Issued August 14, 1908.

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

SOIL SURVEY OF JEFFERSON COUNTY, FLORIDA.

BY

GROVE B. JONES, W. E. THARP, AND H. L. BELDEN.

[Advance Sheets—Field Operations of the Bureau of Soils, 1907.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1908.

[PUBLIC RESOLUTION—No. 9.]

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

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following:

That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: *Provided,* That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the Congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture.

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils.]

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
Washington, D. C., January 16, 1908.

SIR: A soil survey was made of Jefferson County, Fla., during the winter season of 1906–7 for the purpose of accurately classifying and mapping the various types of soil and studying their adaptabilities to staple and special crops, especially Sumatra cigar-wrapper tobacco, Cuban filler tobacco, and pecans. This constitutes an extension of the work already done in Gadsden and Leon counties, Fla., and was undertaken in response to a petition signed by numerous citizens of Jefferson County, forwarded and indorsed by Hon. W. B. Lamar. I have the honor to transmit herewith the manuscript of the report and the accompanying map covering this work and to recommend their publication as advance sheets of Field Operations of the Bureau of Soils for 1907, as provided by law.

Respectfully,

MILTON WHITNEY,
Chief of Bureau.

Hon. JAMES WILSON,
Secretary of Agriculture.

CONTENTS.

ILLUSTRATIONS.

FIGURE.

MAP.

SOIL SURVEY OF JEFFERSON COUNTY, FLORIDA.

By GROVE B. JONES, W. E. THARP, and H. L. BELDEN.

DESCRIPTION OF THE AREA.

Jefferson County is located about midway of the State east and west and extends from the Georgia State line on the north to the Gulf of Mexico on the south. Madison and Taylor counties bound it on the east and Leon and Wakulla counties on the west.

The shape of the county is that of a wedge about 25 miles wide east and west at the north boundary and narrowing to 5 miles at the southern extremity, while its extreme length north and south is about 40 miles. The county embraces an area of 374,592 acres, or about 585 square miles.

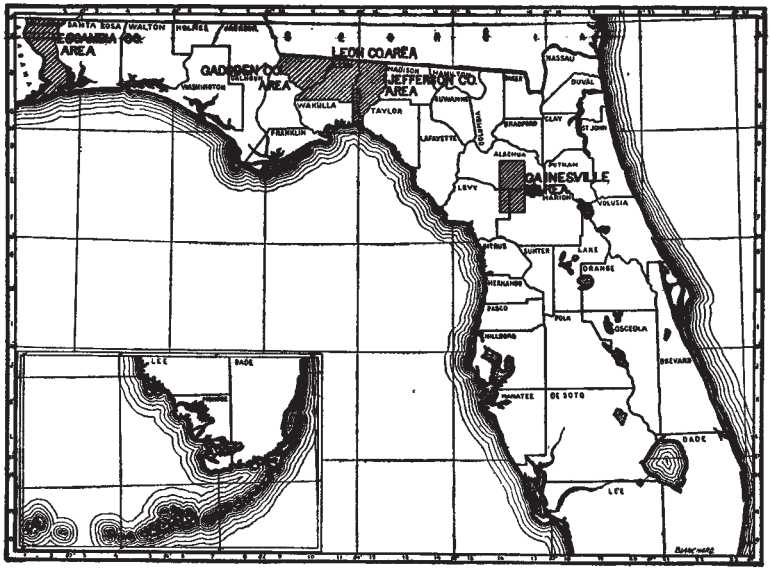

FIG. 1.—Sketch map showing location of the Jefferson County area, Florida.

The Aucilla River at some points forms a rather indefinite county boundary line. From Lamont north it is not at all times confined to a single channel, but frequently spreads out into an impenetrable swamp often a mile or so in width, or divides into numerous shallow, ill-defined channels. "Nutall Rise," about 4 miles north of the point where the Aucilla River empties into the Gulf, is the last of a suc-

cession of sinks and rises which cover a distance of about 6 miles. Within this distance no definite county boundary line exists. The larger sinks have been mapped, and a line connecting them indicates approximately the underground course of the river and serves as the county boundary line in this survey.

The topographic features of Jefferson County are varied and interesting, owing to the two pronounced physiographic divisions within its borders. In a general way the dividing line separating these two provinces may be described as entering the county from the west just south of the point where the Tallahassee Southeastern Railroad (a part of the Seaboard Air Line system) enters. From this point it extends eastward, passing a little north of Wacissa, where it takes a southeast course until it leaves the county about 2 miles north of the Madison-Taylor county line. The larger division lies to the north and includes about two-thirds of the county. This part comprises the uplands and consists of rolling to gently undulating country interspersed with rounded hills, lakes, streams, and narrow valleys. The surface features are nowhere roughly broken, and with the exception of the swamps, no flat areas of any extent exist.

The altitude at Monticello is 202 feet, but it is believed that the highest elevation in the county is to be found in the northwest corner. At Drifton the elevation is 190 feet and at Lloyd 154 feet. Southwest of Aucilla a large, fairly flat area, known as Thompson's Valley, at one time evidently formed an arm of the sea.

The physiographic division covering the southern third of the country forms the "flat woods" and represents the poorly drained section of the county. Its surface features are marked by low swells with fairly level areas intervening. For the most part drainage is poorly developed, the channels are immature, and swamps and bays are numerous. The elevation varies from sea level to 45 feet at Wacissa.

Besides the larger streams the county is well watered with lakes and ponds, into which many of the smaller streams empty. The largest lakes are Miccosukee, Razor, Windom, Silver, and Iamonia. The Aucilla River and its tributary, Gum Swamp, drain the eastern and northeastern parts of the county, while the drainage of the western part finds its way into Lake Miccosukee and the St. Marks River. About 1 mile south of the town of Wacissa the beautiful Wacissa River has its source. A great volume of clear, sparkling water, boiling and surging from the earth through deep springs, forms a picturesque stream 150 to 200 yards in width. This river eventually reaches the Gulf through the Aucilla River.

The dissolution of the limestone which underlies the county as a whole at different depths has given rise to many peculiar and inter-

esting phenomena. The numerous natural bridges of the Aucilla River, the many lakes and sinks into which streams plunge and are lost, and the several "rises," where subterranean water surges to the surface, forming new streams, are all interesting. Northeast of Lloyd the outlet to Lake Miccosukee, which has at times become nearly dry, disappears through a small limestone orifice, at least 25 feet below the surface. A quarter of a mile south of Lake Sink, Mill Creek, a stream of considerable size, disappears in the same manner. In times of high water these two sinks become united through a channel normally dry. If the two orifices become closed or nearly so by debris and can not receive the whole volume of water, it is backed up Mill Creek. and the low country south of the railroad at Lloyd is inundated. It is quite apparent that owing to the character of the underlying limestone much of the drainage of the county is underground.

In 1824 the counties of Walton, Leon, Alachua, and Nassau were established, and in 1827 Jefferson County was cut off from Leon County. Monticello, which up to that time had been an Indian town and trading post, was surveyed for the county seat early in 1828.

The early settlers came from Virginia and South Carolina and located in the northern half of the county. In 1900, according to the United States census, the total population of the county was 16,195, the majority being of the negro race. The southern part of the county below the Tallahassee Southeastern Railroad is sparsely settled. Monticello, the county seat, is the principal town, with a population of about 1,100. It is situated in the north-central part of the county on the Atlantic Coast Line and Seaboard Air Line railroads. It is 25 miles south of Thomasville, Ga., 31 miles east of Tallahassee, 32 miles west of Madison, and 142 miles west of Jacksonville. The towns of next importance are Aucilla and Lloyd, on the Seaboard Air Line, and Wacissa, on the Tallahassee Southeastern Railroad. Lamont and Waukeenah are prosperous inland villages.

The county is well supplied with transportation facilities. The Seaboard Air Line crosses the county from east to west, connecting Jacksonville, Tallahassee, and Pensacola. A branch of this road connects Monticello with the main line at Drifton, 4 miles to the south. The Atlantic Coast Line connects Monticello with Thomasville, Ga., and other points north. The Tallahassee Southeastern Railroad crosses the county 10 to 15 miles south of the Seaboard Air Line. The West Coast Railway, connecting Greenville with Quitman, Ga., passes near the northeastern corner of the county and offers an outlet for that section. A railroad connects Delph with the St. Mark's branch of the Seaboard Air Line in Leon County. This line is being extended northward through the western part of Jefferson County to Thomasville, Ga. Another road in process of construction

crosses the southern townships, and when completed will connect St. Marks on the west with Perry and points east. The county roads could be considerably improved with materials at hand and doubtless will be as settlement progresses. The sandy clay subsoils form an excellent surfacing material.

Monticello is the principal market for cotton and other farm crops produced in the north-central part of the country. In the extreme northern part much of the cotton is sold at Thomasville and Metcalf, Ga., while Quitman, Ga., is the market for the northeast corner.

CLIMATE.

The climate of Jefferson County is generally mild and balmy. Many northern tourists spend the winter months within its borders. During the coldest months of December, January, and February the temperature occasionally falls to 20° F., and frosts are not uncommon. In July and August, the hottest months, the temperature rarely exceeds 90° F. in the shade and 80° F. is the average. The nights are usually cool and often attended by a delightful breeze from the Gulf. Between 50 and 60 inches of rain falls annually, which is generally quite evenly distributed throughout the year. Short droughts may, however, occur during the growing season. The heaviest precipitation occurs in July and August, the normal at Monticello for these months being 7.88 and 7.10 inches, respectively.

The following table, compiled from the records of the Weather Bureau stations at Waukeenah, within the county, and at Tallahassee, in the adjoining county of Leon on the west, shows the normal monthly and annual temperature and precipitation:

Normal monthly and annual temperature and precipitation.

Month.	Tallahassee.		Waukeenah.[a]		Month.	Tallahassee.		Waukeenah.[a]	
	Temperature.	Precipitation.	Temperature.	Precipitation.		Temperature.	Precipitation.	Temperature.	Precipitation.
	°F.	Inches.	°F.	Inches.		°F.	Inches.	°F.	Inches.
January	51.5	3.51	52.2	1.52	August	79.1	7.44	82.4	4.25
February	54.6	5.73	49.0	4.70	September	76.7	4.64	77.1	14.88
March	59.2	5.59	61.7	4.20	October	67.8	3.42	69.0	5.09
April	66.9	1.99	66.6	1.10	November	58.9	2.58	----------	----------
May	74.5	3.48	78.2	2.90	December	52.8	4.10	58.4	7.35
June	78.8	6.36	82.2	10.97	Year	66.8	57.07	----------	----------
July	80.4	8.23	83.4	2.08					

[a] The temperature and precipitation for Waukeenah are for the year 1902 without departures from the normal.

The following table gives the dates of the first and last killing frosts recorded at Tallahassee for a period of seven years, 1896 to 1902, inclusive.

Dates of first and last killing frosts.

Year.	Tallahassee.		Year.	Tallahassee.	
	Last in spring.	First in fall.		Last in spring.	First in fall.
1896	Feb. 21	----------	1900	Feb. 25	None.
1897	Jan. 30	Dec. 28	1901	Mar. 17	Dec. 15
1898	Feb. 22	Nov. 27	1902	Feb. 18	Dec. 27
1899	Mar. 8	Nov. 4	Average	Feb. 24	Dec. 8

AGRICULTURE.

Jefferson County represents a well-established agricultural section of the State, farming having been carried on here for about eighty years. The first settlers located in the northern part of the county, many acquiring large tracts of land. Slave labor was plentiful and general farming, with cotton the chief and money crop, was soon established upon an extensive scale. Considerable attention was also paid to stock raising. Corn, oats, and wheat were among the crops grown, but since 1880 the acreage of small grains has greatly decreased and wheat is no longer grown at all.

The agricultural practices to-day are along practically the same lines as those of the early farmer. The tendency is toward an extensive rather than an intensive system. It has been demonstrated on a few farms that by systematic and thorough cultivation one-third of the land now devoted to cotton can be made to produce as much cotton as the present acreage. The other two-thirds is capable of and should be used in the production of the forage, fruits, and vegetables required for home use, with perhaps a surplus to sell.

Continuous cultivation to a clean-culture crop without adding to the soil the humus necessary to keep it in good condition has caused a decline in the productiveness of some of the older plantations. In former times when the land became "exhausted" it was allowed to "lie out" and soon became a thicket of old field pine, brush, and briers. When a field was thus abandoned it was customary to clear a new piece of ground to take its place. This was done either by "deadening" the larger trees by girdling, plowing the ground, and planting in cotton, or by deadening the timber and later burning it. A change to more modern methods of farming would bring the land of lowered productiveness again to its original state. Commercial fertilizers were experimented with as early as 1860 and began to be used sparingly in 1870. In 1900 about $9,000 was expended for fertilizers in the entire county.

Cotton, corn, sugar cane, and sweet potatoes are the principal crops grown at present, while oats, hay, sorghum, peanuts, and pecans are grown to a less extent. Corn has the largest acreage, and is grown

solely for feeding on the farm. Cotton is to-day, as it always has been, the money crop of the county. It is grown often to the exclusion of the subsistence crops, many farmers being compelled to buy corn, oats, hay, and even meat, all of which could be profitably grown in conjunction with cotton, and at the same time a suitable rotation of crops arranged and the fertility of the soil maintained. The long-staple (Sea Island) cotton produces well, and there has been a steady increase in the acreage given this variety within the last few years. Long-staple cotton commands a higher price than the short staple, and requires more careful and systematic cultivation. Negro tenants prefer the short-staple cotton on account of ease of cultivation and larger yields; hence the greater part of the long-staple cotton now grown is produced by white farmers. In 1900 the acreage of Sea Island cotton was 1,176 acres.

Both the Japanese and red sugar cane are grown quite extensively, and produce a sirup of excellent quality and flavor, most of which is consumed by the producers. One man manufactures table sirup on a commercial scale and supplies distant trade. Large areas of soil are well suited to the growing of sugar cane and the excellent quality of the sirup should encourage the growers to establish this industry upon a money-making basis.

For the successful growing of winter vegetables and all kinds of berries the light sandy soils and the climate of the county are well adapted. All varieties of vegetables, tomatoes, cabbage, early corn, cantaloupes, and watermelons produce abundantly, and there is unlimited opportunity for the development of the trucking industry. Melons are grown both for shipping and for the seed. At the present time there is not enough garden produce grown to supply the Monticello market. Truck growing would combine well with general farming, for the principal truck crops would be off the land in time to permit the growing of a second or perhaps a third crop within the year.

One drawback at present to the trucking industry is the difficulty of developing it to a point where suitable facilities and low rates can be afforded by the transportation companies. There is always this period in the life of any new industry, and the hearty cooperation of the railroads and prospective shippers can easily solve the problem. There can be no doubt that the trucking industry, when systematically developed, will be the source of a large income to the county.

Many orchards of Le Conte pear are seen, and fair crops are sometimes secured. With care such as is given the orchards where fruit growing is made a success the returns could be greatly increased. The Kieffer pear is also grown, and being less susceptible to blight is a much more certain bearer. Figs produce abundantly and some are sold as preserves. Peaches do well and from one small orchard of a

few trees just south of Monticello over $40 worth of fruit was sold last season. It is believed that commercial peach growing might prove remunerative.

The Norfolk and Orangeburg soils of Jefferson County are identical with the soil types that occur in Gadsden and Leon counties. In these counties, which lie to the west of Jefferson County, shade-grown tobacco has been successfully produced for a number of years, the industry being particularly well established in Gadsden County. This year (1907) marks the beginning of the growing of Sumatra wrapper-leaf tobacco under shade in Jefferson County. Tobacco for home consumption has been grown heretofore by many farmers. Two shades, one covering 10 acres and the other about 3 acres, were erected this year, and an increased acreage will be shaded next season.

The production of pecan nuts is very profitable and large orchards of grafted and budded trees are being set out. The soils of the area are well suited to the growth of the pecan and the outlook for commercial pecan growing upon a large scale is very promising. The growing of pecans and of tobacco will be more fully discussed under a succeeding head.

Dairying permits an ideal type of diversified farming. It distributes the income from the farm quite evenly throughout the year and at the same time builds up the soil. The opportunities for developing the dairy industry in Jefferson County are exceptionally good. There is a good demand for high-class dairy products in the home markets and in the larger towns and cities outside the county. A great variety of forage crops can be cheaply produced and pasturage is available for the greater part of the year. There is one dairy in the county near Monticello, where from 30 to 40 head of Guernsey and Jersey milch cows are kept. Besides supplying Monticello with milk, from 4,000 to 5,000 pounds of butter are made each year and sold at an average price of 40 cents a pound.

Seeing the great need of introducing new crops, not only for his cattle, but also for building up a profitable system of crop rotation, this one man has attempted to grow several crops new to the county. Alfalfa, vetch, rape, ruta-bagas, and wheat have proved valuable additions to the general farm crops, and their successful production should be an incentive to others, whether engaged in the dairy business or not, to adopt them. Lespedeza and rye for pasture might also be added. On account of its feeding value and the heavy yields produced, alfalfa is without doubt the most valuable hay crop that can be grown, and is in addition a splendid soil renovater. Alfalfa requires thorough preparation of the soil and careful attention, and does best on inoculated soils. From five to seven cuttings are made each year. Vetch grown with some of the winter cereals—oats, wheat, or rye—makes a very good quality of forage. Sorghum,

cowpeas, and crab grass form the hay crops. Oats and wheat cut while green and cured as hay make an excellent feed and should receive more attention.

For the dairy the silo is indispensable. It is used at the one dairy mentioned and furnishes ensilage from October until May 1. Cowpeas planted at the first working of corn and siloed with the corn make good silage. Thrifty patches of Bermuda grass and Johnson grass were noticed and it is believed that these could be successfully propagated.

When the larger plantations are divided into smaller tracts of land and settled upon the need of intensive cultivation and rotation of crops will mainfest itself and doubtless will be heeded. At present the rotation, if such it may be called, does not take into consideration the betterment of the soil. The common practice is to grow cotton from two to three years, followed by corn from one to three years. This is the simplest system of rotation and best suits the man who does not wish to keep live stock. By using some winter-growing legume, such as bur clover or vetch, for the intermediate soil-renovating crop, the producing capacity of the soil may be greatly increased. This system affords an abundance of excellent winter pasturage for the farm animals, but rotations involving the use of a greater diversity of crops are more satisfactory. Cotton under such a system is made more a surplus crop, and the income of the farm instead of being confined to one part is distributed over a greater part of the year. A four-year rotation used by one farmer, and earnestly recommended, consists of cotton the first year, corn and cowpeas the second year, oats the third year, followed by cotton the fourth year.

Quite a few farmers are devoting their attention to the raising of hogs and cattle and to crops other than cotton. There is always a strong demand for pork and it can be produced very cheaply. Every farmer should produce enough for home consumption and a little for sale. Vetch, rape, and winter cereals will produce an abundance of winter grazing. One acre of alfalfa will furnish grazing for 15 or 20 head of hogs from April to September. Besides supplying the local markets one dealer ships to Jacksonville in carload lots. He also ships dressed pork.

In planting, cotton is usually given the preference of the soils, corn and other crops being planted on whatever area may remain for cultivation. The Orangeburg fine sandy loam is considered the best cotton soil and the Norfolk soils are better for corn, oats, and hay. Cotton is the crop the negro best understands producing, and by him, under the tenant system, the most of the crop is grown.

The common method of rental is to rent "one-mule farms," about 40 acres, for which 700 to 1,000 pounds of lint cotton is paid. An

"ox farm" consists of about 20 to 25 acres. It is generally conceded that 40 acres is too much land to be properly worked by one mule, and it is believed better results would be attained on 30 acres.

A very small percentage of the farms of the county are operated by the owners. Many land owners live in Monticello and in Quitman, Ga. They furnish the tenant with provisions for the year or arrange with a merchant to issue a stipulated amount of merchandise. A cash rental is sometimes paid for land, the rate ranging from $1.50 an acre for general farming purposes to $5 or $7 an acre for nursery stock near Monticello.

According to the census of 1900 the value of farm lands and improvements, exclusive of buildings, was $712,185, but at the time of the survey (1907), land values had increased considerably. The value of the farm buildings was $209,495, and the total acres in farms was 114,142. The average size of the farms was given as 77.1 acres, but this is misleading, as the census counted each tenancy as a separate farm. A few farms are small, but many tracts embrace 1,000 acres or more, and some plantations include as much as from 5,000 to 12,000 acres.

Within the last few years the price of land has steadily advanced. This is due mainly to the increase in the price of timber and turpentine, and recently in part to the introduction of special agricultural industries, the growing of tobacco and pecans. Lands in the vicinity of Monticello sell at from $25 to $50 an acre, the latter price being paid for desirable land for tobacco, pecans, and nursery stock. Unimproved land in the northern part of the county may be had for $6 to $15 an acre. In the southern part cleared land does not sell for over $10 an acre, while well-timbered land may bring as much as $25 an acre. The greater part of the flatwoods region has been purchased by lumber companies for the timber and turpentine. The abundance of cypress in the swamps of the county furnishes splendid material for barrel staves, cross-ties, shingles, and fence posts.

Much of the county has recently been fenced with well-built, substantial barb-wire and woven-wire fences, and the old pine-rail fences which have served their purpose are being rapidly replaced. It costs about $80 to build 1 mile of rail fence and about $125 for the same length of the best patterns of woven-wire fencing.

In Jefferson County negro labor is employed almost universally. For several generations the labor has been trained to grow cotton and to look upon this crop as the only source of income. The present laborers are unfamiliar with the use of improved machinery, and, of course, unskilled in the working of new crops. Any radical changes, therefore, in the type of farming must be made gradually, it being necessary to train the labor along the new lines. Many are employed in tobacco fields of Gadsden and Leon counties, where good wages are

paid and this shows what can be done with such help in a crop requiring intensive cultivation.

The soils of Jefferson County are susceptible of improvement and attention should be paid to their permanent upbuilding. The most important requisites for accomplishing this are greater diversification and rotation of crops, the growing of legumes, better and more thorough tillage, the keeping of more live stock, and the more extended use of improved machinery.

SPECIAL INDUSTRIES.

TOBACCO.

Recently very general interest has been manifested in the growing of Sumatra wrapper-leaf tobacco under shade. The lighter phases of the Norfolk fine sandy loam and Orangeburg fine sandy loam are particularly adapted to the production of shade-grown tobacco.

In the growing of tobacco the seed bed should be given special attention, as it is of prime importance. A good stand of strong, sturdy plants is essential to a successful tobacco crop. The northern box-bed used in Connecticut is rapidly supplanting the old method of selecting a damp place in woodland near a stream or swamp and burning it over. Seed beds should be planted from February 15 to March 15, thereby securing plants suitable for transplanting from April 15 to May 20. Tobacco requires a thoroughly prepared soil and frequent and systematic cultivation. The ground should be plowed deep in the fall then replowed in the spring and subsoiled to a depth of 15 inches. From March 15 to April 1 stable manure, 20 tons to the acre, should be plowed under, after which lime, 400 pounds to the acre, should be spread broadcast and harrowed in. Two weeks before transplanting from the seed bed to the shaded area the ground should be laid off in beds 4 feet apart and the fertilizer applied.

Tobacco, unlike most other crops, is fertilized for quality and foliage and care should always be exercised in the selection of a desirable fertilizer. Chlorine should always be avoided. The fertilizer in general use and up to the present time the most satisfactory, consists of 2,000 pounds of cotton-seed meal, 400 pounds of steamed bone meal, and 300 pounds of carbonate of potash, all thoroughly mixed and distributed in the furrow. The shovel plow is then used to mix thoroughly the fertilizer with the soil, after which the ground is listed from each side, forming a bed which is left until time for transplanting. The bed is then reopened and rebedded and the soil is thus put in excellent condition to receive the plants, which are set at intervals of 14 inches. From this time on the plants should receive frequent cultivation by means of shallow plowing and hand hoeing.

To erect a shade over 1 acre of ground costs, including material and labor, about $250. It is estimated that under favorable conditions the first year's crop will pay for the shade. For 1 acre of shade about 170 posts are required; these should be 11 feet long, 9 feet clear, and set 12 by 20 feet apart. Extra posts are placed 2 feet apart on the outside row on each end to carry the wire which supports the slats. About 1,000 pounds of No. 8 wire is used as a support upon which to weave the slats. It takes about 40,000 slats, which are woven on the wires at such an interval as to give one-third shade and two-thirds sun. Slats cost from $1.50 to $3 per thousand, depending upon the kind and quality used. Some growers prefer the "veneered" slat, while others claim that the sawed slat is more durable. It requires about 60 pounds of No. 22 galvanized wire to weave 1 acre of slats, which should run north and south in order to secure an even distribution of shade upon the tobacco. The entire structure is braced on all four sides by guy wires running from the top of the outside posts and securely fastened to blocks of wood which are buried in the ground. The life of a shade is about five years.[a]

Harvesting the crop begins about sixty days after transplanting and usually covers a period of about four weeks. A fully matured tobacco plant should produce from 20 to 26 leaves. After the leaves are primed, i. e., pulled from the stalk, 36 to 40 of them are strung on a stick and placed in curing barns to dry in tiers 2 feet apart. It requires from three to four weeks for tobacco to cure. The average yield per acre is about 1,000 pounds, and the price ranges from 55 to 75 cents per pound in the bundle, according to the quality of the leaf.

In a tobacco barn 140 feet long, 40 feet wide, and 16 feet to plate, 5 acres of tobacco can be cured. The cost of a barn of these dimensions is about $1,000. It should be located in the open in order to insure good circulation of air and an abundance of sunshine.

The Orangeburg fine sandy loam is adapted to the production of Cuban filler. This tobacco is grown in the open and the methods of fertilizing and cultivation are practically the same as those used in the production of shade tobacco. In harvesting this type of tobacco the entire stalk is cut and hung in the barn to cure. The average yield is about 600 pounds per acre and the price ranges from 20 to 25 cents per pound, depending upon the quality of the leaf.[b]

[a] Prospective growers of tobacco under shade will find much valuable information in Bulletin No. 20. Growing Sumatra Tobacco under Shade in the Connecticut Valley. Bureau of Soils, U. S. Department of Agriculture, 1902.

[b] For a detailed account of experiments in growing this kind of tobacco on Orangeburg soils in Alabama, see Bulletin No. 37, Bureau of Soils, U. S. Department Agriculture, 1906.

PECAN INDUSTRY.

The pecan industry, though still in an early stage of development, gives promise of great success. Seedlings here and there in doorvards give evidence of the productiveness of the pecan tree in this region. The soils and existing conditions as found in Jefferson County are particularly adapted to the pecan nut and especially to the growing of nursery stock. In a great many sections of the pecan producing belt, which is about 200 miles wide, two years are required to produce a seedling large enough to graft. In the Jefferson County area, however, upon the Norfolk fine sandy loam, a sturdy growth from 10 to 20 inches high is produced in one year. Upon the Orangeburg fine sandy loam a good growth is secured, but more time is required. In Monticello and vicinity there are about 3,000 bearing pecan trees, mostly seedlings. Recently numerous orchards of grafted stock have been set out and the acreage is rapidly increasing.

Pecan trees are usually set about 47 feet apart or from 15 to 17 to the acre. Trees begin to bear the sixth or seventh year, and a tree 7 years old should be 20 feet high, with a spread of 10 feet.

Trees should be well cared for to insure best results. Each year 1 pound of complete fertilizer should be applied to the roots of each tree, and besides a liberal dressing of barnyard manure should be given the land in winter. In one instance a seedling tree 22 years old produced 638 pounds of nuts in one season and netted the owner $79. Others have produced proportionately as well. The favorite varieties of nuts are the Schley, Pabst, Stuart, Frotscher, and Van Deman. Monticello is at present considered the largest pecan market in the United States. Six companies are actively engaged in growing nursery stock and nuts and are doing a thriving business. Acres of nuts are planted each year, the trees grafted, and placed on the market the following year. The wholesale price for nuts ranges from 10 cents per pound upward, while nursery stock sells according to age. The industry is a very profitable one when once established, and excellent opportunities are offered in Jefferson County for its development on an extensive scale.

SOILS.

The two superficial geological formations from which all the soils of the area have been derived are the Lafayette and Columbia. The former covers the central and northern parts of the county; the latter extends from the southern edge of the uplands to the coast, and consists entirely of marine sands of recent deposition.

The Lafayette formation comprises two quite distinct members. The upper one—excepting its superficial weathered portion—is a homogeneous red sandy clay. It grades downward into material of

the same general lithological character, but this lower part is obscurely stratified, includes considerable loose sand, and lacks the distinctive red color of the overlying stratum. The multicolored sands and sandy clays so frequently shown in the roadside ditches mark the transition from the upper members to the lighter-colored basal strata.

The upper stratum is not generally more than 10 or 15 feet in thickness, frequently much less, but it follows the topography, extending from the highest divides to the borders of the larger valleys and swamps. It thus mantles the subjacent portions of the Lafayette formation, which, if they affect the soil in any measure, form only the deep subsoil. It is highly probable that the compact red sandy clay represents the depth to which weathering—chiefly chemical changes affecting the iron—has penetrated the Lafayette material. But the present soils owe their origin and distinctive features to changes within or upon this red stratum. More than one-half of its mass is formed of the finer grades of quartz sand and about one-third consists of clay. There is a marked absence of silt and the coarser grades of sand. Very little of this material is readily soluble or easily oxidized. Its weathering consists for the most part of a mechanical dissolution of the sand and clay, with an accompanying change in color due principally to the different forms or combinations of the included iron salts, of which the content is relatively high.

Erosion and solution are the chief factors in the process of soil formation. In this case erosion is the more effective in producing changes in the texture. It takes place not only at the surface, but through or among the sand grains as they are loosened from the clay matrix. Thus the finest particles are in process of removal, the rate depending upon the rainfall and local differences in topography, texture of the material, and character of the vegetal covering.

In some phases surface erosion has removed the loosened materials about as fast as the processes of weathering have released them. This is apparent on some of the steepest hillsides, where the red sandy clay forms the soil—a heavy phase of the Orangeburg fine sandy loam. Where the surface wash has been less vigorous and other forces of weathering—especially those causing change in color—have not penetrated to a depth of more than 2 feet the usual phase of the Orangeburg fine sandy loam has resulted.

Where erosion has been the most effective agent the finest particles have been removed or carried to a depth which will average about 3 feet over much of the uplands, and leaching and other changes affecting the soil color have been comparatively vigorous. The Norfolk sand of the uplands has originated in this manner. This same type, as usually developed upon the lower slopes and in the valleys, contains much transported material derived from the adjacent hill-

sides. But this change in location has not resulted in much assortment of this material, as the average distance has been too short. Hence the texture of this sand is about the same as that of the uplands where the sand is in situ. A few phases were observed where the greater depth of the Norfolk sand and its topography suggested drift by wind. Such a result might have followed the destruction of the vegetal covering at some period, or might have occurred near old beach lines.

The separation of these soils into sands and fine sandy loams expresses approximately the extent, or more correctly the depth to which erosion has affected the superficial portions of the Lafayette formation. This applies to both the Orangeburg and Norfolk types, but especially the latter, which represent the greater differentiation from the original material. The same may be said of the color changes, which are the basis for the separation of the Orangeburg and Norfolk series. No sharp lines can anywhere be seen between these series or their several types.

The soils of the flatwoods owe their distinctive features to causes quite different from those just outlined. The surface formation is a fine, siliceous sea sand. This sand overlies a nearly impervious clay derived from phosphatic limestone.[a] These three strata—the sand, clay, and limestone—extend from the coast to the escarpment which separates the uplands from the flatwoods. The sand presents local variations in thickness, and the clay is wanting in a few places, but the limestone underlies all this low country. It is usually found at less than 10 feet below the surface. Exposures occur along all the streams and in the numerous "sinks," but the rock has directly affected the soil in only a few localities.

A profile of the flatwoods region taken in any direction would be a slightly wavy or broadly undulating line; if the average level of the water table were represented by a nearly horizontal line the latter would cut the former at many places. The areas of drained and undrained land would not only be graphically shown, but the distinctive feature of each soil would be suggested. The organic content is a very important as well as conspicuous element in each type. The amount and form in which it appears is directly dependent upon drainage.

The Norfolk soils would be represented by the highest parts of the profile. They lie well above the plane of permanent saturation and the organic matter is in the form of humus. The swamp and marsh would coincide with the lowest portion of the cross section. They contain a large amount of vegetal remains, mostly in the form of

[a] A chemical analysis of a sample of this rock taken about 10 feet below the surface of the ground gave 0.1 of 1 per cent phosphoric acid. A similar quantity was found in the clay overlying the rock.

muck mixed with fine sand. The intermediate levels would represent the Portsmouth and Leon soils. In each of these the fluctuations of the water level have produced some changes not easily explained. Where complete saturation and free aeration frequently alternate, as in the Portsmouth fine sand, the organic matter is mostly muck and there has been an accumulation of iron at one particular level in the subsoil. The Leon fine sand usually contains but little vegetable material in any form, although in many instances conditions seem favorable for its accumulation.

The classes of soils in this area are limited to sands and sandy loams. All are highly siliceous, for the sand presents little or no variety in its composition. Such differences in agricultural value as the types in one physiographic province present when compared with those of the other are more closely associated with topography and drainage than with textural and mineralogical distinctions.

The table following gives the names and areas of the several soils found in Jefferson County. The distribution of the soils is shown on the accompanying soil map.

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Norfolk sand	105,856	28.3	Portsmouth fine sandy loam	6,016	1.6
Norfolk fine sandy loam	65,472	17.4	Marsh	5,504	1.5
Portsmouth fine sand	57,984	15.5	Orangeburg sand	4,800	1.3
Swamp	54,400	14.5	Gadsden sand	2,496	.7
Orangeburg fine sandy loam	29,568	7.9	Norfolk very fine sandy loam	768	.2
Norfolk fine sand	17,344	4.6	Gadsden sandy loam	640	.2
Meadow	14,080	3.8	Sandhill	128	.0
Leon fine sand	9,536	2.5	Total	374,592	

NORFOLK SAND.

The surface soil of the Norfolk sand consists of gray, light-brown, or yellow sand, with a depth of 10 to 24 inches. The sand is medium to fine in texture and contains sufficient organic matter to make it loamy. To the north of Lloyd the sand is somewhat coarser and is looser in structure. In a few other areas the sand is comparatively incoherent, but these areas are small in extent and the soil consists for the most part of a loamy sand.

The subsoil consists of a yellowish or light-gray sand of texture similar to the soil, though with a more open structure. At a depth of 28 inches the sand may become sticky or give way to a sandy clay. This condition exists usually where the Norfolk sand is closely associated with the sandy loam types. Where the clay occurs at less than 28 inches below the surface the soil has been mapped as Norfolk fine sandy loam.

The Norfolk sand and the Norfolk fine sandy loam are, therefore, closely associated and the one grades imperceptibly into the other. The different tints of the surface soil are due to the varying quantities of organic matter. Where not tilled the soil has a dark color and is loamy in character, but where farmed continuously the dark color soon disappears and the soil becomes light gray or whitish in color.

The Norfolk sand covers about 28 per cent of the uplands and is the most widely distributed of the soils. The surface features of the Norfolk sand vary from rolling to comparatively level country. It occupies hills, ridges, and valleys, and with the exception of a few fairly flat areas is well drained. The comparatively porous texture causes the soil to dry out in early spring and the relatively high content of organic matter and high percentage of fine material make it a warm soil.

The Norfolk sand is derived for the most part from the Lafayette formation. Some areas are reworked material washed down from the hills into the depressions and valleys. Some of the low-lying areas probably owe their origin to the Columbia formation. This is particularly true of the extensive area which extends north and south of Aucilla and west to Drifton. This area is usually quite level and the drainage is poorly defined. Small cypress and gum ponds, many of which are too insignificant to be shown upon the map, are numerous. This impounded condition represents immature drainage, and little of this soil in such places is at present under cultivation.

The native growth consists of longleaf and shortleaf pine, oak, hickory, and wire grass, and on the low-lying areas magnolia, bay, gum, ferns, palmetto, briers, and gallberry bushes.

The Norfolk sand is preeminently a trucking soil. Peas, beans, radishes, lettuce, cantaloupes, watermelons, strawberries, etc., do exceptionally well and their production should prove remunerative. Any crop requiring a light, loamy, sandy soil would do well upon the Norfolk sand. Cotton, corn, and cowpeas are extensively grown and fairly good yields are secured. Upon the well-cared-for fields corn yields 25 bushels, cotton about one-third bale, and oats from 25 to 40 bushels per acre. Long-staple cotton produces good yields when properly cultivated and should be more extensively grown. Alfalfa also does well in some sections. In favorable seasons, and probably in all seasons where irrigation is provided, the Sumatra wrapper leaf tobacco would be a profitable crop. In order to retain the organic matter in the soil and its loamy texture, the growing of leguminous crops should be practiced. The natural growth of weeds and broomsedge should not be burned, but should be plowed under. Deeper plowing should also be practiced.

The price asked for Norfolk sand is slightly less than for the Norfolk fine sandy loam, or the Orangeburg fine sandy loam.

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

Mechanical analyses of Norfolk sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16496,16500	Soil	0.9	10.1	14.5	51.1	14.2	5.7	3.4
16497,16501	Subsoil	1.0	9.6	13.1	52.9	14.7	5.5	3.2

NORFOLK FINE SANDY LOAM.

The Norfolk fine sandy loam consists of a gray or light-brown loamy sand or sandy loam varying in depth from 8 to 24 inches, with an average depth of about 18 inches. The sand consists of medium and fine grades. The subsoil is a yellow or yellowish-red sandy clay, sometimes grading into mottled gray, red, and yellow at a depth of 3 feet or more.

The sandy character of the soil makes it easy to cultivate and the open structure permits of free movement of soil moisture and makes it a warm early soil.

The largest continuous area of this soil passes northward through Monticello and continues unbroken to the State line. A large area also lies northwest of Nash and other areas of considerable extent are found distributed through the uplands.

The Norfolk fine sandy loam occupies gently undulating to rolling areas, most of which are well suited for cultivation. The natural drainage is good, owing to the topography and light texture, and artificial drainage is necessary only in draws and depressions.

Where this soil occupies nearly level areas there is slightly more organic matter present in the soil, and this imparts to it a more loamy texture.

The Norfolk fine sandy loam is derived from the Lafayette formation which overlies the northern two-thirds of the county. Some of the material composing the surface soil shows evidence of having been slightly reworked. The soil is adapted to the growing of cotton, corn, sweet potatoes, peanuts, alfalfa, truck, pecans, and tobacco. Sea-Island cotton grows well and produces an average yield of 700 pounds of seed cotton per acre when fertilized. With the same applications of fertilizers from 20 to 45 bushels of corn are produced.

The Norfolk fine sandy loam is well adapted to sugar cane and the flavor and color of the sirup are better than upon the soils with red subsoils. Velvet beans, peanuts, cowpeas, and beggar-weed are forage crops which grow readily and add greatly to the productiveness of the soil.

Alfalfa is being successfully grown upon this soil at the dairy farm just south of Monticello. After thoroughly preparing the ground and adding 400 pounds of soil from an alfalfa field and 200 pounds of bone meal, 25 pounds of alfalfa seed to the acre was drilled in rows 20 inches apart. This was planted in November. During the winter the crop was cultivated and April 20, when the alfalfa was 22 inches high, the first cutting was made. The second cutting was made May 18, the third cutting June 16, the fourth cutting July 16, and the fifth cutting August 20. As many as 7 cuttings a year may be made, and no better hay crop can be grown. Wheat sown in December and cut about the first of May produced over 18 bushels per acre. Oats sown broadcast, from 2 to 3 bushels per acre, in October, and cut when in the milk stage and cured as hay form a valuable feed. Care should be taken to secure rust-proof varieties of oats and wheat.

The Norfolk fine sandy loam is the ideal soil for growing Sumatra wrapper-leaf tobacco under shade. For best results the surface soil should be from 10 to 18 inches deep and underlain by a bright yellow sandy clay. If properly cared for tobacco grown under shade upon this phase of the Norfolk fine sandy loam will find a ready market at a profitable price. The leaf will seldom have any defect, but will be of desirable color, excellent quality, and satisfactory burn. It is upon this type of soil that the first shade tobacco in Jefferson County was produced and the success of the crop has greatly increased the value of this soil. The pecan tree grows more rapidly upon this soil than upon the Orangeburg fine sandy loam. As upon the other soils of the county deeper plowing, more extensive crop rotation, and the growing of more leguminous crops are recommended.

The price of the Norfolk fine sandy loam varies greatly with the location. Near Monticello it is sought after for growing tobacco and pecans and sells for from $25 to $50 an acre. More remote from railroads it may be bought for $10 to $25 an acre.

The original timber growth consists of pine, oak, and hickory, but large areas have been cleared.

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

Mechanical analyses of Norfolk fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16508, 16510	Soil	0.3	5.2	8.9	48.2	20.6	8.5	8.2
16509, 16511	Subsoil	.2	4.1	6.4	36.9	15.0	7.6	29.9

ORANGEBURG FINE SANDY LOAM.

The soil of the Orangeburg fine sandy loam consists of gray, brown, or reddish-brown medium to fine sandy loam, 8 to 15 inches deep. The subsoil is a very red clay containing from 40 to 60 per cent of medium to fine grades of sand with very little silt. Underlying the red sandy clay, which usually ranges in depth from 5 to 15 feet, exposures show mottled clay and cross-bedded sands.

Iron concretions are present in both soil and subsoil and occasionally ferruginous pebbles several inches in diameter are found. Where the surface is comparatively level the soil is usually a loamy sand resting upon a red clay foundation, the line of contact being very sharp.

The Orangeburg fine sandy loam occurs throughout the northern two-thirds of the county and is typically developed in the northwest corner. This area represents a continuation eastward of the extensive area mapped in Leon County. Other areas varying in size occur, usually associated with the Norfolk fine sandy loam.

The topography for the most part is rolling, although some small areas are only undulating. The area bordering Lake Miccosukee on the north occupies the highest elevation in the county, but nowhere are the slopes precipitous. On the steeper slopes, however, much of the surface soil has been removed, exposing the underlying red clay. The natural excellent drainage is due both to its topographic position and the character of both soil and subsoil.

The Orangeburg fine sandy loam is the weathered product of sedimentary material of the Lafayette formation. This soil is the heaviest and strongest of the county and the greater part of it is under cultivation. It is well adapted to general farm crops, but it is considered best for cotton. The soil is very productive, and as the impervious subsoil prevents leaching to any marked degree, fertilizers are well retained. The average farmer realizes an average yield of one-third bale of cotton and from 8 to 15 bushels of corn per acre without fertilizer. The oat crop grown for hay produces well. The soil is especially well adapted to the production of Cuban filler tobacco. The red subsoil produces a heavy, dark-colored leaf of excellent quality. The filler leaf is grown in the open with yields ranging from 600 to 800 pounds per acre.

The pecan tree thrives well on this soil, making a strong, sturdy growth. At present the methods of cultivation practiced upon the Orangeburg fine sandy loam are often inadequate to obtain the best results. By more careful and systematic methods of cultivation, the growing of legumes, and the systematic rotation of crops, the productiveness could be very greatly increased. Plowing should be deeper, a depth of at least 10 inches being desirable. In this work a

disk plow which can be drawn by 3 mules can be used to advantage and the soil then harrowed in order to secure a good seed bed.

A few farmers practice deep plowing and recommend it, and by careful selection of seed 40 bushels of corn per acre can be produced. The glassy flint variety is less affected by the weevil. On account of the lasting effects of fertilizers farmers feel that they can well afford to use them on the Orangeburg fine sandy loam.

No definite system of crop rotation is practiced. As good yields of cotton are secured each year most of the area under cultivation is devoted to this crop. Improved land can be had for from $10 to $20 an acre.

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

Mechanical analyses of Orangeburg fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16521, 16523	Soil	0.6	12.2	13.3	38.2	11.8	11.9	9.4
16522, 16524	Subsoil	.6	8.9	9.0	34.1	11.9	7.9	28.1

ORANGEBURG SAND.

The soil of the Orangeburg sand, to a depth of 6 inches, consists of a medium reddish-brown loamy sand. It usually contains enough silt or clay to cohere if a moist sample is pressed in the hand. The organic content is generally low, so that the loamy quality which the soil possesses is due to the texture of the mineral constituents. In old fields the surface color when dry is a light brownish gray, and the soil is quite loose to the plow line. Below this depth it is much heavier in texture and darker in color.

The subsoil is a dark-red sticky sand. In some places it is a dull reddish-yellow color, becoming a more pronounced red with increase of depth. From 25 to 30 inches below the surface it changes in texture to a sandy loam or sandy clay, and at a depth of about 3 feet this material usually becomes quite stiff, closely resembling the subsoil of the Orangeburg fine sandy loam.

This soil is found in the uplands, usually associated with the Orangeburg fine sandy loam. It is typically developed in many of the shallow depressions or small basins which are of common occurrence upon some of the broad divides. In such locations it evidently represents accumulations of sand which have not suffered so much weathering as the Norfolk sand. But in general its development is not confined to any particular topographic position, nor is it connected with any noticeable local difference in color or texture of the Lafayette material. In some instances it occupies slopes or undu-

lating areas, while in depressions near by, in which conditions apparently favor an accumulation of loose sand, the subsoil is often heavy. It is locally developed in the larger bodies of the Orangeburg fine sandy loam, but usually in areas too small and ill defined to map.

Most of this soil is under cultivation, being planted each year to the staple crops, corn and cotton. The average yields are not quite as high as those obtained under similar conditions upon the Orangeburg fine sandy loam.

Like the other light sandy soils of the county the Orangeburg sand is deficient in humus, and cultural methods should be directed toward the addition of organic matter and the conservation of moisture.

While this soil is somewhat inferior to the Orangeburg fine sandy loam, there is no distinction observed in the selling price or rental values of the two types when used for general agricultural purposes.

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

Mechanical analyses of Orangeburg sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16516	Soil	0.8	18.5	15.0	41.0	7.5	9.1	8.1
16517	Subsoil	.5	15.0	20.6	42.9	4.4	7.5	9.3

LEON FINE SAND.

The Leon fine sand consists of a fine to very fine white sand 3 feet or more in depth. It contains but little coarse or medium sand and practically no silt or clay. A little organic matter is present in the soil, and, in some instances, the lower subsoil has a yellow tint where clay or sandy clay occurs just below it. This stratum of clay is not constant, for in many places the sand rests directly upon limestone.

The soil to a depth of 3 feet, as normally developed, is a fine, siliceous sand, quite uniform in texture, loose in structure, and destitute of the loamy qualities which the Norfolk fine sand possesses. The variations that occur are more generally attributable to peculiarities of the subterranean drainage than to differences in the nature of the material of either soil or subsoil. Where good drainage exists very little organic matter has accumulated in the soil. Where the surface is flat and the rock beneath evidently admits of little or no subterranean drainage, a thin layer of black fine sandy muck forms the top soil. This is seldom more than 3 or 4 inches in thickness, and its contact with the white sand beneath is sharply defined.

The Leon fine sand as it occurs in this county is found only in the flatwoods. The largest continuous area lies west of the Aucilla River above its junction with the Wacissa. Most of the surface is nearly level, but there are a few broad depressions leading from the banks of the Aucilla River toward Cow Creek. During the frequent overflows of the river these depressions fill with water.

In sections 9 and 10, T. 3 S., R. 4 E., the surface rises in places nearly 20 feet above the river bank and then slopes gradually back for about one-fourth mile before it merges into the general level. An attempt was made to grow corn and cotton on this higher ground, but little success attended the effort. Most of this area is covered with longleaf pine. Where the sand is exceptionally deep the pine is of poor quality and scrubby oak trees are numerous. The location of the numerous sinks and also of the river's course is revealed by the fringe of water oaks and cabbage palmetto.

It seems remarkable that this fine sand, which in most places is fairly well covered with vegetation, should be so destitute of humus. It is probably due to the thorough drainage and aeration which it receives during dry periods. The channel of the Aucilla River is sunk into the underlying rock 10 feet or more along the open part of its course and probably flows at an even greater depth beneath the natural bridges. Many of the sinks communicate with the river's channel. Thus this stratum of sand is most effectively drained whenever the level of the water falls below the surface of the limestone. On the west, at a distance of about a mile, where this subterranean drainage becomes ineffective, the white Leon fine sand merges into the darker Portsmouth fine sand.

The small areas of Leon fine sand west of the Wacissa River have much poorer drainage than the one just described. They are not well defined, usually grading into the adjoining swamps or Portsmouth fine sand, through a series of patches and tongues of alternating low and higher ground which may have a difference in elevation of less than 2 feet. But this difference often is sufficient to mark a distinction in the vegetation. The timber is of poor quality on the Leon fine sand and in places there is no undergrowth except short wire-grass. Its organic content is confined to the first 2 or 3 inches, while the white subsoil is thoroughly saturated. Where slightly better drainage prevails the subsoil assumes a yellowish tint, the soil has a little more organic matter, and the timber is of better quality.

None of this type is at present of much value for agricultural purposes. It affords some pasturage, but should remain forested.

The table following gives the results of mechanical analyses of a sample of the soil and of the subsoil.

Mechanical analyses of Leon fine sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16492	Soil	0.3	3.4	5.2	83.3	5.1	2.0	0.4
16493	Subsoil	.1	3.9	4.7	81.9	7.6	1.5	0.3

PORTSMOUTH FINE SAND.

The surface soil of the Portsmouth fine sand is a black fine sand with a depth of 6 or 8 inches. The subsoil is a gray sand changing to reddish brown at about 24 inches below the surface.

The body of the soil consists of the finer grades of siliceous sand and the dark color is due entirely to the large amount of included vegetable matter. The latter, excepting the roots of living plants, is in that stage of decomposition corresponding to muck. Nearly all of it may be separated from the sand of a small sample by a few washings. It renders the surface loamy and retentive of moisture, and constitutes an important element of fertility. A considerable proportion of the coarser sand grains are not cemented by the organic content and after a rain are seen in little white patches upon the surface.

The contact between the soil and subsoil is well defined. The light-gray sand which forms the latter is destitute of all loamy properties. It contains practically no silt, clay, or visible humus. The dark reddish-brown layer which is usually found at a depth of 24 inches is characteristic. It is a fine sand carrying a very high percentage of ferruginous material. If wet it is slightly sticky, cohering when pressed in the hand, and on drying it remains feebly cemented. When the soil dries deeply this stratum forms a sort of hardpan. It is usually not more than a foot in thickness, graduating downward to a gray sand. In many places this deeper sand is of a light-yellow color, which indicates clay a foot or so below.

The accumulation of iron seems to be greatest near the margins of the permanent swamps. Under the latter the brown stratum is lacking. It is also deeper and not so well developed where the surface rises somewhat above the general level or has better drainage. It is not entirely impervious, but is so compact that free capillary movement of water is checked. In the rainy season the water table stands above this zone, but slowly falls and remains just below it during dry periods.

This soil is typically developed in the flatwoods. Small areas occur in the region which lies between Drifton and Aucilla, and in one of the larger swamps in the eastern part of the county. The surface is not level but usually presents a succession of low swells seldom rising

more than a few feet above the lowest depressions. The latter vary in size and outline from shallow limestone sinks a few rods across to incipient drainage lines hardly distinguishable from the permanent swamps. There are found a great many cypress swamps so small or with such poorly defined borders that they are not shown in the accompanying map.

The traveler who crosses these areas obtains the impression that the surface consists of a succession of low islands or sinuous ridges surrounded by swamps. This appearance is accentuated by the distribution of the native vegetation. The highest ground supports a rather open forest of longleaf pine, with a scattering, short undergrowth of saw palmetto and wire-grass. As the surface declines toward the bordering swamps or creeks the undergrowth thickens and is much higher, while the longleaf pine gives place to slash pine. The lowest ground, or meadow, along the streams is usually covered with a dense thicket of gallberry, ti-ti bushes, and briers, overshadowed by black pine and gum trees, with occasional soft maple, magnolia, and bay trees.

The ti-ti bays are broad, shallow depressions in the Portsmouth fine sand without even so well-marked outlets as most of the swamps possess. They receive their name from the characteristic vegetation, a crooked-stemmed, bushy shrub 8 to 10 feet high. Very little timber of any kind grows in these bays. The soil has more vegetable matter than most of the Portsmouth fine sand, but otherwise presents no difference.

None of the Portsmouth fine sand is under cultivation, except as a few acres have been included in fields of the Norfolk fine sand. In such instances the surface is dark, loamy, and easily cultivated.

The major part of this soil can be reclaimed only by a comprehensive system of drainage, which includes the clearance of the channels of the main creeks. Such a project would not be justified unless there were a greater demand for agricultural land than exists at present. The soil is not adapted to general crops. After a few years of cultivation the humus would disappear, leaving an ashy or gray colored sand about 2 feet in depth. What change, if any, the brown layer would undergo can not be definitely stated.

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

Mechanical analyses of Portsmouth fine sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16527	Soil	0.9	3.4	6.8	35.4	41.5	6.6	5.2
16528	Subsoil	.6	4.6	7.4	36.1	46.5	3.8	1.6
16529	Lower subsoil	.4	4.8	7.3	33.9	47.9	3.0	2.6

NORFOLK FINE SAND.

The soil of the Norfolk fine sand is a very fine grayish siliceous sand with a depth of 6 or 8 inches. There is only a small amount of medium and practically no coarse sand in the material and the predominance of the finer grades of sand gives it a soft, loamy character. The color is darker and the resemblance to loam most pronounced in the virgin soil, or wherever the content of humus is above the average. When dry the surface is loose, but on the absorption of even a small amount of moisture it has a decided tendency to pack. In the heavier phases the grains feebly cohere, forming friable clods.

The subsoil to a depth of 20 inches is lighter in color, not so loamy, and somewhat more open in structure than the soil. The lower subsoil is usually a pale-yellow fine sand, and in some places it is white or light gray in color. There is not much difference, however, in texture between the soil and subsoil.

This type is underlain by a clay which is usually found about 4 feet below the surface. Near some of the larger limestone sinks, or where small local elevations occur, it may be encountered at a depth of 2 or 3 feet. Exposures in railroad cuts show that this stratum of clay has a very uneven surface. Within a few rods the difference in depth below the ground level may be several feet. The upper part is a light-yellow sandy clay, becoming heavier with depth. It grades downward to a mottled white and grayish clay, usually very soft, adhesive, and exceedingly retentive of moisture. The gray portion is markedly unctuous, resembling old tallow in consistency. On drying it has a tendency to separate from the white part into cubical fragments. It is derived from and immediately underlain by a limestone rich enough in phosphate to have attracted attention to its commercial possibilities. Fragments of this rock occur in the soil, and occasionally pieces of chert from a few inches to a foot in diameter are found upon the surface.

The Norfolk fine sand comprises the best drained land in the flatwoods. The surface consists of low or gently undulating divides between the drainage lines. With the exception of an occasional sand ridge the most pronounced of these elevations does not exceed 10 feet. The native vegetation consists principally of longleaf and slash pine, with the usual short undergrowth of saw palmetto, gallberry bushes, and wire-grass.

This is a warm, early, and easily cultivated soil, and is adapted to a considerable variety of crops. Much of it is now under cultivation, almost exclusively to corn and cotton. The average yield of the former without fertilizers of any kind is about 12 bushels per acre. Short-staple cotton produces from one-fourth to one-third bale and the long-staple or Sea Island about 300 pounds of seed cotton per acre. Sugar cane does well. Table sirup of good quality is made for home use and to supply the small local demand. The total

acreage in sugar cane is very limited and but little attention is given the proper fertilization [a] of the fields or the preparation of the product for the general market. Winter oats, cowpeas, and velvet beans may be grown successfully, and the same is true of all early truck crops and most of the varieties of fruit adapted to this region.

As to the adaptation of this type to special crops, too much emphasis can not be placed upon the importance of drainage and the maintenance of humus in the soil. Some of the lightest phases are of little agricultural value, and the same is true of many small areas in the flatwoods which are so low that drainage is impracticable. Most of the type, however, is susceptible of great improvement. Many fields would be benefited by a few open ditches so located that an excess of rainfall during any period of the growing season would not hold the water table within 2 or 3 feet of the surface. The topography, the texture of soil and subsoil, and, in most instances, the position of the underlying clay render such an improvement practicable.

If the soil were well supplied with humus, which may be increased by plowing under or pasturing some leguminous crop once every two or three years, its capacity to maintain an equable supply of moisture could be measurably improved. The subsoil invariably has a good store of water, especially if it is immediately underlain by the clay, while the texture of the sand above admits of good capillary connection between it and the soil. With all crops frequent shallow cultivation would be preferable to the ridge method now practiced.

The adoption of the methods here suggested would increase the productive power of the soil and enable crops to withstand seasonal extremes of moisture and temperature. The water-logged condition of the subsoil, which is not an infrequent occurrence, would be prevented and the daily range of the surface temperature would be reduced.

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

Mechanical analyses of Norfolk fine sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16506	Soil	0.6	5.0	6.4	49.5	31.6	4.2	2.4
16507	Subsoil	.2	5.7	6.4	45.5	36.0	4.9	1.6

NORFOLK VERY FINE SANDY LOAM.

The soil resembles that of the Norfolk fine sand in color, composition, and texture. It is underlain by a fine gray sand which grades

[a] See Bulletin No. 93, Bureau of Chemistry, U. S. Department of Agriculture, p. 93. These plats were located on Norfolk fine sand.

downward to a sandy clay. This clay is similar to that which underlies the Norfolk fine sand, and the distinction between the two types is based upon the difference in depth to this clay substratum. In the small areas mapped as Norfolk very fine sandy loam the clay lies from 12 to 24 inches below the surface, thus forming the subsoil. Where it is found at a depth of 12 or 15 inches the contact between it and the sand above is usually well defined. Where the clay lies much deeper there is a zone above it, a foot or more in thickness, in which the relative proportions of sand and clay vary greatly. If it is very heavy it is usually mottled gray and light yellow, becoming white, or nearly so, as it merges into the deeper subsoil. If the subsoil contains a high percentage of sand it is generally yellow in color, indicating better aeration and subdrainage.

The surface has greater relief than is common to the flatwoods soils. Small mounds and ridges rise somewhat above the general level and limestone sinks are of frequent occurrence.

After the subsoil becomes saturated it retains moisture long after the surface is in good condition for tillage. In wet seasons all crops are more or less injured. Cotton is especially liable to damage by "scalding." In dry years this soil gives good returns of all crops that have been tried. The cultivated acreage is small, but could be extended and greatly improved by drainage.

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

Mechanical analyses of Norfolk very fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16514	Soil	0.7	3.6	2.3	51.1	35.3	4.9	1.7
16515	Subsoil	.2	2.0	2.0	36.7	21.1	5.6	32.8

GADSDEN SAND.

The Gadsden sand consists of a dark-gray to black sand from 8 to 15 inches deep, underlain by an incoherent light-gray or white sand. The sands consist of the finer grades of well-rounded quartz grains with which a large amount of organic matter has become mixed, giving the soil a loamy appearance.

The type occupies areas of limited extent, the largest occurring in the vicinity of Lloyd. A few small areas occupying depressions were mapped in the northeastern corner of the county. Where most typically developed the soil occurs in the form of narrow strips adjacent to streams. It occupies a slightly higher position than Meadow and represents material which has been subjected to more or less swampy conditions.

This soil is derived from the Columbia sands, the dark color being due to incorporated organic matter. On account of its low-lying position and nearly flat topography the Gadsden sand, as it occurs in Jefferson County, is poorly drained. In color, position, and texture the surface soil closely resembles the Portsmouth fine sand, while the subsoil is much like the subsoil of the Norfolk sand. Unlike the subsoil of the Portsmouth fine sand, no iron-stained stratum of sand is found, and for this reason the type was separated from the Portsmouth soil. When the surface is broken and leaching takes place the organic matter is soon washed out, leaving only the white sand. This is particularly noticeable in the roads, which have become white, in strong contrast to the black soil of the adjacent fields.

If drained the Gadsden sand would doubtless prove admirably adapted to the production of vegetables, celery, onions, cabbage, and melons. By reason of its poor lasting qualities, due to its light character and porous subsoil, the results attained might not justify the expense of draining, except under methods calculated to keep up the humus content. The Gadsden sand is more extensively developed in Gadsden County, where the type was first mapped. It is practically uncultivated. The native timber growth consists of pine, magnolia, bay, wire-grass, and saw palmetto.

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

Mechanical analyses of Gadsden sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16488	Soil	0.2	4.1	7.6	57.0	20.1	8.5	2.5
16489	Subsoil	.4	2.9	6.8	66.5	13.9	5.9	3.5

GADSDEN SANDY LOAM.

The Gadsden sandy loam consists of a brown or reddish-brown sandy loam from 8 to 15 inches deep, underlain by a brown or yellowish-brown heavy sandy loam or loam.

The type is found in small areas closely associated with the Orangeburg fine sandy loam. It occurs almost exclusively in the northwestern corner of the county, where it occupies small depressions and flat areas along stream courses. It is naturally poorly drained and is an unimportant type on account of its limited extent. It represents colluvial material with which considerable organic material has become mixed. No crop yields were obtainable, but where cultivated along with associated soils the crops grew well.

No samples of this soil were collected for mechanical analyses.

PORTSMOUTH FINE SANDY LOAM.

The soil of the Portsmouth fine sandy loam to a depth of 8 inches is a fine sand, in which are found varying amounts of organic matter. The subsoil to 24 inches is a fine gray sand of texture similar to the soil, grading downward to a light-colored sandy clay, which extends to 36 inches. The drainage conditions have induced some peculiarities in the amount and distribution of the organic content, which with the differences in topographic position differentiate this type from the Swamp type.

The Portsmouth fine sandy loam occurs on level interstream areas having a slight marginal inclination toward the drainage lines. This slight difference in relief gives some surface drainage, but the subsoil is usually saturated.

The type is found only west of the Wacissa River in the two southern townships. Two phases were recognized. The area south of the Pin Hook sinks has a very black soil, 3 or 4 inches deep, consisting of well-decomposed vegetable matter mixed with fine sand, underlain by a nearly clear gray or white sand slightly coarser and somewhat more sharp, or gritty, than most of the sand of the flatwoods. The contact between it and the soil above is very clearly defined. In some of the depressions a thin stratum of muck resting directly upon white sand forms the soil. At 10 to 15 inches below the surface this light-colored sand grades into a grayish sandy clay. In some places it is mottled gray and pale yellow with brown iron stains. It is usually saturated, soft, tenacious, and becomes lighter in color with depth. Below 40 inches it is a white, unctuous clay, containing some white flakes and small fragments of cherty rock. Bowlders of rough, weathered chert are numerous in places, and occur occasionally in all areas of this type.

The area between the Pin Hook sinks and the western county line is nearly level, but most of the surface has better drainage than the area farther south. The soil resembles that of the Portsmouth fine sand. The vegetable matter is well distributed through the soil instead of being concentrated in the first 3 or 4 inches. The intermediate stratum of sand is not so light in color nor is it so noticeable a part of the soil section. The sandy clay of the subsoil is a dull yellow in some places instead of gray or white, but otherwise it is identical with the sandy clay previously described.

The poor drainage is due only in part to its topography. The impervious nature of the clay and the rock which is only a few feet below the clay prevent effective subterranean drainage. The water which falls upon the surface escapes mainly by evaporation and lateral seepage.

Longleaf pine is the principal timber growth on this soil. It usually forms an open forest with a short but rather dense undergrowth of saw palmetto and wire-grass.

With proper drainage much of the Portsmouth fine sandy loam would be adapted to a considerable variety of crops. If the average level of the water table were permanently lowered, aeration would cause a change in the color and condition of the soil, and to some extent of the subsoil. The vertical distribution of the organic matter would be more uniform in the former, and the permeability of the latter would be increased.

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

Mechanical analyses of Portsmouth fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16483	Soil	0.0	4.3	7.4	60.3	9.0	14.2	4.5
16484	Subsoil	.0	2.0	4.4	48.0	12.5	19.7	13.8

SANDHILL.

In the southwestern part of the county there are several small sandhills. These hills rise from 15 to 20 feet above the surrounding surface and are quite conspicuous, since the elevations in this section do not generally exceed 8 to 10 feet.

The material composing these mounds consists of medium to fine white sand containing but a small amount of organic matter. These mounds are covered with a sparse growth of low bushes and saw palmetto, together with scattering pines upon the slopes. They probably owe their origin to drifting of the coastal sands by the wind, at a time when the shore line was farther north than at the present time. These sandhills are at present of no agricultural value.

Mechanical analysis of Sandhill.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16,538	Soil	0.0	11.7	15.8	67.7	3.2	0.9	0.5

MEADOW.

The Meadow mapped in Jefferson County represents low-lying, narrow strips of land adjoining stream channels. These flat, poorly drained areas are subject to overflow and some remain in a semi-swampy condition.

The soil is of variable texture. Along the smaller streams of the uplands it consists of a dark-colored sand which may be underlain at various depths by a drab, brown, or gray clay.

The semiswampy phase of Meadow consists of gray or drab material overlying heavy clay of similar color. Often the surface material is lacking.

The better drained Meadow strips are sometimes cultivated to corn and fair yields are secured in favorable seasons.

The natural growth consists of pine, bay, magnolia, gum, cypress, and water oak. Cane, briers, and vines form an almost impenetrable mass bordering many of the streams.

SWAMP.

The Swamp embraces those soils which have such poor natural drainage that they are covered with shallow water during all or a part of the year. Small depressions where such conditions prevail and poorly drained areas in soil types have been indicated on the map by appropriate symbols.

Several extensive swamps and innumerable small ones are included in the survey. The largest swamps are located in the flatwoods. The soil of the swamps found in the uplands usually consists of a medium to fine black mucky sand. The immediate surface is composed of vegetable material in all stages of decay. The relative amount of such matter decreases with depth and at 12 to 18 inches the material grades into a grayish sand similar in texture to that of the surface. A stiff clay underlies this sand, but it is not usually found within 4 feet of the surface of the muck. In some of the large isolated swamps, which are really shallow lakes, a heavy clay loam overlying a clay subsoil is found. A few places of this character were found to have a heavy clay loam overlying a clay subsoil. The swamps of the flatwoods differ in several respects from those of the uplands. In many instances they owe their origin to the impervious nature of the substratum of clay and the configuration of the underlying limestone. The geological structure and the slight relief favors a slow lateral movement of water at a comparatively short distance below the surface. It accumulates in the depressions and, if no subterranean outlets exist, or if they are inadequate, can only escape through the obstructed stream channels, or by evaporation.

The black sandy muck of the surface seldom exceeds 18 inches in depth. It is fine to very fine in texture and the grayish sand below is essentially a quicksand.

Above the junction of the Aucilla and Wacissa rivers there is a small area which has much better natural drainage than most of the type. Though subject to overflow, the surface is generally free from standing water. The soil is a fine sand, or, in some of the lower places, where rock is found within 3 feet of the surface, it is a brown fine sandy loam, with a high percentage of organic matter. The subsoil is a drab fine sandy clay derived from the limestone. Weathered

fragments of this rock are found upon the surface and ledges of it are exposed in the river channels. All of this small area is heavily forested.

The characteristic vegetation of all the swamps is cypress and black gum, which occupy the submerged positions, with sweet gum, magnolia, bay, black pine, and occasionally soft maple, ash, and wateroaks, near the margins or wherever slight elevations bring the surface above the average water level. Cabbage palmettoes are numerous in the swamps near the coast and give the vegetation a decidedly tropical appearance.

The large swamp west of the Wacissa River presents some differences in the depth and character of the organic accumulations. In all the sections along the east side of T. 3 S., R. 3 E., there are peat beds varying from a few inches to several feet in depth. In many instances this material rests upon the limestone rock where the latter closely approaches the surface, but does not lie above the average water level. There are many ill-defined areas, usually not far from the Wacissa River, where the black muck grades laterally to brown fibrous material resembling peat. It is often covered with moss, is usually not more than a foot in depth, and invariably overlies loose, saturated sand. The timber consists of a scattered growth of scrubby pine.

Small elevations occur along the Wacissa River on which the soil resembles the Norfolk fine sand in texture. There are also canebrakes which have a somewhat more loamy soil than is usually found in the swamps. All of these have been included in this Swamp area, since they are small, almost inaccessible, and of no present agricultural value.

Borings to a depth of 40 inches in various parts of this extensive swamp showed that loose gray fine sand usually underlies the surface muck. If it were drained some areas of Portsmouth fine sandy loam would be found, but the greater part would be no more valuable for agricultural purposes than most of the land adjoining it.

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

Mechanical analyses of Swamp.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
16,533	Soil	0.8	5.3	6.5	41.0	26.9	8.9	10.1
16,534	Subsoil	.7	5.3	6.0	41.0	33.0	6.2	7.4
16,535	Lower subsoil	.2	3.9	3.8	29.3	28.7	6.2	28.5

MARSH.

Several small marshes are found near the coast. These are low, treeless areas covered with a growth of saw-grass. In most instances the soil is a muck to a depth of about 1 foot. The subsoil is variable in composition, usually containing considerable clay, which in its saturated condition is plastic, soft, and miry.

The general appearance of these marsh areas indicates that they were until recently shallow ponds which have become nearly filled with organic remains. The margins of these areas are being encroached upon by the characteristic water-loving vegetation.

A narrow border of salt marsh extends across the southern end of the county. The Gulf coast is nearly flat for a mile or more back from the shore. With the exception of a few, low "islands" and the channels of inlets, the sand is covered with a dense growth of water-loving rushes. The roots of this vegetation have bound the sand together in a peaty mass to a depth of several inches.

The roots of this vegetation have bound the sand together in a peaty mass to a depth of several inches.

Near the "timber line," or border of the Marsh area, the addition of earthy matter and the encroachment of fresh-water grasses is gradually converting the margin of the sea sands into fresh-water marsh. This condition or phase is of some value for pasture.

SUMMARY.

Jefferson County is situated in middle Florida. It extends from the Georgia-Florida line south to the Gulf of Mexico, a distance of nearly 40 miles. Its area includes about 585 square miles of rolling, gently rolling, and fairly flat country. There are two distinct physiographic divisions within the county. The larger consists of the northern two-thirds and forms the uplands, while the smaller comprises the poorly drained southern third known as the "flatwoods."

Jefferson County was organized in 1827, and Monticello was surveyed for the county seat at the beginning of 1828. It is the largest town in the county. The first settlers came from Virginia and South Carolina.

At present the farming is carried on mainly under the tenant system. About 23 per cent of the farms are operated by their owners. Farms vary in size from a few acres to several thousand. The average size of the farms, according to the census of 1900, is given as 77.1 acres, but the census classification considers each tenancy a farm and the average size holding is much greater than the figures given.

Cotton and corn are the principal crops grown, with hay, sugar cane, sweet potatoes, vegetables, and pecans as minor products. The

growing of shade tobacco, now in the first stages of development, gives promise of great success. The pecan is being successfully produced as an orchard nut, and much attention is also being given to nursery stock. There are six pecan nurseries at Monticello.

There is almost unlimited opportunity for the successful growing of truck crops for local and northern markets. Dairy products command good prices and a great variety of forage and pasture crops can be easily produced.

The county is well supplied with transportation facilities. Special industries requiring quick transportation have not yet developed to the point where cheap rates can be economically offered by the railroads.

The flatwoods region is sparsely settled and here agriculture has received little attention except along the foothills. Lumbering and turpentining are the chief industries.

The price of land in Jefferson County has increased greatly within the last few years, owing principally to the higher prices paid for lumber and turpentine and more recently to the introduction of special industries. There is still plenty of good land to be had at reasonable and in some instances very low prices.

The soils, consisting exclusively of sands and sandy loams, are varied. The upland soils are derived from the Lafayette formation, while the soils of the flatwoods owe their origin to the Columbia formation. Fifteen types of soil were mapped, of which the following have at present a low agricultural value, viz: Sandhill, Meadow, Swamp, and Marsh.

The Orangeburg series is confined entirely to the uplands and consists of two members, a fine sandy loam and sand. The Orangeburg fine sandy loam is the heaviest and strongest soil in the county and for cotton it is considered the best. It is also well adapted to Cuban filler leaf tobacco. The Orangeburg sand is a fairly good soil for cotton and corn but the yields average somewhat lower than upon the fine sandy loam. It is a very desirable soil for the growing of Sumatra wrapper-leaf tobacco.

The Norfolk series has four members, two of which are found in the uplands and two, the finer grades, in the flatwoods. On account of its wide crop adaptation the Norfolk fine sandy loam is the most important soil of the county. It is easily cultivated and responds readily to fertilization. It is adapted to cotton, corn, oats, sugar cane, truck, fruit, pecans, and tobacco. It is the most desirable soil for the growing of Sumatra wrapper-leaf tobacco under shade, and pecans thrive especially well upon it.

The Norfolk sand for the most part possesses a loamy texture, is retentive of moisture, and easily cultivated. Except in droughty seasons the same crops grown upon the fine sandy loam do well on

this soil. For trucking purposes the Norfolk sand is the better soil and near markets should be devoted to that industry.

The Norfolk very fine sandy loam if properly drained would prove a good soil for general farming, truck, and Sumatra leaf tobacco. The Norfolk fine sand is deficient in organic matter which may be supplied by green manure.

The Portsmouth series has two members, a fine sandy loam and fine sand. Immature drainage renders these soils at present unfit for cultivation. If artificially drained, and it is practicable to establish drainage systems, these soils should prove valuable for truck growing. The Portsmouth fine sandy loam is confined to the southern extremity of the county. It is low-lying and naturally wet, but should be a strong soil for corn and forage crops if artificially drained.

Besides these three main series which are found throughout the coastal plain country, two smaller series were recognized. The Gadsden series furnishes two members, a sandy loam and sand. The sandy loam occurs in the uplands and is made up of wash material. Cotton and corn yield good crops. The sand by reason of its topography is poorly drained, but would doubtless prove a good truck soil if drained artificially.

The Leon series has one member, a fine sand. It is a nonagricultural type of the flatwoods.

The greatest needs for accomplishing the permanent upbuilding of the soils are greater diversification and rotation of crops, the growing of leguminous crops, more thorough and systematic methods of tillage, the keeping of more live stock, and the use of improved, labor-saving farm machinery.

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