SOIL SURVEY OF WILKINSON COUNTY, MISSISSIPPI.

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DESCRIPTION OF THE AREA.

Wilkinson County is located in the southwest corner of Mississippi, being bounded on the north by the Homochitto River, which separates it from Adams and Franklin Counties, on the west by the Mississippi River, which separates it from Louisiana, on the south by Louisiana, and on the east by Amite County. It embraces an area of 667 square miles, or 426,880 acres.

About 80 square miles of the western side of the county consists of level delta lands, but with the exception of the valleys along the Homochitto and Buffalo Rivers, and the creek bottoms, the remainder consists of rolling to hilly uplands, dissected by innumerable drainage lines. The general elevation of the uplands is between 300 and 400 feet above sea level.

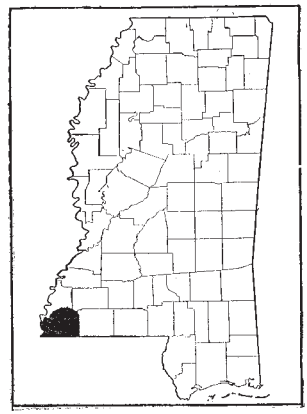

FIG. 24.—Sketch map showing location of the Wilkinson County area, Mississippi.

In general, the uplands have very strong relief, and there is much land too broken to admit of profitable cultivation. The chief exception to this general statement consists of the three southeast townships. Most of their surface is characterized by very mild topography. In this section the main interstream divides are broad, undulating ridges with long, easy slopes. Much of the land is cleared, and the view in most instances is obstructed only by the timber along the streams and a scattered growth of pine and sweet gum in pastures and untilled portions of fields. Tracts of comparatively smooth land are also found in the northern and western parts of the county, but the individual areas are of small extent.

Throughout the western and northern townships most of the upland may be described as strongly rolling to very rough. Areas to which the latter term is applicable coincide with Rough broken land and the rougher portions of the Memphis silt loam. In the first-mentioned areas the divides at the heads of the dendritic drainage systems are usually separated by deep ravines. As the larger branches

are approached the slopes are longer, but very irregular with respect to form and average degree of inclination if one side of a valley is compared with the other. As a rule, the southern side is the more broken, and includes but few areas of possibly tillable land. The local relief is from 50 to 150 feet.

In the rough lands immediately east of the Mississippi Valley the difference in local elevation ranges from 100 to 200 feet. The bluffs near Fort Adams rise nearly 300 feet above the lowlands, and the valleys of the small streams in this section are generally narrow and inclosed by steep wooded hillsides.

The divide between the Buffalo and Homochitto Valleys has rather varied surface features, but all of it is a region of most pronounced relief. For the most part the northern side is more rugged than the southern. While the latter includes some very rough lands, the greater part is rolling to hilly, with occasional areas that decline very gradually to the Buffalo Valley.

The areas of Memphis silt loam drained by Crooked Creek and other short tributaries of the Homochitto River in the northwest part of the county are generally very rough, and the forms of the hills and the general appearance of the country are similar to the topography in the neighborhood of Fort Adams. Toward the east there are more frequent exposures of red sands and white clays at higher horizons than in the west, while the mixed growth of hardwood and shortleaf pine gives place to forests in which longleaf pine is the dominant species. In most of the areas of Rough broken land in the northern part of the county narrow divides and ridges of unequal height prevail, with the rather sharp outlines and varied degrees of surface inclination due to surface erosion and weathering of gravelly sands and beds of resistant clays. The mantle of brown loam that elsewhere smooths the minor surface inequalities is here a thin veneer on the top of the ridges and very patchy or entirely wanting on their flanks and higher elevations.

There are easily recognizable in most parts of the county areas in which the topography in general is intermediate in character between the rough lands just mentioned and the comparatively smooth phase of the Memphis silt loam. In such instances the divides are wider and their slopes not so steep as to prevent tillage or in most places the reasonably convenient use of wheeled implements. Along the top of the wider ridges and on many of the southerly slopes are irregular-shaped areas of such gentle surface gradients that they form very desirable lands for general farming.

The timber in the western half of the county consists largely of oak, but there are many other kinds of deciduous trees, among which ash, poplar, and hickory are the most important economically.

Elm, beech, and magnolia are commonly found on the deeper deposits of the loess, or brown loam, but large specimens of the last-named species are rarely seen on the thinner phases of this material. In like manner the cedar trees are more numerous on the calcareous soils of the extreme western uplands than in the eastern part of the county. In the latter section, especially on the hilly lands, long-leaf and shortleaf pine form most of the virgin forest, with inferior varieties of oak as the secondary growth.

The bottom lands of the creeks and their larger branches are mostly open fields, the timbered portions being the poorly-drained spots and untillable ground near the channels. From the junction of its main branches to the Mississippi lowlands the valley of Buffalo River is from 1 to 2 miles wide. This includes the second bottoms, or terraces, that occur on each side from the upper Natchez Road to the mouth of the valley. Some terraces are found on the south side of the Homochitto Valley, but with these exceptions all the lowlands of the latter streams are first-bottom lands and subject to frequent overflow. Between Rosetta and Ireland there are a number of small tracts of cultivated land, but below the latter point nearly all the Homochitto Valley and the Mississippi flood plain northeast of Old River is an unbroken forest of oak, gum, cypress, and other deciduous trees that can endure frequent floods.

All the streams have rather high gradients and their flow is rapid. The middle course of Buffalo River is a wide, deep channel in which the stream is nearly lost at low stages. The same is true of Bayou Sara, the larger branches of Thompsons Creek, and sections of valleys of several other creeks in which the beds are so deep and wide that the adjoining lands are seldom overflowed. Where the channels are not so wide the bottoms are frequently inundated, and this is also true of most of the small tributaries.

Since the uplands are so thoroughly dissected by drainage lines there is hardly a quarter section on which a perennial stream or a spring may not be found. The principal exceptions are some small areas of the smoothest lands on the widest divides. In the valleys and throughout the eastern half or two-thirds of the county wells from 20 to 40 feet in depth usually afford an abundance of potable water. In the deep loess areas water is not quite so easily obtained and cisterns are the source of supply for domestic use.

More than 75 per cent of the Mississippi lowlands is forested. The open or cleared lands form for the most part a border from one-fourth to one-half mile wide along the river and on each side of the lake known as Old River. In 1912 and 1913 all these alluvial lands were inundated.

According to the census of 1910, the population of Wilkinson County was 18,075. Of this number 4,171 were white and 13,904 were colored. Since that time there has probably been a slight decrease in the number of whites and a marked decrease in the colored population. During the last four years hundreds of the latter have left the county.

The main line of the Yazoo & Mississippi Valley Railroad touches the northeast corner of the county and crosses the southeast corner. Centerville, a town of about 800 inhabitants, is on the latter section of the road. Woodville, the county seat, is 14 miles west of Centerville. A branch of the above-named railway extends from Slaughter, La., to Woodville, a distance of about 40 miles. Fort Adams was formerly a shipping point for the western side of the county, but is now of little importance in this respect.

The main public roads in the less hilly parts of the county are generally in good condition, but those in the rougher sections and practically all the neighborhood roads are poorly constructed and travel is often difficult for loaded vehicles.

Several rural lines radiate from Woodville and Centerville and there are a number of star routes through the northern and western parts of the county.

CLIMATE.

The climate of this section of the State is that of the warm temperate zone. The winters are mild and as a rule farm work may be carried on with only such interruption as is caused by rains. The ground freezes slightly at times. The summers, although warm and somewhat enervating, are healthful. Periods during which the temperature rises above 100° F. are of short duration.

As will be seen in the accompanying table, the precipitation is very well distributed. Short droughts occur that affect crops on poorly cultivated land, but most of the types, if well managed, will produce ordinary farm crops without material injury from dry weather. Excessive rains are more often a source of loss and inconvenience to farmers and truckers than dry periods.

The average date of the first killing frost in the autumn is November 14; of the last in the spring, March 12. The date of the earliest recorded frost in autumn is October 27, and of the latest in spring April 21.

The following table, compiled from the records of the Weather Bureau station at Woodville, Miss., gives the normal monthly, seasonal, and annual temperature and precipitation:

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

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.
	°F.	°F.	°F.	*Inches.*	*Inches.*	*Inches.*
December	50.6	79	13	5.47	4.58	4.10
January	50.1	79	15	5.54	3.38	6 44
February	50.1	81	—3	5.60	2.05	10.52
Winter	50.3			16.61	10.01	21.06
March	61.3	87	26	5.95	3.92	4.86
April	66.5	92	33	5.03	1.64	9.74
May	74.2	96	42	4.51	2.52	7.24
Spring	67.3			15.49	8.08	21.84
June	79.8	101	53	4.45	3.19	7.77
July	81.4	104	60	7.48	7.30	10.58
August	81.3	100	59	5.56	6.09	4.97
Summer	80.8			17.49	16.58	23.32
September	77.3	98	44	3.53	3.69	8.03
October	66.9	94	32	2.67	0.00	4.35
November	57.9	83	21	3.76	1.34	7.34
Fall	67.4	92	32	9.96	5.03	19.72
Year	66.5	104	—3	59.55	39.70	85.94

AGRICULTURE.

In the southern and southwestern part of the county there are many farms on which the first clearings were made very early in the last century. In the vicinity of Fort Adams, Pinckneyville, and Woodville large and well-improved plantations had been established long before the Civil War. The owners in many instances were men of exceptional ability and enterprise, who not only acquired very large tracts of land, but improved their great estates with fine mansions and most substantially built gins, negro quarters, and other accessories necessary for extensive operations. A railroad was constructed about 1848 from Woodville to Bayou Sara, La., a point on the Mississippi River, as an outlet for cotton. Somewhat later a cotton mill was built in Woodville and continued in operation until destroyed in 1864.

With all farmers cotton was the principal crop, but the large plantations were practically self-sustaining with respect to all food supplies. Cattle and hogs required little attention, since they had the

range of the otherwise unused rough lands. The extensive canebrakes in the western part of the county were then especially fine winter feeding grounds.

After the war cotton continued to be the chief crop, with even less attention paid to the other products than had been given them by the antebellum planters. Cotton became the basis of credit, and the market for other products, except in a local way, was never developed, or rather was unsought by the majority of landowners. One of the causes which combined to bring about this economic condition was the lack of dependence to be placed on the available labor in any kind of farming except cotton growing. Another cause was the fact that most of the present owners of the large estates and of the majority of the small farms are descendants of the original proprietors and therefore cotton culture is the business to which they are accustomed and a change to other lines would involve an almost complete change in agricultural methods. Lack of transportation facilities also discouraged the production of other crops.

The following table, compiled from the United States census reports, shows the general trend of agricultural production in this county:

Year (census).	Cotton.		Corn.		Oats.	
	Acreage.	Yield.	Acreage.	Yield.	Acreage.	Yield.
	Acres.	*Bales.*	*Acres.*	*Bushels.*	*Acres.*	*Bushels.*
1880	33,720	16,620	15,068	206,985	204	3,035
1890	51,743	29,876	19,330	351,973	313	6,052
1900	40,767	20,022	23,774	393,790	77	1,090
1910	28,426	4,144	29,984	419,360	1,392	21,827

The cotton production for the years 1910 to 1913, inclusive, according to ginners' reports, is as follows: 1910, 1,186 bales; 1911, 1,628 bales; 1912, 936 bales; 1913, 1,052 bales.

The sudden and marked decline in cotton production shown by these figures was due entirely to the invasion of the boll weevil. The pest first appeared in the western part of the county in 1907, but the damage that season was slight. The next year the crop throughout the western side of the county was reduced more than half, and the following year almost entirely destroyed on most plantations. Since 1909 it may be safely asserted that the maximum yield under most favorable conditions throughout the entire county has seldom exceeded one-fourth bale per acre, while in scores of instances the crop has been so completely destroyed that a few hundred pounds of seed cotton represented the entire production of a considerable acreage. Attempts to combat the weevil

by planting early varieties, picking infested squares, and the practice of other remedial measures have so far given but little relief. Many farmers have quite faithfully followed directions in this respect, and but few have obtained returns that justify the increased cost. On all phases of the Memphis silt loam and on all the Vicksburg and Ocklocknee soils the fields are generally small or of irregular shape and usually surrounded by timber or otherwise uncultivated lands. The weevil thus finds here the most favorable conditions for hibernation. The physical structure of these types, wherever well tilled, causes the soil to maintain a good moisture content throughout the entire season, and the surface tends to remain moist and cool. On all except poorly prepared ground cotton usually makes a rather large plant, and the shading of the surface further tends to make conditions favorable for the rapid multiplication of the weevil.

Some planters are of the opinion that profitable cotton crops may be grown in the Mississippi bottoms in favorable seasons if planting is not delayed by spring floods, the larger areas of cleared land being a factor in their favor; but the menace of overflows like those in 1912–13 complicates the problem of managing these lands.

On the appearance of the weevil a few farmers dropped cotton entirely and turned their attention to live stock. As a rule, these men have met with a greater measure of success than those who either partially or entirely discarded cotton and attempted some other quick money crop, like truck, rice, or even corn. Not all have failed in these comparatively new lines, but inexperience, the rather high cost of labor, and in most cases limited capital have rendered the change from cotton to other crops difficult.[1]

Under present conditions the attempt to continue cotton as the chief money crop on the average farm seems unwise. The excellent opportunities for the production of other crops and the raising of live stock indicate lines of farming that may be taken up with every assurance of success if properly managed.

The acreage of corn has increased in the last five years. On the Sharkey clay and the Sarpy soils, as well as on a part of the Lintonia silt loam, yields of 40 to 50 bushels per acre have been obtained with ordinary cultivation. On the darker phase of the Vicksburg silt loam nearly as good returns have been reported, while on the Memphis silt loam the ordinary yields have ranged from 20 to 25 bushels per acre.

On the latter type the limiting factor in corn yields is apparently the humus supply. Nearly all of the cleared portions of this type have been devoted to cotton for years with but scanty returns of

[1] An idea of the loss sustained may be gained if the value of a 500-pound bale of cotton is estimated at $50, a conservative estimate, and of the seed therefrom at $10, and assuming that 18,000 bales represented the shrinkage. This represents about $1,080,000 annual loss for the county.

organic matter in any form. The negro tenants usually burned all cotton stalks and trash, and the occasional change to corn with cowpeas, as practiced on some plantations, was about the only addition of nitrogenous material made. This deficiency is very apparent when such land is planted to corn.

Oats have never been grown extensively in this county. Cotton planters along the Mississippi River usually sow a field for winter pasture, and after being grazed down the crop is allowed to mature and is then cut for hay. On upland soils many small patches of oats are sown for winter feed. Since there are only a few self-binders in the county, used chiefly for harvesting rice, and no thrashing machines, the production of grain is not practicable without considerable expenditures for machinery. If oats are sown in October or November the growth is usually very good on practically every well-drained type of soil.

The culture of dry-land rice has been attempted on a small scale by many farmers since cotton has ceased to be profitable. The favorite type of soil for these small fields, which in most instances have consisted of but a few acres, is the Waverly silt loam. The grain is sown in rows, thinned to hills 12 to 15 inches apart, and cultivated much like cotton or corn. Yields ranging from a few bushels to as much as 30 bushels per acre are reported. The average seems to be about 15 or 20 bushels. The small acreage and the expense of cleaning and preparing for sale usually preclude very large profits. Where rice is grown under irrigation the Sarpy silty clay loam and Sharkey clay are good soils. One plantation installed a system of irrigation by means of siphons over a levee and used water from a lake, the ordinary yields for 3 years being about 15 bushels per acre.

Sirup of excellent quality and a clear amber color is produced from cane grown on the Memphis silt loam and Lintonia and Lexington soils. The yield per acre is generally less than from cane grown on the heavy river bottom lands, but the quality of sirup is generally better. Fertilization is usually considered unnecessary. From 200 to 300 gallons of sirup are produced per acre. The local demand is supplied by farmers, but no attempt has been made to produce a uniform grade of sirup put up in suitable packages for distribution to dealers outside the county.

Sorghum is occasionally grown in a small way by negroes, who thus obtain a supply of molasses somewhat earlier than from sugar cane.

The deep silty soils of this county are particularly good soils for the grasses and a number of valuable clovers. Of the latter lespedeza is the most common, being found wild on practically all types, except some of the recent alluvial deposits. In most instances it is

associated with carpet grass and Bermuda, forming with these the grassy growth in yards, along roadsides, and in closely pastured clearings. Uncultivated fields, if not pastured, generally become covered with broom sedge, which either crowds out the more valuable varieties just named or reduces them to a thin, short undergrowth.

Lespedeza is now recognized as a most valuable hay crop. On upland fields exhausted by long cropping to cotton the volunteer growth is seldom more than a few inches high, but the same lands, if plowed, smoothed with a harrow, and given a very light application of manure, will make a much heavier crop. On the Vicksburg and Ocklocknee soils lespedeza attains a height of 12 to 18 inches and yields from 1 ton to 1½ tons of good hay per acre. It thrives especially well on the Vicksburg silt loam and often forms a heavy volunteer growth on soggy land that is very acid and not easily utilized for other purposes. A considerable acreage of this clover is now grown for hay and in all instances it proves a valuable crop.[1] The price of hay, baled, usually ranges from $10 to $15 a ton and the seed commands about $3 per bushel.[2]

There are some small native clovers resembling the lespedeza, but they have yellowish blooms and are of value for pasturage chiefly in early spring.

White clover is found in all parts of the county, but usually is most in evidence in yards and near barn lots. Bur clover thrives well on the deep phases of the Memphis silt loam. Red clover has been sown on the latter soils near Pinckneyville and good stands are reported to have been obtained. No attempt has been made to use these legumes in a crop rotation, but on the calcareous lands of the extreme western part of the county such use would doubtless be practicable.

Bermuda grass is the most valuable pasturage grass in this section. It thrives almost anywhere, except in virgin uplands, and even here, if the undergrowth is killed by close pasturage and the shade is not too dense, this grass soon establishes itself. On Vicksburg and Ocklocknee soils lespedeza and carpet grass tend to crowd the Bermuda out, but on the uplands and second-bottom lands the latter makes a strong and long-continued growth. On the recently deposited sands and sandy loams along the Mississippi and Homochitto Rivers, as on the Overwash, Bermuda establishes itself in a very short time, where if not pastured it soon forms a dense, matted growth. On the Sharkey clay and related types it will in time attain a height and thickness sufficient to afford good cuttings.

[1] See Farmers' Bulletin No. 441 for further discussion of lespedeza, or Japan clover.

[2] In one instance 165 bushels of seed were obtained from 18 acres of ground. This is exceptionally high, 2 to 3 bushels per acre being near the average.

Carpet grass may be placed second to Bermuda as a common plant in uncultivated fields, especially on the lower ground. Broom sedge soon takes possession of old lands, irrespective of soil type, and usually becomes so thick in fields of lespedeza that the latter require plowing and in some instances reseeding every third or fourth year.

Cowpeas and velvet beans are so easily grown as secondary crops that no discussion of them seems necessary. The former matures good crops of seed, but the latter does not do so as a rule, although its value as a soil renovator and pasturage crop has been amply demonstrated in many instances.

The foregoing discussion of pasture and forage crops indicates the cheapness of the food supply for cattle and other live stock. As a rule no preparation for winter feeding is made for cattle, except possibly for milch cows. The winter range in the cane-covered ravines in the western part of the county usually carries them through in good condition, but it is now generally recognized that some provision should be made for feeding during the coldest months, January and February. Fall-sown oats, rye, and crimson clover will furnish much grazing when most needed; but the total acreage of all these crops is extremely small, even in the eastern part of the county, where the winter range is poor.

Cattle dips have been built on a number of farms where owners have seen the advantage of the treatment. The ticks are thus reduced on these pastures, although not eradicated. There being no county stock law, general measures against the pest are not enforced. The unrestricted range of stock also discourages the importation of well-bred animals.

There has been a large increase in the number of hogs raised in this county. Diseases sometimes decimate the herds, but such losses are not more common here than in other sections of the country.[1]

A few sheep are raised, practically without care in most instances. They are said to have few diseases. Dogs are the most serious menace to the extension of the industry.

The present production of fruits in the county is confined almost entirely to pear and apple trees in dooryards and occasional small orchards of peaches. Remnants of pear orchards still exist, usually much affected by blight, and most of the peach and the few apple trees are more or less diseased.

Some seedling varieties of peach are said to have been exceptionally long lived and productive in the western part of the county. The thinner phase of the Lexington silt loam most nearly resembles the Orangeburg types of other areas on which successful commercial orchards have been established. The steep northern slopes of the Memphis silt loam afford sites for orchards on which the danger of

[1] Miss. Expt. Sta. Bul. No. 107, Pork Production at the Delta Station.

damage from late frosts is considerably less than on southerly exposures. The same difference might also influence the growth and yield of the few varieties of apple trees which thrive in this warm climate.[1]

Figs, plums, blackberries, and dewberries thrive and give abundant yields in most years. Pecans are indigenous to this section of the State. Trees are found on most of the alluvial soils and on practically all phases of the Memphis and Lintonia types.

In recent years the truck business has been extensively developed near Centerville. The principal crops grown are tomatoes, Irish potatoes, peas, and beans. Tomatoes are easily first in acreage and total value. It is estimated that in 1912, 300 acres of tomatoes were grown and the shipments amounted to 107 cars of about 1,000 crates each. The average net return to the grower was about 65 cents per crate. In 1913 about 600 acres were planted and prospects for a large crop were excellent until about the time for picking, when a blight appeared which caused much loss and in some cases rendered the product of the entire field unsalable. The favorite soil for tomatoes is a smooth phase of the Lexington silt loam, preferably with a southerly exposure. The Memphis silt loam is also used in this section, but it is a later soil than the Lexington. Fertilizers are used liberally at rates varying from 1,000 to 2,000 pounds per acre. Cottonseed meal and acid phosphate are the principal constituents of these fertilizers, but nitrate of soda is used by some growers. Mixtures in which blood and bone furnish most of the nitrogen and phosphate are used quite extensively at the rate of 800 pounds per acre. The yields per acre of marketable tomatoes have frequently exceeded 500 crates, although this is considerably above the average. The date of first shipments for several years has been about May 20.

Irish potatoes have generally proved a profitable crop. The yields are about 100 bushels per acre, but there is much variation according to season, tillage, and fertility of the soil. The first express shipments in 1912 were about May 15 and shipment in carload lots (fast freight) began about two weeks later. The net price was about 85 cents a bushel. Growers state that a yield of 50 bushels per acre, netting 75 cents, is a profitable crop.

About 12 acres of tobacco were grown near Centerville in 1913. This planting was largely experimental and conducted under disadvantageous conditions, but the results were quite satisfactory. The greater part of the crop consisted of Burley, which yielded about 800 pounds per acre of good-quality leaf. Some Turkish Red yielded leaf of satisfactory quality, and about 1 acre of Sumatra wrapper, grown without shade, made leaf of a filler grade.

[1] The difference in frost periods due to difference in elevation is marked at times. In the fall of 1913 practically all tender vegetation on the lowlands near Fort Adams was killed early in October, but on November 30 cotton blooms could still be found in a small patch of cotton on the top of Block House Hill, 300 feet or more above the valley.

The soil on which these tobaccos were grown is a moderately smooth phase of the Memphis silt loam, and a portion on which the crop did not do so well is rather poorly drained. Sumatra tobaccos are usually grown on a coarser textured and lighter soil,[1] but much of the Burley tobacco is produced on silty soils similar in physical character to the Memphis silt loam.

Peas and beans are of minor importance among the truck crops. The average net returns for beans during the last two or three years has been about 50 cents per hamper, with the best profits on the earlier shipments.

Strawberries have not been grown to any extent near Centerville. The Memphis silt loam produces a good quality of fruit and the yields are as reliable on soils of this class as on any unirrigated type, but the fruit is not ready for shipment as early as when grown on a sandy soil or one where the moisture content is not so high.

Sweet potatoes yield from 200 to 300 bushels per acre and are produced on practically every farm, but little attempt has been made to find outside markets for carload lots.

The census returns of 1910 gave the value of farm lands and improvements, except buildings, as $1,964,217, and of buildings as $702,825. Through the invasion of the boll weevil these figures have been rendered practically meaningless, so far as the present value of land is concerned, and in all cases the price and rental value have been so profoundly affected that estimates of value are difficult to make. Some approximation of the average ruling price of various types has been attempted, and will be given in connection with the type descriptions, but it must be understood that the price at which individual holdings are offered depends more upon the financial condition of the owner than upon the real value as based upon use.

There are practically no white tenants, and entire farms are seldom leased except to men who in turn apportion the tillable land to negroes. The rate of rent was formerly a share—usually one-half—of the cotton, the owner or lessee advancing practically all supplies to the tenant. This practice no longer obtains. In most instances no advances whatever are made to the tenants, and they give a portion of the cotton and corn in the fall, the amount varying greatly under different circumstances.

Most of the older estates are very large, including in many instances several thousand acres, not all of which is tillable. Farms of 200 or 300 acres are considered of medium size. In the immediate neighborhood of Centerville and Woodville there are many small farms, but elsewhere they are only occasionally found.

[1] See Soil Survey of Gadsden County, Florida, Field Operations, Bureau of Soils, 1903, and Soil Survey of Jefferson County, Florida, Field Operations, Bureau of Soils, 1907.

SOILS.

Throughout the uplands of this county the prevailing surface material is a yellowish-brown or buff silty deposit known geologically as loess. It is deepest on the highlands overlooking the Mississippi Valley and gradually thins eastward, so that in the extreme eastern section small areas are found where it is either lacking or has lost its characteristic features through admixture with the underlying sands and clays. The loess is a blanket formation conformable to the preexisting topography and everywhere of sufficient depth, with the exception noted above, to determine the character of practically all the upland soils and influence in large measure the alluvial types of the local streams.

The loess is generally underlain by a red sandy formation, doubtless the Lafayette [1] deposits of this locality. It consists of highly oxidized sand and sandy loams, with a good deal of well-rounded chert and quartz gravel that in its distribution through the sand usually shows some irregular stratification. The upper portion of the sandy deposit carries more or less material finer than sand and is often a firm, compact sandy loam practically identical with the surface material that in the counties to the east gives rise to Orangeburg soils. The lower part of the deposit contains less fine material and is usually so coarse and loose as to erode readily when exposed in stream beds or hillside gullies. The thickness of the red sandy stratum is extremely variable, ranging from a few feet to 50 or 60 feet.

Beneath the sandy deposit is a white clay, frequently exposed on steep hillsides in the northeastern part of the county. It is the upper member of the Grand Gulf formation.[2] In most instances 5 or 6 feet of its upper layer is so consolidated as to resemble stone. Most of this stratum is of very light-colored clay, weathering to a sticky, tenacious clay apparently of little value as a soil-forming material. Fortunately its exposures are limited to stream channels and small areas in the rough lands. Associated with the clay are thin layers of white sand and soft sandstone, but they are unimportant as influencing the soil. In the vicinity of Doloroso a bed of highly calcareous clay forms a part of this formation. Possibly it may be of value as a local source of marl.[3]

As previously stated, the loess is deepest in the western part of the county. On the bluffs near Fort Adams and for several miles east of the heads of the west and south flowing streams the thickness, at a

[1] Bul. No. 8, Mississippi Geological Survey.

[2] Loc. cit.

[3] For more complete description of the loess and underlying formations see Bul. No. 8, Mississippi Geological Survey.

very general estimate, ranges from 20 to 50 feet, in most places not greatly exceeding the first figure. There is not very marked difference in color or composition between the upper and lower portions, except that the latter is less clayey and usually very calcareous. No such marked difference between the first 6 or 8 feet of loess and the underlying material is here observable as in Warren County.[1] Fossil shells and lime concretions occur, but are not as a rule very abundant anywhere. These lime inclusions are not observable in the loess east of Dunbar Creek. The average depth decreases from about 15 feet at Dunbar Creek to 8 or 10 feet in the vicinity of Woodville. On the rough lands north of that town the thickness is very irregular and there are innumerable exposures of the red, gravelly sand and the white clay.

Between Woodville and Centerville the progressive decrease in the average depth of the loess is easily observable. East of the Washington meridian it is generally less than 6 or 8 feet, and on all the local elevations and steeper slopes in old fields the red sandy loam is either exposed or its influence upon the thin loess revealed by the reddish-brown surface color of old hillside fields.

The lower portion of all the deeper deposits of the loess is very calcareous. A composite sample collected 4 miles south of Pond at a depth of 10 feet contained 8.75 per cent of calcium carbonate. A similar sample taken near Woodville at a depth of 5 feet below the surface and about 2 feet above the contact with the red sands showed 0.75 per cent of lime. This difference in the lime content between the deep and shallow phases of the loess is observable throughout the county. The results of many examinations of Mississippi loess for phosphorus are extremely variable, but indicate a fairly high content of this essential element of plant growth.[2]

The Memphis silt loam is but the surface expression of the loess as modified by various agencies, such as weathering, erosion, plant growth, and to some extent by the influence of the underlying stratum. Besides the typical soil a smooth phase is mapped. The basis of separation is chiefly topographic, but the other differences of agricultural value are more or less dependent upon its surface features and the total depth of the soils.

Where the loess has an average depth of less than 4 feet or is modified to a perceptible extent by the underlying sand and clay the resulting soil type has been mapped as Lexington silt loam, a rolling phase of which is recognized.

The surface exposures of the Grand Gulf and Lafayette[3] formations are usually so small or the surface material so much influenced by the

[1] See Soil Survey of Warren County, Miss., Field Operations, Bureau of Soils, 1912.
[2] See Mississippi Geological Survey Bulletin No. 8, A Preliminary Study of the Soils of Mississippi.
[3] Loc. cit.

loess that no well-defined types have been developed. Areas where such mixed soils occur have been included with the Rough broken land.

The terraces on the larger streams are benches of silt loam very similar in appearance to that of the uplands and practically identical in origin and mineralogical composition. They have been mapped as Lintonia soils. The alluvium of the creeks is also largely influenced by the loess, consisting chiefly of fine sand and silt, but with some admixture of coarse sand from the formation immediately underlying the loess. The relative proportion of the former is greater in recent deposits than in the older ones, a result of the clearing of uplands and more rapid run-off through hundreds of gulches that have cut through the loess into the yielding sands and gravels below. Overwash and the more sandy types of the Ocklocknee soils largely owe their origin to this increased rate of erosion at the head of the streams.

Alluvial deposits of the Mississippi River comprise about 8 per cent of the total area of this county.

Silty and sandy material brought down by Buffalo River has modified the alluvial deposits in the Mississippi Valley for only a short distance on each side of its bed as far as Old River. Below this point the course of Buffalo River is little more than a channel through characteristic Mississippi River alluvium.

The deposits between the several branches of the lower Homochitto River are lighter colored and more silty than those owing their origin to the larger streams. In general character they resemble the Waverly soils and have been included in that series.

The Mississippi River "delta" or bottoms has the usual sequence of sandy front lands grading to heavy clays or "buckshot" soils of the interior areas. By far the larger proportion of these alluvial soils are clays and heavy silty clay loams. The very fine sandy loams are most commonly found along the river or on occasional low ridges through other types. No sharp separation of several types represented in the Mississippi lowlands is practicable and only their general limits are indicated. This is also true of the areas indicated as Meadow, Overwash, and Riverwash. Each represents recent stream deposits of little agricultural value. The extensive areas of poorly drained alluvium on the Homochitto River and the mixed deposits on lower Buffalo River correspond in their general character with the Waverly and Vicksburg soils, respectively, and are so indicated on the map, but an accurate textural separation of the soils of these areas was not feasible and was not attempted.

The following table gives the names and extent of the various soils mapped in Wilkinson County:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Memphis silt loam	164,224	52.4	Sarpy silty clay loam	5,248	1.2
Smooth phase	59,136		Meadow	5,056	1.2
Rough broken land	46,592	10.9	Sarpy very fine sandy loam	2,432	.6
Lexington silt loam	6,528	9.4	Overwash	2,368	.6
Rolling phase	33,728		Cass clay	1,152	.3
Vicksburg silt loam	36,992	8.7	Riverwash	1,088	.2
Waverly silt loam	1,984	4.9	Vicksburg very fine sandy loam	704	.2
Poorly drained phase	19,392		Ocklocknee fine sandy loam	512	.1
Sharkey clay	15,680	4.8	Sarpy fine sand	512	.1
Better drained phase	4,544				
Lintonia silt loam	9,024	2.5	Total	426,880	
Slope phase	1,856				
Ocklocknee sandy loam	8,128	1.9			

MEMPHIS SERIES.

The Memphis series is characterized by the light-brown to yellowish-brown color and silty texture of the surface soils and by the slightly lighter color and more compact structure of the silty subsoil. These soils are typically developed to the south of the latitude of St. Louis, being most extensive in the loessial belt following the east bank of the Mississippi River. Drainage is ordinarily well established. Erosion has been active and has resulted in a prevailingly rolling to broken topography. A characteristic of the soils of this series is the tendency of the material to stand in perpendicular bluffs or banks.

MEMPHIS SILT LOAM.

The soil of the Memphis silt loam is a brown very friable or mellow silt loam. No well-marked line of separation can be drawn between the soil and subsoil, but at about 12 inches the material is lighter in color and slightly more compact. Between the depths of 12 and 30 inches it is usually a light-brown or buff silty clay loam, quite plastic when wet, stiff and crumbly with the usual moisture content, and inclined to crack on drying. The lower subsoil is frequently a friable silt loam faintly mottled with grayish spots. Throughout the soil section, and especially in the surface soil, there is a perceptible amount of very fine sand, but no coarse sand, gravel, or stone are present except in localities where such material has been drained from some underlying formation lying close to the surface or exposed by removal of the silt. The substratum usually is a buff silt loam faintly marked in places with some grayish mottlings. It is very porous and has a friable structure, but stands almost perpendicular in banks.

The lower part of the deeper deposits contains considerable numbers of fossil shells and many lime concretions, while the fine earth itself is so calcareous as to effervesce freely with hydrochloric acid.

The Memphis silt loam is the dominant type in this county, forming 52.4 per cent of the total area.

As stated in the chapter on soils, the loess or brown silt loam of which all this type is simply the surface expression is much deeper in the western part of the county than in the eastern half. In the latter section, where the underlying sands of the Coastal Plain deposits are found at a depth of a few feet, the silt loam never carries in its lower part the fossil shells and lime concretions that are so generally present in the deeper phases of the loess in the western part of the county. With regard to color and general physical properties the soils of the eastern and western sections do not present very great differences, but this variation in the amount of calcium carbonate in the subsoil is a factor of considerable importance, and presumably an indication in some measure of the degree to which the less soluble mineral constituents have suffered removal through the same processes that have reduced the lime.

In most instances the inextensive portions of this type that have been cleared have a light-colored surface soil on account of depletion of the original humus content. This is not noticeable in old fields in the central and eastern parts of the county. In the latter section the hillside gullies usually expose the red sandy loam or white clay which are the underlying materials. In the extreme western part eroded hillsides are not so commonly seen, although "caves" or deep washes at the head of ravines often extend back into the ridges, exposing red gravelly sand beneath the deep surface stratum of brown silt.

The topography of the Memphis silt loam is broken, consisting in the main of rather narrow ridges and deep ravines. The relief in the hills facing the Mississippi lowlands is from 100 to 200 feet. A few miles back it is generally less and the difference in elevation between crests of ridges and nearest branch bottoms may be estimated roughly at 100 to 150 feet for most of the rougher country.

The original forest cover consisted of deciduous trees, with a few cedars and pines. In the western and northern areas of the county there was some longleaf and shortleaf pine, but the shortleaf pine now so common on all phases of this type in the central and western portions has appeared since the country was settled. White, post, and red oak, as well as several other varieties of oak, are numerous in most places. Poplar, magnolia, bay, and ash are, or were, very abundant on all the deep-loess phase of the type. Beech and elm are common species in most sections, while walnut is still occasionally found. The smaller tree growth includes chinquapin, ironwood,

dogwood, crab apple, redwood, and spicewood. An abundance of small shrubs is found in all the ravines and on hills where the forest is not too dense, while the grape vine, cross vine, poison oak, and trumpet creeper are very abundant. On the calcareous phases of the loess wild cane still forms much of the undergrowth. In ravines and branch bottoms it attains a height of 10 to 15 feet, but on the hills it is usually small and known as "switch cane."

For 2 or 3 miles from the bluffs facing the Mississippi Valley the calcareous nature of the loess has most favorably influenced the soils. In most instances the former is a dark-brown silt loam of such loose, friable structure that in virgin soils an auger penetrates it to a depth of 15 to 20 inches with great ease. Even on hillsides formerly cultivated or now tilled the surface color is strikingly dark, a shade of brown that may be described as a very dark chocolate or brownish red, and the soil is so mellow that it absorbs the rainfall readily, and these lands, although very rough, do not wash badly. The subsoil is usually a buff silt loam, in which fossil shells are often found, while the harder calcareous concretions are sometimes seen on the surface.

This dark variation in the Memphis silt loam is developed on high hills near Doloroso and in places on the narrow ridges between the Homochitto and Buffalo drainage to the southwest of the latter point.

In the vicinity of Fort Adams are many steep hillsides covered with cedar and deciduous trees, where the cotton rows are still to be seen. The productiveness of these hilly lands, when cheap labor admitted of their profitable tillage, was greater than of the less rugged areas. On this calcareous soil the wild cane grows very luxuriantly, and it is not confined, as in most other sections, to the bottoms of ravines or uncleared lowlands, but grows on the hillsides and often forms thickets up to crests of ridges. The same is true of the distribution of the magnolia trees, very large specimens being found on the highest hills as well as in the branch bottoms.

East of Dunbar Creek and on the upper branches of Percy Creek the soil of the Memphis silt loam is lighter colored than that of areas of similar topographic character in the western part of the county. The subsoil is also lighter colored, when any difference in this respect is apparent, and there are also more frequent exposures of the underlying red sands and white clay. In the vicinity of the first-named creek deep road cuts often reveal calcareous silt, but a few miles farther east no fossil shells or lime concretions are found. Near Woodville most of the Memphis silt loam is underlain by sand at less than 8 feet. From this town northward to Buffalo River the type has generally a rough topography, and while the crests of ridges and the longer slopes have a soil and subsoil that correspond very closely to the typical soil, the hillsides present great variations in depth of soil and character of subsoil. Beds of gravelly sand are exposed along

the creeks and the arenaceous material is mixed with the silt on all the steeper slopes.

The cultivated portions of this rougher part of the Memphis silt loam are confined to crests of the wider ridges and more gentle slopes. (See Pl. XII.) The present total extent of these areas is probably less than that of the abandoned fields in which close cropping by cattle has prevented the land from reverting to forest. The value of the type for the production of the clovers and grasses and its possible use in fruit growing are discussed in the chapter on agriculture.

The present value of land of this type ranges from about $3 to $5 an acre. Well-timbered tracts command more, but the average price for pasture land is generally below $6 or $8.

Another variation of the Memphis silt loam comprises in its representative development areas having a surface configuration intermediate in degree of relief between the typical Memphis silt loam and the smooth phase of the type. The topography is gently rolling to rolling. About 50 to 75 per cent of this phase is cultivable, as compared with nearly 100 per cent of the smooth phase and probably not much more than 10 per cent of the area of the typical soil.

Sharp boundaries can not generally be drawn between this variation and the typical Memphis silt loam, and therefore a rolling phase was not mapped. The soil is found where rolling to moderately hilly topography prevails rather than the succession of narrow ridges and ravines which render so much of the typical Memphis silt loam untillable. The greater part of this moderately smooth phase is now or has been at some time in cultivation. On this account chiefly the surface soil is poorer in humus than the soil of the rougher lands. As a consequence the color is also lighter and the physical condition usually less desirable.

Most of the areas in the central and eastern parts of the county have a brown or yellowish-brown silt loam soil. On steeper slopes the soil is a yellowish silty clay loam, less friable and porous than the darker variation found in the rougher country. The subsoil is a buff-colored silty clay loam that at a depth of 20 to 30 inches usually becomes slightly mottled with grayish spots. The brown subsoil, as well as the material immediately beneath, is a friable or crumbly silt loam. In many instances, particularly in the eastern and southeastern part of the county, the buff or brown silt loam is underlain at a few feet by reddish sandy loam, and the hillside gullies usually reveal this material or the gravel and sand associated with it. Such patches represent Lexington silt loam or an approach to this type, too small to map separately.

In the western part of the county much of this land of intermediate relief has a dark-brown mellow surface soil with a silt or silty clay loam subsoil, in turn underlain by calcareous silt. Near Pond and

Pinckneyville the soil is generally of this character. It also prevails to a considerable extent near Doloroso and on the lands drained by Steels Creek. All of these areas were formerly cultivated and produced exceptionally good crops.

Much of this moderately rolling Memphis silt loam has reverted to forest and is not used, except for pasture. This is due largely to economic causes, but many old fields are badly washed and all the soil is so deficient in humus that the physical condition is most unfavorable for any tilled crop. The former yields of cotton were from one-half to 1 bale per acre, and under careful management the lands could be restored to an equally productive condition. Terracing is necessary to prevent erosion in most instances. The soil is generally quite acid, but this can be easily corrected by applications of lime.

A considerable part of the present production of corn, hay, sugar cane, and the minor crops is grown on Memphis soil of moderately rolling topography. The present value of such land ranges from $5 to $10 an acre.

Memphis silt loam, smooth phase.—Although the smooth phase of the Memphis silt loam constitutes but 26 per cent of the entire area of the type in this county, its high agricultural value gives it great importance. The greater part of this phase was cleared early in the occupation of the county, and later formed the most desirable portions of the larger estates. Nearly all of it is tillable, and until recently practically all was under cultivation.

Long-continued tillage has caused some modification in the surface soil, which is quite apparent when such land is compared with uncleared land. The humus content is usually low and the color of the soil generally a lighter shade of brown than that of virgin woodlands. Surface washing in many instances has caused the higher knolls and upper portions of the slopes to assume a rather heavy texture on account of exposure of the silty clay subsoil. Such places have a yellowish color, and moderately compact silty clay loam is found at a depth of a few inches. On the lower slopes and in broad depressions the soil is frequently a dark-brown mellow silt loam containing more than the average proportion of very fine sand.

The subsoil in most instances is usually the brown or buff-colored silty clay loam common to all the type. It is rather compact to a depth of 25 or 30 inches, but below this is a friable, porous silt loam. In all the deeper phases of the loam the brown subsoil and material beneath is slightly mottled with grayish streaks. In the areas of shallow loess, as those at the head of Thompson Creek and in the vicinity of Centerville, the lower subsoil often grades into a reddish-brown silt loam, which at a little greater depth changes to red sandy loam. Evidence of the comparatively shallow depth at which the latter occurs toward the eastern and southeastern limits of the

type is seen in the reddish-brown tint of many of the hillsides in old fields. The soil of such spots is often a rather heavy silt loam and the lower subsoil is a reddish sandy loam. In some instances the highest points are more or less sandy throughout the 3-foot soil section and occasionally gravel is found on the surface.

The largest areas of the Memphis silt loam, smooth phase, are found south and southeast of Woodville. The divides between the streams in this section are mostly broad undulating ridges and very little of the land east of the Sligo Road but much east of Newtonia is rough or cut by ravines. The smaller areas in other sections of the county generally consist of long, gentle slopes toward the larger creek valleys. In some instances these areas embrace interstream divides, but as a rule they are bordered on the upper side by rougher land.

The drainage conditions on the Memphis silt loam, smooth phase, are generally good. In the deeper phases the soil and substratum of porous silt are capable of absorbing a large quantity of water and of delivering it again to the surface by capillarity. In many places, however, long-continued tillage with 1-horse implements has developed a compact layer a few inches beneath the surface that prevents rapid absorption of the rainfall and increases surface washing. Of much of this phase it may be safely asserted that it is practically drought-proof if properly managed. Since labor-saving implements may be used most conveniently, this phase admits of more economical and satisfactory management than is practicable on the rougher lands.

With increase in organic matter and an application of a few thousand pounds of lime per acre the tendency to assume a "crumbly" or somewhat granular structure would be favored. This is especially desirable for those yellowish-brown spots which have a tendency to clod.

Small areas of this phase have not such good underdrainage as is desirable. This is most frequently the case on level spots on the highest ground or in sags and depressions at lower levels. The soil in such places is grayish brown and contains iron concretions, and the subsoil is much lighter colored than that of the well-drained ground. Drainage, of course, is the first step toward permanent improvement, and a heavy application of lime to correct the acidity would be beneficial. Practically all the soils of this phase are acid according to the litmus paper test.

The areas near Centerville are derived from a shallow deposit of loess. The red sands underlie it at 3 to 6 feet below the surface. In many instances the brownish color of the silt loam yields on hillsides and crests of knolls to a reddish-brown soil in which the increase of sand is due to the sandy nature of the lower subsoil. Where the

difference is pronounced these reddish soils have been included with the Lexington silt loam. The drainage of these reddish-brown soils is generally good, and the moisture-holding properties but little, if any, inferior to the soil derived from deeper deposits of loess.

Formerly the leading crop on all this phase was cotton. The yields on new lands, well tilled, usually average about 1 bale per acre. On the older ground the returns are not so high. Deterioration is due largely to depletion of the humus and almost total absence of measures to renew it. In the western part of the county no commercial fertilizer was used, but in the eastern areas it had been customary to apply some phosphate, cottonseed meal, or less frequently a complete fertilizer to cotton land. Cowpeas were usually planted in corn fields, but otherwise not much effort was made to conserve the humus.

At present much of the silt loam is idle or used only for pastures. Its adaptability to general farming may be inferred from the foregoing description of its physical characteristics. It has been amply demonstrated in the last few years that corn, oats, and hay may be grown and harvested by methods similar to those practiced in more northern States.

The present price of land located within a mile or two of the towns ranges from $15 to $25 an acre. In sections more remote from railways, $10 to $15 is about the usual price.

Lintonia Series.

The surface soils of the Lintonia series are light brown or yellowish brown, and of silty texture. The subsoils are of slightly lighter color, and somewhat more compact structure. The series occupies stream terraces and flat alluvial lands along streams through which the channels are so deeply cut that overflows are of rare occurrence. In places narrow strips of colluvial material occur usually adjoining terraces or bottom lands. The material is mainly alluvial and is derived from the Memphis, Richland, and Knox soils. Drainage is well established.

LINTONIA SILT LOAM.

The soil of the Lintonia silt loam is a brown to moderately dark-brown silt loam. It is usually quite friable and easily penetrated with a soil auger to a depth of 12 to 18 inches. Below this depth the material is more compact, grading into a silty clay loam which, with the usual moisture content, is stiff, yet with a tendency to crumble. On drying, the middle subsoil shows a more or less granular structure. With increase of depth, the material increases in silt content and consequently it is less compact at 38 to 40 inches than at 20 to 30 inches below the surface. As a rule, the substratum to a depth of

from 10 to 20 feet is a brown silt loam not essentially different from the loose subsoil, except for some faint grayish mottlings, which are more pronounced where the underdrainage is defective.

The Lintonia silt loam is typically developed on the terraces in the lower part of the Buffalo Valley. In most instances the surface is level or nearly so and has an elevation of from 15 to 25 feet above the flood plain of the stream, the rise consisting generally of a single sharp declivity, so that these terraces are more like table-lands than second bottoms. Farther up the valley their average height above the overflowed land steadily decreases, and few of the terraces above the Upper Natchez bridge are more than 8 or 10 feet above the first bottoms, while some of the areas mapped are local elevations of the latter or low, gently sloping extensions of the silty upland types. This same difference in relative elevation occurs on the Bayou Sara and other small creeks in the southern part of the county. On the middle course of the streams no very sharp topographic distinction can be made between the first and second bottoms. The latter usually have the better drainage, and this factor, with greater age of the terrace material, has generally given rise to a reddish-brown color and a more compact structure of the subsoil. Many of the very small terraces on the upper courses of the streams have a soil very similar to the smooth phase of the Memphis silt loam, and their reference to the Lintonia series is chiefly on account of topographic position.

In all instances the material forming the Lintonia silt loam is quite similar to that of which the Memphis silt loam is the surface expression. It is a phase of the upland loess and has about the same physical properties and apparently the same mineralogical composition. No lime concretions or fossil shells were observed in the substratum, but it is probable the material as a whole is no more deficient in lime than most of the Memphis silt loam.

On the larger terraces of the lower Buffalo the soil in many instances is a dark chocolate brown silt loam with apparently little organic matter, but so loose and friable to a depth of 12 to 15 inches that it is very easily tilled and exceptionally productive. Such phases formerly produced more than a bale of cotton to the acre when well cultivated and now give most satisfactory returns of corn, oats, and sweet potatoes. The greater proportion of the type, however, is not quite so dark colored and the lack of organic matter is apparent.

In slight depressions of the larger tracts, or less frequently at the base of the adjoining uplands, the surface soil is rather light colored and contains many small iron concretions. Such phases often approach the Waverly silt loam in general character, especially as regards drainage, and could readily be improved by open ditches or tile drains.

Practically all of this type is cleared and until recent years was devoted chiefly to cotton. Since it is no longer a profitable crop, grain and hay seem to promise most safe returns. The level surface admits of the use of labor-saving machinery, and the same cultural methods suggested for the smooth phase of the Memphis silt loam would be applicable to this type.

Lintonia silt loam, slope phase.—The slope phase of the Lintonia silt loam consists of gently sloping areas at the foot of bluffs or hills where the latter overlook valleys of considerable width. Most of the areas are small and only a few contain more than 400 or 500 acres. They cover in most instances a transitional zone from the uplands to the creek bottoms. The upper margins are seldom sharply separated from the hills, and the lower sides imperceptibly merge into the bottom lands. A somewhat similar relationship holds true of the soil material of the small areas near the creeks. The material of the higher ground is usually similar to the Memphis silt loam, but as the foot of the slope is approached the soil is generally looser and the subsoil is not so compact. In most instances it has the loose structure of recently deposited silt and fine sand and is lighter colored as a result of less perfect drainage and oxidation. In depressions and on flats the soil is grayish brown and contains iron concretions. The subsoil in such places may be somewhat mottled, but as a rule the water table is not so close to the surface as to give rise to a pronounced "crawfishy" condition, as in the Waverly soils.

The best developments of this phase are the fan-shaped areas at the foot of the bluffs along the Mississippi Valley. They are outwash material from the loess-covered hills and consist of silt and fine sand, the latter most in evidence along the channels of the small creeks that cross these areas. The low, gently inclined bench land on which Fort Adams is situated is a representative area. The surface slope is sufficient for good drainage and the loose structure of the material to a depth of several yards insures good aeration, except possibly on the low outer margin, where the silty material is largely replaced by the clayey deposits from the Mississippi floods.

The soil of this Fort Adams area is a dull-brown silt loam with a rather high percentage of very fine sand. It is loose and friable and makes very good yields, although the organic-matter content is low. The subsoil is of similar character, but a little more compact. Some obscure mottlings are sometimes observable in the subsoil, but otherwise the material is quite uniform in color and texture to a considerable depth. The high floods of recent years have overflowed nearly all this area, but ordinary floods do not cover it.

The small areas a few miles north of Fort Adams are brown silt loams, but in places have been modified by the sand brought down from the hills by the creeks. Much of the outer border of the areas

CULTIVABLE SLOPES AND TIMBER ALONG STEEPER LOWER SLOPES OF THE MEMPHIS SILT LOAM.

adjoining the Vicksburg silt loam is a very friable fine sandy loam, well adapted to general farming.

The narrow strips between the lower course of Buffalo River and the bluffs north of Sandy Creek are mostly dark-brown silt loam derived from the calcareous silt of the adjoining hillsides. Most of this type, however, is deficient in lime.

The area on the Homochitto River near Ireland is the lower border of the gently sloping hillsides of the Memphis silt loam. The soil on the level portion and that near the bottom lands has not so good drainage as is desirable, but lies mostly above overflow.

All of the Lintonia silt loam, slope phase, is cleared, but much of it is not cultivated. Cotton does well, but the deficiency in humus is very apparent when the ground is planted to corn. It is well suited to the production of lespedeza, Bermuda, and other forage crops.

Lexington Series.

The soils of the Lexington series are gray to yellowish gray in color and mellow in structure. The subsoil is yellow to brown, with a tinge of red in places, and is often somewhat heavier than the soil. Drainage is good and the topography moderately rolling to hilly. The types are derived from loess, the material closely resembling that of the Memphis soils, but the layer of loess is thin, the underlying reddish material known as the Orange sand formation modifying the soil in places.

LEXINGTON SILT LOAM.

The soil of the Lexington silt loam to a depth of 6 or 8 inches is a friable silt loam with a rather variable proportion of clay and fine sand. The color is light brown, with a grayish surface cast when dry, but when moist there is usually a suggestion of red and in places a pronounced reddish-brown tint prevails. The subsoil is a reddish-brown silt or silty clay loam, more compact than the surface soil and inclined to be stiff and crumbly to a depth of about 20 or 30 inches. At this level it generally changes to a less compact brown or reddish-brown silt loam, in which there is usually an increasing proportion of sand as the depth increases. In some instances there is a well-marked contact between the silt loam and the red sandy material beneath, but more frequently the gradation is through a zone 2 or 3 feet thick.

In texture the substratum varies from a coarse sandy loam to a sand containing but little fine material. In all instances it contains some well-rounded gravel, and occasionally in the upper portion hard iron concretions. The red iron oxide, of which this sand contains a high percentage, is rather evenly distributed on the sand grains, giving the mass its characteristic color. It also affects the overlying silt, so that the lower portion of the latter varies from pronounced red to

reddish brown. When the silt is but 3 to 4 feet in thickness, the reddish color extends well up into the mass and frequently tints the surface soil. In deeper phases the subsoil is frequently a yellow or yellowish-brown silt loam.

As developed in this county, the Lexington silt loam is essentially a broad transition between the Memphis silt loam to the west and the more typical Lexington soils farther east. In the latter the brownish silty surface layer, the loess, is thinner, and the red sandy substratum affects the color and texture of the surface soils to a greater extent than in the areas to the south and southwest of Centerville. Much of this type in the latter locality is practically identical with the smooth phase of the Memphis silt loam adjoining and no sharp separation of the two types is practicable. As a rule, the Lexington silt loam has a reddish subsoil, and sandy material occurs at less than 4 or 5 feet. On knolls and hillsides the surface soil is frequently a reddish sandy loam within the 3-foot soil section. A few low ridges on which the surface soil of the higher ground is rather light sandy loam are found a few miles south of Centerville, but they were not mapped separately.

The topography of the Lexington silt loam varies from undulating to moderately rolling. The surface drainage is good and the presence of a sandy substratum at a depth of a few feet insures effective aeration and underdrainage.

Most of the type is now or has been in cultivation. All of this type is deficient in humus, particularly in the more sandy areas. The lime content is low, the soil and subsoil being usually acid.

A considerable proportion of the tomatoes grown near Centerville are produced on this type. Sandy areas with southerly exposures are preferred, such locations being somewhat earlier than the Memphis silt loam and less inclined to suffer from heavy rains. The quality of the product as well as the rapidity of growth is better on this soil than on the Memphis silt loam. Irish potatoes, peas, and early beans also do well on the Lexington silt loam and many of the small patches of these crops are planted on this type and the moderately smooth areas of the Memphis silt loam.

Both cotton and corn require rather heavy fertilization to succeed on this soil. Cottonseed meal and acid phosphate are generally used, and in many instances a complete fertilizer carrying from 1 to 2 per cent nitrogen, 4 to 6 per cent potash, and 6 to 8 per cent phosphoric acid is applied at rates varying from 100 to 200 pounds per acre. As on the other upland types, there is a marked deficiency in humus.

At present the price of improved land of this type lying a few miles from towns ranges from $10 to $25 an acre. For well-improved land and land nearer towns somewhat higher prices obtain.

Lexington silt loam, rolling phase.—The rolling phase embraces the moderately rolling to strongly rolling portion of the Lexington silt loam. Inextensive areas are somewhat broken by heads of ravines that widen to branch bottoms as they coalesce at some distance from the crests of the divides. Most of the land is tillable, although heavy farm machinery can not be used to advantage in all places. Since this phase is a rather thin mantle of the loess over reddish sandy material, uniformity in texture, color, and depth of soil and subsoil is not to be expected when the phase as a whole is considered.

On the wider ridges and on most of the gentler slopes the soil and subsoil are practically identical with the Memphis silt loam of similar topography. But on all the narrower ridges, and especially on the steeper hillsides this phase has the characteristics of the Lexington silt loam. The soil contains more or less sand and has a distinct tendency toward a brownish-gray color, while the subsoil is frequently reddish brown or reddish yellow and grades to sandy material at a comparatively shallow depth.

A representative profile usually shows a grayish silt loam with a noticeable content of fine sand. It is friable under usual moisture conditions, but slightly inclined to pack if moist. This tendency is due in part to lack of humus, this element being almost entirely absent.

Below 6 or 8 inches the subsoil is usually a silty loam, or in some instances a silty clay loam moderately compact and crumbly rather than friable, although the tendency to granular structure is not usually well developed. The color is some shade of brown or buff that usually characterizes the loessial material in this county when its depth exceeds 4 or 5 feet. These deep areas really represent included patches of Memphis silt loam. Where the loess is less than 4 or 5 feet, that is, where the soil is true Lexington, the color of the lower subsoil is red, reddish brown, or in some instances yellowish red. On the steepest slopes the soil is often a reddish-brown silty or sandy loam, with sandy clay subsoil. Gravel usually occurs in such areas.

In nearly all cultivated fields the surface tends to become more sandy as a result of the surface wash which removed the finer soil constituents at a faster rate than the coarser ones. On all the steeper slopes and "points" of ridges the reddish color of the surface is an indication of the comparatively slight depth at which the sandy substratum lies. Many gravelly spots also occur, and in a few places a light-colored clay forms the substratum and the subsoil is a stiff yellowish silty clay.

Most of this phase was in cultivation before the advent of the boll weevil, but now a large portion is untilled. It is much better adapted to cotton than to corn. The fields of the latter usually make light yields, but if even a little humus were added more satisfactory returns

would be obtained. The lighter areas are well adapted to potatoes, tomatoes, and other early crops, and in the vicinity of Centerville considerable truck is grown on them.

In general the rolling phase of the Lexington silt loam requires rather careful management to prevent severe erosion. It is necessary to terrace the steeper hillsides, and this renders the use of 1-horse implements necessary. It is true that deeper plowing and the incorporation of vegetable matter would lessen the tendency to washing, but on much of the hilly land these measures are not very practicable. Permanent pastures would be the best means of utilizing the hilly portions on which the silt loam is thin and the red sandy loam or clayey material is exposed in the gulleys. Bermuda grass does well in such places, but lespedeza does not find the sandy hillsides so congenial as the deeper and more silty soils. Fall-sown oats are a desirable crop even if yields are light. In most cases much pasturage would be provided and washing by winter rains prevented. To the latter cause as much as to continued cultivation is to be attributed the rather rapid decline in productiveness to which more rolling land is subject. Farmers state that this phase after a few years of cultivation usually requires liberal applications of fertilizer for both cotton and corn.

Under present economic conditions only the less rolling parts of this phase should be tilled. The deeper body of silt loam in such places has much better physical properties than the thin phase with variable character of subsoil when the maintenance of moisture supply is considered. Deeper plowing of the hillside areas may be practiced and a more economical use of commercial fertilizer is practicable.

The present price of this land ranges from $5 to $10 an acre.

The following table gives the results of mechanical analyses of samples of the soil, subsoil, and lower subsoil of the typical Lexington silt loam:

Mechanical analyses of Lexington silt 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.*
422813	Soil	0.2	1.4	7.2	6.0	8.0	68.1	9.2
422814	Subsoil	.0	1.6	8.6	8.5	7.4	50.2	23.7
422815	Lower subsoil	.2	3.0	19.4	14.0	9.0	28.3	25.9

Waverly Series.

The surface soils of the Waverly series are light gray. The subsoils are gray or mottled yellowish and grayish. This series is typically developed in the most poorly drained parts of the first bottoms of streams flowing through and issuing from the loessial region of the Central Prairie States. The soils are subject to overflow.

WAVERLY SILT LOAM.

In its typical development the soil of the Waverly silt loam to a depth of 6 to 10 inches is a light-gray or very light brownish gray silt loam underlain by a silty loam of lighter color. Mottlings that vary in intensity from pale-yellow spots to brownish-black aggregates of iron oxide are usually present in some degree in the surface soil, but there is much variability in this respect. Hard ferruginous concretions like shot or small marbles normally occur in all this type, but they are not usually numerous except on seepy slopes or where a hard substratum is found at comparatively slight depths. Soil and subsoil are noticeably lacking in the crumb structure common to most well-drained silt loams. The material when moist has a plastic, puttylike consistency and tends on drying to form porous clods that break under pressure to fine dust. If saturated the soil is decidedly miry and the subsoil a sticky, whitish mud.

The above description applies to the more pronounced development of this type. Wherever the drainage conditions are more favorable and there is a slightly higher percentage of sand in the material or more organic matter in the surface soil the latter approaches in general appearance the Memphis or Lintonia soils. The color tends toward brown, there are few iron concretions, and such mottling as is present is confined to the lower subsoil.

Innumerable gradations between the very light colored poorly drained areas of the Waverly and the darker colored better drained soils of the lowlands occur in all parts of the county. No complete separation is possible in the mapping, and the areas represented as Waverly are usually but approximate indications of the actual extent of such soils.

This type embraces those areas of light-colored silty soils locally known as "crawfish" land. Areas of greater or less extent occur in all the branch bottoms and in the valleys of the larger creeks, as well as in the wide lowlands of the Homochitto River. It owes its origin primarily to poor drainage, but the textural character of the material is also a determining factor, since it tends to a retention of excess moisture and consequent imperfect aeration. The largest areas occur in the Homochitto Valley and are described under the head of Waverly silt loam, poorly drained phase. The individual areas in the Buffalo Valley seldom exceed 100 acres in size. Those on Thompsons Creek, Bayou Sara, and other streams are generally of small size. Some of the areas associated with the typical soil of the Lintonia silt loam occur on these bench lands and the development is due to the flat surface and generally close structure of the substratum.[1] Their elevation above the near-by drainage line is ample

[1] The soil in these areas is practically identical with that mapped as Calhoun silt loam in the survey of East Feliciana Parish, La.

for artificial drainage. On the middle course of Buffalo River and the lower course of streams in the southern part of the county the depth of the main channel is frequently 10 to 15 feet below the surface of the Waverly soils; and the distance is generally less than one-fourth mile. In some instances the white silt loam extends almost to those deep channels. In such cases the lack of underdrainage and the retentive nature of the soil material are largely responsible for the development of the type.

In the permanent utilization of the soil the need of artificial drainage is so obvious that it need not be discussed. Open ditches have been constructed in many instances and good cotton crops have been obtained on lands that without such improvement would have been untillable. Ridge culture for both corn and cotton is usually practiced.

When moderately moist the lighter colored areas of this soil may be reduced to a fine, almost pulverulent condition with ordinary tillage, but the soil tends to pack immediately after rains. The brown soils, or those phases containing some sand, remain in better condition in wet weather. The addition of organic matter in any form would improve the physical condition. The best results with all tilled crops are obtained in seasons of moderate but frequent rains. The type has not the capacity to maintain a proper supply of moisture when the rainfall is scant or irregular.

Rice does well on the Waverly silt loam in most instances and nearly all of this grain other than that grown on the Sarpy soils is produced on this type. Corn does poorly, owing to the acidity of the soil, its lack of humus, and the high average level of the water table. Lespedeza thrives well on practically all phases of the type and often constitutes much of the volunteer growth in the abandoned fields.

Waverly silt loam, poorly drained phase.—From the Washington Meridian to the vicinity of Gaillards Lake no attempt was made to separate the several types of soil occurring in the Homochitto River Valley. All of this land is frequently overflowed and some portions of it may be classed as Swamp, since water stands on the surface the greater part of the year. In proceeding from the meridian line westward a progressive difference in textural character of the soil is observable. There is some development of fine or very fine sandy loams along the channel from the principal meridian to the bridge on the Upper Natchez Road. Below the latter point the sandy surface deposits are confined to very small areas on the immediate bank and rather light colored but heavy textured soils prevail throughout the valley. The latter finally merges into the dark "buckshot" soils of the Gaillards Lake region.

Above the Upper Natchez Road most of the bottom lands accessible at the time this survey was made consisted of silt or silty clay loams.

The surface soil to a depth of 6 to 10 inches is usually a mottled gray and brown silty loam in which there is little or no material coarser than fine sand. The content of organic matter is low, seldom sufficient to impart a dark color to more than the immediate surface. In practically all cases the darker tints are shades of brown varying from dull chocolate to rusty or reddish brown, suggestive of frequent saturation, and of mineral rather than organic origin. The subsoil here is usually a light-gray silt loam or silty clay loam. The mottling is generally confined to the upper portion, while the lower is a nearly white or, in the heavier phases, bluish gray. In both soil and subsoil there is marked absence of granulation. The soil is sticky, pasty, or plastic, according to the proportion of clay and silt and the water content, and tends on drying to form clods that break to dust rather than crumbs. These properties are due, of course, to poor drainage. On slight elevations or near the stream channels where the aeration and underdrainage are fairly good when the river is at normal stage the brown color of the soil is more pronounced and extends deeper than in the interior areas where the water table is nearer the surface. In the latter situations, especially near the cypress brakes, the level of the ground water was usually less than 3 feet during January, 1914, although the river was unusually low for the season of the year.

In the depressions the soils are heavy silt or silty clay loam with a bluish-gray subsoil of similar texture.

Between the Upper and Lower Natchez Roads the Homochitto River is close to the Wilkinson County hills and the bottom land is more variable in character than the wider areas farther east and northeast.

From the Club House westward to Gaillards Lake, along the line between townships 3 and 4, numerous borings were made to a depth of 3 feet. For a mile or two west of the river, which at this point is close to the bluff, the dominant soil is a mottled gray and yellowish-brown silty clay loam with white silty clay subsoil. The latter usually becomes more sandy with depth, indicating a substratum of sand or very fine sandy material. Nearer the lake the soil is somewhat heavier and the subsoil is a silt or silty clay loam with little indication in most places of a sandy substratum. In many places bluish-gray silty clay was found to a depth of several feet.

Near the lake and also in the old channels and bayous that cross this section cypress and gum are dominant species of trees. On the slightly higher ground water oak, white oak, hickory, gum, and other common species form a heavy forest.

West of Buffalo River similar soil conditions prevail, but beyond Alligator Bayou the dominant type is "buckshot" land.

A few years ago the lands in Wilkinson and Adams Counties subject to overflow were included in a drainage district, and an annual

assessment of 6 cents per acre has been levied to provide funds for straightening the channel and cutting a shorter outlet to the Mississippi. This outlet is a canal now in course of construction from the western side of Gaillards Lake to the river. Only a few of the innumerable sharp bends of the channel have been straightened.

Vicksburg Series.

The soils of the Vicksburg series are characterized by the brownish color and prevailing silty texture of the surface portion, and by the brown or dark-brown color and friable structure of the subsoil. The material represents alluvial deposits derived from brown loess or soils like the Memphis and Knox. Along some of the smaller streams much of the material is of a colluvial character or partly colluvial, having been moved only a short distance from the adjacent slopes and lateral drainage ways, but the typical soils occur as first bottom, frequently overflowed alluvium. Along some streams inundation is not always from the central or main-stream channels, the overflow coming from the smaller tributaries.

VICKSBURG SILT LOAM.

In its typical development the soil of the Vicksburg silt loam is a dark-brown loam or silt loam to a depth of 12 to 18 inches. It usually contains some fine sand and is quite friable, so that it works up easily. The subsoil is of similar texture, but usually a lighter shade of brown, and in the lower part is more or less mottled with gray or very light brownish gray spots. The substratum in most of the small branch bottoms is a silty material which, owing to frequent saturation, is gray or mottled gray and brown to a considerable depth. In the vicinity of areas of the Waverly silt loam the lower subsoil, as well as underlying strata, regardless of texture, is very light colored on account of the high average level of the water table.

On most of the bottom lands on the small streams the soil is a brown silty loam derived from the loess of the adjacent uplands. Like all alluvial types of local origin, this one represents many variations in texture, structure, and color, but in the main consists of about the same character of material throughout.

In most instances the soil along the creek channels and slight elevations elsewhere is more sandy than that near the foot of the hills. The soil of the lower part of the adjoining slopes and of the ill-defined terraces included with this type is usually a light-brown silt loam to a depth of several inches, with a reddish-brown silt loam subsoil, much more compact than the subsoil of the lower ground. On the other hand, the soil in local depressions where the drainage is often poor resembles the Waverly silt loam. In all the small branch bottoms such variable conditions are encountered and no attempt was made to indicate them on the map.

On nearly all the upper branches and minor tributaries of the south-flowing streams the soil corresponds fairly well with the type description. Silt or reworked loess is the chief material and wherever the drainage is good, and the exceptions are usually confined to spots of small extent, it has a dark color, a friable, loose structure that insures good moisture conditions, and a comparatively high degree of fertility.

The short branches draining the larger areas of the smooth phase of the Memphis silt loam are mostly broad swales and the alluvium therein is a dark-brown, mellow silty loam consisting in large measure of recent washings from the immediately adjacent uplands. Areas of this kind usually require drainage, but are very productive when properly handled.

The middle and lower course of several forks of Thompson, Dunbar, and Hooks Creeks and Bayou Sara have deep, wide channels and inundations of the bottom lands are not so frequent as on the smaller streams. The soils in many instances are rather light brown silt loam that at a depth of 1 or 2 feet grade to light-gray or mottled brown and pale-yellow silty loam. The substratum is a rather compact white silt in which there are abundant iron concretions. These light phases of the Vicksburg silt loam have poor drainage and resemble the Waverly silt loam.

Most of the Vicksburg silt loam in the Buffalo Valley is more sandy than that of the smaller valleys. Below the mouth of Fords Creek much of this type is inclined to have a light brownish gray color and is not so friable and easily brought into a good condition of tilth as the darker colored phases. In many instances these areas are broad transitions between the fine sandy soils near the stream channels and the heavy Waverly silt loam at the foot of the hills or terraces.

The areas on Buffalo River near the mouth of Bear Creek are mostly a brownish silt loam which grades to fine sandy loam in many places. Farther down Buffalo River the soils along its channel are stiff silty clay loams merging on the west side into the Sharkey clay. The agricultural value of these areas is impaired by overflow from the Mississippi River.

The type as developed in the Homochitto Valley includes many rather light-colored silty or very fine sandy loams that are not well underdrained. The most desirable lands are slightly elevated areas where the soil has a dark-brown color and no pronounced grayish mottling is found at depths less than 2 or 3 feet. Much of this silt loam in the wider part of the Foster Creek bottoms is a grayish-brown soil that requires artificial drainage.

On Bayou Sara and the several branches of Thompson Creek, as well as on some areas in the Buffalo Valley, the substratum of the higher portions of the first bottoms is a compact white or very

light gray silt filled with soft brownish iron concretions. The presence of this semi-impervious substratum gives rise to the Waverly silt loam in many instances, but where the average depth of the brown surface material is 3 feet or more it has been mapped as Vicksburg silt loam.

In all instances the most desirable phase of this type is that in which the soil is a dark-brown silt loam with a perceptible amount of sand, but no iron concretions or "buckshot" pebbles. The mottled coloration of the subsoil should not occur within 18 or 20 inches of the surface, and preferably brown or yellowish tints should prevail to a depth of several feet. This indicates much better aeration and underdrainage than where the grayish mottling is found. A substratum of comparatively open material also facilitates drainage after floods, although on most of this type in small valleys inundations seldom last more than a few hours.

This type forms most of the tillable portion of many of the small farms in the hills section of the county. Cotton is usually a very safe crop, except for possible injury by overflows. Corn does well on the areas of darker colored soil. The minor crops may all be grown to advantage, but fall-sown oats or other winter crops are, of course, liable to injury by spring floods. On practically all of this type lespedeza makes a fine growth, and many of the irregular-shaped branch bottoms could be well used for this forage and pasture crop. Some of the darker colored and best drained areas offer promising fields for experiments with alfalfa.

No statement as to average prices for this type or the other Vicksburg soil can be made, but farms including considerable portions of cleared bottom land are valued higher than if no such land is included. The present valuation of the large areas affected by Mississippi floods is very low, for they are all practically untillable.

In the following table the average results of mechanical analyses of samples of the soil and subsoil of the Vicksburg silt loam are given:

Mechanical analyses of Vicksburg silt 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.*
422805, 422811.....	Soil.....	0.0	0.3	0.5	2.0	4.3	78.1	14.7
422806, 422812.....	Subsoil.....	.0	.2	.4	2.3	7.8	70.1	19.1

VICKSBURG VERY FINE SANDY LOAM.

The soil of the Vicksburg very fine sandy loam consists chiefly of silt and very fine sand. The latter usually forms such a large proportion of the material that it is friable and often so loose that one

may easily dig into the soil with bare hands to a depth of a foot or more. The material ranges from brownish gray to light brown, often more or less mottled with shades of these dominant tints. There is no definite line between the soil and the subsoil, the latter being a fine sandy loam or silty fine sand of nearly the same color and texture as the surface soil.

In this county the largest developments of the Vicksburg very fine sandy loam occur on the Homochitto River between Rosetta and the mouth of Turkey Creek. It forms the outer margin of the deposits of Overwash so far as this material extends down the river, and thence occurs in bodies of varying width along the channel. Occasional small areas are found nearly as far as Ireland, but they are little more than fine sandy phases of the silt loam that predominates in this part of the valley.

The surface of most of this type is slightly higher than that of the adjoining silt loam. This low relief, combined with the open structure of the material, gives fair drainage and aeration to a depth of several feet whenever the river is at ordinary stages. All of it is frequently overflowed and therefore but a small proportion is now cultivated. If protected from floods the type would be a very desirable one for general farming and even for truck crops. It is deficient in humus and very little organic matter of any kind is observable in the cultivated fields. The soil is acid, according to the litmus-paper test. Corn, even in favorable seasons, does not make so heavy a stalk as on the more silty or clayey soils.

Ocklocknee Series.

The Ocklocknee soils are dark gray to brown, with brownish or mottled brownish, yellowish, and gray subsoils. The members of this series represent the darker-colored soils of the first bottoms along the Coastal Plain streams. They are composed principally of wash from the Coastal Plain soils.

OCKLOCKNEE SANDY LOAM.

The surface soil of the Ocklocknee sandy loam is a brown sandy or fine sandy loam. The proportion of silt and clay in most instances is high enough to give considerable coherency to the material, so that friable clods will form if the ground is plowed when wet. Areas of lighter soil occur, usually on the immediate banks of the streams or where recent overflows have deposited sand over a heavier soil. In the latter instance the color is very light brown or brownish gray, but the normal developments of the type have a pronounced brown color.

The subsoil is usually a brown sandy loam, or if of heavier texture, contains sufficient coarse and medium sand to impart an open

structure to a depth of several feet. Thus underdrainage and aeration are generally good, and this type includes less of the whitish or mottled materials than the Vicksburg silt loam.

In the western part of the county most of this type represents recent deposits of sandy material. On the lower course of Percy Creek the soil on which the virgin forest stood is now covered with from 3 to 8 feet of sand or sandy loam. On Bloomer and Smith Creeks there has been much addition of sand to the originally silty alluvium along those streams. The resultant soils are of variable texture, but generally well drained and productive.

On both the Beaver Creeks and a number of other north-flowing tributaries of Buffalo River the soils are sandy loams representing recent deposits from the silt loam and underlying red sands of the adjacent uplands.

All except the most sandy areas of this alluvium are desirable farm land and now in cultivation. The overflows are of short duration and the open structure of the soil facilitates rapid drying after the water runs off. Prolonged drought usually affects crops to some extent, for most of the type is not so retentive of moisture as the Vicksburg silt loam.

Cotton was formerly the principal crop grown on these sandy soils and the yields were generally very satisfactory. Low humus content renders them less desirable for corn than for cotton. Sugar cane, sweet potatoes, and truck crops do well and on all farms where this type is found it is utilized for such crops.

In the eastern part of the county a brown sandy alluvium is found on many of the small streams. It is in general an older deposit than that just described. It represents the normal deposits by streams whose upper branches are deeply intrenched in the red sands and gravels of the Coastal Plain material. The soils on Tar Creek and other branches of Foster Creek, as well as those on the upper tributaries of Buffalo River, range from moderately coarse to fine sandy loam. Nearly all are or have been in cultivation and are desirable soils for general farm crops.

OCKLOCKNEE FINE SANDY LOAM.

The Ocklocknee fine sandy loam represents comparatively recent deposits of silt and fine sand along the middle course of Buffalo River. The areas are very limited, embracing in most instances a strip between the channel and the Vicksburg silt loam which forms most of the first bottom. On the immediate bank of the stream the material is usually a light-brown silty fine sand that a little distance back grades to fine sandy loam. This in turn merges into the silt loam, usually at less than one-eighth mile from the stream. As a rule the surface soil is lighter textured than the subsoil, especially as the

heavier type is approached. Most of it may be described as a very friable silty or very fine sandy loam with a silty loam subsoil. Nearer the streams the entire 3-foot section is usually a silty fine sand. Most of the narrow areas are 10 to 12 feet above the normal stage of the water, and not nearly so often overflowed as a phase of this type found on the outer margin of the wider areas of Riverwash. The areas in the latter position are a fine sandy soil with loose sands as the subsoil. They support a good growth of Bermuda grass.

Some of the type, both that on the high banks and the little areas but a few feet above low water, is often planted to cotton.

Sarpy Series.

The soils of the Sarpy series are brown in color. They differ from the Yazoo and Wabash soils in possessing loose silty or fine sandy subsoils distinctly lighter in texture than their surface soils. This characteristic provides excellent subsurface drainage and allows the soils to be cultivated earlier in the season than the Wabash soils of similar surface texture and position. The soils occur in the bottoms of the Mississippi and Missouri Rivers and their tributaries.

Sarpy very fine sandy loam.

The Sarpy very fine sandy loam embraces the somewhat variable soils of the front lands, where the material consists largely of the finer grades of sand. Their proximity to the channel and elevation above the lands in the rear insures good local drainage. The relief from excess soil water is also facilitated by the rather open structure of the sandy substratum. Several areas of this soil are also found at some distance from the river, forming in most instances long low ridges a few feet higher than the adjacent heavier types.

The soil is a brown very fine sandy loam containing a good deal of silt. It is generally friable and loose in structure. The organic-matter content is low, so that the physical properties are determined almost entirely by the high proportion of the silt and sand.

Along the river front the subsoil is a brown silt loam similar to the surface soil, but of somewhat brighter color. At 18 to 25 inches it is usually more sandy, and with increase of depth changes to a light-brown or grayish-brown loamy fine sand or very fine sand. Farther back from the river the subsoil is heavy, often a moderately stiff silt loam with the sand at a greater depth. In many instances the margin farthest from the stream is a thin overwash of silt and fine sand over a clay loam, the latter forming the subsoil. The soil of the low ridges remote from the river channel is usually less sandy than the phase just described, but much lighter than the adjacent types.

In all instances the type is distinguished by its light texture and efficient drainage, which insure comparatively easy tillage. On the

latter account all this type is highly esteemed for cotton and other crops now cultivated on the lowlands, although it is not so productive as the darker-colored clay soils. From three-fourths to one bale of cotton per acre was formerly obtained. Under boll-weevil conditions the culture of cotton is somewhat safer than on the heavier soils, but the frequency of overflows in recent years renders very early planting impracticable.

Results of mechanical analyses of samples of the soil and subsoil of the Sarpy very fine sandy loam, collected in a low ridge about 3 miles northeast of Artonish, follow:

Mechanical analyses of Sarpy 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.*
422822	Soil	0.0	0.1	0.1	4.4	57.5	28.5	9.8
422823	Subsoil	.0	.1	.1	9.2	55.4	27.7	7.8

SARPY FINE SAND.

The Sarpy fine sand is represented by recent deposits of comparatively clean sand on the higher banks of the Mississippi River. Its deposition at this level is due to strong currents sweeping over these banks when the river is at flood height. On the immediate margin, although when the stream is at the usual summer stage the white sand is from 15 to 20 feet above the water, the deposits are deep enough to kill the timber, but farther back they spread over the older alluvium to a depth varying from several feet to only a few inches. The shallow phases usually consist largely of very fine sand and silt and form a brownish-gray soil of light texture. On the latter Bermuda grass establishes itself in a very short time. Otherwise, these sandy deposits have little agricultural value, and, of course, are liable to change in character and extent with each flood.

SARPY SILTY CLAY LOAM.

The surface soil of most of the Sarpy silty clay loam to a depth of 6 or 8 inches is a dull-brown silty clay loam, more or less mottled with rusty brown specks and streaks. It has a granular structure, quite pronounced in the heavier phases, but not so observable where the proportion of fine sand and silt is somewhat above the average. The content of organic matter is low and seldom enough to change the brown tint to the dark shade of the Sharkey clay, a soil rich in organic matter.

There is no great difference between the soil and upper subsoil. The latter is generally a silty clay loam, with a somewhat more pro-

nounced brown color than the soil. Mottlings of dark-reddish or rusty-brown iron stains are present. In heavier areas, where the material is a stiff clay or silty clay, the mottling may be quite conspicuous, but if the texture is coarser it is hardly observable. The lower subsoil is generally a brown or mottled rusty-brown and dull-gray silt loam, containing a greater proportion of fine sand with increasing depth. It has a comparatively open structure and is more easily penetrated with an auger than the upper subsoil. In places this sand stratum may occur at depths less than 40 inches, but as a rule it is found at a somewhat greater depth.

This type forms in most instances a transitional belt between the comparatively sandy land on the immediate river front and the Sharkey clay, better-drained phase. The area between Fort Adams and Artonish is of this character. The surface generally slopes downward from the river and the drainage is fairly efficient. While most of the soil is a heavy silt or silty clay loam and therefore retentive of moisture, the occurrence of a sandy substratum at a few feet below the surface insures good underdrainage when the river is below flood stage. The extreme outer margin of this area is loam or fine sandy loam, while along the inner boundary the type merges into the Sharkey clay. A similar relationship obtains along the east side of Old River, but in the latter case the marginal development of fine sandy loam is so slight that it is not represented on the map. Most of this area is a rather friable silt or silty clay loam that rapidly becomes heavier and more granular as the Sharkey clay is approached. The surface drainage is generally good, and the pronounced brown color of soil and subsoil distinguishes the material from the less efficiently drained "buckshot" land adjoining.

Most of the areas east of Old River are low, broad ridges, the central portions of which are several feet higher than the Sharkey clay and in most instances equal or superior in elevation to the front land. The soil of the higher points is a brown loam or very fine sandy loam, and grayish-brown fine sand may be found at less than 3 feet. Most of the areas, however, are a brown silty clay loam, friable or crumbly rather than granular. The local drainage is good and the ground is generally ready for plowing almost as soon after floods or winter rains as the front lands.

All this somewhat variable type is locally called "loam land" and is generally recognized as the immediate type of soil between the clay front lands or Sarpy very fine sandy loam and the Sharkey clay. It is more easily worked than the latter and preferable to the sandy soils on account of greater productiveness. Cotton makes a larger plant on this type and about a bale per acre was formerly considered a fair yield. Although the content of organic matter is not high, corn does well and is generally less likely to be injured by wet weather

than on the Sharkey clay. Oats have made high yields on this type, but in recent years the acreage has been reduced on account of liability to injury by spring floods.

Sharkey Series.

The soils of the Sharkey series are of yellowish-brown to drab color, with mottled rusty-brown, bluish, drab, and yellowish subsoils of plastic structure. In the slight depressions, where water stands for a good part of the year, organic-matter accumulations impart a nearly black color to the soil. The series contains a high percentage of clay in both soil and subsoil. These soils occur as bottom lands subject to overflow from the Mississippi River. The component material was mainly deposited some distance back from the river by quiet water. On drying the soil cracks readily, forming small aggregates, and this condition gives rise to the local name "buckshot land." These soils are poorly drained and subject to annual overflow.

SHARKEY CLAY.

The soil of the Sharkey clay is a brownish-gray or bluish-gray clay, abundantly mottled with rusty-brown spots, the result of iron stains. The subsoil is a bluish-gray clay with little mottling except in some instances in the upper portions. This bluish clay extends without essential change in character to a depth of 4 to 8 feet and then abruptly changes to sandy material.

The surface soil has a markedly granular structure, very apparent wherever the moisture content drops much below saturation. On partial drying the surface cracks into angular blocks, which, as the moisture decreases, further subdivide into small, hard granules. This tendency to assume a granular structure is evidently greatest where the organic matter is highest. It also increases on exposure to the air, as in plowed fields and along ditch banks.

In the subsoil the granular structure is but slightly developed. The latter is usually tenacious and rather waxy under ordinary moisture conditions and very sticky when wet. Evidently it is not entirely impervious, but it admits of such slow downward movement of water that all except the better drained phase of the type remains wet for a long time after heavy rains or floods. As a rule the depth to the sandy substratum increases progressively as the interior of the larger areas is approached. It is less than 3 feet in the better drained phase and probably less than 8 or 10 feet in the interior of the swamps.

The Sharkey clay prevails throughout all the low areas between the lower Homochitto River and Buffalo River. On the lower course of the latter there is an extensive area, for this stream has carried but little of its sediment below the canal by which it now

discharges into Old River when the latter is at normal stage. The interior of the island partially surrounded by Old River consists of a low area of Sharkey clay intersected by a good many narrow sloughs. The soils of the northern end have been greatly modified in recent years through being swept by currents when the Mississippi River was high. The areas below Fort Adams have also received much relatively coarse sediment in recent years from the Mississippi overflows and also from the uplands drained by Clarke and Hunter Creeks. The type in this locality is not so heavy or uniform in texture as farther north.

Normally the type owes its origin to deposition of fine sediments carried by the backwater of the Mississippi overflows. Over the interior of the present areas and in the Gaillards Lake region the floods attain a depth of 10 to 15 feet. Such waters remain many weeks, and the suspended clay, almost the only kind of material carried, is thus evenly spread over the similar deposits of previous floods.

The characteristic timber growth is oak, overcup oak being most abundant, with white, red, water, and pin oaks as very common species. Hickory, ash, hackberry, and sweet gum are found almost everywhere on the higher ground, while tupelo gum and cypress form a thick stand in the "lakes" or old channels that occur almost evey few hundred yards in all the larger areas. There is generally little undergrowth, except where the timber has been recently removed. But little cane is found, and the density of the forest prevents the growth of grass in most places, so that the pasturage is rather poor.

The present price of any tract of the Sharkey clay is determined almost entirely by the value of the timber.

Sharkey clay, better drained phase.—The surface soil of the better-drained phase of the Sharkey clay is usually a little darker colored than that of the main type. This is due in part to better natural aeration and in part, perhaps, to tillage. The color varies from black or very dark drab to dull brown. Where the latter tint predominates the soil is usually a heavy silty clay loam, but most of this phase is a heavy clay similar in texture and physical properties to that previously described.

The subsoil is a stiff, tenacious clay with some tendency to blocky structure in the upper portion. The color is drab or bluish gray, with more or less rusty-brown mottlings. At a depth varying from 30 to 40 inches the subsoil usually changes to a dull-brown silty clay, grading at a little greater depth into a fine sandy loam of comparatively open structure.

The better drainage which this phase enjoys is due chiefly to the better internal drainage afforded by the sandy substratum, though there is also a slight slope to the surface, usually away from the river

channel, but frequently toward some local drainage line, and this tends to clear the surface of water quicker than in the interior areas. The areas may also be ditched with less expense than those more remote from drainage ways.

Areas of the better drained Sharkey clay form a narrow and illy defined belt between the interior Sharkey clay and the higher lands fronting the river. No sharp boundary can be drawn between it and the lower areas on one side and the somewhat higher areas of Sarpy silty clay loam on the other. As a rule it is darker than the former and much more granular than the latter. Practically all of it is cleared and until recent years was regularly cultivated.

Before the advent of the boll weevil the land was highly esteemed for cotton. In addition to its inherent productiveness it has the advantage of being very easily tilled if properly managed. If plowed during the winter the action of the frost reduces the surface soil to a loose, granular condition which renders subsequent tillage very easy. Even in recent years, when the spring overflows have been deep and prolonged, ground plowed in the winter usually admits of the planting of corn and cotton very soon after the water subsides. If not trampled or otherwise worked when wet, the surface soil may be reduced to a good seed bed with but little tillage and the subsequent cultivation may be little more than frequent shallow stirring of the surface.

On most plantations care is taken to plow the ground when very wet and to avoid subsequent operations until it has become dry and crumbly. If broken late and when but moderately wet the heavier phase clods badly and can hardly be brought into proper condition for planting.

Owing to the relatively high level at which the ground water stands, crops on land where a good seed bed has been prepared seldom suffer from dry weather. As previously stated, the surface drainage is fair, and since most fields have at least some artificial ditches, this phase endures wet seasons almost as well as some of the higher lying alluvial types.

Cotton formerly yielded upward of a bale per acre. Corn on some well-cultivated portions of this phase yielded about 50 bushels. Alfalfa was successfully established on about 10 acres and produced very good yields for several years. It was entirely destroyed by the prolonged overflow of 1912.

Fall-sown oats make excellent growth and require pasturage during the drier part of the winter to prevent making so much growth that they will be killed by late freezes. Yields of about 50 bushels per acre have been reported.

Mechanical analyses of samples of the soil and subsoil of the typical Sharkey clay, collected about 2 miles from the present channel of the

Mississippi River and representing a soil formerly cultivated and noted for its high yields of cotton, gave the following results:

Mechanical analyses of Sharkey clay.

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.*
422818	Soil	0.1	1.0	0.9	1.6	1.0	39.1	56.4
422819	Subsoil	.0	.2	.2	3.2	2.6	42.0	51.8

Cass Series.

The Cass soils occur in association with the Sarpy, occupying, however, areas having somewhat less perfect drainage. The soils of this series differ from the Sarpy in that the color of the surface material is characteristically dark brown to black instead of brown. They have lighter textured, lighter colored subsoils. They are subject to overflow where not protected by levees, but dry out with the subsidence of overflow water. These soils are most extensively developed in the bottoms along the Mississippi and Missouri Rivers and their tributaries.

CASS CLAY.

The soil of the Cass clay to a depth of 6 to 10 inches is a black, drab, or dark bluish gray heavy clay. When wet the soil is rather sticky; when dry, the surface of recently deposited mud, of which much of this type consists, cracks rather deeply,while the older and more settled soil assumes a granular condition similar to the Sharkey clay. There is generally less brownish mottling than in the latter soil, but in places this has also developed and may extend throughout a considerable part of the subsoil.

The subsoil to a depth of 15 to 20 inches is a bluish or drab plastic clay which, with further increase of depth, usually changes to a brown silty clay loam in which there may be considerable fine sand. This lower section of the subsoil is much more permeable than that just below the surface soil, although the textural character, especially with regard to the content of sand, usually varies a good deal. Below 30 inches the material is almost invariably a brown silt loam, changing at 40 to 50 inches to relatively clean fine sand or very fine sand.

While this profile—a heavy granular clay with lighter textured subsoil—is characteristic of all the type, the relative depth at which the brown sandy substratum occurs is by no means uniform. In depressions the clay may be 2 feet or more in depth, but such phases are confined to old channels of chutes, or bayous, in process of obliteration. On the higher ground the surface layer of heavy clay is not generally more than 18 or 20 inches thick, while near the areas of

Sarpy sand or very fine sandy loam the clay soil may be but a few inches deep.

The largest area of the Cass clay is southwest of Fort Adams. Less than 40 years ago the east bank of the river was under the bluff just south of the village, but it is now a mile or more to the southwest. The land thus formed was originally very sandy, but the later accretions of materials consisted largely of silt and clay. The surface is somewhat uneven, being characterized by long ridges with shallow intervening depressions.

Practically all this type is very fertile, well-drained land, and would have a high agricultural value were it less subject to deep overflows.[1]

Miscellaneous Material.

Rough broken land.

In the rough areas of the northeastern part of the county the brown silt loam is found on the top of the ridges and gentler slopes, but is either very thin and patchy or entirely wanting on the steeper hillsides. In the latter locations the surface soils are of variable character, but sandy material is usually found at a depth of less than 3 feet. In many instances the hillside soils are a grayish or grayish-yellow sandy loam, with red sandy subsoil. The latter is the red sand or sandy clay that usually underlies the brown silty loam of the higher ground. There is generally more or less gravel in all these sandy phases, and occasionally it is very abundant on patches of clayey soils where the surface of the white clay has been exposed by weathering or left with but a thin covering of the silt loam. As a rule the soil is more or less modified by the admixture of silt or sand, and no definite textural character prevails over any one acre. The subsoil, however, is either a stiff, tenacious clay or a very heavy silty clay loam.

Throughout all the areas of Rough broken land a fairly consistent relationship exists between the local topography and the several rather indefinite types represented. The brown silty soil of the crests of the ridges is practically identical with the Lexington silt loam, or, if several feet deep, with the thinner phase of the Memphis silt loam. Sandy soils prevail on the sharp declivities at the head of the ravines and on the steeper hillsides elsewhere. On the prominent but rather evenly rounded elevations clayey soils with light-colored or mottled subsoils are usually found.

Clay outcrops are also very common on these very narrow ridges, which, as a rule, are lower than the main divides. In many instances

[1] This same soil was mapped as Yazoo clay and later changed to Sarpy clay in Concordia Parish, La. At that time the Sarpy contained both light-colored and dark-colored soils. The Sarpy is now confined to the light-colored soils and the dark-colored soils are correlated as Cass.

the hard, consolidated layer of this clay forms a broken capping on the small hills or outcrops along the sides of higher ridges.

No practicable separation of the soils can be made on the scale of mapping used in the survey, nor are the boundaries between these areas and those of the better defined Lexington types more than general separations, based chiefly on the general topographic character of the respective areas. The term "Rough broken land" has been applied to all the rough, broken lands where the surface material is of extremely varied textural character.

Occasional patches of this land are in cultivation, usually the wider ridges, where the soil is the Lexington silt loam. On some of the lower slopes and along the branch bottoms small areas of silty or sandy loam are often found that may be tilled to advantage. With these few exceptions the type is practically nonagricultural and is now forested. Longleaf and shortleaf pine are the dominant varieties of trees. There are several kinds of oak, of which blackjack is the most abundant. Some hickory, poplar, magnolia, and other hardwoods are fairly numerous, but as a rule are found in the best soils or in the branch bottoms. There is not much underbrush and very little wild cane. The grass is bunchy, especially on the sandy phase of soil, but thicker and heavier stands are found on the clayey land. The dominance of longleaf pine and the comparatively rare occurrence of large oak, hickory, and magnolia distinguishes the forests of these soils from those of the typical Memphis silt loam.

Most of the land is owned by lumber companies, its value being determined by the character of the standing timber. Its present agricultural value is for pasturage, which in summer is good, but, owing to the absence of cane, is poorer in winter than on the broken areas of the Memphis silt loam.

OVERWASH.

Below the Lower Natchez Road, Buffalo River very frequently overflows its banks and deposits large quantities of sand on the bottom lands adjacent to the channel. These deposits consist of ridges and drifts of loose white sand several feet deep. Farther from the stream the sand is finer, contains more silt, and in general the small areas in the lower part of the valley are finer in texture than those near the Natchez Road; but in all cases the deeper drifts near the channel are very loose-structured soil, and even the light silty sand on the outer margin is inferior in agricultural value to the older alluvium it covers.

All these deposits are of recent origin. Above the Lower Natchez Bridge the stream in general is degrading its valley. Its energies are confined chiefly to widening and deepening its already broad channel, portions of which are indicated on the map as Riverwash.

Below the Natchez Road the comparatively narrow, canal-like bed of the stream fails to accommodate the waters of even moderately high floods. The waters, when the capacity of the channel is reached, spread rapidly and widely and their load of sand is dropped on comparatively high bottom land. The elevation of the bottom land with respect to the stream is increasing and the surface is undergoing a rather rapid change in textural character and drainage conditions. Some of the small tributary branches from the hills find their outlet obstructed or raised, swampy spots thus being formed. The lower point of advance of this sand is near the mouth of Bear Creek, and its further extension is highly probable. It may in time materially modify the heavy, clayey soils on Buffalo River below this point and Old River.

Where Percy Creek Valley opens into the Mississippi lowlands there are also accumulations of coarse white sand, and this material, with various modifications due to admixtures of silt, has been mapped with the Overwash. On lower Smith Creek similar coarse sandy deposits are found.

MEADOW.

Lands classified as Meadow embrace the lowlands near the channel of the Mississippi River so frequently overflowed that they have no agricultural value. The lower lying portions are sand bars, but most of the areas are low, narrow ridges alternating with depressions that are lakes or mud flats according to the stage of the water in the stream. The soil on the higher ground in some instances is a sand or sandy loam, but more frequently a dark clay or silty clay loam overlying sand, the thickness of the clay deposit depending upon the age and relative elevation of the material.

The wider areas above The Narrows are mostly mud flats covered with a dense growth of willow. The north end of the island surrounded by Old River is rather high land crossed by several chutes. The surface is so varied texturally and of such little agricultural value that it is included with the Meadow.

Much of the Meadow is covered with young willow and cottonwood trees. The latter grow rapidly and their commercial value, when they have attained a diameter of 18 to 24 inches, gives these lowlands an economic importance unsuspected some years ago. These lands also have some value for pasture. Bermuda grass establishes itself on them in a surprisingly short time after each overflow.

Below the mouth of Steels Creek the channel of Buffalo River has shifted in places nearly a mile from the position it occupied some years ago. The old channel has been completely abandoned for a mile or two and a new one formed farther north. Some of the bottom lands in this part of the valley have received deposits of fine sand

similar to but less extensive than the Overwash. In other places the sediments are more silty and heavier soils have been formed, but all of more or less variable character with respect to color, texture, and depth. The outer margin of these areas is usually a brown silty loam and was included with the Vicksburg silt loam. The areas are frequently overflowed and of so little present agricultural value that no attempt was made to map the various types represented and they were included with Meadow.

RIVERWASH.

On the middle course of Buffalo River there are many wide sand bars covered only when the stream is at flood height, which have been mapped as Riverwash. During the ordinary stages of the water these sand deposits are exposed and some are so wide that their approximate extent has been indicated upon the map. Near the present channel the material is rather coarse white sand, shifting with each change of the stream. In the larger developments the outer margin consists of rather shallow drifts and sheets of sand more or less mixed with finer material. On some of the bends near the Upper Natchez Road, the river is cutting very rapidly on the outer part of the curves, while the deposits of sand on the inner side have increased very much in recent years.

On the lower course of Bayou Sara and also the eastern fork of Thompson Creek, the channels have widened in recent years so that at low stages the streams meander in sand flats 10 to 15 feet below the general level of the valley. In places young trees of various kinds are found on the higher and more stable portions of the sandy deposits.

SUMMARY.

Wilkinson County is located in the southwest corner of Mississippi and has an area of 667 square miles, or 426,880 acres. About 13 per cent of its area lies in the Mississippi lowlands, while the remainder consists of rolling to broken uplands, with many small creek valleys.

The surface formation throughout most of the uplands is a brown silty material known as loess. It is from 20 to 50 feet deep on the western hills, but gradually thins toward the east, until in the eastern townships its average depth is but a few feet. In the latter section soils derived in part from the underlying sands and clays are found, but elsewhere all the upland types are derived solely from loess.

Cotton and corn have been the principal crops of the county from the time of its early settlement. In 1908 the boll weevil attacked the cotton, and the production has dropped from 20,000 bales to little more than 1,000 bales in 1913.

Diversification of crops is becoming the practice. More attention is being given to corn, hay, and live stock than formerly. The growing of truck crops and rice is being tried.

The dominant type is the Memphis silt loam. In its normal development it is a brown silt loam with subsoil and substratum of similar textural character. The surface is hilly to rough and the agricultural value varies with the topography.

The smooth phase of the Memphis silt loam is mostly undulating to rolling and is the most desirable land for agriculture in the uplands. Cotton was formerly the chief crop, but corn, oats, hay, and numerous minor crops can be grown on it.

The Lintonia silt loam is a second-bottom type similar in general character to the smooth phase of the Memphis silt loam.

The Lexington silt loam represents a thin phase of the loess over a red sandy material that affects the color and physical properties of the surface stratum. This is a desirable type for general farming. A rolling phase of this type is shown on the map by ruling. Before the advent of the boll weevil most of this phase was under cultivation, but now a large portion is untilled.

The Cass clay is an inextensive type, fertile, but subject to deep inundations.

The Vicksburg soils are alluvial types found on the minor streams. The silt loam is the most extensive type and well adapted to and generally used for cotton, corn, and lespedeza. The very fine sandy loam is frequently overflowed and but limited portions are now cultivated.

The Ocklocknee soils are also alluvial in origin. The sandy loam and fine sandy loam types were mapped. They are of small extent and their agricultural value is generally less than that of the Vicksburg soils.

The Waverly silt loam is a light-colored poorly drained type, but a considerable portion of it is cultivated. Cotton does well in favorable seasons, but the soil is too wet for other crops, except rice and lespedeza. The agricultural value of the poorly drained phase is very low.

The Sarpy very fine sandy loam is the light-textured soil of the Mississippi River front lands. It is an excellent cotton soil.

The Sarpy silty clay loam is intermediate in texture between the alluvial type and the "buckshot" land. The latter, mapped as Sharkey clay, forms much of the interior lowlands, and only the outer portions are sufficiently well drained to be tillable. All of these types, as well as Meadow and Sarpy fine sand, are subject to very deep overflows.

Most of the Rough broken land is owned by lumber companies, its value being determined by the character and amount of timber on it. Its present agricultural value is for pasturage.

Overwash and Riverwash are of little importance.

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