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

IN COOPERATION WITH THE STATE OF MISSISSIPPI, EARL BREWER, GOVERNOR  
E. N. LOWE, DIRECTOR, STATE GEOLOGICAL SURVEY.

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SOIL SURVEY OF COAHOMA COUNTY,  
MISSISSIPPI.

BY

F. Z. HUTTON, IN CHARGE, W. E. THARP, N. M. KIRK, AND  
H. W. HAWKER, OF THE U. S. DEPARTMENT OF AGRICULTURE,  
AND E. M. JONES, OF THE MISSISSIPPI GEOLOGICAL SURVEY.

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HUGH H. BENNETT, INSPECTOR, SOUTHERN DIVISION.

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



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1916.

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## LETTER OF TRANSMITTAL.

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U. S. DEPARTMENT OF AGRICULTURE,  
BUREAU OF SOILS,  
*Washington, D. C., May 5, 1916.*

Sir: In the extension of the soil survey in the State of Mississippi during the field season of 1915 a survey was undertaken in Coahoma County. This work was done in cooperation with the State of Mississippi, and the selection of the area was made after conference with State officials.

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

Respectfully,

MILTON WHITNEY,  
*Chief of Bureau.*

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

## CONTENTS.

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	Page.
SOIL SURVEY OF COAHOMA COUNTY, MISSISSIPPI. By F. Z. HUTTON, In Charge; W. E. THARP, N. M. KIRK, and H. W. HAWKER, OF THE U. S. DEPARTMENT OF AGRICULTURE, and E. M. JONES, OF THE MISSISSIPPI GEOLOGICAL SURVEY.....	5
Description of the area.....	5
Climate.....	8
Agriculture.....	9
Soils.....	13
Sharkey very fine sandy loam.....	15
Sharkey silty clay loam.....	16
Sharkey clay.....	17
Yazoo silty clay loam.....	21
Sarpy fine sand.....	22
Sarpy very fine sandy loam.....	22
Sarpy silt loam.....	24
Sarpy silty clay loam.....	24
Sarpy clay.....	25
Excavated land.....	26
Overwash.....	27
Meadow.....	27
Summary.....	27

---

## ILLUSTRATIONS.

---

	Page.
FIGURE.	
FIG. 1. Sketch map showing location of the Coahoma County area, Mississippi..	5
MAP.	
Soil map, Coahoma County sheet, Mississippi.	



## SOIL SURVEY OF COAHOMA COUNTY, MISSISSIPPI.

By F. Z. HUTTON, In Charge, W. E. THARP, N. M. KIRK, and H. W. HAWKER, of the U. S. Department of Agriculture, and E. M. JONES, of the Mississippi Geological Survey—Area inspected by HUGH H. BENNETT.

### DESCRIPTION OF THE AREA.

Coahoma County lies in the northwestern part of Mississippi, adjoining the western boundary of the State. The town of Clarksdale, near the center of the county, is 77 miles south of Memphis and 143 miles north of Vicksburg. The county is bounded on the north by the Mississippi River, which separates it from Arkansas, and by Tunica County, Miss., on the east by Quitman and Tallahatchie Counties, on the south by Sunflower and Bolivar Counties, and on the west by Bolivar County and the Mississippi River. Coahoma County has an area of 558 square miles, or 357,120 acres.

Coahoma County lies wholly within the Mississippi Delta, a part of the River Flood Plains province. The surface is in general level. There are, however, places where the surface is interrupted by depressions, such as abandoned stream channels, or by low ridges, such as natural levees along the banks of streams.

Nowhere are these irregularities great enough to interfere with cultivation. The higher areas are encountered immediately along the banks of the streams and old stream ways.

The highest altitudes in the county are attained in the western part along the Mississippi River, the average elevation there being 176 feet above sea level. The county gradually slopes toward the east and south, and in the southeastern part the average elevation is 160 feet above sea level.

The regional drainage of the county is southeastward. The streams in general flow away from the Mississippi River instead of

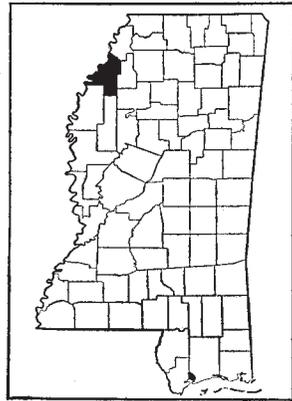


FIG. 1.—Sketch map showing location of the Coahoma County area, Mississippi.

toward it. The area is drained by a network of tortuous, sluggish streams, all of which have their source within the county.

The large number of streams flowing through the county would indicate a well-drained region, but large areas have poor drainage, owing to the fact that the land along the streams has been built up to form natural levees which hold the surplus water on the interstream areas. In addition, the channels of many of the smaller streams are obstructed with dead trees, brush, cypress logs, and stumps, and the run-off of the region is retarded by this condition. Large areas of the county have been organized into drainage districts for the purpose of reclaiming the poorly drained interstream areas. By extending canals into the bayous and clearing the bayous of logs and stumps many extensive areas formerly inundated for a large part of the year have been brought under cultivation. At the present time (1915) approximately two-thirds of the land in need of drainage is included in drainage districts. Engineers in the county estimate that at least 95 per cent of the poorly drained land can be sufficiently drained to be made available for farming.

Prior to 1884 no regular system of levee building was maintained, and the levees were built without adequate funds to construct them properly or to maintain them after completion. The land was subjected to deep overflows with each occurrence of high water. In 1883 and 1884 heavy and disastrous floods occurred. Crops could not be grown because of water remaining over the land for long periods of time. Between 1884 and 1886 the present comprehensive levee system of the county was established, and since that time there has been no serious damage from overflows. At present an excellent system of levees is maintained, and the county is practically free from danger of disastrous overflows from the Mississippi River.

Formerly a large part of the county was forested. On the "front lands" there was a heavy growth of cottonwood, sycamore, box elder, ash, mulberry, pecan, and honey locust; on the interstream areas of heavier soils, white oak, overcup oak, red oak, water oak, willow oak, and red and sweet gum; and along the sloughs and in the lower lying swampy areas, cypress and willow. On the forested front lands there was an undergrowth of vines, cane, and Bermuda grass. The forested heavier soils had very little undergrowth, except blue cane growing along the margins of the lower soils and on a few of the more elevated ridges in these wet areas.

During the early period of settlement, when the Mississippi River was the only means of transportation and before strong levees were maintained on both sides of the river, most of the plantations were located on the river front. Since permanent levees have been built, in many instances leaving large areas of land unprotected, this river-

front land is overflowed every year, and the once prosperous plantations have been abandoned, the land supporting a valuable growth of cottonwood, sycamore, and gum. The largest area of this character is encountered west of Sherard, between Rescue and Sunflower Landings. Here much of the reforested area supports a heavy undergrowth of blue cane, vines, and Bermuda grass.

Coahoma County was established in 1836. The region was settled mainly by immigrants from Virginia, North Carolina, and South Carolina. The present population consists largely of negroes, many of whom have recently moved into the county from other sections of the State. According to the census of 1910, the total population of the county is 34,217, approximately 88 per cent of which is classed as rural. The density of the population is reported as 56.9 persons per square mile.

Clarksdale is the county seat, with a population in 1910 of 4,079. Several branches of the Yazoo & Mississippi Valley Railroad radiate from this point, and the town is a distributing center for the county. Several large lumber companies are located at Clarksdale, which also has a brick and tile kiln, two large oil and cottonseed-meal plants, a machine shop, and several smaller manufacturing plants. Friar Point, situated on the Mississippi River, is the oldest town in the county, with a population of 875 in 1910. Friar Point is the principal river landing in the county. Steamers make regular trips from this place to Memphis and to Arkansas City and other points to the south. Coahoma, in the northern part of the county, and Jonestown, in the eastern part, are towns of local importance.

Good transportation facilities are available in all parts of the county. The Yazoo & Mississippi Valley Railroad has branch lines through all sections of the county and no place is more than 6 miles from a shipping point. Aside from the rail service, the Mississippi River affords transportation for points in the western part of the county. Most of the products of the county find a ready market at Clarksdale or at Memphis.

The wagon roads are good during the summer season, and at this time of the year every part of the county is easily reached by vehicles, but in the fall and winter months the roads often become impassable, especially through areas of Sharkey soils. During periods of heavy rainfall when cotton is being hauled to market the roads become so deeply rutted that they can not be traveled by wagon, but in the dry weather the roadbed quickly becomes hard and smooth. The county has constructed about 40 miles of gravel road. The need for improved roads that will remain firm and in good condition throughout the year is generally recognized, and progress in road improvement is being made.

A good supply of water for domestic use exists in this county. Artesian water of good quality is obtained by drilling to depths ranging from 1,000 feet in the eastern part of the county to 1,200 or 1,300 feet in the western part, and practically every plantation in the county has at least one such artesian well.

#### CLIMATE.

There is no Weather Bureau station within Coahoma County, but the records of the station at Helena, Ark., which is in the same general region, are representative of local climatic conditions. The mean annual temperature is about 62° F. The mean temperature for the summer months is 80°, and for the winter months about 44° F. For the spring and fall months it is about 63° F. The winters as a rule are mild, with occasional periods of freezing weather of a few days' duration. Damp and cloudy weather often prevails in January and February.

The mean annual precipitation is about 54 inches. The total for the winter months is about 15 inches, and for the summer months about 12 inches, for the spring months about 16 inches, and for the fall months about 11 inches. The Weather Bureau records show an annual average of 102 days with precipitation of 0.01 inch or more. As a rule the rainfall in the spring and summer is local in character, coming mainly in the form of thunderstorms. Hurricanes and tornadoes sometimes occur and are occasionally destructive.

Killing frosts have been recorded at the Helena station as early in the fall as October 24 and as late in the spring as May 1, but the average dates are November 8 for the first in the fall and March 22 for the last in the spring. This gives an average growing season of 231 days.

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

*Normal monthly, seasonal, and annual temperature and precipitation at Helena, Ark. Elevation, 182 feet.*

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.....	45.1	75	8	5.04	1.57	3.72
January.....	41.3	76	2	5.53	2.39	4.85
February.....	44.1	78	-7	4.87	6.36	1.63
Winter.....	43.5	78	-7	15.44	10.32	10.20
March.....	53.5	89	12	6.31	3.25	4.81
April.....	63.0	93	30	5.47	5.43	15.01
May.....	71.3	98	39	4.65	1.43	1.71
Spring.....	62.6	98	12	16.43	10.11	21.53
June.....	78.3	104	46	4.16	1.87	19.30
July.....	81.4	105	57	4.02	1.27	4.87
August.....	80.4	109	50	3.57	2.27	5.09
Summer.....	80.0	109	46	11.75	5.41	29.26
September.....	74.2	105	40	3.64	2.60	7.24
October.....	62.3	99	30	2.34	4.30	4.31
November.....	52.0	90	17	4.73	3.96	8.07
Fall.....	62.8	105	17	10.71	10.94	19.62
Year.....	62.2	109	-7	54.33	36.78	80.61

#### AGRICULTURE.

During the early development of Coahoma County the principal crops were practically the same as those now grown, namely, cotton, corn, oats, potatoes, and vegetables. Prior to 1884 Friar Point was the only shipping point for this section of the Delta. The roads were poor, and every plantation, as far as possible, produced all the food required for home use, cotton being grown largely for export and exchange for the few commodities which could not be produced at home. The county was flooded, on an average, three years out of five. Under such conditions farming was discouraged, and until levees were constructed agricultural development was slow.

The conditions of land holding that prevailed prior to the Civil War have been more nearly preserved in this region than in any other part of Mississippi. The census of 1910 reports the average size of farms in Coahoma County as 31.4 acres. Each tenancy, however, is classed in the census as a farm, and a total of 6,726 farms is reported. As a rule the land holdings include more than 1,000 acres, and in some cases tracts of over 10,000 acres are owned by indi-

viduals or land companies. The plantations are devoted almost exclusively to cotton production and are worked entirely by negro labor. The owners, especially of the larger estates, frequently live in the near-by towns, the immediate supervision of the estate being left in the hands of an overseer, who directs the work of the negro tenants. Each plantation has its commissary store, from which the tenants are supplied, a lien upon the crops being held as security for the year's supplies advanced.

In former years corn, peas, potatoes, sugar cane, pork, and beef were produced upon each plantation in sufficient quantity for home use. Since the advent of the railroad an annually increasing acreage has been devoted to cotton, until within recent years cotton has been grown to the exclusion of almost every other crop, most of the plantations depending upon northern markets for the supplies needed for home use. Some corn is grown on all the plantations, but usually not in sufficient quantity to meet the home demand. On a few of the best managed plantations, where crop rotation is practiced, sufficient corn and forage crops are grown for the needs of the plantation, and often a surplus of corn and alfalfa is marketed. The census reports a total expenditure of \$101,532 in 1909 for feed.

Cotton does well on all the soils of the county, and labor conditions are such that it promises to continue the main staple crop for the region. According to the census, 98,452 acres were devoted to this crop in 1909, with a total production of 46,969 bales. For a number of years long-staple cotton (the Columbia Big Boll and Polk varieties) has been largely grown. The long-staple varieties have been grown successfully on the heavier types of soil, and have proved very profitable.

Next to cotton, corn ranks as the most important crop in the county. It is reported on 25,770 acres in 1909, with a production of 580,022 bushels. Corn is grown on nearly every plantation. There is a wide variation, however, in the acreage devoted to corn upon the different plantations; in some cases only a very small acreage is devoted to the crop.

The acreage devoted to corn throughout the county also varies considerably from year to year, apparently with the price obtained for cotton. When good prices prevail for cotton the acreage of corn is small, and when the price is low the production of corn becomes greater. Most of the corn is produced on the Sarpy soils and the Sharkey very fine sandy loam and silty clay loam.

Oats are grown throughout the county to a limited extent for both grain and hay and also as winter pasturage. This crop does very well some years, while in other seasons, when the winters are severe, it freezes out badly. Where grown for the grain, yields of 20 to 30 bushels per acre are obtained.

Within recent years cowpeas have become important as a forage and a green-manure crop. Practically every plantation produces some cowpea hay. Most of the legumes thrive throughout the county. White and red clover do well on the medium-light soils, but are not grown extensively for pasturage or as forage crops. In many places the clovers grow wild by the roadside.

Alfalfa is becoming a crop of commercial importance, and many of the plantations grow some alfalfa for hay and as a pasture crop for work stock. All the "buckshot" lands and the heavier soils of the Sharkey and Sarpy series seem well suited to this crop. In most places alfalfa grows without any special preparation of the seed bed. On the well-drained Sharkey clay alfalfa has made as many as three cuttings the first season and six and sometimes seven the second and third seasons. The first cutting usually is made about May 1, and after this the crop usually is cut every month up to October. In some years a cutting is obtained in November. The average yield of alfalfa varies from three-fourths ton to  $1\frac{1}{4}$  tons per acre at each cutting. The price for alfalfa hay ranges from \$15 to \$20 a ton on the local market.

Wheat, rye, and barley are grown to a small extent throughout the county, generally for green forage and for hay to feed the work animals. Sorghum and rape are grown to a small extent and used as roughage for cattle and hogs. Peanuts are grown for home use and do well on the Sarpy very fine sandy loam and silt loam types.

Vegetables do well on the lighter textured soils of the county. The growing of vegetables for market has not been attempted, except in a small way by a few Italian truckers, who supply Clarksdale with such vegetables as lettuce, onions, radishes, and spinach in the spring and potatoes, cabbage, turnips, carrots, and celery later in the season. Irish and sweet potatoes are grown successfully. Although they are not grown on a commercial scale, every plantation produces enough sweet potatoes for home use. The climate is such that the county can hardly compete with the more southern counties of the State in growing early vegetables for northern markets. The counties farther south have practically the same railroad facilities for shipping, with the advantage of a warmer climate and earlier soils.

Fruits are grown throughout the county, and pear trees grow in all sections, but are more or less subject to blight. Peaches do well on the lighter soils. Around many of the negro cabins there are a few peach trees. The most improved plantations have orchards of pears and peaches for home use, but there are no commercial orchards in the county.

Pecans are indigenous to this region. There are many productive trees in the native forests, and excellent specimens of seedling pecan trees are found on the lighter soils. In that part of the county lying outside the levees, west and southwest of Sherard, there are many

large pecan trees which bear heavy crops each year. There are several groves of improved seedling varieties in the county. One grove is located at Sherard and one at Cloverhill, with several others in the vicinity of Moon Lake. The older groves are now being top-worked to paper-shell varieties. This season (1915) several groves of improved varieties have been set out.

Stock raising is not an important industry in the county, although the number of cattle and hogs kept on the plantations is increasing. There is still a large acreage of land used for grazing. Most of the plantations produce enough pork for home use, and a few produce a surplus.

Many of the planters are beginning to devote more attention to the growing of crops other than cotton, and are raising more and better live stock. The boll weevil has been detected throughout the county in small numbers, but to this time the damage it has done has not been serious. However, many planters are diversifying crops more and more each year, in order to be in a position to take up new lines of farming if the boll weevil should interfere with the profitable production of cotton. Many planters appreciate the value of growing other crops to maintain the productiveness of the soil and to offset the heavy expense of buying feed and supplies.

One-horse implements are in general use for cultivating the crops, and considerable manual labor is necessary before the crops are laid by. On most plantations the "bedding-up" method of preparing the land is used for both cotton and corn.

The more progressive planters follow a rotation in which corn, cotton, and winter oats, followed by cowpeas, are grown. Under such a system cotton usually is followed by corn, and the corn land is seeded down to winter oats; after this crop is harvested the field is seeded to cowpeas, to be followed by cotton the next spring.

Practically no commercial fertilizer is used. An expenditure of \$1,334 for fertilizers in this county in 1909 is reported in the census. Some barnyard manure is used on the lighter lands, and cowpeas are grown more extensively each year as a green-manure crop, especially on the lighter soils of the older plantations.

The census of 1910 reports 92.4 per cent of the farms as operated by tenants. The negro tenants, who occupy a large part of each plantation, produce the crops on shares or rent the land for a certain amount of cash per acre. If the tenant furnishes the equipment, the owner usually receives one-fourth and the tenant three-fourths of the crop. If the owner furnishes teams and implements, he receives one-half the crop. Where the land is rented for cash, the rate is ordinarily between \$7 and \$10 an acre, depending upon the type of soil and the distance from market. The lighter lands usually bring

the higher rental, on account of the greater ease of cultivation. A part of each plantation usually is worked by "wage hands," or day laborers. This practice is most common on plantations where a large acreage of corn, winter oats, and alfalfa is grown. The price paid for labor usually varies from 75 cents to \$1 a day for men and is about 50 cents a day for women. The census reports a total expenditure of \$641,840 for labor in Coahoma County in 1909.

Many of the large forested areas in the county are being cleared for cultivation. According to the census of 1910, 62.3 per cent of the total area of the county is in farms, and of the farm land 81.5 per cent is reported as improved.

Very little land in Coahoma County changes hands. Improved land sells for \$45 to \$70 an acre, and land near the towns for \$100 to \$150 an acre. The average value of farm land is reported in the 1910 census as \$47.76 an acre.

#### SOILS.

The soils of Coahoma County are derived from the alluvium of the Mississippi River bottoms. This alluvium is composed of intermingled sediments transported from the various upland soils in the Mississippi drainage basin to the north, thus being derived from a broad area of widely varying soils, such as the glacial and loessial soils, the sandstone and shale soils of the Appalachian Mountains, and soils of the limestone regions. The materials were deposited over the flood plains by overflow water, and since deposition various changes have taken place, owing to the growth of vegetation and probably to oxidation in the better drained situations and retarded oxidation or deoxidation and hydration in the poorly drained areas.

Mineralogically, the material is probably decidedly heterogeneous; it consists chiefly of clay, silt, and fine sand, the clay and silt predominating. The range in texture is the result of variations in the current at different times of deposition. The sandy soils occur as narrow strips along natural levees immediately fronting drainage ways or abandoned channels, this coarser material being dropped quickly as the streams overflowed their banks during times of high water, while the heavy clays occur where sedimentation has taken place in relatively quiet water. Between these extremes there are soils of an intermediate texture, such as the silt loams and silty clay loams.

The county is marked by a succession of low curved ridges and depressions representing abandoned stream channels. In some sections these ridges and depressions show a varied succession of soil types; one ridge may be of very fine sandy material, another of silty clay loam, and still another may be of clay underlain by sandy

material, showing that there has been a wide variation in the currents at different times. The broad interstream areas also show a marked variation in the deposits. In some cases the entire surface deposit is a stiff "buckshot" clay; in other areas it is clay over sandy material; and in still others there may be a very fine sandy loam deposited over a stiff clay.

Of the various soils in the county the sandy types have been the most completely oxidized, owing to the better aeration resulting from their more open structure. These soils have the most uniform brown color. As the more impervious heavy clay is approached there is an intensification of mottling; instead of the brown and yellowish-brown colors, as in the case of the fine sand and very fine sandy loams, the heavy clays are dark brown to drab, mottled with various shades of gray, yellow, and brown. Much of the soil is more sandy in the subsoil than at the surface. This condition results in better drainage and aeration, and the soils naturally are better oxidized and browner.

The caving of the banks along all the concave banks of the Mississippi channel causes a great loss of valuable land each year. In many instances the levees have had to be abandoned and new ones built miles back from the original site. The originally protected areas have been abandoned and are now forested. In other cases bars have been built within a few years to constitute areas of land almost equal in elevation to the average height of the banks. Here the land soon becomes covered with a thick growth of willow, which, in a few years, as the land is built higher, is replaced by cottonwood. In still other places the channel may suddenly swing to one side, adding large areas of land on the other side of the river.

Aside from the areas mapped as Excavated land, Overwash, and Meadow, the soils of Coahoma County are separated into 9 types, representing 3 series—the Sharkey, Yazoo, and Sarpy.

The surface soils of the Sharkey series are yellowish brown to drab, with mottled rusty-brown, bluish-drab, and yellowish, plastic subsoils. In some of the slight depressions where water stands for a large part of the year the accumulation of organic matter gives the surface soil a nearly black color. The Sharkey soils have a higher content of clay in both surface soil and subsoil than the corresponding members of the Sarpy series. The material mainly was deposited some distance back from the principal drainage ways by relatively quiet overflow water. On drying the soil cracks into small aggregates, giving rise to the local name "buckshot land." The Sharkey soils, as a rule, are poorly drained. In Coahoma County the Sharkey very fine sandy loam, silty clay loam, and clay, the last with a better drained phase, are mapped.

The Yazoo series is represented by a single type, the silty clay loam, which is not very extensive. This soil is characterized by the brownish color of the surface material and the yellowish color and sticky, impervious character of the subsoil. It is much less productive than the associated Sharkey soils, apparently on account of the impervious character of the subsoil.

The Sarpy soils are characteristically brown at the surface and lighter brown or somewhat mottled and lighter textured in the subsoil. One of the chief points of difference from the Sharkey soils is the lighter texture of the subsoil as compared with the surface soil. The surface color varies somewhat from place to place, on the average being brown to brownish drab or almost black when wet. Owing to the light texture and more open structure of the subsoils, the Sarpy soils are better drained and show less mottling in the subsoil than the corresponding members of the Sharkey series. The Sarpy soils occur in higher situations than the associated Sharkey soils, occupying the front lands along the Mississippi River and the smaller streams and abandoned stream channels. They are the best drained soils in the county. In Coahoma County 5 types of the Sarpy series are recognized—the fine sand, very fine sandy loam, silt loam, silty clay loam, and clay.

The following table gives the names and the actual and relative extent of the various soils mapped in Coahoma County:

*Areas of different soils.*

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Sharkey clay.....	103,680	52.0	Overwash.....	9,024	2.5
Better drained phase.....	81,664		Excavated land.....	4,096	1.2
Sharkey silty clay loam.....	51,008	14.3	Meadow.....	2,304	.6
Sarpy very fine sandy loam...	37,184	10.4	Yazoo silty clay loam.....	2,304	.6
Sarpy silty clay loam.....	23,424	6.6	Sarpy fine sand.....	1,216	.3
Sarpy silt loam.....	20,096	5.6			
Sarpy clay.....	11,200	3.1	Total.....	357,120	.....
Sharkey very fine sandy loam.	9,920	2.8			

SHARKEY VERY FINE SANDY LOAM.

The Sharkey very fine sandy loam consists of a brown to light-brown silty very fine sandy loam, which becomes heavier with depth, grading at about 20 inches into a silty clay, which is rather crumbly when dry and somewhat plastic when wet. The subsoil contains some mottlings of grayish brown and rusty brown. Below 24 inches the subsoil quickly grades into a drab or bluish-gray clay. The soil is darker and rather compact when wet.

This type occurs in small, scattered areas. The topography is generally level, although in places there are some slight ridges

and swales. The type is well drained and most of it is under cultivation.

The Sharkey very fine sandy loam is used principally for cotton. It is well adapted to this crop, and also to corn, oats, cowpeas, and other forage crops. The type is a comparatively early soil. It can be cultivated soon after rains, but holds moisture during a longer period of dry weather than the other Sharkey types because of the covering of very fine sandy loam, which acts as a mulch, preventing the underlying stratum from drying out rapidly.

Cotton yields on this type from three-fourths bale to  $1\frac{1}{4}$  bales per acre when properly cultivated. Corn yields from 40 to 60 bushels per acre. Oats frequently are sown between the cotton rows in the fall and cut for hay in early spring. Cowpeas and the clovers do well. Bermuda grass grows wild on the roadsides and between the cotton rows.

The soil seems well suited to rose culture. One plantation on this type is devoted entirely to the production of rose cuttings and cut flowers for Northern markets.

The Sharkey very fine sandy loam is prized very highly by the planters. No land has changed hands recently. It usually rents for about \$10 an acre.

The type could be improved in places by tile-draining the swales. The liberal application of barnyard manure and the plowing under of some green crop, such as cowpeas or crimson clover, would increase the yields of corn.

#### SHARKEY SILTY CLAY LOAM.

The Sharkey silty clay loam differs from the Sharkey clay mainly in the more silty character of the surface soil. The typical soil is a dark-brown or grayish-brown silty clay loam, underlain at 3 to 6 inches by a brown or yellowish-brown plastic clay, with usually some faint drab mottling. The drab color becomes more conspicuous with increased depth. When wet the surface soil is sticky and plastic, but not in the same degree as the soil of the Sharkey clay. Upon drying, the surface soil assumes a desirable structure.

The Sharkey silty clay loam occurs throughout the county, and is the second most extensive soil. It is found usually between areas of the Sarpy soils and the better drained phase of the Sharkey clay. The topography is level to slightly undulating. This type lies slightly higher, as a rule, than the better drained phase of the Sharkey clay, and is characteristically level, with local faint undulations and slight ridges. Practically all the type lies high enough for successful cultivation without artificial drainage.

Practically all the type is in cultivation, used for the production of cotton, corn, and forage crops. Cotton does well on this type, and is the principal cultivated crop. It produces from three-fourths

to 1 bale per acre. Corn does better on this soil than on the Sharkey clay, as the soil is easier to cultivate and does not dry out so readily. Corn usually yields from 40 to 60 bushels per acre. Approximately 60 per cent of the type is devoted to cotton, 30 per cent to corn, and 10 per cent to forage crops, including cowpeas, alfalfa, and winter oats. Cowpeas are sown extensively in the cornfields, and after the corn is harvested cattle and hogs are pastured on the cowpea vines and cornstalks. Some winter oats are grown. The oats usually are sown between October 15 and November 15, and may be harvested for the grain or cut green for hay. After the oats are harvested the land usually is planted to cowpeas, to be cut later for hay. When harvested for grain, oats yield from 20 to 30 bushels per acre. The yield of pea-vine hay usually is 1 ton to 1½ tons per acre. The forage crops generally are fed to the work stock on the plantation.

The soil usually is plowed fairly deep, although in many cases it is broken to depths of only 2 or 3 inches. In some places the continuous production of cotton is beginning to result in lessening yields.

The Sharkey silty clay loam is so closely associated with the adjoining types that its separate value can not be accurately stated.

This type could be greatly improved by the general rotation of crops, including more of the legumes. Cowpeas, alfalfa, and the clovers, especially white clover and alsike, have done well where they have been tried. The soil and subsoil have a high lime content.<sup>1</sup> Where cowpeas are turned under and the land is broken deeply the yield of cotton is greatly increased.

Very often cattle are allowed to graze over the fields when the ground is wet and soft. In such cases the soil, upon being plowed, is very cloddy, so that it is almost impossible to prepare a good seed bed. Stock raising could be carried on to advantage with the use of silos, but the cattle should be kept off of wet fields.

#### SHARKEY CLAY.

The typical Sharkey clay is a mottled dark-brown and dark-drab clay, 4 to 6 inches deep, becoming somewhat lighter in color with increase in depth, but otherwise showing no important difference from the surface downward, except that in dry weather the subsoil, being more moist, is more plastic than the surface material. The subsoil shows considerable variation in color, ranging from dark brown, yellowish brown, rusty brown, dark drab, and light drab, to blue. When wet the soil is very sticky, but when dry the material crumbles in a manner similar to the slaking of lime, although the particles, or

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<sup>1</sup> Chemical analyses show the surface soil to contain 1.57 per cent lime (CaO) and the subsoil 1.10 per cent lime (CaO).

soil aggregates, are angular. Roads soon become impassable on this soil in wet weather, but upon drying they quickly become smooth and compact.

This soil can be plowed when in a saturated condition, and any clods which may form invariably crumble down to a desirable tilth after intermittent periods of rainy and dry weather. The land is generally plowed when wet enough to turn easily with the ordinary plow. This soil is known throughout the Mississippi bottoms as "buckshot land."

The Sharkey clay is the most extensive soil of the county. It is distributed through all sections, occurring in relatively low situations, and much of it, where unprotected from floods, is covered with water during a large part of the year. In some places drainage ditches have been constructed to remove the excess water. The surface is characteristically level, but the drainage is ordinarily good where the type is protected from overflow.

Large areas of this type occur outside the levees, especially west of Sherard. The land outside the levees is subject to deep overflows, and the type in such situations is forested with a heavy growth of cypress, sweet gum, hackberry, hickory, and pecan, with an undergrowth of blue cane. Much of this type originally was covered with cypress, sweet gum, water oak, overcup oak, honey locust, and ironwood. With the construction of drainage ditches more of the type is brought under cultivation each year. Probably 30 per cent of it is now cultivated. Cotton is the principal crop, occupying a much larger area than all the other crops combined. Considerable corn is grown, being used mainly on the farms as feed for the work stock. Alfalfa is a crop of increasing importance, being grown both for use on the farm and for sale. Other crops are grown to a small extent. Special industries, such as the raising of beef cattle and dairying, as yet are of little importance.

The type is of high natural productiveness, and where properly drained gives good results with cotton, alfalfa, and corn. Cotton yields from one-half to 1 bale per acre without fertilizer. The soil seems especially suited to alfalfa. Where the seed bed is properly prepared and the seed sown in the early fall, about October 1 to 15, a good stand of alfalfa is obtained without liming or inoculation. In some instances three cuttings are made the first year after seeding. After the first year alfalfa can be cut from four to six times, the first cutting usually being made about May 15. In exceptional years the first cutting has been made as early as April 25. Planters estimate the average yield of alfalfa as about 5 tons per acre. Corn does fairly well on the Sharkey clay, provided the rainfall is sufficient. In some years, however, the soil cracks and dries out badly,

diminishing the yield. Cowpeas do well, making a strong growth of vine.

Crop rotations are not regularly practiced on this type. In many instances, however, cowpeas are sown with corn, and after the corn is harvested the stalks and pea vines are turned under to improve the physical condition of the soil. Where this practice is followed the yield of cotton is considerably increased.

The type requires strong implements and heavy teams for breaking and cultivating. In a few cases gas tractors with disk plows are used with good results. The soil has the advantage of crumbling down to a good structural condition if plowed when wet, and breaking is done mainly when the land is saturated. It plows more easily at this time than with a moderate content of moisture, when the material is more plastic. In general this soil is plowed fairly deep, and cultivation is shallow. The present methods of preparing the seed bed and of cultivating the crops are well suited to the soil. No commercial fertilizers are used on this type.

The Sharkey clay lands are held at \$40 to \$80 an acre. The areas lying outside the levees are valuable only for their timber. The type rents for \$7 to \$10 an acre, depending upon the distance from market.

This is inherently a rich, durable soil, and it apparently will not require much fertilization, if any, for a long time. There would probably be some improvement in the moisture-holding properties if occasional additions of vegetable matter were made, as by plowing under some such crop as cowpeas or bur clover, adding barnyard manure or growing legumes more frequently in rotation with the clean-cultivated crops. It apparently would be profitable to devote a larger area to alfalfa. Beef cattle and hogs can be raised with profit, but whether such industries would prove more profitable than the present form of agriculture is problematical. Additional areas of the type are being brought into cultivation with the extension of drainage systems.

*Sharkey clay, better drained phase.*—The better drained phase differs from the typical Sharkey clay in having a higher position, and consequently more efficient drainage. Much of it is cultivated without ditching. In some areas sandy material is encountered at a depth of about 3 feet, and in such places the drainage is somewhat better than is true of the average of the phase. Generally the surface soil is more uniformly brown than in the typical soil, and there is less mottling though little other color difference in the subsoil, which is perhaps a slightly more yellowish brown. The original forest growth consists of overcup oak, elm, sweet gum, hickory, hackberry, ironwood, and red oak, with some pecan.

Although the phase is less extensive than the typical Sharkey clay, there are several large areas in the county, especially in the eastern and northeastern parts and between Farrell and Pullen. Smaller areas are scattered throughout the county.

The surface is prevailingly level, and though in some cases it is ridgy, the ridges are of slight elevation and easily cultivated. Owing to better drainage, a larger proportion of the phase than of the typical Sharkey clay is farmed.

Where cleared the land of this phase is devoted to cotton, alfalfa, and corn. Cotton yields from one-half to three-fourths bale per acre. In some cases yields of  $1\frac{1}{4}$  bales per acre have been obtained. The soil is especially suited to the production of alfalfa, and a relatively large acreage is devoted to this crop. As the planters become more familiar with the handling of the crop the acreage is being extended. Best results are obtained where alfalfa is sown early in the fall, with or without a nurse crop. The crop usually is cut five times during the growing season. In some cases it is cut as many as seven times, the first cutting being made in April. The average yield is about 1 ton to the acre at each cutting. The hay is not as green as that produced in the Western States, but makes excellent feed for stock. Sometimes difficulty is experienced in curing the hay, on account of wet weather. Most of the alfalfa produced on this phase is used either on the plantations where grown or on neighboring plantations, or is sold in the local market.

Corn does better on the better drained phase than on the typical Sharkey clay, because it can be planted earlier in the spring, insuring a better growth before dry weather affects it. Approximately 30 per cent of the phase is devoted to the production of corn, with an average yield of about 40 bushels per acre.

Where alfalfa is grown some cattle and hogs are kept and pastured on the alfalfa at certain times of the year. There are several silos on farms on this phase. Late cuttings of alfalfa are mixed with the corn used to fill the silos, the combination making an excellent feed for the work stock and for fattening beef cattle.

The same methods of handling the soil are followed on the better drained phase as on the typical Sharkey clay. The soil usually is plowed deeply and as early in the spring as possible, in order that it may receive the weathering effect of the sunshine and rain. In the cultivation of cotton and corn 1-horse implements are in general use. The alfalfa fields are often gone over early in the spring with a disk harrow, with the disks set straight. It is said that this practice maintains a better stand and promotes a better growth. Considerable care is necessary in preparing the seed bed for alfalfa and for clover.

The value of land of this phase varies from \$60 to \$100 an acre, difference in price depending mainly upon the location. Since the introduction of alfalfa the price of the land has advanced. In general, the phase is being rapidly improved.

#### YAZOO SILTY CLAY LOAM.

The surface soil of the Yazoo silty clay loam is a yellowish-brown to brown silty clay loam from 1 inch to 5 inches deep; the subsoil is a yellowish-brown, plastic, very sticky clay, mottled in varying degrees with yellow and drab. The subsoil is more sticky, compact, and impervious than that of the typical Sharkey clay. In some areas the surface soil is gray to a depth of 3 to 5 inches, below which it quickly grades into the pale-yellow and drab subsoil. The subsoil usually passes at about 24 inches into the drab material typical of the Sharkey clay.

The areas of the Yazoo silty clay loam are small, many of them being too small to separate on the map from the associated soil types. The largest area occurs southeast of Dublin. Small areas occur east of Clarksdale, northeast of Pullen, and south of Powell. This soil usually is somewhat higher than the surrounding type. It may occupy a rounded knoll of slight elevation or a broad, flat-topped ridge. Apparently the soil has good surface drainage, but in many cases water stands on the surface for a longer period than on the Sharkey silty clay loam, the stiff, impervious subsoil apparently preventing the surplus water from draining away as readily as in the case of the lower lying Sharkey soil.

This type is not important, as compared with the Sharkey silty clay loam or the Sharkey clay, with which it usually is associated. Most of it is in cultivation, being devoted to the same crops as the surrounding soils. It is used largely for the production of cotton and corn. The yields usually are lower than on the corresponding Sharkey and Sarpy types. Cotton produces from one-fourth to one-half bale per acre, and corn averages between 15 and 20 bushels.

The soil usually is plowed in the winter and spring months. In many cases the land is broken to a depth of only a few inches. Shallow cultivation as a rule is practiced for cotton and corn. In wet years the land is extremely difficult to cultivate. The surface clods badly, especially when plowed late in the spring. Practically no rotation of crops is practiced, and some of the land has never been fertilized.

It is probable that the type would be improved by tile drainage to remove the excess water and aerate the soil. Liming would be beneficial, as the soil gives a marked acid reaction with litmus paper.<sup>1</sup>

<sup>1</sup> Lime-determination tests show the surface soil to contain 0.89 per cent of lime (CaO) and the subsoil 0.87 per cent of lime (CaO).

The soil apparently is deficient in organic matter. It is probable that the addition of cowpeas to the rotation, to be plowed under as a green-manure crop, would largely prevent clodding.

#### SARPY FINE SAND.

The surface soil of the Sarpy fine sand consists of a light-brown or grayish-brown loamy fine sand. This passes below into yellowish-brown loamy fine sand or fine sand of a less compact structure. In places the subsoil is faintly mottled with shades of brown. Both the surface soil and the subsoil contain minute but visible mica flakes.

This type is very inextensive in the county, and is of little importance. It occurs as low ridges or swells and as hummocks. The drainage is thorough. The area lying inside the levee occurs as ridges and drifts near the Mississippi River, in the northern part of the county, where the soil was laid down by a stronger current during overflows. This area is not farmed; it supports a heavy growth of cottonwood.

The few small areas that are protected by levees are mainly under cultivation, and are used principally for the production of cotton, corn, Irish and sweet potatoes, and cowpeas. Cotton does very well, yielding from one-half to three-fourths bale per acre. The soil seems too droughty for corn, which yields from 15 to 25 bushels per acre. Sweet potatoes do well on this soil, but are not grown on a commercial scale.

The area between the levee and the Mississippi River is subject to change at every overflow, and its value can not be accurately stated. The value of the small areas back of the levee is determined by the value of the type with which they are associated.

This soil, by reason of its thorough drainage, is early, and can be used successfully for vegetables and melons where favorably located with respect to shipping points. It is not sufficiently extensive, however, for the development of any important industry of this kind. Such crops as corn have a tendency to "fire" during hot weather. This could probably be prevented by applying barnyard manure and by plowing under green-manure crops.

#### SARPY VERY FINE SANDY LOAM.

The typical Sarpy very fine sandy loam is a brown to light-brown very fine sandy loam, which grades at 6 to 12 inches into lighter brown or yellowish-brown, less compact very fine sandy loam to loamy fine sand. In places the lower subsoil is a light-yellowish, loose very fine sand. There are a number of included areas in which the subsurface layer is a heavy, very fine sandy loam to silty clay loam of brown color, fre-

quently with faint yellowish-brown, rusty-brown or drab mottlings, passing below into yellowish-brown very fine sandy loam, more or less mottled with grayish brown.

This type occurs throughout the county as narrow to fairly wide strips along the streams and abandoned channels. It occupies slightly elevated areas or natural levees. Although it has thorough drainage, the soil conserves sufficient moisture for the needs of most crops during normal growing seasons.

The Sarpy very fine sandy loam covers an area of 58.1 square miles, and is important from the standpoint of crop production. It is practically all under cultivation, and most of the plantations are highly developed.

The type is largely devoted to the production of cotton, which yields from one-half to three-fourths bale per acre, without fertilization, depending upon the methods of cultivation and system of rotation practiced. On the better plantations, where a rotation including cotton, oats, corn, and cowpeas is followed, the yields of both cotton and corn are better than the average for the type. Under such a system of farming cotton often yields as much as  $1\frac{1}{4}$  bales per acre, and corn 60 bushels per acre. This type is well adapted to the production of oats. When sown in the fall, this crop yields 25 to 30 bushels per acre. Wheat is grown to a small extent, the yields ranging ordinarily from 15 to 20 bushels per acre. Some barley is grown for feed for the work stock.

This type is adapted to a wide variety of crops. Bermuda grass soon forms a heavy sod on fields that are not cultivated. Along the levee banks, where Bermuda grass sod is maintained, as much as 1 ton of hay per acre is harvested each season. In the vicinity of Clarksdale a small acreage is devoted to trucking. Such crops as lettuce, onions, spinach, mustard, turnips, peas, and cabbage, and later in the season potatoes and sweet potatoes, are produced and find a ready market at Clarksdale.

The value of farm land on this type ranges from \$40 to \$100 an acre, depending upon location and improvements.

Probably the greatest need in farming this land is for a more general rotation of crops. A number of good rotations can be used, the important factor being the inclusion of the legumes. Areas favorably situated with respect to improved highways and shipping points might be used more extensively for growing vegetables. Soil of this type is used successfully in other parts of the Mississippi bottoms for alfalfa, and there seems to be no reason why this crop can not be grown on the type here. Land of this kind is suited to the raising of beef cattle and hogs, and these industries might be extended with profit.

## SARPY SILT LOAM.

The Sarpy silt loam consists of a brown, mellow silt loam, underlain at a depth of five or six inches by a lighter brown silt loam which quickly grades into yellowish-brown or light-brown very fine sandy loam. In places the surface soil is dark brown. Occasionally the upper subsoil is a silty clay loam, which quickly grades below about 15 inches into a very fine sandy loam. Faint rusty-brown and drab mottlings are present in the subsoil in some areas.

The Sarpy silt loam is well distributed throughout the county, but its total extent is not large. The type usually occurs just back from the Sarpy very fine sandy loam, in many cases lying intermediate between that type and the Sarpy silty clay loam. The surface generally is level. Some areas occur as low parallel ridges or swells, the tops of which frequently are occupied by very fine sandy loam and the lower parts by silty clay loam. Most of the type is well drained, and easily cultivated.

The original forest growth on the Sarpy silt loam consisted of cottonwood, sycamore, red oak, sweet gum, pecan, and other hardwoods. The type is considered a strong soil, well suited to all the common crops, and in recent years nearly all of it has been brought into cultivation. The principal money crops are cotton and corn. Cotton usually produces from one-half to three-fourths bale, and corn from 40 to 60 bushels per acre. Where the productiveness of the soil is maintained by a rotation including the legumes, some farmers have increased the cotton yield to 1 bale or  $1\frac{1}{4}$  bales per acre. Some cowpea hay is produced for use on the plantations. Red clover and lespedeza are grown to some extent as forage crops and for turning under as green manures. Sorghum, sweet potatoes, and early vegetables do well.

Very little of this land is for sale. The price varies from about \$50 to \$80 an acre.

In many cases the one-crop system of cotton production is beginning to result in diminished yields. Wherever crop rotations including legumes have been introduced the yields have been greatly increased. A still more general diversification of crops, giving the legumes a place in the rotation, would prove beneficial. Alfalfa should do well on this soil, and at least should be grown for feed for the work stock on the plantations.

## SARPY SILTY CLAY LOAM.

The typical Sarpy silty clay loam consists of a brown silty clay loam, underlain at about 6 to 8 inches by a yellowish-brown or light-brown silty clay, showing faint mottlings of rusty brown and frequently of drab. This clay passes usually at about 15 to 20 inches

into yellowish-brown very fine sandy loam to silty clay loam mottled with rusty brown and drab. In some of the depressions and level areas the surface soil is dark brown.

The Sarpy silty clay loam is not so extensive as the Sarpy very fine sandy loam. It is most extensively developed in the northern and western parts of the county. As a rule the surface is level, but in places there are many low ridges or swells with long, narrow, troughlike intervening depressions in which the soil varies from deep Sarpy silty clay loam to Sharkey silty clay loam. As a rule the type is well drained, except in a few of the depressed areas. In these drainage is easily provided by tiling.

Most of this type is in cultivation. It is used principally for the production of cotton. Usually not enough corn is grown to feed the live stock on the plantations. A small acreage is used for the production of alfalfa, which gives practically as good yields as on the Sharkey clay. In many places lespedeza, white clover, and Bermuda grass grow naturally between the cotton and corn rows where cultivation is delayed or is not thorough.

The Sarpy silty clay loam is not so easily cultivated as the lighter soils. Heavy teams and strong implements are necessary to break the ground thoroughly. Plowing usually is done in early spring. No fertilizers are used on this type, but the Sarpy silty clay loam is considered one of the strongest soils in the county. The value of this land varies with its location, ranging from \$60 to \$90 an acre.

This soil could be improved by diversifying crops. In places there is need for deeper plowing. Shallow cultivation is all that is required after the deep breaking.

#### SARPY CLAY.

The Sarpy clay is a dark-brown to dark-drab clay, underlain at about 6 to 8 inches by mottled yellowish-brown, rusty-brown, and drab, plastic clay. This grades below into silt loam or very fine sandy loam, usually mottled with yellowish brown and drab. One area of this type, southwest of Bobo, on the county farm, is underlain at 20 to 24 inches by a medium to coarse sand.

The Sarpy clay is an inextensive soil in Coahoma County. The largest area occurs east of Rescue Landing. Smaller areas are mapped in other parts of the county. The type occupies the higher ridges or front lands facing old abandoned channels. It is generally smooth, with a gentle slope away from the stream channel. The underdrainage of the type is good. In places open ditches to carry off the surplus surface water are needed, particularly where the land is to be seeded to alfalfa.

The greater part of the type is under cultivation. It is used principally for cotton, corn, and alfalfa. Cotton is the principal

money crop. The soil can be cultivated practically as early as the lighter types of the series, insuring the early maturity of cotton. About 20 per cent of the type is devoted to corn. In a few areas the surface soil is underlain at a shallow depth by a medium to coarse sand and here corn has a tendency to "fire," or to wither and die before the grain matures. A small acreage of the type is devoted to alfalfa, of which good stands are readily obtained. The yield is large, four to six cuttings being made each season. The Sarpy clay is recognized as a good alfalfa soil, and the average in this crop is being extended. There is a good local market for alfalfa hay. Winter oats are grown to some extent.

The Sarpy clay is a strong soil, and good yields are obtained without the use of fertilizer. Cotton usually yields from one-half to three-fourths bale per acre. Corn yields 40 bushels per acre where properly cultivated. Oats do fairly well, the yield depending upon the season. In wet years the crop shows a tendency to make a rank growth of straw, with a low yield of grain.

This soil originally was heavily forested with sweet gum, overcup oak, red oak, and pecan, with a heavy undergrowth of cane.

The Sarpy clay usually is plowed in the late winter or early spring. Owing to its heavy nature, strong teams and implements are required for the proper cultivation of this type. In most cases the soil is plowed fairly deep. The bedding-up method of cultivating cotton is in general use.

The average value of land of the Sarpy clay is high. A few uncleared areas can be bought for \$30 an acre, but where cleared of stumps and second-growth timber it is held for \$75 to \$100 an acre.

In general, this soil is handled in a manner well suited to its present requirements. In some cases there is a tendency to seed such crops as alfalfa and oats before a good seed bed is made. Alfalfa especially requires a finely pulverized seed bed if a good stand is to be obtained. The crop should be sown in the fall, preferably between September 15 and October 15. Shallower and more frequent cultivation should be given corn, and on land where corn shows a tendency to fire planting should be done as early in the spring as possible. The application of barnyard manure and the plowing under of vegetable matter are effective means of correcting the droughty condition of certain areas of this type.

#### EXCAVATED LAND.

Excavated land includes areas from which the soil has been removed in the construction of the levees. The subsoils of various types, consisting of very fine sandy loam, silty clay, and clay, are exposed in such areas. This land soon becomes covered with grasses,

such as Bermuda grass, white clover, and crab grass, and weeds. It is of no agricultural value except for pasture.

#### OVERWASH.

The areas mapped as Overwash consist of grayish, loose sand which has recently been deposited from swift currents over soils of heavy texture. The sand layer varies in thickness from a few inches to over 3 feet. These areas occur along the Mississippi River, in many places as strips a few hundred feet wide and in others as areas extending as far as a mile from the river bank. This land is not used for agriculture. In a few places the sand in these areas drifts and becomes so deep as to kill the timber growth along the river.

#### MEADOW.

Meadow comprises areas of low, recently formed land along the Mississippi River, consisting of low-lying sand flats which are covered with water at each rise of the river. The soil is a mixture of sand, silt, and clay. In many places the material is very dark colored, resembling the Sarpy silty clay loam. Meadow is locally known as "accretion land," and in some sections as "batture land." It occurs mainly on the concave side of the river bends, where the river has moved westward and is depositing newly formed sediments along the east side.

These low-lying areas soon become covered with a thick growth of willow, and later, after the land has been built somewhat higher, the willows are displaced by cottonwood. This land is of no value except for its timber growth. In the southwestern part of the county some valuable tracts of cottonwood timber have been sold within recent years.

#### SUMMARY.

Coahoma County, Mississippi, is in the northwestern part of the State, adjoining the western boundary. It lies within the Mississippi Delta region, a part of the River Flood Plains soil province. The area of the county is 558 square miles, or 357,120 acres.

The surface of the county is in general level, with slight depressions and low ridges in places. In all sections the topography is favorable to cultivation. The highest part of the county is along the Mississippi River, where the average elevation is 176 feet above sea level. There is a gradual slope toward the east and south, the elevation in the southeastern part of the county averaging 160 feet above sea level.

The county is drained through the Sunflower River, Cassidy Bayou, and a network of tortuous, sluggish streams, all of which have their source within the county.

Large areas in the county are drained by ditches. It is estimated that 95 per cent of the land in need of drainage can be adequately drained for the production of ordinary farm crops. Prior to the construction of the present levees the county was overflowed with each rise of the Mississippi River, and farming was difficult, if not impracticable. The county is now protected by permanent levees, and, with proper drainage, practically all of its area can be farmed.

Coahoma County was organized in 1836. According to the 1910 census, it has a population of 34,217. The population consists largely of negroes. Clarksdale, the county seat, has a population of 4,079, and is the largest town in the county.

Railroad transportation facilities in all parts of the county are good. The Mississippi River affords transportation for the western part of the county. The country roads are in good condition during the summer, but during the winter months many of them are impassable. Some attention is being given to road improvement.

The mean annual temperature in Coahoma County is about 62° F. The annual precipitation averages about 54 inches. There is a normal growing season of 231 days. The climate is well suited to the form of agriculture generally followed. The season and soils are too late for the successful production of early truck crops in competition with the southern sections of the State.

Cotton is the money crop of the county. It is often grown to the exclusion of all other crops, the supplies needed for home use being purchased from northern markets. Corn, oats, and forage crops are grown, but usually not to a sufficient extent to meet the home demand. Such crops as cowpeas and alfalfa are gaining in importance. Fruits and vegetables do well, but are grown only for home use. Trucking is practiced to a small extent near Clarksdale. Little attention is given to stock raising and dairying. The adaptation of the different soils to the various crops commonly grown receives but little consideration. Crop rotation is beginning to receive some attention. Practically no commercial fertilizers are used. Farm labor is easily obtained. Laborers are paid 75 cents to \$1 a day.

The land is held mainly in large tracts. The owners live in the towns as a rule and the plantations are farmed by negro tenants. Over 90 per cent of the farms are operated by tenants. The tenants usually rent the land on the share basis. In the 1910 census 62.3 per cent of the area of the county is reported in farms, and of the farm land 81.5 per cent is reported improved. The forested areas are being rapidly cleared for cultivation. The average value of farm land is given as \$47.76 an acre.

The soils of the county consist entirely of alluvial deposits from the Mississippi River. The more important soils may be divided

into two main groups—those with heavy clay subsoils, locally called “buckshot” land or the Sharkey soils, and those with light-textured subsoils, or the Sarpy soils.

The Sharkey very fine sandy loam is an early soil. Most of the type is devoted to the production of cotton, corn, and a few special crops, including roses.

The Sharkey silty clay loam is a somewhat higher lying soil and is lighter textured and less granular than the typical “buckshot” land, or Sharkey clay. Most of this type is under cultivation.

The Sharkey clay is distinguished by its dark-colored, granular soil, which on drying checks and cracks into small, angular aggregates about the size of buckshot. The areas are low lying, and generally ditching is necessary before they can be cultivated. Where ditched or tiled the Sharkey clay is a strong soil. The better drained phase of the Sharkey clay can be cultivated during ordinary seasons without artificial drainage. Much of it is under cultivation. It gives large yields of cotton.

The Yazoo silty clay loam occurs in very small areas. It is a relatively unimportant soil and is farmed in connection with the adjoining types.

The Sarpy fine sand is of small extent and of little importance. A few areas are mapped in the northern part of the county.

The Sarpy very fine sandy loam is the highest lying and best drained soil in the county. It occurs as natural levees along the larger streams. This type has been under cultivation for many years, and is still very productive.

The Sarpy silt loam closely resembles the Sarpy very fine sandy loam. This soil is especially productive of cotton, corn, oats, and the clovers.

The Sarpy silty clay loam represents deposits of heavy material over very fine sandy loam. It is a good general-farming type, well suited to the production of cotton, corn, oats, wheat, clover, alfalfa, and cowpeas.

The Sarpy clay is a well-drained soil, and is particularly suited to alfalfa and cotton.

Excavated land, Riverwash, and Meadow are nonagricultural types.

Large areas of land in the western part of the county left outside the levees, because of the sharp curves in the Mississippi River channel, are valued principally for their timber growth and as pasture land for cattle during the dry season.

[PUBLIC RESOLUTION—No. 9.]

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

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

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

Approved, March 14, 1904.

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

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