

# SOIL SURVEY OF THE DARLINGTON AREA, SOUTH CAROLINA.

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## LOCATION AND BOUNDARIES OF THE AREA.

The Darlington area lies northeast of the center of the State, with the Pedee River as a boundary on the east and Lynchs River on the west, and has an extent of about 600 square miles. The area includes what was formerly Darlington County, but a part of it is now Lee County. Darlington, the county seat of Darlington County, has a population something more than 3,000. The smaller towns of Harts-ville, Societyhill, and Lamar are included within the area. (See fig. 6.)

## HISTORY OF SETTLEMENT AND AGRICULTURAL DEVELOPMENT.

When first known to the colonists the present area of Darlington County was a heavily timbered forest inhabited by a number of feeble Indian tribes, among whom the Cheraws maintained a supremacy until the advent of the more aggressive Catawbas from the North. The two nations seemed to have effected a peaceful alliance, but although they always remained friendly to the white man they soon succumbed to the diseases and vices of civilization.

Many years passed before the settlers along the South Carolina coast established settlements very far inland, other than mere trading posts for barter with the Indians. Finally the advance of settlement began along the navigable rivers with rich alluvial bottoms. Every inducement was held out to these pioneers. The Welsh of Pennsylvania and Delaware were regarded as especially desirable settlers. They made their first settlement about the year 1736 near the present town of Societyhill on land granted them by the council. The settlers from the lower country—French Huguenots, Scotch-Irish, English, and Germans—soon followed. In numbers the Welsh predominated, but race characteristics were soon blended and lost.

The bottom lands along the Pedee River were first brought under cultivation, for besides their proximity to the river, then the only means of transportation, the Welsh considered this type of soil better adapted to their agricultural purposes. They met with disappointment, however, in their attempt to profitably cultivate hemp and flax,

for neither soil nor climate was favorable to these crops. With wheat and corn they were more successful. The country afforded rich pasturage also, and the capture and sale of the cattle and hogs, which ran wild, early became a source of wealth. This region was for a time celebrated for its exportation of meat and breadstuffs.

About the year 1747 the culture of indigo was introduced, and for half a century, or until it was supplanted by cotton, it was the principal money crop of the region. Parliament allowed a bounty on all indigo exported to England, and fortunes were made in its production.

After the Revolution there began a new era in the agricultural history of this region. The cultivation of cotton on a large scale was begun. Negro slaves were found indispensable in clearing the land and performing the rough labor required by this crop. Social conditions also underwent a change. The early planters had established themselves near the river, but the growing unhealthfulness of the lowlands induced a removal to points along the old Camden road, which follows the sandy ridge from Societyhill to Camden. Their wealth increased rapidly and was largely invested in slaves. The large plantations were independent communities, producing within their borders nearly everything that they needed. Any surplus, together with the cotton produced, was shipped to the coast. Pole boats and small steamers engaged in such transportation plied regularly along the Pedee River.

The civil war and the scarcely less destructive period of reconstruction completely changed these conditions. The emancipated slaves were thrown upon their own resources, without the knowledge and self-reliance essential to successful agriculture. Compelled to rely upon the white man for assistance and advice, they gradually drifted into the present tenant system. Cotton became the principal crop. With the increase in production came a decrease in price. Many prominent planters of the old régime, who were broken in fortune and unable to adapt themselves to changed conditions, left the country.

When new methods had been adopted to meet the new conditions, and when confidence had been fully restored, there was inaugurated an era of progress and prosperity which has continued to the present day. There is every indication that this state of things will continue, for the agricultural possibilities of the county can not be fully realized for many years to come.

About 1887 the cultivation of bright tobacco was attempted, with such success that the acreage has rapidly increased and the returns have been most satisfactory. The advantages derived from the cultivation of cotton and tobacco, instead of cotton alone, are fully demonstrated to the farmer and will no doubt lead to a further diversification of crops.

CLIMATE.

The following table, compiled from the records of the Weather Bureau, shows the normal monthly and annual temperature and precipitation for the Darlington area. These records were kept at Societyhill, in the extreme northern part of the county, and at Florence, which is only a few miles south of this area, so that they represent average conditions throughout the county:

*Normal monthly and annual temperature and precipitation.*

Month.	Florence.		Societyhill.	
	Temperature.	Precipitation.	Temperature.	Precipitation.
	°F.	Inches.	°F.	Inches.
January .....	43.5	2.54	43.0	3.30
February .....	47.7	5.13	45.3	4.68
March .....	55.9	2.90	55.6	3.35
April .....	62.0	2.61	62.2	4.45
May .....	72.8	3.78	70.9	3.04
June.....	79.1	5.44	77.2	5.37
July .....	81.1	5.93	78.5	6.15
August .....	80.1	5.97	77.4	6.05
September.....	74.7	3.82	72.9	4.25
October.....	63.2	2.91	61.8	3.56
November .....	55.3	2.45	53.1	2.54
December .....	43.6	2.46	45.7	2.78
Year.....	63.2	40.92	61.9	49.52

The area has a mild, agreeable climate, with sufficient rainfall to favor a wide diversity of crops. The maximum precipitation occurs during the summer months, while the other months have a fairly uniform distribution of rainfall. There is a gradual change of temperature from winter to summer, with no great excesses of either heat or cold. The average date of the last killing frost in spring is March 27 and of the first in fall November 15, although within the last nine years killing frosts have occurred as late as April 21 and as early as October 30.

PHYSIOGRAPHY AND GEOLOGY.

Darlington County lies wholly within the Coastal Plain division of the Atlantic seaboard. The present land area has been built up by the sediments which the rivers have brought down from the mountains and deposited on the old sea floor. These deposits were elevated, reworked by wind and wave action, and finally reached their present position as unconsolidated strata of sand, gravel, and clay. Geologically speaking, the surface formations of this area are of recent deposition and none date back of the Pleistocene period. The strata, which dip toward the southeast about 20 feet to the mile, cover the crystalline rocks to a depth of from 500 to 700 feet.

Advantage has been taken of this stratigraphy in sinking artesian wells over a large part of the county. Abundant water is secured at a depth of from 100 to 250 feet. The water nearly always overflows at the surface and in some cases rises to a height of 8 feet. This water is, as a rule, slightly impregnated with iron and sulphur, but when the people become accustomed to its use it forms a most convenient and healthful water supply. In some cases the overflow might be profitably utilized in irrigation.

The Pedee River, which forms the eastern boundary of Darlington County, receives the drainage of the greater part of the area. This river is navigable with difficulty, and before the advent of better transportation facilities it was the only avenue by which the products of this section could be carried to market. No shipping is now done by river. Lynchs River forms the western boundary of the area and drains a smaller proportion of it. Black Creek, the largest tributary of the Pedee, traverses the entire length of the county. This creek, as well as several smaller creeks, furnishes power to run a number of small grist and saw mills. The streams occupy broad, shallow valleys and normally have a narrow strip of swamp along their borders. Many small streams, which become so swollen during heavy rains as to require bridging, become completely dry during short droughts.

There are three distinct surface features within the limits of this area. Along the Pedee River, and to a lesser extent along Lynchs River, are low-lying flat bottoms, with an elevation of only a few feet above the normal river level. Such areas are poorly drained and subject to overflow at every slight rise of the river. The Pedee River pursues a winding course through these bottoms, with the horseshoe bends common to rivers in broad, level flood plains. At slightly higher elevations are successive well-marked terraces of comparatively recent formation. Occasionally heavy rains may cause the flooding of the lower terraces, where no protective dikes have been constructed, but the upper terraces have been left by change of base level above the line of possible danger of overflow. The soils on these broken slopes vary greatly in texture, but are chiefly silty loams and heavier than the soils found elsewhere in the area.

The second division, according to surface conditions, covering the central and greater part of the area, consists of the gently rolling plateau of the uplands, broken by small stream valleys. Here are found the sands and sandy loams which constitute the best cotton and tobacco soils.

The third division includes the ranges of hills which occupy the northern and western parts of the county. These hills, from Society-hill to Clyde, are covered by a loose, leachy sand. Between Clyde and Lynchs River the Orangeburg sandy loam is developed. There is little change in topography, except what is due to the rapid erosion of

the latter type. These lands have a low agricultural value, and only small tracts have been brought under cultivation.

SOILS.

Ten distinct soil types have been recognized and mapped in the Darlington area. The following table shows the extent of the various soils:

*Areas of different soils.*

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Goldsboro compact sandy loam .....	118,208	30.8	Selma heavy silt loam .....	15,488	4.0
Norfolk sand .....	71,104	18.5	Swamp .....	14,144	3.7
Norfolk sandy soil .....	65,024	17.0	Orangeburg sandy loam .....	9,984	2.6
Sandhill .....	30,656	8.0	Orangeburg loam .....	6,592	1.7
Sassafras loam .....	26,880	7.0	Total .....	383,680	.....
Ayden fine sandy loam .....	25,600	6.7			

NORFOLK SAND.

The Norfolk sand is composed of 3 feet or more of coarse to medium sand containing a small percentage of silt and clay. In this locality the soil, which has an average depth of 9 inches, is darker in color than its subsoil, owing to a small admixture of organic matter, and for the same reason it is of a more loamy nature. The subsoil to a depth of more than 3 feet consists of a loose reddish-brown sand.

There are three principal areas of Norfolk sand in the Darlington area, although it occurs in many smaller patches and in association with nearly every other soil type. One broad band fringes in a general way the lowlands along the Pedee River. In the vicinity of Montclare the type becomes much finer in texture and gradually changes to the Ayden fine sandy loam. Another strip of Norfolk sand holds the same relative position along Lynchs River. The third and largest development extends as a belt along Black Creek in its course through the county as far up as Hartsville. It attains a width of several miles in some places, but the average width is less than 2 miles. North and west of Hartsville it merges into the extensive sand-hill formation which reaches to the county line.

The Norfolk sand occurs on rolling hills and stream slopes and at almost any elevation. The drainage is naturally good, except in a few small areas where swamps have been filled in by this sand.

The yield of cotton and corn on the Norfolk sand, as might be expected, is light. (See Pl. XIII.) A fair quality of tobacco is grown in places, but this is not regarded as the best soil for this crop. Potatoes do well, but are not grown in large quantities.

While the Norfolk sand is the typical truck soil of the Atlantic seaboard, it is not utilized for that purpose by the farmers of this

locality. The successful production of vegetables for home use and to supply the local markets has demonstrated the possibilities along this line. Fair profits might be realized in growing truck early in the season for the Northern markets, and later for canning on a commercial scale.

The following table gives the results of mechanical analyses of typical samples of this soil:

*Mechanical analyses of Norfolk sand.*

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7846	1 mile E. of Darlington.	Loose brown sand, 0 to 9 inches.	1.15	10.52	25.68	13.08	23.94	14.60	6.94	4.50
7844	2 miles SE. of Montclare.	Loose sand, 0 to 8 inches.	1.18	2.84	13.98	17.48	43.08	9.60	5.94	6.94
7845	Subsoil of 7844....	Loose sand, 8 to 36 inches.	.43	3.20	15.12	21.98	39.58	9.26	4.84	5.06
7847	Subsoil of 7846....	Loose yellow sand, 9 to 36 inches.	.25	14.60	23.40	12.50	23.24	13.64	6.84	5.44

GOLDSBORO COMPACT SANDY LOAM.

The Goldsboro compact sandy loam is the most extensive and important soil type of the Darlington area. The surface soil is an ashy-gray sandy loam, 10 to 20 inches in depth. There is usually a slight stickiness and coherency in this sand which distinguishes it from the soil of the Norfolk sand. The subsoil is a tenacious and rather impervious clay loam, varying in color from yellow to dark gray. At lower depths the subsoil becomes lighter in texture. The line of contact between soil and subsoil is well defined. With the shallow plowing practiced in this section the subsoil is never disturbed.

This soil is well distributed over the central and southern parts of the county. Large, uniform areas are found between Darlington and Hartsville. The characteristic position of this soil is on the level, plateaulike stretches of the uplands. It rarely extends down to the borders of the streams, but usually gives place to the Norfolk sand or to the Norfolk sandy soil.

In the more level situations the drainage is apt to be poor, but from its elevated position the drainage of this land by means of shallow ditches is easily accomplished. Large tracts of this type which were formerly covered by standing water during rainy seasons have been reclaimed by this simple means. (See Pl. XII.)

The soil supports a natural growth of pine, oak, and hickory. In



A CROP OF PEA-VINE HAY UPON THE GOLDSBORO COMPACT SANDY LOAM, DARLINGTON AREA, SOUTH CAROLINA.  
This is one of the most valuable forage crops and soil renovators of the country.



CROP OF CORN ON THE NORFOLK SAND, DARLINGTON AREA, SOUTH CAROLINA.

This shows the light yield of grain, the distance apart the stalks are grown, and the method of harvesting the crop.

poorly drained areas the black and the sweet gum flourish. The greater part of the cultivated areas are devoted to cotton and corn. Cotton, when properly cultivated, should produce three-fourths of a bale per acre, but the average yield is about one-half bale. This soil is too heavy to be considered a bright-tobacco soil. Grapes are grown to perfection, but only for home use. The Scuppernong variety does especially well.

The following table shows the results of mechanical analyses of typical samples of this soil:

*Mechanical analyses of Goldsboro compact sandy loam.*

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7838	Lamar.....	Sandy loam, 0 to 10 inches.	1.11	6.60	21.74	13.50	20.06	16.26	14.36	7.42
7836	$\frac{1}{4}$ mile S. of Darlington.	Sandy loam, 0 to 12 inches.	1.55	8.20	24.82	13.20	18.14	12.58	11.42	11.30
7837	Subsoil of 7836.....	Stiff yellow clay, 12 to 36 inches.	.50	4.24	17.80	11.46	16.80	10.60	12.38	26.54
7839	Subsoil of 7838.....	Heavy clay loam, 10 to 36 inches.	.44	5.80	15.68	9.34	12.84	10.00	13.50	32.72

NORFOLK SANDY SOIL.

The Norfolk sandy soil consists of from 12 to 24 inches of a gray sandy loam, not unlike the soil of the Goldsboro compact sandy loam. A superficial examination might not suffice to distinguish the two types, but the subsoil gives rise to a variation in crop production which is quite evident. This subsoil is a sticky yellow loam or clay, which contains enough medium and fine sand, however, to render it much more friable than the subsoil of the Goldsboro compact sandy loam.

There are a few areas of this type bordering large sand tracts, but its normal occurrence is as a narrow border, varying in width from one-half mile to 2 miles along the smaller streams. As the stream is approached the sandy soil becomes deeper and the subsoil lighter in texture.

On account of the position of this soil the drainage is perfect. The uncleared areas support a heavy growth of pine and the various hard woods common to the uplands of this section.

While the Norfolk sandy soil is not as strong a soil as several others in the area, it has for the past few years produced on the whole more wealth for its owners. It is the bright-tobacco soil of the area, for although there are other soils of less extent which surpass it in the

quality of the leaf produced, yet the bulk of the crop is produced on this type. While the subsoil is not so heavy as to thicken the leaf, it conserves moisture and eliminates the danger from an ordinary drought. The yield of tobacco is from 700 to 1,200 pounds per acre, but the best tobacco growers do not care to force the yield over 1,000 pounds, as the increase in quantity is at the expense of quality. The price realized for this tobacco varies, according to quality, from 5 to 65 cents per pound. The average price is 10 cents. From \$150 to \$200 is frequently realized on an acre of tobacco. Cotton does not yield as heavily as on the stronger types of soil. One-half bale per acre may be produced by the methods usually employed. Corn and cowpeas are grown to some extent.

The following table shows the mechanical composition of this soil:

*Mechanical analyses of Norfolk sandy soil.*

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7842	1 mile NW. of Copeland.	Sandy loam, 0 to 14 inches.	0.61	8.36	21.74	13.34	20.00	16.96	13.06	6.32
7840	2½ miles E. of Darlington.	Medium to coarse dark-gray sand, 0 to 9 inches.	.98	4.10	27.74	15.54	33.20	5.78	6.74	6.74
7843	Subsoil of 7842....	Sticky sandy loam, 14 to 36 inches.	.20	5.90	18.30	14.04	19.78	12.84	13.06	15.62
7841	Subsoil of 7840....	Sticky, compact yellow sandy loam, 9 to 36 inches.	.55	2.70	20.32	10.92	23.78	4.44	5.16	31.88

AYDEN FINE SANDY LOAM.

The Ayden is a very fine sandy loam 10 to 20 inches deep, overlying a fine, sticky, yellow loam subsoil. There is no sharp division 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, and in the heavier phases there is a slight stickiness in the soil even quite near the surface. The subsoil becomes heavier and more tenacious with depth for more than 3 feet. The physical properties of the soil are still further improved by the abundance of organic matter which it usually contains. On account of its superior retention of humus the improvement of this land by the incorporation into it of vegetable matter, such as the legumes, is more readily accomplished than with the other soils of the area.

The largest extent of this type is found between Dovesville and Montclare. It occupies the rolling slopes as well as the level areas and varies slightly both as to texture and agricultural value. It is bounded on both sides by extensive areas of Norfolk sand and the transition line between the two types is not clearly defined. Other areas of the Ayden fine sandy loam are found near Palmetto, between Alcot and Stokesbridge, and near Cypress. The soil of the last-mentioned areas contains more coarse sand, but the subsoil is typical. This soil is well cultivated, the yields are most satisfactory, and it is recognized as the best cotton land in the area.

The Ayden fine sandy loam is largely devoted to cotton and corn. Corn, when properly tilled, may yield 35 bushels per acre. The best farmers expect a 500-pound bale of cotton per acre, but the general average is less than three-fourths of a bale. Cowpeas do especially well and are extensively grown on this soil. The usual plan is to sow peas between the corn rows and to cut the vine for hay after the corn has been harvested. About 1 ton per acre is the average yield of pea-vine hay.

While the Ayden fine sandy loam is not a good, bright tobacco soil, there is one phase of it which is so well adapted to this crop as to deserve special mention. The several areas of this phase are unfortunately quite small, and hence it was not practicable to map and describe them as a separate type. The soil is a fine, dark, sandy loam, 7 inches deep, mellow and easily tilled, underlain by a fine, lighter-colored sand to a depth of more than 3 feet. The sand becomes slightly sticky at the lower depths, but the usual heavy subsoil of the Ayden fine sandy loam is not reached. Small patches of this phase occur near Palmetto and in the vicinity of Montclare, inclosed by the typical Ayden fine sandy loam. The tobacco grown here is conceded to be superior to the leaf grown elsewhere in the area. About 100 pounds of commercial fertilizer are applied to an acre, and the addition of a few loads of stable manure is quite beneficial. A yield of more than 1,000 pounds per acre is not desired. The product of an acre has brought as high as \$350.

The following table shows the results of mechanical analyses of several samples of Ayden fine sandy loam:

*Mechanical analyses of Ayden fine sandy loam.*

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
				<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7825	1 mile S.E. of Stokesbridge.	Gray fine sandy loam, 0 to 8 inches.	0.67	3.28	12.06	9.50	20.48	18.34	30.46	5.66
7827	½ mile N. of Montclare.	Loose dark-brown, fine sandy loam, 0 to 7 inches.	2.08	.62	4.88	7.10	29.48	29.42	22.02	6.20
7832	1 mile W. of Riverdale.	Dark fine sandy loam, with fine sand, 0 to 12 inches.	.88	1.60	14.68	15.04	42.64	8.04	8.78	8.38
7828	Subsoil of 7827....	Fine sandy loam, 7 to 36 inches.	.31	1.38	10.36	12.94	32.38	22.86	16.00	3.82
7826	Subsoil of 7825....	Heavy, yellow fine sandy loam, 8 to 36 inches.	.39	4.30	10.96	8.00	16.86	15.24	28.88	15.76
7831	½ mile N. of Montclare.	Sticky, yellow fine loam, 20 to 36 inches.	.49	.84	4.66	6.64	28.64	25.22	8.80	24.56

#### SANDHILL.

The Sandhill soil is an incoherent white sand about 4 inches deep, overlying a yellow sand of the same texture, which has a depth of 10 feet or more. The soil never contains enough organic matter to influence its physical condition. Along stream channels and in deep cuts there outcrops a loosely cemented sandy material which seems to render the soil still more unproductive wherever it approaches the surface.

The Sandhill formation is one of the most extensive and uniform soils of this region. The area included within the limits of this survey is but the edge of a vast sand ridge which covers a large tract in South Carolina and the neighboring States. This area, which stretches from near Greenplain in an almost unbroken extent westward as far as Clyde, is 12 miles in length and has a maximum width of 5½ miles.

The topography covered by this type consists of a series of long, high ridges or hills. (See Pl. XV.) The natural vegetation is a sparse growth of pine and scrub oak. One of the first roads in the State—the old Camden road—was laid off along this sandy ridge, no doubt on account of the ease with which a road could be made through these open woods.

Attempts to cultivate the Sandhill have met with little success, on account of the insufficient amount of moisture and plant food retained by the leachy sand.

The following analyses show the texture of this soil:

*Mechanical analyses of Sandhill.*

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.06 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7862	2 miles SE. of Fields Bridge.	Loose sand, 0 to 4 inches.	0.77	5.92	37.52	29.04	19.76	2.54	4.74	0.28
7863	Subsoil of 7862....	Loose sand, 4 to 36 inches.	.50	5.38	32.24	28.52	23.06	3.64	3.36	3.80

ORANGEBURG SANDY LOAM.

The Orangeburg sandy loam has at present a low agricultural value. The soil is composed of 8 to 20 inches of sand, with an average texture similar to that of the Norfolk sand. East of Ashland and along the borders of the Sandhill the soil resembles the latter type, being loose and leachy. The subsoil is always a characteristic red clay loam, usually grading into a compact sandy material which closely resembles that underlying the Sandhill. At a depth of from 12 to 20 feet white sand is struck, which makes well curbing necessary. The clay loam stratum of the subsoil varies from 2 to 10 inches in thickness. While the underlying compact material is somewhat indurated, it is porous enough to allow the percolation of water and friable enough to be broken by the plow without great difficulty. The Orangeburg sandy loam differs from the other types in the area in its gravel content. Both soil and subsoil contain from 10 to 40 per cent of waterworn pebbles, which rarely exceed the size of a man's thumb.

This type is confined to a compact area in the extreme northwestern corner of the county, extending from Clyde to the lowlands along Lynchs River. It occupies the same topography as the Sandhill, except that the surface has been cut and roughened by the rapid erosion to which this soil is subject.

The greater part of this soil is as yet uncleared. There is a good timber growth of both pine and the hard woods. This type of soil, under the present cultural methods, is not very productive. Wherever the hillsides are cleared and the soil is broken up washing and gullying go on so rapidly that the land is worthless after one season. On the more level and sandy tracts small yields of cotton and corn are secured.

Mechanical analyses of this soil are given in the table below:

*Mechanical analyses of Orangeburg sandy loam.*

[Fine earth.]

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7851	½ mile S. of Ashland.	Light sandy loam, 0 to 20 inches.	0.68	5.24	18.34	15.86	31.46	13.66	7.80	7.02
7852	Subsoil of 7851....	Sticky red clay, 20 to 36 inches.	.37	5.00	14.70	11.12	23.96	13.92	12.10	18.94

ORANGEBURG LOAM.

The Orangeburg sandy loam and the Orangeburg loam are locally referred to as the "red lands," on account of the color of their subsoils, but the latter type is far superior in productiveness, being one of the strongest soils in the Darlington area. It consists of a loose, dark loam, with a depth of from 8 to 15 inches, underlain by a sticky red clay. The soil contains a considerable percentage of small, smoothly-worn gravel and iron concretions, which tends to improve its texture.

The most extensive area of this soil occurs around Ashland, in the northwestern part of the area.

This land is highly esteemed for general farming. The usual selling price is from \$40 to \$60 per acre, and sales have been reported at \$75 per acre. Cotton, corn, and oats are the principal crops grown. Cotton yields 1 bale per acre with proper cultivation. Sixty bushels of oats per acre have been harvested, but 30 bushels is perhaps nearer the average.

Mechanical analyses of this soil are given in the table following:

*Mechanical analyses of Orangeburg loam.*

[Fine earth.]

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7848	2½ miles W. of Clyde.	Gray sandy loam, 0 to 8 inches.	1.65	9.50	20.70	13.30	22.60	15.36	6.44	11.56
7849	Subsoil of 7848....	Sticky clay, 8 to 20 inches.	.62	8.24	14.00	7.56	11.16	6.92	4.92	46.34

SELMA HEAVY SILT LOAM.

The soil of the Selma heavy silt loam is a gray sandy loam rarely more than 6 inches deep, resting upon a heavy, stiff clay. This subsoil is gray or mottled in color, and in some localities of especially poor drainage it is discolored by iron stains.

This soil is typically developed in long, irregular, depressed areas, where the natural drainage is imperfect. Such tracts are usually covered by standing water during periods of excessive rainfall. Much of this land may be reclaimed by artificial drainage, but there are some areas which are worthless, even after a considerable expenditure in ditching, because of the compact, lifeless character of the soil. An illustration of this is to be seen in the case of the Cypress swamp, 2 miles northwest of Fields Bridge. Under the slavery system this swamp was cleared and drained by a deep canal, but the land proved so unproductive that it was cultivated only a very short time.

The Selma heavy silt loam is for the most part left to a dense growth of gum, cypress, hickory, and pine. On the cultivated portions one-half bale of cotton per acre may be made. Corn and sugar cane also do fairly well.

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

*Mechanical analyses of Selma heavy silt loam.*

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7860	1 mile SW. of Lamar.	Sandy loam, 0 to 6 inches.	1.32	3.78	10.66	7.08	12.62	9.30	31.36	25.16
7861	Subsoil of 7860....	Stiff clayey or silty loam, 6 to 36 inches.	.59	3.90	11.06	7.34	11.94	5.02	29.46	31.10

SASSAFRAS LOAM.

The heaviest soil found in the Darlington area is the Sassafras loam. It consists of a very fine brown sandy loam 4 to 6 inches in depth, underlain by 24 inches or more of silty clay loam, reddish yellow in color. This true subsoil is sometimes underlain by masses of very tenacious clay interspersed with thin layers of sand.

This soil extends as a wide border along the Pedee River from Societyhill southward, and has a maximum width of more than 5 miles within a bend of the river known as Robbins Neck. It occupies the series of terraces which intervene between the river and the uplands. The lower terraces are only a few feet above the normal level of the river. As might be expected from their position in the bends

of the river and from their slight elevation, these lower bottoms, which comprise more than half of this type, are subject to overflow at any time from the floods that rush down from the Piedmont. It is an undisputed fact that these floods are increasing in volume and destructiveness every year, as the forests along the headwaters are devastated. Before the civil war slaves were employed in constructing dikes to protect these bottoms, but since that time as the dikes have been broken by the strong currents they have not been renewed.

The lands included within this type are wholly alluvial in origin, and from the standpoint of the geologist they are of very recent deposition. The upper terraces are composed of sediment left by comparatively still waters during overflows of the Pedee River when the channel of the stream was much higher than at the present time. On the lower bottoms the process of deposition is still going on.

Only a few square miles of this soil about Robbins Neck is under cultivation, the remainder being covered by a dense forest of such valuable timber trees as the cypress, pine, and hickory. The less desirable gum, beech, and oak also flourish. Several lumbering plants, the largest of which is located at Lumber, are rapidly exploiting these forests.

The Sassafras loam is well adapted to the purposes of general farming. It is the typical corn and wheat land of the area. Fifty bushels of corn per acre and 25 bushels of wheat can be made. One-half bale of cotton is the average yield per acre. The possibilities of this soil have not been realized, as the average farm tenant does not understand the treatment of a heavy soil. On the lower bottoms the danger of a total loss of crops has also to be taken into consideration. As only two good crops out of three, on an average, are harvested, the value of the land is greatly depreciated and extensive farm operations are effectually discouraged.

The following analyses show the composition of the Sassafras loam:

*Mechanical analyses of Sassafras loam.*

No.	Locality.	Description.	Organic matter.	Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
7855	1 mile E. of Lumber.	Fine sandy loam, 0 to 6 inches.	0.99	0.74	2.22	2.42	29.56	36.08	24.20	4.78
7858	¼ mile NW. of Robbins Neck.	Silty loam, 0 to 8 inches.	.69	.58	.90	1.70	32.46	30.06	21.48	12.70
7856	Subsoil of 7855 .....	Brown silty loam, 6 to 20 inches.	.46	.34	1.74	2.16	20.02	22.48	38.46	14.72
7859	Subsoil of 7858 .....	Heavy silt or clay, 8 to 36 inches.	.35	.26	.52	1.90	23.88	20.40	23.28	24.76



TYPICAL SCENE IN TOBACCO WAREHOUSE IN DARLINGTON, SOUTH CAROLINA.

The bright tobacco, one of the important crops of the area, is hauled in open lots and placed in piles, representing different grades, on the warehouse floor, and sold at auction.



CHARACTERISTIC VIEW OF THE SAND HILLS IN THE DARLINGTON AREA, SOUTH CAROLINA.

Soil is a very loose, coarse sand, hardly producing any crop and covered with a sparse growth of dwarf oaks and pine.

## SWAMP.

Along Lynchs River and many of the smaller streams of the county are low-lying lands, varying in width from a few hundred yards to one-half mile. The soil is a mixture of sands and silts, which have been washed down from the surrounding hills. It is only slightly elevated above the normal stream level, and is partially covered with standing water during the greater part of the year.

No attempt is made to cultivate these narrow strips. They are for the most part covered with an almost impenetrable growth of cypress, gum, and other water-loving trees and plants.

## AGRICULTURAL METHODS.

While some of the Darlington County farmers are far above the average in intelligence and progressiveness, there are many who are slow to adopt new methods and to attempt cultivation of new crops.

The methods in vogue here for the cultivation of cotton do not differ materially from those in use throughout the State. As is usual in a sandy country, shallow plowing is practiced. Except in a few rare instances there has been no attempt to carry out any systematic crop rotation, although corn is sometimes alternated with cotton. The farmers should give more attention to this important subject. Under the present system the constant cropping to cotton makes a heavy, continuous demand upon the valuable fertilizing elements of the soil, and unless some return is made to the soil the yield rapidly decreases. To supply this deficiency of available fertility, commercial fertilizers are employed on all the soil types of the area. The rate of application for cotton is from 400 to 1,000 pounds per acre.

While tobacco has been grown only a few years, the most approved methods of cultivating and curing the bright leaf in use in other sections have been introduced here and are generally well understood. The farmers might well study more closely the adaptability of their several soils to this crop. Tobacco requires the most careful fertilization. One thousand pounds of a good potash fertilizer is generally used. The use of stable manure for any crop on these soils is decidedly beneficial, but only a small quantity is so used. The application of lime to these soils has not resulted in any marked benefit. There is a constant increase in the acreage of cowpeas, and their great value both as a feed and as a fertilizer is conceded. This crop can not be too highly commended, for as a forage crop it is the only substitute for the clover and timothy of the heavier soils. It has not been found advisable to plow under the mass of green vines to supply the soil with nitrogen. The better plan is to cut the vines for hay and allow only the roots, which contain a high percentage of nitrogen, to remain in the soil.

## AGRICULTURAL CONDITIONS.

The conditions which prevail among the farming classes of Darlington area at the present time are those of a transition from a state of depression to one of confidence and prosperity. The former status was the result of the disadvantages of a one-crop system of farming on a credit basis, enhanced by the distrust engendered by social and political changes. The cultivation of another money crop, tobacco, has put the agricultural community on a more independent basis, and the farmers of good management can now make and save money.

Of the 4,000 farms in this area less than one-third are operated by the owners. The plan of farm management generally practiced is the share-tenant system. The landowner furnishes the land, the work animals, the fertilizers, and the farm implements, and in return receives one-half the crop at the time of sale. The tenant, usually a negro, secures provisions for himself and family from the town merchant, whom he makes secure by a mortgage on the remainder of the crop. Owing to the great risk which he takes the merchant must add a large margin of profit on such credit sales, and as a result the tenant has little to show for the year's work after these and minor creditors are satisfied. If an exceptional crop should put him in possession of a surplus it is almost invariably squandered, and he begins the new crop year in debt. The profits of the landowner under this system are not large when all things are considered. The farm expenses with such a tenant are large. Moreover, the owner must keep all farm work under constant supervision, especially those operations demanding skill, as the harvesting and curing of tobacco. He also rests under the moral obligation of contributing to the support of the tenant in case of sickness or a failure of crops, which still further reduces his average of profit. There is a gradual betterment of these conditions. The more shiftless of both races are moving into the towns. The percentage of pay tenants is on the increase. Under the pay-tenant system the renter usually promises a certain amount of cotton in payment for the use of the land which he cultivates, and the owner does not share in the loss in case of a failure of crops.

The size of the farms ranges from a few to several thousand acres. There are about twenty tracts in the county which contain more than 1,000 acres. As a rule these large holdings lie along the Pedee River and include much uncleared and uncultivated land. The average size of farms for the whole county is less than 70 acres. While some large plantations are increasing in size, it may safely be asserted that there is a tendency toward a decrease in the average size of farms, and that these farms are now more generally operated by their owners.

Scarcity of labor is likely to give the farmer of this section some anxiety in the near future. The only labor available for farm work is negro labor, and the supply is fast becoming inadequate to meet the

demand. The negroes are leaving the country for the towns, where employment at better wages can always be obtained. The pay of a negro man for farm work is commonly 50 cents a day, or from \$7 to \$10 a month. This labor is of only average efficiency. The negro may be intrusted with the mere mechanical cultivation of cotton, but in the labor requiring skill and the exercise of judgment, as the growing and curing of tobacco, he is of little service except when under constant supervision. The cotton crop is usually picked by "task," the standard rate of pay for this work being 40 cents per 100 pounds of seed cotton. Both women and children take part in the cotton picking.

The agricultural interests of the Darlington area center about cotton and tobacco. The other products are merely incidental to the cheaper cultivation of these crops. The half-million bushels of corn harvested annually in the county allows only one bushel to each animal kept on the farms, and grain must, therefore, be imported. Ten years ago cotton was the sole reliance of the farmer for an income. About 30,000 bales were produced in the county. At that time only 200,000 pounds of tobacco were produced in the entire State. Now the crop of the Darlington area alone is about 8,000,000 pounds. (See Pl. XIV.) Thus, without decreasing the yield of cotton, another crop is put on the market, and one which almost equals the value of the cotton crop and has a much larger margin of profit. This should encourage still greater diversity of crops. The other crops, which are grown on a smaller scale, are wheat, oats, cowpeas, sorghum, and sugar cane. The production of fruits is an industry that has been neglected. The sandier soils seem well adapted to peaches, but their cultivation has scarcely been attempted. A few small pear orchards have shown the possibilities of success with this fruit. Pecan groves yield well and are quite profitable.

The two lines of railroad which intersect at Darlington furnish transportation for the exports of the area. A short branch road connects Hartsville with one of the main lines. The most urgent need of the area is for a better system of roads. Fortunately, this may be secured at a comparatively small cost. The clay found near the surface of the sandy loams, when spread over the deep sandy roads makes a very satisfactory roadbed. Some of the main roads have been improved in this way, either by convict labor or by the voluntary cooperation of the community.

The bulk of the cotton crop is hauled to town for sale, after the numerous county gins have separated the lint from the seed. Several cotton-oil mills furnish a market for the seed, and a small part of the lint finds a market at the two local cotton mills. The bulk of the tobacco crop is handled by three warehouses at Darlington and one at Lamar. There are also markets, which handle a minor part of the crop, in the adjoining counties within easy reach of the Darlington farmer.

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