....	Mar. 22	Nov. 16	Average.....	Apr. 6	Nov. 12
1902.....	Apr. 9	Nov. 28			

AGRICULTURE.

Lee County was formed in 1902 from parts of Sumter, Darlington, and Kershaw counties, the greater portion being taken from Sumter County.

Before 1750 the region was traversed by herdsmen who raised great numbers of cattle, moving from place to place as the range suited them. These people generally drove their cattle from farther north into this section for the winter, as the cane and other grasses afforded excellent grazing during this season.

To the first settlers the products of the pine forests seemed to afford a better means of livelihood than a direct tilling of the soil, so they brought in breadstuffs and clothing and exported large quantities of tar, turpentine, rosin, staves, shingles, lumber, beef, pork, and hides. The first crops were corn and wheat, which were produced in large quantities. Some indigo was also grown in the early days, as the English Government offered a bounty for its production.

Until about 1850 corn, wheat, and oats were extensively cultivated, but after that date cotton became the principal crop, and still holds first place. Some rice was grown prior to the civil war, but very little has been produced since that date. The principal markets in the early days, before the railroads were built, were Cheraw, on the Pee Dee River; Camden, on the Wateree, and Charleston. Lynches River has never been navigable except for flatboats, which, after the civil war, were used on this stream for carrying turpentine.

A great change in the agriculture was brought about by the civil war. Cattle and hogs were no longer raised on a large scale, and wheat was not grown to any great extent. Cotton became the chief crop on account of the high price.

The greater part of the farming, especially on the large estates, was formerly done along the edge of the hill country, and many of the old colonial homes are still in use. These soils, known as the "red lands," produced fine yields, especially of wheat. Large quantities of fruit, such as peaches, figs, grapes, and small fruits, were also grown. This hilly section had good drainage, which made it more healthful than the southern part of the county. After the war, as the country

became more thickly settled, the better drained land in the southern part began to be cleared. Originally most of it was covered by a heavy growth of pine, which was cut down and some of it used for lumber. The rest was burned off in order to clear the land for cultivation. During the early period of agriculture many fields were continuously cultivated until they failed to produce satisfactory yields and were then abandoned for newly cleared untouched soils. The greater proportion of the more productive and well-drained soils are at present under cultivation, although a few fields have been abandoned for virgin soil. There are also thousands of acres covered by a forest of pine, cypress, gum, and some hardwood, which, if cleared, would not be fit for cultivation unless proper drainage were established.

At one time, when land was cheap and plentiful, the farmer could afford to cultivate one field until the soil was worn out, then abandon it and clear up new land for cultivation. Now that the county has become more thickly settled and land values have increased, it is no longer practicable to follow the wasteful and careless methods of the past. Hence the farming practices are gradually improving, and a more economical and intelligent system is being introduced and adopted. More attention is being given to rotation of crops and the use of fertilizers in the effort to maintain the productivity of the soil and to realize larger crop yields. In the last ten years land values have more than doubled; the most productive land now brings from \$40 to \$75 an acre, the poorly drained soils, such as the Portsmouth series, from \$10 to \$15, and the Sandhill soil from \$3 to \$5. Some of the land near Bishopville can not be bought for less than \$100 an acre.

The size of the farms varies from about 25 to several thousand acres, and the larger farms are being divided into smaller holdings. Most of the smaller farms are generally under cultivation, while the larger ones frequently include many acres of waste land or land unsuited for cultivation in its present condition.

As Lee County was formed and organized since the census of 1900, no official data are available in respect of total acreage and production of the main crops. As the greater part of the new county was taken from Sumter County, it is safe to say that the agricultural conditions in the two are practically the same and that from the figures given in the last census for Sumter County a general idea may be formed as to the relative importance of the crops grown in Lee County.

Less than one-third of the farms are operated by the owners. Where the owner does operate the farm labor is hired by the day or month, the prices paid per month ranging from \$10 to \$18, with rations. Practically all of the work is performed by negro labor.

Many of the farmers give these laborers a few acres of land to cultivate free. When employed by the month, the general custom is to hire laborers from January or February until the crops are laid by, after which they are paid by the day as needed, the day wage ranging from 50 to 75 cents without rations, although sometimes during a busy season as high as \$1 a day is paid. For chopping and hoeing the cotton they are paid according to the acreage worked, the price ranging from 30 to 50 cents per acre. The share system of farming, though quite general throughout the South, is not practiced so much in this county as in other sections of the cotton belt. It is also true that very little land is rented for a stipulated amount of cotton. The most general method of renting is for cash, the prices ranging from \$2 to \$10 an acre, according to the productivity of the soil. Under the share system the landlord furnishes everything necessary to make the crop except one-half of the fertilizers and the labor, and receives one-half of all the crops produced. The tenants are generally furnished their supplies by the merchants of the local towns, who are secured by liens on the crops and such stock as the tenant happens to possess. The landowner always receives his rent first. The majority of the tenants are negroes, who generally cultivate about 25 acres to the horse—15 or 20 acres in cotton, and the remainder in corn. Occasionally they will have 1 or 2 acres in oats or small patches of sugar cane, sweet potatoes, etc. A good many negroes own their farms and are in a rather prosperous condition. Much of the labor has left the rural districts for the near-by towns and cities. The lumber companies have drawn considerable labor from the farms. The present available supply of labor is scant, and its cost has about reached the limit which the farmer can pay and realize a satisfactory profit under the system of growing crops now followed.

The low price of cotton in 1897 and for several years prior thereto compelled the farmers of the county to introduce some other money crop along with cotton. For this purpose tobacco was grown. It seemed profitable for a few years, but soon after its introduction the price of cotton advanced, and the acreage of tobacco rapidly decreased. In the vicinity of Lynchburg the farmers are still cultivating a few acres to this crop, as it is the general opinion that cotton and tobacco are not generally low priced at the same time.

There is noticeable improvement in the homes and farm buildings throughout the county, which as a rule are comfortable and ample, and this alone shows that the county is in a prosperous condition.

Some of the farmers do not depend on cotton entirely, but are practicing scientific rotation of crops, using modern labor-saving machinery, and raising home supplies. These are the farmers who are generally

in the best financial condition. This kind of farming is gradually spreading, and when it becomes general the agriculture of the county will have taken a long step forward.

With a mild climate and a variety of soils, Lee County affords opportunities for almost any character of farming. Too little attention has been given to the raising of live stock, though much land could be utilized more profitably for this purpose than in any other way. While some farmers raise enough meat and corn for their own use, a great many do not produce enough of these products to carry them through the winter, and others purchase almost all of their home supplies.

The areas of Portsmouth soils and Swamp afford good grazing from early spring to late fall, and with the use of cotton-seed meal and pea-vine hay during the winter cattle raising should be profitable. The increased supply of manure would be a great advantage, especially on the lighter soils, where the effects of fertilizers are not lasting. The sandy soils, such as the Norfolk sandy loam, Norfolk fine sandy loam, and Norfolk sand, are especially adapted to early truck, although they are used for this purpose only to a slight extent, not enough being grown for home consumption. There is an excellent opportunity for this industry and dairying. The Orangeburg soils and the Norfolk sandy loam in the hilly section of the county should prove excellent peach soils. Most of the soils of the county are adapted to pecan growing, and although it takes several years to receive any returns from the trees, they pay handsomely when they begin to bear, which is from five to seven years.

The fertilizer most commonly used is an 8-3-3 brand. The farmers are beginning to mix their own fertilizers, and by so doing they save several dollars a ton. The quantity applied per acre ranges from 300 to 1,500 pounds, but it is not thought to be economical to use over 1,000 pounds per acre. A few farmers apply half of the total quantity of fertilizer to be used before the crop is planted and the other half after the crop begins to grow; besides this, 50 to 200 pounds of nitrate of soda is frequently used as a top dressing. This method is highly recommended, especially on the very sandy soils, where the fertilizer is easily leached out. Where large quantities are applied three applications would probably prove beneficial. The results from these methods would depend to a large extent on the amount of rainfall during the growing season. The study of the application and kinds of fertilizer to be used in growing certain crops on a given soil is deserving of care and attention. Those farmers who give special attention to the proper selection of seed for planting find that it pays well. Some attempts have been made to grow the long-staple Upland cotton, and it has generally been successful for

one or two years. When it is planted with the short staple and no attempt is made to keep the seed pure, it soon deteriorates, and the returns from the sale are not much greater than those of the short-staple cotton.

The methods of cultivation are practically the same as those found throughout the cotton belt of the South. The corn is usually planted between the ridges instead of on the ridge. In cultivating the crop the soil is turned to the corn, and thus when laid by the plant occupies a ridge. This method keeps the roots deep in the ground, which aids them in reaching the moisture, and also makes it easier to cover up the grass. There is, however, one slight disadvantage in this method. When the corn is small and heavy rains occur on the sandy soils the sand frequently washes down into the furrow and covers the corn, while on the heavy soils in the very flat areas the water remains in the furrows, sometimes until the plant is killed or badly damaged.

It would seem that where the drainage is not especially good it would be better to have the corn slightly elevated rather than in the furrow, as these are the soils that suffer most from a wet season. The cotton is generally cultivated on one side at a time instead of both, as is the custom in many sections. This is especially advantageous after the plant reaches a good size, as all the roots are not disturbed at once, those on one side having time to recover before those on the other side are cut.

The use of the one-horse plow in preparing the soil for planting is very general, and in cultivating the crops it is also used to do the bulk of the work. A more general use of the two-horse plow and other improved forms of farm machinery would reduce the cost of production. The soil as a general rule is plowed to a depth of 4 to 6 inches. It should be plowed deeper, increasing the depth 1 or 2 inches each year until 8 or 10 inches is reached. If the proper methods were practiced by all of the farmers of Lee County, as is done by some, it would not be necessary to open up new lands for a number of years. The present cleared lands can be improved much more cheaply than the virgin lands can be put under cultivation after clearing. It is also true that it costs as much to cultivate an acre of land that produces one-fourth or one-half bale of cotton as it does an acre that produces a bale. Improving the soil so that it will produce greater yields and using improved farm machinery will aid greatly in solving the labor problem.

SOILS.

A line drawn across the county through Mechanicsville and Bishopville in a general way separates it into areas occupied by two distinct geological formations. On the north the Lafayette is found and on

the south side the Columbia. The former takes in the hilly section and the latter the level and poorly drained section. The principal types derived from the Columbia are the Norfolk sandy loam and Portsmouth sandy loam. There are also small areas of Norfolk sand and Portsmouth fine sandy loam. The subsoils of this section of the county are composed of yellow or mottled sandy clays frequently spotted with red iron stains. Below these clays, at a depth of 10 to 40 feet, is a water-carrying stratum of quicksand. The flows of well waters usually come from this sand, which is white and rather fine. The surface material is composed of sands and sandy loams, the texture varying from coarse to fine and the color from light to very dark gray. The texture and color follow the topographic features very closely, the lighter colored and coarser material being found on the higher elevations, but gradually becoming darker in color and finer in texture as the elevation decreases. This is due to the fact that the finer material has been removed to the lower levels and to the accumulation of organic matter. The lighter colored soils belong to the Norfolk series, while the darker ones at a lower elevation belong to the Portsmouth series. The hills in the western part of the county are an extension of the "High Hills of the Santee," which cross Sumter County, although the Lafayette formation is not typically developed in Lee as in Sumter County, and the red clay gradually gives way to a yellow or reddish-yellow clay. The Orangeburg sand and Orangeburg sandy loam are locally known as the "red lands." The Orangeburg sandy loam in Lee and Sumter counties in some respects is unlike that found in other areas. As found elsewhere, its topography is generally hilly or rolling and the soil seems to have been subject to erosion to a considerable extent, whereas in these two areas it is almost level or gently rolling and seems to contain more fine material. Thus a more loamy texture is imparted to it. Moreover, in many places the clay subsoil does not seem to be as red and does not contain so much sand as is generally found in other areas.

The Orangeburg sandy loam appears to be a broad gradation between the level country and the hills. It was often difficult to determine the line of separation between this type and the Norfolk sandy loam, as the change in the color of the subsoil was so gradual. The Norfolk sand in Lee County is typical of that found in most other areas, though it is not so loamy in texture or level in topography as that found in Sumter County. In the northern part of the county are found the Sandhills, which occupy only a very small part of a vast sand ridge occurring in South Carolina and the neighboring States. These sands in many places are very white and comparatively pure, and must have been subjected to severe wave and wind action.

Ten types of soil were mapped in Lee County. The name and extent of each are given in the following table:

Areas of different soils.

Soil.	Acres.	Percent.	Soil.	Acres.	Percent.
Norfolk sandy loam.....	79,616	30.2	Sandhill.....	13,248	5.1
Portsmouth sandy loam.....	62,464	23.6	Norfolk fine sandy loam.....	3,584	1.3
Orangeburg sandy loam.....	29,696	11.3	Portsmouth fine sandy loam.	1,152	.3
Swamp.....	27,904	10.6	Orangeburg coarse sandy loam.	192	.6
Norfolk sand.....	27,904	10.6			
Orangeburg sand.....	17,088	6.4	Total.....	262,848	

PORTSMOUTH SANDY LOAM.

The Portsmouth sandy loam has quite a wide variation, but as it is one of the poorly drained soils of the area it was impossible to separate the different phases. As a general rule the soil to a depth of 6 to 8 inches is a black sandy loam containing large quantities of organic matter. The subsoil is a gray or mottled clay, frequently having red iron stains because of the decomposition of iron concretions. The soil often extends only to a depth of 4 inches, where a gray sandy clay is encountered which grades into a mottled sandy clay; or again, the soil may consist of about 15 inches of sandy loam carrying a very high percentage of vegetable matter. In some instances the subsoil is almost a gray sand containing just enough clay to make it sticky. The texture of the sand is rather uniform, being medium, although some fine and coarse sand is found, and it is frequently the case that the texture along the edges of the area is influenced by that of the surrounding soil. The elevation also has something to do with the character of the soil, the lighter colored and more sandy phase being found at higher levels, and the soil becoming darker, more loamy, and richer in organic matter as the elevation decreases. These phases generally occur as small spots, but they are numerous and scattered. This type is about the most difficult of the upland soils to cultivate, as it is generally wet and rather sticky.

The Portsmouth sandy loam is found in isolated areas over the southern half of the county, practically all of it west of Lynchess River. It generally occurs as depressions or broad basins. The larger areas are found as basins between the stream courses. Along the edges of the streams a higher lying soil, the Norfolk sandy loam or Norfolk sand, is usually found, and back from these ridges is the poorly drained Portsmouth sandy loam locally known as the pine flats. This type and the Portsmouth fine sandy loam and Swamp comprise the undrained soils of the area. The so-called "savannas,"

which have been classified with this type, occur as depressions within areas of well-drained soil, and contain water the greater part of the year. Such places are comparatively small and require drainage, which is generally very expensive. The only growth in these savannas consists of various kinds of water-loving grasses.

The Portsmouth sandy loam is cultivated mostly along the edges of the broad areas or where small depressions have been drained. The latter are very productive, and it is the general opinion that if drainage were provided the type would be, on the whole, one of the most productive in the county. These spots, however, of a few acres have received the drainage from surrounding soil for many years, and this has added greatly to their productivity and it is doubtful if the soil in general would prove as good. The soil is frequently acid and has to be treated with lime to overcome this condition. The native vegetation on this type is frequently burned off, and in this way the soil is needlessly deprived of large quantities of organic matter. The soil affords good grazing during the spring and summer, but it is used to a very limited extent for this purpose. The timber growth is practically all pine, with a scattering of cypress, gum, and here and there scrub oak. It is hard to estimate the crop yields, as so little of the soil is under cultivation, and that generally cultivated is not representative of the main areas. It should produce from one-quarter to three-quarters of a bale of cotton per acre and 20 to 30 bushels of corn. It seems better adapted to oats than any other crop. The yields depend entirely on the season. During a wet year the crops are almost a failure, and it is seldom the soil suffers from a lack of moisture.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of this type:

Mechanical analyses of Portsmouth sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>						
17650.....	Soil.....	2.6	14.2	9.6	30.3	16.7	19.4	7.3
17651.....	Subsoil.....	2.4	17.0	8.8	24.8	8.4	18.3	12.4

PORTSMOUTH FINE SANDY LOAM.

The soil of the Portsmouth fine sandy loam is composed mainly of fine and very fine sand, with smaller quantities of silt and clay, which, with the unusually large quantity of organic matter, gives the soil a loamy texture. This material, which is dark in color, extends to a depth of 6 to 12 inches. Its structure is such as to promote good drainage, and the soil when free from roots and stumps is quite easily cultivated. It is slightly sticky when wet, and if plowed in this condition it sometimes forms clods, but these are broken without diffi-

culty. The change from soil to subsoil is usually well marked, the dark color as a rule stopping abruptly when the subsoil is reached. The first few inches of the subsoil are generally composed of a very light fine sandy loam of gray color, with a notable absence of organic matter, but as the depth increases the sand content becomes less, and is replaced by fine silt and clay, resulting in a subsoil of sticky fine sandy clay. In the lower depths the subsoil varies in color from yellow to mottled-yellow and gray, depending upon the aeration and drainage to which it has been subjected. The subsoil frequently contains iron concretions and is often stained with iron.

The Portsmouth fine sandy loam is similar to the Portsmouth sandy loam, the principal difference being in the texture of the sand. Small ponds and swampy places are of frequent occurrence in both soils, and drainage will be necessary before any considerable areas can be put under cultivation. Owing to its poorly drained condition and the large quantity of organic matter it carries, the Portsmouth fine sandy loam is frequently quite acid and requires treatment with lime. The native vegetation consists of pine, cypress, bay, magnolia, and various water-loving oaks and grasses.

The Portsmouth fine sandy loam is of very limited extent in Lee County, covering not more than 2 square miles. This type is found in the extreme southeastern part of the county. The two largest areas are along the county line and are continuations of broader areas in Sumter County, where the type is extensively developed. The other areas are near Lynches River. In almost every case the type is surrounded by Portsmouth sandy loam. The cultivated areas are very small, being generally around the edges of the larger ones. Where cultivated, the land as a rule has been cleared in comparatively recent years and the fields often contain many stumps. This soil generally produces good yields during a very dry season, but crops are frequently almost a failure during a wet year. It is hard to estimate the yields, as so little of this type is cultivated, and the areas used are not representative. Like the Portsmouth sandy loam, it seems better adapted to oats than to any other crop. Practically the only use to which it can be put in its present condition is grazing.

NORFOLK SANDY LOAM.

The soil of the Norfolk sandy loam to a depth of about 8 inches consists of a coarse to medium gray or dark-gray sandy loam. Immediately below this is a light sandy loam, having a slightly yellowish color, which extends to a depth of about 20 inches. Frequently this subsurface material is almost a sand, and becomes lighter in color as the depth increases. The darker color of the soil proper is due to the presence of organic matter, and there is also a relation between the topography and the color, the lighter shades being found in the more

elevated areas. The true subsoil is composed of a yellow, sticky, sandy clay, sometimes containing iron concretions, which when decomposed cause reddish spots. Occasionally along the slopes near the streams there is a very narrow strip of land where the subsoil is a reddish-yellow sandy clay, the reddish color being due, it is believed, to better drainage and more thorough aeration. The average depth of the sandy material overlying the clay subsoil is from 10 to 15 inches.

This type of soil is very easily cultivated, except where the gravel content is high. It varies somewhat in productiveness according to the methods of cultivation employed and the depth of the sandy material overlying the clay subsoil. Where the surface soil is 10 to 12 inches deep it is more desirable than where it is 20 or 24 inches deep. In the former case it can be improved more rapidly, is better able to hold its fertility, and is capable of supplying more moisture during a dry season.

The Norfolk sandy loam is found in the southern part of the county, south of Bishopville, and also in the western and northwestern parts of the county, where it is more rolling and subject to erosion. In the southern part of the county the greater part of it occurs as narrow strips following the stream courses and varying from about one-eighth mile to 2 miles in width. Owing to its position along the streams, it has good drainage, although artificial drainage is sometimes necessary where there are depressions. There is no difficulty in getting fall enough in a short distance to give the excess water an outlet into the streams. Where the Norfolk sandy loam occurs as a kind of stream-terrace it has an elevation from 6 to 20 feet above the streams. The elevation generally decreases as the distance from the streams increases and as the poorly drained Portsmouth soils are approached. The Norfolk sandy loam, as a rule, is better drained than any other of the soils of the flat section of the county, with the exception of the Norfolk sand. In the southern part of the county it is drained for the most part by Black River and its tributaries, and in the western and northwestern parts its principal drainage is through Scape Oer swamp. As is generally true of the sandy loam types of Lee County, this soil has been derived from a Coastal Plain deposit of sand and clay, the smaller particles of clay having been removed or washed down, leaving the coarser material to form the sandy surface.

In those sections where the Norfolk sandy loam occurs it is the principal cultivable land, although it is sometimes associated with the Norfolk sand and Norfolk fine sandy loam, which are well drained soils adapted to agriculture.

The Norfolk sandy loam ranks among the best soils of the county for general farming. It is especially adapted for cotton, corn, and oats, and is also the best trucking soil of the area. Some portions of the type seem well adapted to fruit, especially peaches. The yields

depend upon the cultivation and quantity and kind of fertilizer used. Cotton yields from one-quarter bale to 1 bale per acre, corn from 15 to 40 bushels, and oats from 40 to 65 bushels.

The results of mechanical analyses of samples of this type of soil are given in the following table:

Mechanical analyses of Norfolk sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>						
17636.....	Soil.....	1.9	23.7	16.5	32.9	10.0	9.9	4.6
17637.....	Subsoil.....	2.5	19.0	12.5	23.1	7.0	8.6	27.5

NORFOLK FINE SANDY LOAM.

The Norfolk fine sandy loam to a depth varying from 10 to 20 inches is a very fine sandy loam, underlain by a fine, sticky yellow loam subsoil. There is no sharp dividing line between soil and subsoil, but one gradually merges into the other. The top soil may contain a small percentage of coarse sand, but there is always a sufficient proportion of very fine sand and silt to give it the properties of a mellow loam. In the heavier phases the soil is slightly sticky even quite near the surface. The subsoil becomes heavier and more tenacious with depth.

The physical properties of the soil are further improved by the abundance of organic matter which it usually contains. Owing to its retentive nature this soil is more easily improved than the other soils of the area.

The Norfolk fine sandy loam is found entirely east of Lynches River and in that part of the county taken from Darlington and included in the Darlington County survey. There are three areas, which together cover only a few square miles. The largest area lies between Alcot and Stokesbridge, and the next largest is found around Cypress. The type occupies rolling slopes as well as stretches of level country, and varies slightly both as to texture and agricultural value. It is generally almost surrounded by Norfolk sandy loam, and the transition line between the two types is not clearly defined. As found in Lee County the soil contains more coarse sand than the greater part of that found in Darlington County, but the subsoil is typical.

The Norfolk fine sandy loam is recognized as one of the best cotton soils in the county, is well cultivated, and the yields are very satisfactory. As a result it is largely devoted to cotton, with corn of secondary importance, although some oats are grown. When properly tilled corn will yield from 30 to 40 bushels per acre and oats from

35 to 50 bushels. The best farmers expect a bale of cotton per acre, but the general average is probably less than three-fourths of a bale.

Cowpeas do especially well and are extensively grown on this soil. They are usually sown between the corn rows, and the vines are cut for hay after the corn has been harvested. About 1 ton per acre is the average yield of pea-vine hay. The original timber growth was principally pine, but practically all of it has been removed.

NORFOLK SAND.

The Norfolk sand consists of about 5 inches of light-gray sand, varying in texture from medium to coarse, underlain by white or yellowish-white sand of practically the same texture. The darker color of the surface soil is due to the presence of a small quantity of organic matter which rapidly decreases as the depth increases. In some places a yellow sandy clay, corresponding to that of the Norfolk sandy loam, is reached at a depth of 3 feet, but over the greater part of the type the depth to the clay is much greater.

The greatest extent of the type occurs in the northern and north-western section of the county, although there is a narrow strip following the eastern side of Scape Oer Swamp, which extends almost across the county. There is one large area on the eastern side of Lynches River following the edge of that swamp. This soil does not occur in uniform and extensive areas, but in rather scattered areas, and is associated with almost every other type of the county, but principally with the Norfolk sandy loam.

The Norfolk sand occurs on rolling hills and stream slopes and at varying elevations. The areas in the northern part of the county are more rolling than those in the southern and central parts, while the texture of the soil is coarser in the rolling areas. The drainage is naturally good.

Owing to the open structure and leachy character of this soil the yields of cotton and corn are light. Vegetables are produced for home use and to supply the local markets and the soil is better adapted to trucking than to general farming. It is an early soil and easily cultivated, but is badly in need of organic matter. The incorporation of vegetable matter would improve its texture and increase its moisture-holding properties. The larger part of the type is under cultivation. Cotton yields from one-eighth to one-quarter bale per acre and corn from 5 to 10 bushels. On the level or rather depressed areas the yields are better. The newly cleared areas generally produce fair yields for one or two years, but without proper fertilization the soil soon declines in productiveness. The original timber growth was longleaf pine and scrub oak.

ORANGEBURG SANDY LOAM.

The soil of the Orangeburg sandy loam consists of a gray or reddish-brown sandy loam varying in depth from 5 to 15 inches. The texture of the sand varies principally from medium to coarse, with the medium grade predominating. In the lighter colored areas the soil is inclined to be rather loose and incoherent, while in the reddish-brown areas it is heavier and more compact, and when found in depressions frequently resembles a loam in texture. Below the first few inches is found a somewhat lighter colored sandy loam, with a more open texture, due to a smaller content of organic matter. The subsoil to a depth of 3 feet or more varies from a red to a pale-red sandy clay, occasionally containing brown iron concretions and quartz pebbles. The nearer the clay is to the surface the more loamy is the soil and the darker the color. Where the sandy loam is less than 15 inches deep it has been mapped as Orangeburg sandy loam, and where it exceeds this depth it has been mapped as Orangeburg sand. Where the depth to the subsoil is 12 or 15 inches the first 5 or 6 inches of soil has a loamy texture, but in the remaining depth to the subsoil it is frequently of very open texture and more of a light-colored sand than a sandy loam, the organic matter decreasing and the color becoming lighter as the depth increases.

The subsoil varies somewhat with the topography. In the lower lying areas it is a pale red, and the color becomes brighter as the elevation increases, until it is a brick red. The subsoil in the more elevated areas also seems to contain more sand and iron concretions. Occasionally small pieces or slabs of ferruginous sandstone are found scattered through this soil.

The greater part of this type occurs as one broad and almost continuous area, which, beginning in the vicinity of Bishopville, extends in a southwesterly direction through Rosehill and across the county line into Sumter County. Its maximum width is about 15 miles. There is one comparatively large area on the eastern side of Lynches River around Ashland, and the remainder of the type is on the western side of this stream. The topography varies from almost level to rolling, the larger areas being gently rolling. The principal areas are found along the edges of the hills. On the western side the type is generally bordered by the Orangeburg sand or Norfolk sandy loam, while on the eastern side it is associated with the Norfolk sandy loam and Portsmouth sandy loam. Where associated with the Norfolk sandy loam the merging of the one soil into the other is frequently very gradual, and some difficulty was experienced in drawing the line of separation. There are a few small bodies of this soil found within areas of the Orangeburg sand and the Norfolk sandy loam. Where it occurs in the Orangeburg sand it is generally the result of erosion,

sufficient sandy material having been removed to bring the clay nearer the surface. Such areas are usually found along the slopes.

The agricultural value of this soil varies with the topography, the more level areas producing much the better yields. In the hilly or rolling areas the soil is subject to erosion, and the depth to the subsoil is generally from 10 to 15 inches, while on the more level areas the average depth is from 6 to 10 inches.

Most of this soil is well drained, although a depression of a few acres is occasionally found where artificial drainage is necessary. Such places are very fertile, and the soil is nearer a true loam than a sandy loam. The original timber growth consisted of hickory, pine, and oak.

The Orangeburg sandy loam is one of the most desirable soils in the State for general farming. It is very easily cultivated, although the smaller areas in the hills require terracing and contour cultivation. Practically all of this soil is farmed. Cotton yields from one-half to 1 bale per acre, corn from 20 to 40 bushels, and oats from 30 to 60 bushels. Where properly cultivated, the better areas will produce larger yields than mentioned above.

The results of mechanical analyses of samples of soil and subsoil of the Orangeburg sandy loam are given in the following table:

Mechanical analyses of Orangeburg sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		<i>Per cent.</i>						
17644.....	Soil.....	1.9	13.5	11.0	27.8	19.0	14.2	12.9
17645.....	Subsoil.....	2.3	10.0	5.2	14.5	6.5	16.5	43.8

ORANGEBURG SAND.

The soil of the Orangeburg sand consists of a medium to coarse sandy material, varying in depth from 12 to about 25 inches. The first 3 or 4 inches, owing to the presence of a small quantity of organic matter, is a light-gray sandy loam. This quickly changes to a yellowish or reddish-brown sand, the loaminess of texture decreasing as the depth increases. The subsoil is a red sandy clay of comparatively open texture, but where the subsoil is within 12 or 15 inches of the surface it becomes quite heavy at a depth between 25 and 36 inches. Frequently rounded quartz pebbles and iron concretions are found in both the soil and subsoil, although the concretions are generally more numerous in the subsoil. The subsoil is almost the same as that in the rolling areas of the Orangeburg sandy loam, with the exception that it seems to contain a little more sand and lies at a greater depth.

Practically all of the Orangeburg sand occurs in one broad area, broken only by Beaver Dam Creek, and small areas of Orangeburg

sandy loam. It extends in a northeasterly and southwesterly direction, is about 8 miles in length, and has a maximum width of about $4\frac{1}{2}$ miles. On the eastern side of this area is found the Orangeburg sandy loam, and on the western side the Norfolk sandy loam. In the Orangeburg sand are found frequent spots a few acres or less in extent, which would have been mapped as Orangeburg clay or Orangeburg sandy loam had they been large enough to represent on the map.

The Orangeburg sand occupies the greater part of the very hilly section known as the "Red Hills," which is composed of the Lafayette formation. The drainage is always adequate and often is excessive, erosion leaving exposed the underlying red clay and rendering necessary the abandonment of occasional fields. Terracing and contour cultivation are necessary on a large proportion of this soil, although some comparatively large level areas are found on the hilltops.

A considerable part of this soil still remains uncultivated and some of it is rather too steep for farming. The timber growth varies somewhat with the depth of the sandy material overlying the red clay. The principal growth on the very sandy areas is longleaf pine and scrub oak. Where the clay is nearer the surface some shortleaf pine is found and there is a better growth of hardwood.

The productiveness and agricultural value of the Orangeburg sand vary with the depth of the sandy surface material. Cotton yields on an average about one-fourth to one-half bale per acre, corn from 10 to 20 bushels, and oats from 15 to 30 bushels. The yields also depend on the methods of farming and the amount of fertilizer used, and larger yields than those given may be secured where the land is handled in the most approved way.

ORANGEBURG COARSE SANDY LOAM.

The soil of this type is a pale-red or orange-red coarse sand to a depth of 10 inches, with just enough clay mixed with it to render it slightly tenacious. The texture is very open and each grain of sand seems to be an individual particle with the slightest quantity of clay surrounding it. The subsoil is almost identical with the soil, although it is a little lighter in color and seems to be slightly more tenacious. The type is practically without a variation, except where it grades into other types.

The Orangeburg coarse sandy loam is extensively developed in Sumter County, but only one very small area was found in Lee County. It corresponds in most respects with that found in Sumter County, with the exception that the color is not so red. This small area occurs in the northern part of the county, north of Turkey Creek. In topography it is nearly level or slightly rolling.

The soil is very easily cultivated, has good drainage, and is practically all under cultivation. The crop yields are comparatively small, but they are better than those of the Norfolk sand. Oats seem to

yield better than any other crop, and corn does fairly well. Cotton yields from one-fourth to one-half bale per acre, corn 10 to 20 bushels, and oats 20 to 30 bushels. During a dry season the yields are apt to be decidedly reduced. With heavy applications of fertilizers and by incorporating vegetable matter this soil gives much better returns and the tendency to drought is lessened.

SANDHILL.

The first 1 or 2 inches of the Sandhill contain enough organic matter to give it a slightly gray or a dirty white color. Below this, to a depth of 3 feet or more, is an almost pure white or cream-colored sand. The texture of this sand in both soil and subsoil varies from medium to coarse. Occasionally deposits of rounded gravel are seen in road cuts at a depth of 6 to 10 feet below the surface.

The topography varies from hilly to gently rolling and the surface is often made up of irregular wind-blown ridges, hillocks, or small dunes. The hillocks or dunes are frequently almost devoid of vegetation and the sand is so white that from a distance they look like snowbanks. On a close examination of the bare spots it will be found that the first half inch or inch of sand has been thoroughly washed by the rains, which makes it very white, but below this for an inch or two the soil is darker.

The type is found principally in the extreme northern part of the county east and northeast of Lucknow. It occurs in rather broad and uniform areas, the largest of which is about $2\frac{1}{2}$ miles in width east and west and about 4 miles long. The most of it is found west of Lynches River, although there is one comparatively large area on the eastern side in the vicinity of Stokesbridge, which follows the swamp line for a distance of about 5 miles.

The Sandhill is excessively drained. Its low moisture-holding power is one of the principal causes of its small agricultural value. It is the most useless of the well-drained soils of the county, and cultivation is confined to occasional small fields in depressions or to narrow strips on each side of the stream courses, and these areas are not typical. Such places contain a little more organic matter, which aids in holding moisture.

They produce from one-fourth to one-half bale of cotton per acre when first put under cultivation, but it is only a matter of a few years until the humus is exhausted and the yields greatly reduced. Attempts to cultivate the Sandhills more extensively have met with little success.

The timber growth consists of longleaf pine and a very scrubby growth of oak. Practically all of the merchantable timber has been cut, although the production of turpentine is still carried on to a very limited extent. Some grass, principally broomsedge, is seen here and there.

SWAMP.

The Swamp occurs as narrow strips on each side of the stream courses, and is found mainly along Lynches River. There is some difference in the soil here and as found along the other streams of the county. The average soil along Lynches River is a very dark-brown loam, underlain by a clay or clay loam of practically the same texture but of a little higher color. Some areas are almost black and contain much sand.

There is a wide variation in this soil, as is generally the case in the Swamp type. The soil is generally a black loam or heavy sandy loam, underlain by a drab or dark sandy clay or clay loam. Lynches River has its source just in the edge of the Piedmont and considerable red sediment is brought down from the hills of that section and deposited. This is why the soil along this stream has a brighter color. Along the other streams the soil is derived entirely from local deposits.

The greater part of the Swamp is covered by water most of the year. If drained and cleared it would be a very valuable soil, but the expense of reclamation would be too great to make it practicable in view of the present prices. The native growth, which is rather dense, consists of gum, cypress, bay, magnolia, and other water-loving trees, vines, and grasses.

SUMMARY.

Lee County, situated in the north central part of South Carolina, lies entirely within the Coastal Plain.

It is a comparatively new county, being formed from Sumter, Darlington, and Kershaw counties in 1902, the greater part being taken from Sumter County.

The first settlement took place about 1750. The settlers came principally from Virginia and North Carolina, but a few came direct from Scotland. The present population is composed largely of direct descendants of the early settlers.

The topography varies from flat to hilly. The northern and western parts are rolling; the southern and eastern parts flat and poorly drained.

The principal crops are cotton, corn, oats, and cowpeas. There are many others that could be successfully grown. The Orangeburg sandy loam and Orangeburg sand are adapted to fruit, and especially to peaches and grapes. The Orangeburg sandy loam produces good yields of wheat, although this industry has practically been abandoned.

The soils of Lee County are derived from two distinct geological formations, the Lafayette and Columbia, the former covering the hilly section and giving the Orangeburg soils. The Columbia forms the flat country and furnishes the material of the Norfolk and Ports-

mouth soils. Ten types of soil, all light textured, easily cultivated sands or sandy loams, occur in the county.

The Orangeburg sandy loam is considered the best soil in the county for general farming, producing good yields of cotton, corn, oats, and cowpeas, the latter used as hay.

The Norfolk sand and Norfolk sandy loam are excellent trucking soils, but not enough truck is grown to supply the local demand.

The Orangeburg sand is a fair soil, but the clay subsoil is so far from the surface that it is not as easily improved as some of the other soils. Peaches and grapes seem to do well, although so far the soil has been used very little for these products.

The Norfolk sandy loam is the most extensive soil and next to the Orangeburg sandy loam in agricultural value.

The Norfolk fine sandy loam has a comparatively small area. The yields of crops are very good.

The Norfolk sand is a deep, leachy, sandy soil, difficult to improve and producing only light yields.

The Portsmouth soils are poorly drained, and are not of any agricultural value in their present condition. Small areas are cultivated with good results. The land affords some grazing.

Sandhill is of practically no agricultural value. Occasional attempts have been made to cultivate it, but with little success.

With the variety of soils and mild climate, Lee County presents good opportunities for the homeseeker. Almost any line of agriculture may be followed.

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