# SOIL SURVEY OF MILLER COUNTY, ARKANSAS.

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## LOCATION AND BOUNDARIES OF THE AREA.

Miller County, Ark., is the extreme southwestern county of that State, being separated from the adjoining counties of Little River, Hempstead, and Lafayette by the tortuous channel of the Red River, which is the natural northern and eastern geographical boundary of the county. On the west lie Bowie and Cass counties of the State of Texas, and on the south Caddo Parish, La.

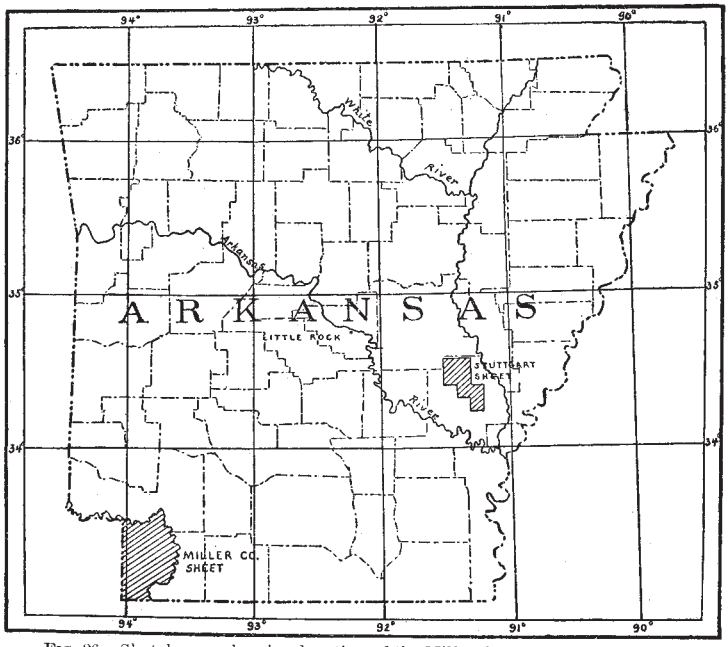


FIG. 26.—Sketch map showing location of the Miller County area, Arkansas.

The boundary formed by the Red River is, owing to the twisting and turning of this stream, over 150 miles in length. The southern and western boundaries, being straight lines, have for their combined lengths but about 50 miles.

The area of the county is approximately 648 square miles. Its extent, however, owing to the shifting channel of the Red River, will

vary within small limits, as parts of it are cut off and added to the adjoining counties or parts of their territory are added to its area in like manner. As a result of these cut-offs portions of any of the opposite river counties may be geographically in Miller County, or vice versa, while still legally a part of the county from which they were severed. This, however, is due to the tardiness of the courts, as the river channel is the recognized boundary of the northern and eastern parts of the county.

Texarkana is the county seat of Miller County and the principal business town not only for Miller County, but also for Bowie County, Tex. Half of this city lies in Miller County and has a city government distinct from that of the other half, which is in Bowie County, Tex. The combined population of these "twin cities," according to the census of 1900, is 10,170, of which 4,914 are credited to the Arkansas side.

According to the same census there is no other town in Miller County having a population exceeding 200.

## HISTORY OF SETTLEMENT AND AGRICULTURAL DEVELOPMENT.

In 1812 what is now Miller County became a part of Missouri Territory, but in 1819 was included within the newly created Territory of Arkansas, which was finally admitted to the rights of statehood in 1836.

The history of Miller County includes a series of changes in jurisdiction and territory almost as complicated as that of its parent State. The county was originally organized in 1820, but its area at that time embraced considerable parts of Texas and Indian Territory. In 1836, after several curtailments in its area, it was made a part of Lafayette County. The identity of the county was thus lost until 1874, when the present Miller County was organized, with Texarkana as its county seat.

The earliest settlers in the county were squatters who, about 1817 and afterwards, came into this region from Kentucky, Tennessee, and the Carolinas. They found game in abundance and did not seriously devote themselves to farming. They settled mostly along the Red River, and often held their lands in common. In 1840 the more genuine type of settlers began to come in. This was the landed tenantry class, before whom the hunters and roving pioneers moved on into wilder regions. Slave labor was now brought into Arkansas from Louisiana and Mississippi to work the large plantations along the Red River. Lumbering operations began at this period, the first sawmill in the county being built at Brightstar as early as 1855. These lumbering operations have been extended over large areas of Miller County, but vast quantities of timber still remain uncut, especially in the Red River bottoms.

The loss of slave labor during the civil war effected a material decline in agricultural development, the large plantations along the river front were broken up, and it is only in very recent years that these farms have begun to regain a semblance of their former importance.

## CLIMATE.

The climate of Miller County is that of the northern portion of the Gulf Coastal Plain. The winters are comparatively short and mild, the ground seldom freezing to any depth, and seldom being covered by more than a few inches of snow, which soon melts away. The first frost comes during the latter part of November, and the last in spring toward the latter part of March. This gives to the area a long growing season, while the early spring favors the production of early fruit and truck for northern markets. The open winter season is especially favorable to cultivation and preparation of the soil, so that crops may be started early.

The average monthly rainfall is about 3.5 inches, which is ample for crops during the average season, but there is a tendency for this rainfall to be unequally distributed, the greater proportion falling during the winter months. There is also a liability to long dry spells during the latter part of the growing season, as was the case during the present season (1903).

The following table shows the normal monthly and annual temperature and precipitation, as recorded at Texarkana and Washington, the two nearest stations for which the Weather Bureau has established normals:

*Normal monthly and annual temperature and precipitation.*

| Month. | Texarkana. | | Washington. | | Month. | Texarkana. | | Washington. | |
|---|---|---|---|---|---|---|---|---|---|
| | Temperature. | Precipitation. | Temperature. | Precipitation. | | Temperature. | Precipitation. | Temperature. | Precipitation. |
| | ° *F.* | *Inches.* | ° *F.* | *Inches.* | | ° *F.* | *Inches.* | ° *F.* | *Inches.* |
| January | 46.7 | 6.32 | 43.7 | 5.66 | August | 81.7 | 2.04 | 79.1 | 3.58 |
| February | 48.9 | 2.31 | 47.5 | 4.33 | September | 76.6 | 2.93 | 73.7 | 3.00 |
| March | 55.0 | 3.45 | 54.2 | 5.25 | October | 65.8 | 2.59 | 62.5 | 3.51 |
| April | 64.4 | 4.78 | 63.9 | 5.83 | November | 54.5 | 3.15 | 52.7 | 4.53 |
| May | 71.6 | 3.59 | 70.6 | 4.97 | December | 47.2 | ..... | 46.5 | 4.26 |
| June | 78.6 | 3.06 | 76.8 | 3.89 | Year | 64.4 | 36.65 | 62.6 | 53.05 |
| July | 82.0 | 2.43 | 80.3 | 4.24 | | | | | |

## PHYSIOGRAPHY AND GEOLOGY.

Miller County lies in the great physiographic province known as the Gulf Coastal Plain. This plain comprises the larger part of the Gulf States and extends up the Mississippi Valley as far as Southern

Illinois. It consists of a series of sediments comprising gravel, sand, silt, and clay, which were deposited in a northward extension of the Gulf of Mexico during a depression of this part of the country. Subsequent elevation forced the streams of the great central basin to cut for themselves new channels through these beds of sediment, and thus the present lower channels of these rivers were formed. The Red River—the northern and eastern boundary of Miller County—has in this way carved out a great valley, which, owing to further change of level, it has partly filled again.

This feature gives to the county its two physiographic divisions; one consisting of an upland plain region composed of marine sediments, the other a river flood plain comprising the later sediments deposited by overflows of the river in its own channel.

The upland or "hill section" of Miller County is part of a once rolling plain now cut into a series of rolling hills by stream erosion. It is divided into two sections by the Sulphur Fork of the Red River, up which stream the bottoms extend, completely separating these sections. The streams of this upland region are small and many of them run little or no water during dry weather, although during heavy rains they become rushing, muddy torrents. The range of elevation between the Red River and the highest hills of the upland is probably about 150 feet, giving to this region good drainage, and to the streams a fall which results in rapid erosion during heavy rainfall. The material in which these streams are cutting consists of a red sandy clay, with lenses and interrupted bands of chert and quartz pebbles which offer little resistance to rain wash and stream cutting. All the drainage of the uplands flows into Red River either through the Sulphur Fork or through McKinney Bayou, which forms the boundary between the uplands and bottoms for a great distance in the northern part of the county.

The river-bottom section of Miller County is a nearly level area bordering the Red River and varying from 1 mile to 8 miles in width. The widest part of the flood plain lies in the northeastern part of the county, the narrowest below Sulphur Fork, where the bluff of the hilly upland reaches the river in places. The surface of the bottoms is uniformly level, the extreme range in elevation being scarcely more than 15 feet. Over this level surface there are few well-defined drainage channels, the rainfall finding its way into the Red River through sloughs and other depressions. A topographic section east and west across the bottoms would show the immediate river banks to be the highest part of the bottom, which grows lower toward the center, rising again toward the upland border. This is due to the fact that the Red River is heavily overburdened with sediment during flood periods, and, as it overflows its banks and the velocity of the water is checked, it is forced to deposit some of its load, the larger

part of it nearest the river. Thus the river is constantly building a sort of natural levee. The rise toward the hill is probably due to wash from the upland drainage.

The Red River is the principal factor in the drainage of the county. It is a stream that is supplied with more sediment than it can at once carry off and any check in its rate of flow causes it to build up deposits at that point. As a result the current swings from one bank to the other, thus producing an extremely crooked course. A bend once started tends to become more and more curved until it assumes the "ox-bow" shape. During heavy floods the river frequently cuts a new channel across the narrowest part of the bow, and, shortening its course, abandons its old channel, which then becomes a lake. Lakes of this sort are a common feature of the bottoms. These lakes, however, tend gradually to fill up with materials brought in by the floods, when the water covers the bottoms to the foot of the hills.

The Sulphur Fork of the Red River differs from its parent stream in having a straighter course, but has its overflow bottom, due to the fact that the rising waters of the Red River back up the Fork, causing the overflow of large areas.

Geologically the two sections of Miller County belong to different periods. Though from the point of view of a geologist they are both young, still the surface deposits of the uplands are much older than those of the bottoms, which are even now in process of formation during every overflow of the river.

The upland deposits are probably of Lafayette age, as is evidenced by the presence of the thin gravel bands composed of chert and quartz. These are in turn underlain by Eocene deposits of doubtful horizon, which are shown best in a railroad cut at Black Diamond and in the river bluff at Spring Bank, a few miles southeast of Black Diamond. The Eocene beds, however, do not come to the surface and have no importance as soil factors. They consist of sandy clays, sand, and thin beds of lignite. The surface material consists of a sandy clay, often cross-bedded, and its weathered products, to a depth of 20 feet. This sandy clay is quite variable, and includes pockets of clay suitable for pottery, as well as sandy and gravel lenses, which are never of very great extent. It is all highly stained with iron salts, and varies from gray and orange to deep red in color, or is mottled gray and red. Occasionally the included gravel bands are cemented together by iron.

## SOILS.

The soils of Miller County belong to four distinct types, two of which are sandy loams, one a loam, and one a clay. Three of these types are found on the flood plain of the Red River and Sulphur Fork, the other on the upland or hill section.

The following table shows the relative areas of these soil types and their position:

*Areas of different soils.*

| Soils. | Acres. | Per cent. |
|---|---|---|
| Orangeburg fine sandy loam | 224,640 | 56.1 |
| Sharkey clay | 110,656 | 27.6 |
| Miller fine sand | 34,688 | 8.5 |
| Miller fine sandy loam | 28,544 | 7.1 |
| Swamp | 2,240 | .6 |
| Total | 400,768 | ..... |

ORANGEBURG FINE SANDY LOAM.

The Orangeburg fine sandy loam covers the greater part of the area of Miller County. It occurs entirely in the upland section, where it is the sole type.

The soil consists of from 6 to 24 inches of gray to yellow sandy loam or loamy fine sand, containing when typical a scattering of quartz gravel. In many localities the gravel may be absent, while again, in small local areas, it may run as high as 40 or 50 per cent of the soil mass. The soil when moist is friable and loamy, but when very dry, as it frequently is during the latter part of the summer, it becomes hard, and when plowed in this condition is inclined to clod.

The subsoil to a depth of 36 inches consists of a sandy clay or sticky sand, running, in small local areas, into clay and varying in color from white to a deep red, or mottled gray, brown, and red. The color is due to the presence of comparatively large quantities of iron salts in various stages of oxidation. The subsoil contains scattered gravel, as does the soil, with frequent lenses of gravel of small extent, running from a few inches to a foot or more in thickness. The subsoil also contains small lenslike bands of sand only a few inches thick.

This type is found entirely on the upland section, which consists of a rolling, hilly surface with drainage enough to give a good flow to the streams. Occasionally, however, there are areas known locally as "pine flats," where the surface is only gently rolling and the drainage poor. In such localities the subsoil is liable to be gray in color and sometimes "crawfishy." Such areas, however, are always so situated as to be easily drained, and when freed of excessive moisture assume the characteristics of the type.

The subsoil of this type is not very impervious to the passage of water, but enough so to act as a check to the loss of fertilizers through seepage waters.

The soil of the Orangeburg fine sandy loam is generally thinnest on the hilltops and slopes and deepest in the valleys, the difference being due to rain wash.

This type is formed through the weathering of the sandy clays of

the Lafayette formation, which consists of a series of highly colored, cross-bedded sandy clays with irregularly occurring lenses of gravel and a constant scattering of the same throughout its mass. This formation covers the uplands and overlies the beds of Eocene age of doubtful horizon. Sometimes the gravel beds of the Lafayette are cemented together with iron, forming a thin conglomerate or iron crust, fragments of which are quite common on the slopes and tops of the hills southeast of Texarkana.

The crops produced on this type are at present chiefly corn and cotton, grown without fertilizers and yielding from one-half to three-fourths of a bale of cotton per acre and from 20 to 40 bushels of corn. Some truck is grown in the vicinity of Texarkana, but only for the local markets. The same is true of peaches.

This type is especially adapted to the growing of truck and fruit, and is not strong enough to be a good cotton or corn soil, except when heavily fertilized or on small stream areas where it is replenished from year to year by floods. There is a possibility that this type will produce Cuban filler tobacco, in which case a valuable crop would be added to those now grown in the county. Peaches, with proper care and intelligently handled, should do very well on this type. Bermuda grass also does well and gives yields of from 1 to 2½ tons per acre.

The natural growth of the Orangeburg fine sandy loam consisted originally of forests of pine, oak, hickory, and gum, but most of the pines have been cut off and much of the best of the hardwood. Large sections are now covered with scrub oak and the poorer timber left by the lumbermen.

The following table shows the texture of typical samples of fine earth of the soil and subsoil of this soil type:

*Mechanical analyses of Orangeburg fine sandy loam.*

| No. | Locality. | Description. | Organic matter. | Gravel, 2 to 1 mm. | Coarse sand, 1 to 0.5 mm. | Medium sand, 0.5 to 0.25 mm. | Fine sand, 0.25 to 0.1 mm. | Very fine sand, 0.1 to 0.05 mm. | Silt, 0.05 to 0.005 mm. | Clay, 0.005 to 0.0001 mm. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* |
| 9954 | Sec. 18, T. 19 S., R. 27 W. | Gray sandy loam, 0 to 10 inches. | 0.82 | Tr. | 0.56 | 0.96 | 56.08 | 22.34 | 14.80 | 5.08 |
| 9952 | Sec. 17, T. 16 S., R. 27 W. | Gray sandy loam, 0 to 14 inches. | .59 | .16 | .46 | .80 | 51.60 | 23.40 | 15.94 | 7.60 |
| 9950 | Sec. 8, T. 15 S., R. 28 W. | Gray sandy loam, 0 to 10 inches. | 1.18 | 1.80 | 5.96 | 7.50 | 21.04 | 16.80 | 38.88 | 7.82 |
| 9953 | Subsoil of 9952..... | Red sandy loam, 14 to 36 inches. | .35 | .00 | .76 | 1.12 | 32.38 | 20.98 | 20.04 | 24.10 |
| 9951 | Subsoil of 9950..... | Sandy clay, 10 to 36 inches. | .53 | .88 | 4.70 | 5.74 | 12.38 | 13.52 | 28.70 | 33.64 |
| 9955 | Subsoil of 9954..... | Red sandy clay, 10 to 36 inches. | .31 | .08 | .34 | .82 | 32.08 | 17.88 | 12.50 | 35.92 |

SHARKEY CLAY.

The Sharkey clay is the second type in point of extent in the area, but owing to its liability to overflow it is at present the least important agriculturally.

The soil of the Sharkey clay consists of from 6 to 8 inches of drab-brown to chocolate-red or black waxy clay, very rich in organic matter in some localities. When dry it cracks into irregular lumps, or in the roads packs into a hard, waxy surface. When wet it becomes a sticky clay, and wagon roads then become almost impassable. The subsoil to an unknown depth consists of a drab to chocolate-red or brown heavy clay.

The Sharkey clay is deposited directly from the overflows of the Red River, which at every flood adds to its thickness. It is only in the quiet, ponded water away from the main currents of the river that this soil is deposited. It thus occupies the lowest areas in the Red River flood plain and has little variation in level. It is submerged to a depth of from 1 to 15 feet at every overflow of the river, and these are so frequent as to prevent agriculture, except upon the very highest parts of the type. Farther down the Red River in Louisiana, where the Government levees protect it from overflow, this is a very durable and productive soil, but in Miller County very little of it has any present value, except for timber. This forest growth comprises the most valuable standing timber of the county. It consists of oak, ash, hickory, elm, hackberry, and gum, with an undergrowth of cane and palmetto. The sole agricultural value of the soil at present lies in the growth of grass and cane, which between floods furnish fair pasturage for cattle and hogs, but even this use is attended with some risk, for it frequently happens that large numbers of cattle are overtaken by a sudden rise in the river and drowned.

The following table shows the texture of samples of the soil and subsoil of this type:

*Mechanical analyses of Sharkey clay.*

| No. | Locality. | Description. | Organic matter. | Gravel, 2 to 1 mm. | Coarse sand, 1 to 0.5 mm. | Medium sand, 0.5 to 0.25 mm. | Fine sand, 0.25 to 0.1 mm. | Very fine sand, 0.1 to 0.05 mm. | Silt, 0.05 to 0.005 mm. | Clay, 0.005 to 0.0001 mm. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* |
| 9956 | Sec. 20, T. 14 S., R. 28 W. | Brown waxy clay, 0 to 7 inches. | 3.72 | 0.72 | 1.80 | 1.80 | 6.70 | 11.20 | 38.98 | 37.88 |
| 9958 | Sec. 23, T. 17 S., R. 26 W. | Waxy clay, 0 to 6 inches. | 2.92 | .88 | 2.60 | 1.66 | 4.70 | 5.52 | 33.32 | 50.96 |
| 9960 | Sec. 20, T. 14 S., R. 27 W. | Brown waxy clay, 0 to 8 inches. | 2.67 | .70 | 1.60 | 1.34 | 3.94 | 5.32 | 33.82 | 52.38 |
| 9957 | Subsoil of 9956..... | Brown stiff clay, 7 to 36 inches. | .76 | .62 | 1.36 | .64 | 1.76 | 8.16 | 47.48 | 38.28 |
| 9961 | Subsoil of 9960..... | Waxy clay, 8 to 36 inches. | .52 | .08 | .60 | .76 | 2.30 | 2.04 | 31.88 | 61.66 |
| 9959 | Subsoil of 9958..... | Waxy clay, 6 to 36 inches. | 1.18 | .16 | .52 | .56 | 1.72 | 1.94 | 23.00 | 71.40 |

MILLER FINE SAND.

The third soil in the area in point of extent is the Miller fine sand, which is found in a strip averaging about a mile in width along the banks of the Red River.

The soil consists of fine to very fine salmon-colored sand 6 to 12 inches in depth, and frequently quite loamy, owing to the presence of organic matter. The subsoil for the first 6 inches is generally rather more loamy than the soil, but this feature is not constant. To a depth of 36 inches or more it consists of a fine to very fine sand, varying but slightly in texture. It is underlain at from 6 to 8 feet by red clay.

This soil occurs in the immediate neighborhood of the river and its abandoned channels, and is as a rule above the level of any but the highest floods. It forms a sort of natural levee along the river banks, and some of it at least is never flooded. It is this fact that makes it habitable. This natural levee is not of uniform height, but is broken by frequent low places through which the retiring waters of an overflow find their way back into the channel of the river. There are also large areas so frequently swept by floods as to be unfit for cultivation except through protection by levees, and many small private levees have been constructed for this purpose.

The soil is well drained during periods of normal level of the Red River, but the planting of crops frequently has to be repeated on account of the drowning of the seedling corn or cotton by flood waters.

This soil is deposited directly by the waters of the Red River, and is added to in some places and removed in others by the ever-changing currents of the stream. During a period of flood the river is carrying its maximum burden of sediment. As the water overflows the bank it is checked by the friction of the flood plain and by trees and other vegetation, and the heaviest part of its load, made up of the coarser particles, is dropped near the river. The finer particles of clay and silt are laid down farther back in quieter water. In this manner the stream tends to build up not only its bank, but its bed as well.

This soil is, without doubt, the easiest cultivated in the area, and yields the best returns of any of the types of the county, but at present only a small proportion of it is under cultivation. The principal crops are cotton and corn, of which the former yields from one-half bale to 1 bale per acre, while the yield of the latter is from 20 to 50 bushels. Large fields of this type are covered by Bermuda grass, which has come up without planting and which yields abundant crops of very good hay. This soil is a good truck soil and should grow fair crops of alfalfa hay if overflow water can be kept off.

The presence of wild pecans, bearing a nut of rather good quality,

would seem to indicate that orchards of better varieties might thrive on certain areas of this type which can not now be cultivated to ordinary crops.

The natural forest growth on this type consists of cottonwood, willow, gum, hickory, maple, pecan, and osage orange, with thickets of cane, which make excellent pasture for cattle.

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

*Mechanical analyses of Miller fine sand.*

| No. | Locality. | Description. | Organic matter. | Gravel, 2 to 1 mm. | Coarse sand, 1 to 0.5 mm. | Medium sand, 0.5 to 0.25 mm. | Fine sand, 0.25 to 0.1 mm. | Very fine sand, 0.1 to 0.05 mm. | Silt, 0.05 to 0.005 mm. | Clay, 0.005 to 0.0001 mm. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* |
| 9970 | Sec. 24, T. 19 S., R. 26 W. | Fine sand, 0 to 12 inches. | 0.15 | 0.00 | 0.00 | 0.08 | 7.52 | 64.40 | 24.60 | 3.06 |
| 9972 | Sec. 17, T. 16 S., R. 25 W. | Loamy sand, 0 to 10 inches. | .80 | .00 | .00 | .80 | 26.90 | 62.24 | 6.68 | 3.20 |
| 9971 | Subsoil of 9970..... | Loamy sand, 12 to 36 inches. | .24 | .00 | .00 | 38 | 23.00 | 66.08 | 8.22 | 1.90 |
| 9973 | Subsoil of 9972..... | Loamy fine sand, 10 to 36 inches. | .74 | .00 | .00 | .16 | 18.38 | 60.66 | 17.82 | 2.14 |

The following samples contained more than one-half per cent of calcium carbonate ($CaCO_3$): No. 9970, 4.03 per cent; No. 9971, 3.36 per cent; No. 9972, 1.03 per cent; No. 9973, 0.93 per cent.

MILLER FINE SANDY LOAM.

The Miller fine sandy loam occupies a smaller area than any of the other soils of Miller County.

The surface soil consists of from 5 to 6 inches of gray, brown, or yellow very fine sandy loam, and is underlain by a subsoil of drab or red clay having a depth of 36 inches or more. The subsoil frequently grades into a compact silt or sandy loam, a condition occurring especially near McKinney Bayou.

This type is found at the base of the upland which is bounded along its northeastern edge by McKinney Bayou, a slow, stagnant stream, carrying little water except in time of flood, when it receives large quantities of wash from the upland. The Miller fine sandy loam occupies for the most part high ridges along the above-mentioned stream, and the greater part of it is little subject to overflow. Some of it, however, is flooded on occasions to a depth of 6 to 8 feet.

The drainage is not very good, and is greatly improved by ditching with outlets toward McKinney Bayou or the low sloughs which lead to it.

This type owes its origin to a mixture of Red River sediments with wash from the uplands. The latter changes what would otherwise be Sharkey clay into a somewhat lighter type.

Corn and cotton are the principal crops on this, as on the other soil types of Miller County, and it seems better adapted to cotton than any of the preceding types, especially when well drained, giving yields of from one-half bale to 1½ bales per acre. Of corn the yield ranges from 20 to 40 bushels per acre. The type is not as well adapted to grass as either of the sandy loam types.

The natural forest growth is similar to that of the Sharkey clay, consisting of oak, hickory, ash, elm, and hackberry, with large cane brakes along the bayous.

The following table shows the texture of typical samples of this soil:

*Mechanical analyses of Miller fine sandy loam.*

| No. | Locality. | Description. | Organic matter. | Gravel, 2 to 1 mm. | Coarse sand, 1 to 0.5 mm. | Medium sand, 0.5 to 0.25 mm. | Fine sand, 0.25 to 0.1 mm. | Very fine sand, 0.1 to 0.05 mm. | Silt, 0.05 to 0.005 mm. | Clay, 0.005 to 0.0001 mm. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* | *P. ct.* |
| 9966 | Sec. 22, T. 16 S., R. 26 W. | Brown silty loam, 0 to 6 inches. | 0.33 | 0.24 | 1.30 | 0.68 | 4.00 | 61.96 | 21.00 | 10.50 |
| 9964 | Sec. 10, T. 15 S., R. 27 W. | Brown silty loam, 0 to 5 inches. | .41 | .30 | 1.20 | .58 | 4.00 | 62.50 | 20.20 | 10.70 |
| 9962 | Sec. 28, T. 17 S., R. 26 W. | Brown loam, 0 to 6 inches. | .35 | .26 | 1.04 | .58 | 4.76 | 60.50 | 20.74 | 11.54 |
| 9967 | Subsoil of 9966..... | Red loam, 6 to 36 inches. | .11 | .00 | .50 | .72 | 15.28 | 29.20 | 42.78 | 11.34 |
| 9965 | Subsoil of 9964..... | Red clay, 5 to 36 inches. | .27 | .00 | .50 | .30 | 2.70 | 44.98 | 25.90 | 24.90 |
| 9963 | Subsoil of 9962..... | Brown clay, 6 to 36 inches. | .19 | .12 | .40 | .28 | 3.80 | 40.42 | 29.40 | 25.00 |

## AGRICULTURAL METHODS.

The agricultural methods in use in Miller County are primitive, like those of all sections where agriculture is in its early stages. With few exceptions, corn and cotton are the only crops grown, and these, with cattle, which get their pasturage on the unfenced common land, are the principal agricultural products of the county, which up to the present has derived its wealth from the lumber interests.

Fertilizers are used by few, if any, of the planters, and any rotation of crops beyond an alternation with corn and cotton is unknown. New land is cleared by the simple expedient of girdling the standing timber and burning the underbrush. The field is then plowed and

planted and the tree trunks and stumps left to be removed by natural processes of decay. In this way great quantities of valuable timber are wasted and the natural resources of the county depleted. Fields thus cleared are cropped until they decline in productiveness, when they are abandoned and new ones are subjected to the same wasteful process. On the uplands great numbers of these old fields may be seen grown up to pine, the original labor of clearing and fencing having become an economic waste. Such a practice can have but one ending, and that will come when it is no longer possible to get new land so cheaply as to make such a practice possible.

During the long, dry summer seasons, which so frequently occur, the crops suffer from lack of moisture and would be greatly benefited by some means of irrigation. Numerous springs and streams continue to flow even during the driest season, and wells are possible in most instances where no such springs exist. These, in conjunction with tanks and suitable pumping apparatus, might be profitably employed to supply moisture to the crops during such critical periods, especially in the production of fruit or truck.

## AGRICULTURAL CONDITIONS.

The agriculture of Miller County is at present in the first stages of its development, less than 15 per cent of the land being at present under cultivation. The remainder is covered with forest or by the slashings left by the lumbermen, and consequently those at present engaged in tilling the soil are in a measure pioneers. The farm houses and buildings are mostly small and such as one would expect to find in a country just entering upon its agricultural career. The planters, being chiefly engaged in growing two staple crops, corn and cotton, have not yet realized the importance of a more extended agriculture nor the possibilities of their soils. During seasons of high prices for cotton the growing of this crop is profitable and at all times the conditions are on a par with those of other cotton-growing districts.

The farms vary in size from 40-acre plots to estates comprising a square mile or more. Most of the large estates are along the Red River and are frequently owned by landlords who do not occupy them, but rent them to negro tenants. There are still small areas of Government land, but little of any present agricultural value. There are also large tracts of forest partly cut over, which are held by various lumber interests, and such lands may often be obtained at very low prices. In general the price of the land is quite low, except in the neighborhood of Texarkana, ranging from $3 to $25 an acre. Not many of the farms are mortgaged. The rate of taxation is also low.

One of the most serious problems confronting the farmers of the area is that of labor, which is for the most part unskilled. The negroes,

who are almost the entire dependence of the farmers, show a tendency to gather in the towns. This is especially true of the younger generation. White labor is practically not to be obtained, so that for the present at least this problem offers no solution.

Cotton is the only crop at present grown in Miller County for shipment. The corn grown is used entirely in the county for fattening hogs for home consumption or for wintering the cattle and horses. Vegetables, principally sweet and Irish potatoes, are grown to some extent, but only for home use.

It is evident from the above that the further development of the agriculture of the county will be best secured by more diversified crops, and the threatened advent of the Mexican boll weevil makes it even more imperative to look for other crops.

If for no other reason than that the sole money crop of the county is threatened, it would seem wise to have some other crop or crops to fall back upon. The introduction of diversified farming would have the effect of making the farmers less dependent upon cotton, and should, at least on the lighter upland soils, prove more profitable than cotton as now grown in this part of the area, these soils giving only light yields of the poorer grades of lint.

The crops best suited to the upland area are fruit, truck, and tobacco of the filler variety, though the success of the latter crop is at present problematical. Fruit, however, especially peaches, is now grown, though in no case with the care and attention that such crops demand. The orchards now standing, in spite of neglect, show the possibilities of peach growing in Miller County. Both the soil and climate favor the production of this fruit. The long growing season, the absence of severe and erratic frosts, and the character of the soil—the Orangeburg fine sandy loam—are all favorable. These same factors are also favorable to the trucking industry and, combined with the transportation facilities of the county, make truck farming a promising possibility.

The Miller fine sand is especially suited to the growing of alfalfa and Bermuda grass, both of which give heavy yields and at least three cuttings during the season. If the soil should be used more generally for these products, there would be plenty of feed for the cattle during the winter months, and they would then come to the spring pasture in condition, instead of reduced to the point of starvation, as is often the case at present. There also seems to be a good opportunity for the establishment of the pecan industry upon this type of soil, as is shown by the number of wild trees of this valuable nut found along the Red River. All of these crops, however, excepting pecans, require a more intensive method of agriculture than is at present in use.

The transportation facilities of Miller County are afforded by the railroads centering at Texarkana. The railroads are the St. Louis, Iron Mountain and Southern, the St. Louis and Southwestern, the Texas, Shreveport and Natchez, the Texas and Pacific, and the Kansas City and Southern. It is possible also that the use of light-draft boats on the Red River, which even now can run as far as Fulton, Hempstead County, might be made practicable.

The railroads named connect Texarkana with the markets of the great cities and towns of the Central and Northern States, as well as with those of the West and Southwest. There is also a good demand for farm products in the local market of Texarkana, which under the present conditions the area does not fully supply.

Few regions offer a better inducement to the farmer than does this part of Arkansas. Here are cheap lands and great undeveloped agricultural resources. But to realize fully the natural advantages of the region it will be necessary to completely change the present system of agriculture and to introduce new crops and better and more intensive cultural methods.

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