SOIL SURVEY OF JACKSON COUNTY, ALABAMA.
BUREAU OF SOILS.

MILTON WHITNEY, Chief of Bureau.
ALBERT G. RICE, Chief Clerk.

SOIL SURVEY.

C. F. MARBUT, In Charge.
G. W. BAUMANN, Executive Assistant.

COMMITTEE ON THE CORRELATION AND CLASSIFICATION OF SOILS.

C. F. MARBUT, Chairman.
Hugh H. Bennett, Inspector, Southern Division.
J. E. Lapham, Inspector, Northern Division.
Macy H. Lapham, Inspector, Western Division.
J. W. McKeecher, Secretary.
U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS—MILTON WHITNEY, Chief.

IN COOPERATION WITH THE STATE OF ALABAMA, EMMETT O'NEAL, GOVERNOR;
REUBEN F. KOLB, COMMISSIONER AGRICULTURE AND INDUSTRIES;
EUGENE A. SMITH, STATE GEOLOGIST.

SOIL SURVEY OF JACKSON COUNTY,
ALABAMA.

BY

C. S. WALDROP, OF THE U. S. DEPARTMENT OF AGRICULTURE,
AND N. ERIC BELL, OF THE ALABAMA DEPARTMENT
OF AGRICULTURE AND INDUSTRIES.

HUGH H. BENNETT, INSPECTOR IN CHARGE SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1911.]
LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Soils,
Washington, D. C., March 11, 1912.

Sir: The accompanying report and soil map cover the survey of
Jackson County, Ala., one of the projects undertaken by the bureau
during the field season of 1911. This work was done in cooperation
with the Alabama State Department of Agriculture and Industries,
and the selection of the area was made after conference with the
State officials. The undertaking bore the indorsement of Hon.
William Richardson.

I recommend the publication of this report as advance sheets of
Field Operations of the Bureau of Soils, 1911, as provided by law.

Respectfully,

Milton Whitney,
Chief of Bureau.

Hon. James Wilson,
Secretary of Agriculture.
CONTENTS.

Soil Survey of Jackson County, Alabama. By C. S. Waldrop, of the U. S. Department of Agriculture, and N. Eric Bell, of the Alabama Department of Agriculture and Industries. 5

Description of the area. 5

Climate. 7

Agriculture. 8

Soils. 13

- Dekalb fine sandy loam. 16
- Dekalb stony loam. 17
- Decatur clay loam. 18
- Decatur loam. 19
- Decatur stony loam. 20
- Hagerstown loam. 21
- Hagerstown clay loam. 21
- Hagerstown stony loam. 22
- Clarkeville gravelly loam. 22
- Colbert silty clay loam. 23
- Colbert silt loam. 24
- Colbert stony clay. 25
- Hollywood clay. 25
- Rough stony land. 26
- Huntington silt loam. 27
- Huntington silty clay loam. 28
- Holly fine sandy loam. 29
- Holly silt loam. 29
- Meadow. 30

Summary. 30

ILLUSTRATIONS.

FIGURE.

Fig. 1. Sketch map showing areas surveyed in Alabama. 5

MAP.

Soil map, Jackson County sheet, Alabama. 3
SOIL SURVEY OF JACKSON COUNTY, ALABAMA.

BY C. S. WALDROP, of the U. S. Department of Agriculture, and N. ERIC BELL, of the Alabama Department of Agriculture and Industries.

DESCRIPTION OF THE AREA.

Jackson County is located in the northeastern corner of Alabama. The Tennessee and Georgia State lines form the northern and eastern boundaries, while the counties of Dekalb, Marshall, and Madison bound it on the southeast, south, and west sides. The county contains 1,136 square miles, or 727,040 acres.

There are three distinct regions in the county—the spurs of the Cumberland Mountains in the northwestern part; the Sequatchie Valley, which extends across the county from northeast to southwest; and Sand Mountain, which occupies the eastern and southeastern section. These regions are quite different in topography and geological structure.

The spurs of the Cumberland Mountains form the largest division, which is characterized by narrow, level to gently rolling plateaus, with intervening coves and valleys. The maximum elevation of this region is more than 1,600 feet. The escarpments of the plateaus are steep and rough, having an elevation of 600 to 800 feet. The plateaus are capped with sandstone, which resists erosion, but the underlying shales and limestones erode rapidly, thus undermining the sandstone strata, which break off, forming great cliffs. The intervening coves and valleys trending from northeast to southwest and from northwest to southeast are narrow and usually of rolling topography, owing to the character of the underlying limestone.
The Sequatchie Valley, with an elevation of 600 to more than 800 feet, is from 3 to 5 miles wide and consists of low hills and ridges alternating with narrow valleys. There are two lines of hills in this region, one on the southeast side of the valley which follows the course of the Tennessee River, first on one side and then on the other, known as the "River Hills." The hills on the northeast side of the valley are known as Backbone Ridge. The River Hills are much broader than Backbone Ridge, and except where cut through by the rivers and creeks are continuous throughout the county. Backbone Ridge, owing to its strata being engulfed in a fault, does not occur northeast of Mud Creek, except as a few detached knolls.

These ridges and hills owe their position to the fact that they are composed of cherty materials derived from cherty limestones, which are more resistant than the limestones from which the soil materials in the intervening valleys were derived.

The eastern and southeastern portion of the area is occupied by Sand Mountain. This is a broad plateau having an elevation of 1,300 to over 1,700 feet above sea level. It is very similar to those of the Cumberland Mountains, owing its position to the underlying hard sandstone, which resists erosion. The topography is level to gently rolling. The edge of this plateau which faces the valley of the Tennessee River is a bold escarpment 600 to 800 feet high. The continuity of the plateau is broken on the edges in several places by stream action, deep gulches being cut back from the escarpment for some distance.

Practically all of the drainage of the county is into the Tennessee River, which enters the county from the northeast and flows across it in a southwesterly direction. Among the more important smaller streams of the county are Paint Rock River near the western boundary, Big Coon Creek and Big Crow Creek in the northern part, and Raccoon Creek, Long Island Creek, and Sauty Creek in the eastern and southeastern part. None of the smaller streams except Long Island Creek and possibly Big Crow Creek and Paint Rock River are navigable.

Jackson County was settled in the early part of the last century mainly by settlers who came from Virginia, the Carolinas, Tennessee, and Georgia, and many of the white inhabitants of the county are descendants of these early settlers. The limestone lands in the valley section were the first to be cleared and put in cultivation and until within recent years all of the county except this section was sparsely settled. The lands in the mountainous regions were considered by the natives too poor to cultivate, but now their productiveness is well recognized. Sand Mountain, in the eastern part of the area, is being rapidly developed by both the people who live in the county and settlers from Georgia and Tennessee. The plateaus of the Cumberland Mountains have not received much attention as yet,
but settlers are beginning to come in and this region promises to be developed in the near future.

The chief towns of the area are Scottsboro, the county seat, with a population of 1,019; Stevenson, with 574; and Bridgeport, with 2,125. Smaller towns in the area are Fackler, Hollywood, Larkinsville, Woodville, and Paint Rock, all of these points being stations on the Southern Railway and the Nashville, Chattanooga & St. Louis Railway. Most of the trading is done at these towns, though there is considerable trading done at the country stores located away from the railroads. At Bridgeport there are several factories and a stove foundry, giving employment to several hundred men. In the vicinity of Bridgeport a small coal mine is being operated and another is being opened up at Paint Rock.

The Southern Railway traverses the county and the Nashville, Chattanooga & St. Louis Railway crosses the northeastern portion. The Tennessee River furnishes water transportation, and boats run between Chattanooga, Tenn., and Decatur, Ala., practically the entire year. Though the railroads and the Tennessee River afford fairly good shipping facilities, they are not adequate for the proper development of the county. A railroad is badly needed across the Sand Mountain plateau and would aid greatly in the development of this part of the area. A few of the wagon roads in the vicinity of the towns are macadamized, but the majority of the roads are unimproved and those in the valley region become very muddy during wet weather. On the plateaus in the mountainous regions the roads are easily kept in repair and are usually in fairly good condition, but those on the mountain sides are steep, stony, and badly gullied much of the time.

CLIMATE.

The climate of Jackson County varies slightly in different sections. The temperature of the mountainous regions, owing to the high altitude, is a little lower both in summer and winter and the growing season is a little shorter than in the valleys. The climatic conditions of the entire area, however, are such that a great diversity of crops can be grown. The county lies within the warm Temperate Zone and the summers are long and pleasant and the short winters are characterized by alternating warm and cold spells.

The average annual temperature is 59.8° F. The coldest months are December, January, and February, averaging about 41.1° F. There are occasional cold rains and light freezes during these months, and snow sometimes falls, but it seldom remains on the ground for more than two or three days. During the summer the average temperature is 77.1° F., the maximum reaching 100° F. The hottest months are July and August.
The average annual rainfall is 52.69 inches, the greater part of which falls during the five months from December to May. Though the rainfall is rather light during the greater part of the growing season, it is usually sufficient and distributed in such a way as to favor the development and harvesting of crops. Short wet and dry periods sometimes occur, however, during the growing season.

The tables following give the mean monthly, seasonal, and annual temperature and rainfall at Scottsboro and the dates of the first and last killing frosts:

*Normal monthly, seasonal, and annual temperature and precipitation at Scottsboro.*

<table>
<thead>
<tr>
<th>Month</th>
<th>Mean temperature</th>
<th>Mean precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>December</td>
<td>42.8 °F.</td>
<td>4.51 Inches</td>
</tr>
<tr>
<td>January</td>
<td>39.8 °F.</td>
<td>4.55 Inches</td>
</tr>
<tr>
<td>February</td>
<td>40.7 °F.</td>
<td>5.04 Inches</td>
</tr>
<tr>
<td>Winter</td>
<td>41.1 °F.</td>
<td>14.50 Inches</td>
</tr>
<tr>
<td>March</td>
<td>51.6 °F.</td>
<td>6.79 Inches</td>
</tr>
<tr>
<td>April</td>
<td>60.3 °F.</td>
<td>4.67 Inches</td>
</tr>
<tr>
<td>May</td>
<td>68.7 °F.</td>
<td>3.88 Inches</td>
</tr>
<tr>
<td>Spring</td>
<td>69.2 °F.</td>
<td>15.34 Inches</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Last in spring</th>
<th>First in fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1902</td>
<td>Apr. 1</td>
<td>Oct. 29</td>
</tr>
<tr>
<td>1903</td>
<td>Apr. 4</td>
<td>Oct. 25</td>
</tr>
<tr>
<td>1904</td>
<td>Jun. 10</td>
<td>Oct. 23</td>
</tr>
<tr>
<td>1905</td>
<td>Apr. 18</td>
<td>Oct. 22</td>
</tr>
<tr>
<td>1906</td>
<td>May 10</td>
<td>Oct. 11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Last in spring</th>
<th>First in fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1907</td>
<td>Apr. 15</td>
<td>Oct. 13</td>
</tr>
<tr>
<td>1908</td>
<td>Apr. 4</td>
<td>Oct. 26</td>
</tr>
<tr>
<td>1909</td>
<td>May 3</td>
<td>Oct. 13</td>
</tr>
<tr>
<td>Average</td>
<td>Apr. 15</td>
<td>Oct. 20</td>
</tr>
</tbody>
</table>

**Dates of first and last killing frosts at Scottsboro.**

**AGRICULTURE.**

The agricultural development of Jackson County was begun in the early part of the last century, when the valley lands of limestone origin were cleared and put in cultivation. During the period preceding the Civil War these were the only lands cultivated to any extent. Later, as the population increased, the chert ridges were cleared, and in recent years the soils of sandstone origin in the mountainous section have been rapidly developed. According to the Twelfth Census, about 35 per cent of the farm land in Jackson
County is improved, the greater part of this being in the valley section.

In the early days the Tennessee River afforded about the only means of transportation and travel, but the completion of the Nashville, Chattanooga & St. Louis Railway and the Memphis & Charleston Railroad, now the Southern Railway, about the middle of the last century, greatly improved conditions in this respect.

As in all southern regions where cotton and corn can be grown, these have been the chief crops from the days of the earliest settlers. Not many years ago clover held an important place in the crop rotation, but in recent years, owing to the poor physical condition of the soil, the yields from this crop have been unsatisfactory in most cases, and the area planted has greatly decreased. In the mountainous regions many cattle and hogs are raised, and though with the advent of the stock law the free ranges are being done away with, thus materially decreasing the number raised in places, there is still a large area of the mountainous territory which is not under this law where this industry is carried on profitably.

The cultivated area of Jackson County, according to the last census, comprised 33,016 acres in corn, producing 1,481,580 bushels; 15,685 acres in cotton, producing 5,602 bales; 8,540 acres in wheat, producing 34,940 bushels; and 3,640 acres in grains, millet, and grasses cut for hay, producing 3,494 tons. In addition to these crops, sorghum, peas, tobacco, sweet and Irish potatoes, and miscellaneous vegetables are grown for home consumption.

The total value of live stock, according to the Twelfth Census, was $946,574, and of products not fed to live stock, $1,392,840. The orchard products were valued at $14,428 and the forest products at $88,456.

The mountainous region of the county still retains much of its native forest growth, consisting of shortleaf pine, oak, and hickory, but in the valleys the native timber growth, consisting of oak, hickory, and poplar, has nearly all been removed. There is still a great deal of cedar left, mainly on the sides of the mountains, but this is being rapidly removed for pencil stock, fence posts, and piling.

Corn has a far greater acreage than any other crop and is grown both for home consumption and for market. While it is grown on all of the soils of the area, it does best on the alluvial areas along the rivers and their tributaries and on the loam and clay loam types of limestone soils. Yields of 25 to 75 bushels are usually obtained on these soils without the addition of fertilizers and could be considerably increased by a deeper and more thorough preparation of the seed bed and the proper selection of seed. The yields over the entire area range from 10 to 75 bushels per acre and average, accord-
ing to the last census, about 18 bushels per acre. All of the soils are capable of producing a higher average than this and the low yield is due largely to poor cultural methods. By practicing a systematic rotation of crops and following improved cultural methods yields of 25 to 50 bushels per acre can be secured on any of the soils.

Cotton ranks next in importance to corn and is grown on all of the soils except the alluvial areas along the rivers and some of their tributaries. Often in the mountainous regions and sometimes in the valleys the seasons are too short to allow a full crop of bolls to mature. For this reason, doubtless, an early maturing variety of cotton would prove more profitable, especially for the mountainous regions. The average yield is about one-third bale per acre, but most of the soils planted to cotton are capable of producing three-fourths bale to 1 bale per acre if fertilized and cultivated properly. If more attention were given to the rotation of crops, deep preparation of the seed bed, and subsequent cultivation, the same or greater yields could be obtained on less than half the acreage which is now devoted to this crop.

Wheat at one time was an important crop in the area, but at present it is only grown in a small way. Oats are coming into favor and the acreage planted to this crop is steadily increasing. The production of both oats and wheat should be greatly increased and they should be sown in the fall, since then they serve as winter cover crops as well as for forage in the spring. Oats are often killed by freezes during the winter season, but this could be largely overcome by planting the seed in open furrows. Native grasses on the rich valley soils are being cut for hay, and some millet, cowpeas, and orchard and other grasses are grown in small patches for the farm supply.

While in recent years the yields of clover have been unsatisfactory in most cases, yet with the proper care there are few soils in the county which will not produce clover successfully. The unsatisfactory yields are due largely to the soils having become acid or sour through poor cultural methods. This can be overcome by acreage applications of from 1 to 5 tons of unslaked lime or crushed limestone. Where clover has not been grown on a soil it must be inoculated with the proper bacteria. This can be done by sowing broadcast about 100 pounds per acre of soil from a clover field. By following this method alfalfa could also be grown on the well-drained limestone soils, especially the loam and clay loam types. In the mountainous regions cowpeas and soy beans are coming into favor both as forage crops and soil renovators. Vetch would also prove profitable for this purpose. It could be sown with rye in the fall and the crop removed early enough in the spring to allow other crops to be grown or plowed under.
A variety of fruits can be grown in the county, but only a few farmers have developed the industry on a commercial scale. There are a few peach orchards located in the vicinity of Bridgeport and in other parts of the valley, and in the mountainous regions some apples, pears, peaches, and plums are grown for market, but for the most part these crops are grown only for home consumption. Both the mountainous regions and the chert ridges in the valleys are well adapted to fruit, and apples, pears, plums, cherries, and nearly all the berry crops do well on these soils. Peaches are uncertain, on account of the late spring frosts, but a good crop of other fruits can be secured almost every year. Very few vegetables are grown for market, but nearly all varieties do well in the area. The sandy soils of the mountainous regions are excellent for this purpose.

Stock raising is carried on in a limited way, but this industry does not receive the attention that it should. In the mountainous regions where there are free ranges, nondescript breeds of cattle, hogs, and some sheep are raised. In the valleys the industry is not carried on so extensively, but more attention is given to improving the stock. In addition to cattle, hogs, and sheep some horses and mules are raised. There is a stock farm in the vicinity of Stevenson where trotting horses are raised and trained. The raising of horses and mules should prove very profitable, especially on the limestone lands. In addition to the excellent pasturage which these soils afford, large quantities of grain and hay for wintering the stock can be grown cheaply. While only a few have given the poultry industry any special attention, large quantities of chickens and eggs are shipped almost every week, except during the winter season. The price paid for these products suggests that this industry should be extended.

Some system of crop rotation is necessary if the productiveness of the soil is to be maintained, even with the use of commercial fertilizers. Vegetable matter should be supplied, not only to furnish plant food, but also to improve the physical condition of the soil, to keep it from washing, and to improve its moisture-holding capacity. With the possible exception of the alluvial soils along the Tennessee River and some of its tributaries, all of the soils are deficient in humus. The production and maintenance of this highly essential element constitutes the first principle of soil management. This can not be done with the scanty supply of barnyard manure available on most farms, but must be done by growing and plowing under manuring crops. The legumes have the advantage of furnishing nitrogen, which is secured from the air, but oats, rye, and wheat are valuable for winter cover crops and can be turned under in the spring in time to allow the planting of the staples, cotton and corn.

The following rotation, recommended by the State experiment station, would be profitable on the majority of farms: First year, corn,
with cowpeas either broadcast or drilled between the rows; second year, oats (fall sown), followed by cowpeas or soy beans; third year, cotton with crimson clover sown between the rows in the fall, or oats or rye. Other crops could be substituted if preferred, but no rotation is complete which does not include the legumes, since these crops not only supply vegetable matter but furnish nitrogen, the most expensive element in commercial fertilizers, as well.

Following the above rotation but little nitrogen in the form of commercial fertilizers need be purchased, potash and phosphoric acid being all that is necessary to apply. The practice of burning cotton and corn stalks is to be condemned, since it not only takes vegetable matter from the soil, but destroys plant food as well. It is true that only nitrogen passes off, the potash and phosphoric acid being left in the ashes, but these are left in small spots where the stalks were burned and only a few plants get the benefit of them.

According to the Twelfth Census, the average size of farms is 104.5 acres. In the census classification, however, each tenancy was classed as a distinct farm and the average holding is, therefore, much greater than the figures given. There are a good many farms containing several thousand acres, while the majority of holdings range from 40 to 500 acres. About 43 per cent of the farms are operated by the owners, the remainder being worked by tenants.

Where lands are rented, the more common practice is to make the consideration a certain portion of the crop. In most cases the owner receives one-third of the corn and one-fourth of the cotton if the renter furnishes tools and work stock. Where these are furnished by the owner the latter usually receives half of the crop.

Farm labor is scarce on account of the demands of the logging camps, but as the timber is becoming exhausted the laborers are turning more to agricultural pursuits. About half the laborers employed in the valleys are negroes, but in the mountainous regions only white help is available. Here the farmers operate on a small scale and depend on their families for the necessary help. Where labor is hired by the day the wage is 50 cents to $1. From $15 to $20 per month and board is paid during the crop season. The wage for picking cotton varies from 50 cents to $1 per hundred pounds of seed cotton.

In the valleys of Jackson County the value of farm land ranges from $10 to $75 an acre, according to location and kind of soil, the river bottoms being the most valuable. The rough mountain sides where the timber has not been removed is usually held at about $5 an acre, but where the timber has been removed it is usually valued at $2 to $3 an acre. On the mountain plateaus, however, where the lands can be cultivated, the prices range from $2 to $50, depending on location and improvements.
SOILS.

The various upland soils of Jackson County are largely derived in place from the underlying rocks. Eight different geological formations occur, extending from the Cambrian through the Silurian, Devonian, sub-Carboniferous, and Carboniferous to the occasional gravel remnants of the Tertiary age. These formations or rocks consist of consolidated material deposited in the ancient seas that once existed here at different periods. There was considerable variation in these deposits, as is evidenced in the rocks, which range from the pure limestone of the valleys to the sandstone capping the mountains. Sandstone, shales, and limestones of different degrees of purity, hardness, and color are the principal rocks of the county.

Parts of three large soil provinces are developed in Jackson County: (1) The Appalachian, (2) the Limestone Valleys, and (3) the River Flood Plains. The Appalachian Mountain province extends from northern Pennsylvania to the vicinity of Tuscaloosa, Ala., embracing a series of mountains with intervening valleys and coves.

The surface features of the county fall naturally into two divisions—the valley regions and the mountainous regions. In the valleys, which comprise about one-third of the area, the topography is for the most part undulating to gently rolling and the drainage well established, except in the relatively small, flat areas, which need artificial drainage.

All of the soils were derived in place through the decay of the underlying rocks under the influence of weathering, except the stream bottom lands and the occasional colluvial fans or colluvial slopes. The valley soils are derived almost entirely from limestones of the Cambrian, Silurian, and sub-Carboniferous age which underlie the valley floors.

The alluvial soils consist of sediments transported by water and deposited over the flood plains of streams. They consist of sandstone and limestone material and the wash from all the soils of the drainage basins in which they occur. The alluvial lands are mainly flat and subject to overflow.

The soils on the plateaus of the mountainous regions are all residual in origin, derived from the underlying sandstones and shales, which are of Carboniferous age. The topography varies from gently rolling to slightly hilly. In many places the surface is almost flat and nearly always the soils are developed either as extensive or small plateaus. Some of these plateaus have been dissected by erosion. Shallow, narrow stream valleys are occasionally encountered through these plateaus.

The soils of the rough mountain sides are also mostly residual in origin, being formed in place by the weathering of the bowlders,
ledges, and outcrops of rock, mainly limestone, except near the crests, where there is usually a capping of sandstone. The limestone on these mountain sides is for the most part Bangor limestone of sub-Carboniferous age and the capping of sandstone the Coal Measures of Carboniferous age.

The fact that the soil of the slopes is mainly a heavy clay accounts for the rarity of influence from colluvial material. Protected by the rocks and the tenacious character of the soil itself, there has been comparatively little movement of the material to lower slopes; at least little moved material has stopped on the slopes. Some has accumulated along the lower slopes and in places the upper slopes have a thin superficial mantle of material which has slumped, fallen, or washed down from the sandy Dekalb soils above.

The characteristics of the several types of soil mapped in Jackson County are brought out in detail in subsequent chapters, but it is well to mention here the important characteristics of the different soil groups or series.

The purer limestones have given rise to two important soil series—the Hagerstown and Decatur. The soils of the Hagerstown series are characterized by the brownish color and mellow structure of their soils and the yellowish to reddish-brown or dull-red color and clayey texture of their subsoils. These Hagerstown soils are often collectively known as "mulatto land." Three members of the series were mapped—clay loam, loam, and stony loam. The Hagerstown loam and clay loam form very productive and valuable agricultural lands.

The Decatur soils are characterized by the reddish-brown to red color of their soils and the brilliant red color and clayey texture of their subsoils. These soils are locally styled "red limestone land." Three types—clay loam, loam, and stony loam—were mapped. The clay loam and loam form very valuable agricultural lands and a considerable proportion of the stony loam is also cultivated.

The cherty limestones give rise to one important soil, the Clarksville gravelly loam. This is a gray silt loam underlain by compact yellow silty clay, with an occasional reddish cast in the lower portion of the subsoil. Angular chert fragments are abundant over the surface and throughout the soil section. The topography, instead of being prevailingly undulating to gently rolling, like that of the Hagerstown and Decatur soils, is mainly hilly and ridgy. The Clarksville gravelly loam is locally known as "cherty land" or "gravelly land."

A series of limestone soils is developed over the flat, gently undulating valley regions where, on account of the insufficient surface slope, the drainage has been very poor. This poor drainage has had to do in part at least with the formation of three distinct soils—the
Colbert silty clay loam, silt loam, and stony clay. These are characterized by the grayish to light-brown color of their soils and the yellowish color and frequent plastic, sticky structure of their subsoils. They have been little used for agricultural purposes, but with drainage and proper cultivation would likely give good results. Stones and bowlders are present over the clay type in quantities sufficient to render much of the soil of little value for agriculture. The Colbert soils are locally known as "crawfish land."

A few small areas of a soil not previously mapped were found in the valley regions. This type, the Hollywood clay, is a dark-gray to black heavy clay, underlain by a sticky, plastic heavy clay, mottled with gray, yellow, and sometimes red. This soil is apparently of limestone origin. It is difficult to cultivate, but is being used for farming.

Upon the comparatively level plateaus or flat mountain tops the Dekalb soils are developed. They are derived in place by the disintegration and decomposition of the underlying sandstone. The fine sandy land is largely farmed, but much of the stony land is too rough and stony to admit of cultivation. These sandstone soils are less productive than the well-drained limestone soils of the valley, with the possible exception of the Clarksville gravelly loam. The Dekalb soils are locally known as "sandstone land."

In the first bottoms of streams occur two important series of alluvial soils, the Huntington and Holly. The Huntington soils include silty clay loam and silt loam, and are characterized by their brownish color, while the Holly soils include fine sandy loam and silt loam, and are characterized by the light-gray to nearly white color of their soils and mottled gray and yellow color of their subsoils. The Huntington soils are more productive and more generally cultivated than the Holly. They are all subject to occasional overflow from the streams.

The bottom lands are collectively styled by this name, but the Holly soils are frequently distinguished from the Huntington by the farmers under the local name of "crawfish land."

Through the Dekalb soils of the plateau regions there were mapped along the streams a number of small areas of Meadow. These consist of variable soil material having poor drainage and little agricultural value.

The table following gives the name and extent of each of the soils mapped in Jackson County.
### Areas of different soils.

<table>
<thead>
<tr>
<th>Soil</th>
<th>Acres</th>
<th>Per cent</th>
<th>Soil</th>
<th>Acres</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dekalb fine sandy loam</td>
<td>251,648</td>
<td>34.6</td>
<td>Meadow</td>
<td>11,130</td>
<td>1.5</td>
</tr>
<tr>
<td>Rough stony land</td>
<td>225,920</td>
<td>31.1</td>
<td>Colbert silt loam</td>
<td>3,200</td>
<td>.4</td>
</tr>
<tr>
<td>Huntington silt loam</td>
<td>47,360</td>
<td>6.5</td>
<td>Colbert stony clay</td>
<td>1,920</td>
<td>.3</td>
</tr>
<tr>
<td>Clarksville gravelly loam</td>
<td>33,564</td>
<td>4.6</td>
<td>Holly fine sandy loam</td>
<td>1,472</td>
<td>.2</td>
</tr>
<tr>
<td>Hagerstown loam</td>
<td>32,192</td>
<td>4.4</td>
<td>Dekalb stony loam</td>
<td>1,406</td>
<td>.2</td>
</tr>
<tr>
<td>Colbert silty clay loam</td>
<td>23,744</td>
<td>3.3</td>
<td>Decatur loam</td>
<td>1,344</td>
<td>.2</td>
</tr>
<tr>
<td>Decatur clay loam</td>
<td>23,615</td>
<td>3.2</td>
<td>Decatur stony loam</td>
<td>1,280</td>
<td>.2</td>
</tr>
<tr>
<td>Huntington silty clay loam</td>
<td>21,120</td>
<td>2.9</td>
<td>Hollywood clay</td>
<td>1,088</td>
<td>.2</td>
</tr>
<tr>
<td>Hagerstown clay loam</td>
<td>19,840</td>
<td>2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hagerstown stony loam</td>
<td>13,760</td>
<td>1.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holly silt loam</td>
<td>11,328</td>
<td>1.6</td>
<td>Total</td>
<td>727,040</td>
<td></td>
</tr>
</tbody>
</table>

### DEKALB FINE SANDY LOAM.

The Dekalb fine sandy loam to a depth of 6 to 10 inches consists of a light or grayish brown to pale yellow heavy fine sandy loam, underlain by a yellow to yellowish-brown, friable, moderately fine sandy clay. In depressions and on the hillsides the top soil sometimes ranges from sand to sandy loam. A number of areas too small to map occur in the type, having a red to reddish-brown subsoil. These represent the Hanceville fine sandy loam.

The sandstone from which this type is derived is sometimes encountered near the surface and outcrops occasionally occur.

This type is the most extensive cultivable soil in the area. It occupies the broad plateau of Sand Mountain in the southeastern part of the county and also the plateaus of the Cumberland Mountains in the northwestern part. The topography varies from flat to undulating or gently rolling. It is developed over broad plateaus, narrow crests of high ridges, and small, narrow plateaus capping the mountains or peaks. For the most part there is sufficient natural drainage. The type is intersected by many small streams, mostly intermittent, but even where there are comparatively level spots not touched by these drainage channels the texture of the soil is such that the surplus water soon passes off.

The Dekalb fine sandy loam owes its origin to the weathering of the underlying sandstone, which belongs to the Coal Measures of Carboniferous age. This soil is locally known as "sandstone land."

Much of the Dekalb fine sandy loam is under cultivation. Owing to its fairly open structure and sandy texture, it is easily cultivated. Moisture is conserved in favorable amounts where the content of organic matter is high. However, the supply of organic matter diminishes rapidly under cultivation and it is necessary to look carefully to the maintenance of the organic supply in order to secure the best results from this land.
The native forest growth consists mainly of shortleaf pine, white oak and post oak, gum, chestnut, and hickory. There is a luxuriant growth of native grasses, which affords good pasturage for about 8 months of the year.

Though adapted to a wide variety of crops, cotton and corn are about the only crops grown to any extent on this type. A small acreage is planted to oats, peas, soy beans, melons, a few garden vegetables, and fruits, but for the most part these are grown only for home consumption.

The yield of cotton varies from one-third to three-fourths bale per acre and of corn from 10 to 40 bushels, the yields depending on the cultural methods practiced. Sweet and Irish potatoes yield well, as do most of the truck crops. Melons and fruits do well and have an excellent flavor. Peaches are often killed by frosts, but usually do fairly well on northern exposures. There is a good crop of apples, pears, cherries, plums, etc., almost every year. Some tobacco is grown for home use, indicating a further possible use of the soil. However, tobacco has not had the place of an important crop on this soil in the areas surveyed in the Dekalb soils region, which extends from near Tuscaloosa, Ala., to northern Pennsylvania.

The Dekalb fine sandy loam is not naturally a rich soil. The organic matter content diminishes rapidly under cultivation, necessitating its replenishment in order to secure the best results. This can be done by applying barnyard manure or by practicing a rotation, including such crops as cowpeas, soy beans, rye, wheat, oats, etc. One of these should be plowed under at least once in three years. The legumes improve the soil whether plowed under, cut for hay or grazed off. The decaying roots supply considerable valuable organic matter, while nitrogen is stored in the soil through the bacteria living in the root nodules. Where vegetation is turned under the soil can be plowed deeper and larger applications of commercial fertilizers can be profitably made. The value of this land varies from $1 to $5 an acre in the Cumberland Mountains and from $3 to $50 an acre on Sand Mountain.

**DEKALB STONY LOAM.**

The Dekalb stony loam is a hillside type consisting of a light-brown to pale yellow heavy fine sandy loam, underlain by a yellowish fine sandy clay. Strewn over the surface and occurring in both the soil and subsoil are fragments of sandstone varying in size from small stones 1 to 2 inches across to large bowlders. Occasionally bedrock is found within a few feet of the surface. In places the underlying sandstone outcrops, but these areas were too small to be shown on the map.

The type owes its origin to the weathering and breaking down of the underlying sandstone, which belongs to the Coal Measures of Carboniferous age.
Occurring as it does on the hillsides which lead down to the narrow stream valleys and on the edges of the plateau, the topography of this type is rough and in the main unsuited to cultivation. Cotton and corn do fairly well where the ground is not too rough and the stones too abundant for cultivation. Apples, peaches, and truck crops, such as potatoes, watermelons, and strawberries, do well. Owing to the rough topography, the soil erodes badly when cleared and put in cultivation, and for this reason it is best in most cases for it to remain forested in the native hardwoods and scattering pine or to be used only for orchards.

This soil can be bought for $2 to $10 an acre.

DECATURE CLAY LOAM.

The surface soil of the Decatur clay loam consists of a reddish-brown to red clay loam 3 to 8 inches deep. In low spots the soil is inclined to be rather silty, on account of wash from higher areas, while on eroded slopes it consists almost entirely of clay. The subsoil is a bright-red, rather stiff, silty clay, more uniform in color and texture than the soil. The type is naturally a heavy soil and rather difficult to handle when the seasons are unfavorable or when not cultivated at the proper time with respect to moisture content. Much of it has been cropped so closely as to reduce its organic content, and where this is the case it has a tendency to run together, to bake and clod if plowed when too wet.

The type is strictly a valley limestone soil and is confined to the Tennessee River Valley in the northern part of the county. The surface varies from gently rolling to slightly hilly, the former topography predominating. The surface drainage is usually good, although small basins occur which would be benefited by artificial drainage.

If not properly cultivated the soil erodes easily, but terracing is not generally needed. Deeper plowing and the growing of winter cover crops would largely prevent erosion, and in addition would improve the moisture-retaining capacity of the soil.

The Decatur clay loam is residual in origin, having been derived chiefly from Trenton limestone and Knox dolomite of the Cambrian and Silurian periods. The limestone consists of the purer strata, the Knox dolomite formation containing very little chert. Only occasional outcrops of Knox dolomite occur along some of the streams.

The native forest growth consisted of oak, hickory, pine, and walnut. The type is an excellent soil for all of the crops of the area and is well adapted to cotton, corn, oats, wheat, clover, alfalfa, and grasses. Cotton, corn, and oats are the principal crops grown. The average yield per acre of cotton is one-half to three-fourths bale, corn 20 to 40 bushels, and oats 25 to 50 bushels. By deeper preparation of the soil, shallow cultivation, careful selection of seed, proper
rotation, and the addition of sufficient humus it is believed these yields could be doubled.

Besides the crops which are now being grown, there are a number which will do well on this soil. Cowpeas serve well as a catch crop in corn or on oat stubble, and yield from 1 to 2 tons per acre of excellent hay. Clover does not usually do well on most of this type, but this is principally the result of imperfect seed bed preparation. An application of 1 to 2 tons of lime per acre would also improve the condition of the soil for clover. Alfalfa will succeed on most of this type where lime is added and there is more attention given to tillage and the rotation of crops. Probably inoculation would be necessary for best results with alfalfa. Wheat, Johnson and Bermuda grass, vetch, and bur clover would all do well on this soil. Small fruits, such as strawberries and truck crops, give good results and should receive more attention. Certain varieties of apples succeed where carefully handled. This type is among the highest priced lands of the area, ranging in value from $25 to $50 an acre. It is all-around a highly desirable agricultural soil.

Decatur Loam.

The Decatur loam consists of a dark-brown to slightly reddish-brown mellow loam, varying in depth, underlain by a reddish-brown clay loam, which at 15 to 20 inches grades into a red clay similar to the Decatur clay loam.

This type is limited in extent to a few small areas, not aggregating over 4 or 5 square miles, found in the valleys of Big Coon and Big Crow Creeks in the vicinity of Stevenson and in the Tennessee River Valley between Scottsboro and Larkinsville. The topography is undulating to nearly flat and the drainage is fairly good. Owing to the loamy nature of the soil, it is retentive of moisture and crops suffer little from drought.

The Decatur loam is residual in origin and owes its formation to the disintegration and decomposition of limestone, although in places there seems to be some modification through colluvial and alluvial action.

The native forest growth consisted of oak, hickory, shortleaf pine, persimmon, and walnut, which has all been removed. All of the type is under cultivation, and though planted almost exclusively to corn and cotton, it is well adapted to most of the important crops of the region. Clover and alfalfa, if given the proper attention, would yield well. Cotton yields from one-half to 1 bale and corn from 25 to 50 bushels per acre.

The type is highly prized as an agricultural soil and ranges in value from $25 to $50 an acre.

1 See Farmers' Bulletin No. 339.
DECATURE STONY LOAM.

The Decatur stony loam consists of grayish-brown loam to clay loam, underlain at a depth of 4 to 6 inches by a red silty clay, which at from 15 to 20 inches grades into a bright-red clay. Scattered over the surface and throughout the soil and subsoil are varying quantities of angular chert, quartzite, and sandstone fragments slumped or fallen from the higher sandstone formation. These do not interfere seriously with cultivation.

The Decatur stony loam is very limited in extent, only a few small areas occurring near Stevenson.

The type is derived from impure limestone, chiefly Knox dolomite, and limestone belonging to the lower sub-Carboniferous period. Owing to the presence of rounded sandstone and quartzite, it would seem that displaced materials from above have also entered into the composition of this type. The topography varies from gently rolling to slightly hilly, as the type occupies isolated hills and ridges, and the drainage is good.

The native vegetation consists of shortleaf pine, hickory, persimmon, dogwood, and chestnut. The most of the type is still in forest, but when it is under cultivation the yields are fairly good. It is well adapted to all of the staple crops of the region, including cotton, corn, and oats, and forage crops, such as grasses, clover, and cowpeas. Cotton yields from one-third to one-half bale and corn from 15 to 30 bushels per acre.

Lands of this type range in value from $15 to $25 an acre.

HAGERSTOWN LOAM.

The Hagerstown loam to a depth of 5 to 10 inches consists of a mellow brown loam, underlain by a yellowish-brown to reddish-brown clay loam, which grades into a yellowish-brown clay at a depth of 3 feet or more. Along some of the streams and where the surface is broken there is sometimes an outcrop of massive limestone, but usually the parent rock is not encountered within 6 to 10 feet of the surface. The soil is naturally heavy in texture, but the organic content is sufficient to keep it in good tilth in most cases.

The Hagerstown loam is strictly a valley soil and occurs for the most part in the Tennessee Valley, in the southern and southwestern parts of the area. Its principal development is in the vicinity of Scottsboro, Larkinsville, Lim Rock, and Woodville, where it occupies elevations slightly above the surrounding valley lands. Other areas occur along the courses of Big Coon and Big Crow Creeks and in the coves in the south-central part of the area. The topography varies from level to gently rolling. In most cases the native drainage is sufficient, although there occur occasional depressed areas where artificial drainage is necessary.
The type is residual in origin, being derived chiefly from Bangor limestone and Knox dolomite formations. This with the other Hagerstown soils is known as "mulatto land."

The Hagerstown loam is naturally quite productive and is considered one of the best soils in the county. It is devoted almost exclusively to corn and cotton, to which crops it is well adapted. Cotton yields from one-half to 1 bale per acre and corn from 20 to 40 bushels. Oats, wheat, clover, alfalfa, and grasses, including bluegrass, yield well when given the proper attention. This feature, together with the abundant supply of water, makes this type an admirable soil for stock raising.

The agricultural value of the Hagerstown loam depends largely on location, the price ranging from $25 to $50 an acre.

**Hagerstown Clay Loam.**

The Hagerstown clay loam consists of 4 to 6 inches of brown to reddish-brown clay loam, underlain by a reddish-brown to dark-red clay. It occupies higher elevations than the Hagerstown loam, being found for the most part on the mountain slopes. Along the foot of the mountains are small areas of this type over which lies a thin mantle of fine sandy material washed down from adjacent slopes.

The type occurs in narrow bands on both sides of the Tennessee River Valley, occupying the lower slopes leading up to the mountains. It is also found in the coves and narrow stream valleys in the northern and central part of the county. The Hagerstown clay loam owes its origin to the weathering of Bangor and St. Louis limestone formations. The topography is gently rolling and the type is well drained. Most of it is under cultivation.

Like the Hagerstown loam, this type is used almost exclusively for the production of corn and cotton, but is well adapted to wheat, oats, clover, and grasses. Corn yields from 15 to 30 bushels per acre and cotton from one-third to two-thirds bale. Alfalfa could also probably be grown upon it. It is well adapted to the production of apples.

Land of this type is usually sold with the associated valley types and varies in price from $20 to $50 an acre.

**Hagerstown Stony Loam.**

The Hagerstown stony loam to a depth of about 6 to 8 inches consists of a brownish silt loam to silty clay loam, underlain by a yellowish-brown to yellowish-red silty clay, grading into a stiff red clay at a depth of 18 to 24 inches. Chert and limestone fragments varying in size from small gravel to stones 3 to 4 inches across are found on the surface and scattered through the soil.

The type is most extensive in the Paint Rock River Valley, where it occurs in narrow bands along the lower slopes of the mountains.
which border the valley. The topography varies from slightly hilly to gently rolling. Drainage is good and in many places excessive.

The Hagerstown stony loam is derived from impure cherty limestone of the Bangor formation. In many places the slopes are too steep and stony to cultivate, but for the most part the stones are not present in sufficient quantities to interfere seriously with cultivation.

The type yields well and is nearly all under cultivation. Although used almost exclusively for cotton, the soil is well adapted to all of the staple crops of the region. Cotton yields from one-half to 1 bale per acre and corn from 15 to 40 bushels. Oats, wheat, clover, and grasses also yield well, but are not grown very extensively. Fruits, especially peaches and truck crops, such as strawberries and sweet and Irish potatoes, can also be grown to advantage.

The value of this type of soil varies from $15 to $50 an acre, depending on location and improvements.

**CLARKSVILLE GRAVELLY LOAM.**

The Clarksville gravelly loam to a depth of 6 to 8 inches consists of a gray silt loam of rather compact structure, underlain by a yellow silty clay, which extends to a depth of 3 feet or more. Frequently a reddish cast is developed in the lower portion, but these areas were too small to be shown on the map. Occurring in both the soil and subsoil are irregular-shaped cherty fragments, varying in size from about one-half to two-thirds inch across. Over most of the type the fragments are present in quantities sufficient to influence the character of the soil, especially in making it more difficult to till and in holding the soil in place against erosion. The type is locally called "cherty land" or "gravelly land."

The Clarksville gravelly loam occupies a considerable area in the Tennessee River Valley. It occurs mainly on two lines of hills and ridges, one on the southeast side of the valley, known as the river hills, which runs along the river and continues across the county, and one on the northeast side of the valley, known as the backbone ridge, which extends across the county from the southwest to Mud Creek. It is also found on a few detached knolls and ridges.

The topography of the type for the most part is slightly hilly and the natural drainage is good.

The type is of residual origin, a considerable proportion of the material being derived from the Knox dolomite formation, an impure massive limestone containing quartz and cherty rock which resists erosion. The more soluble portion of the rock was weathered into soil, leaving the hard, flinty material undissolved. Much of the type is also derived from the Clinton formation, which is developed through the belt of hills following close along the Tennessee River.
The original forest growth consisted of oak, hickory, chestnut, and walnut. The more hilly areas are still forested, but the more gently rolling lands are cleared and used for farming. The type is a good cotton and corn soil, producing from one-half to two-thirds bale of the former and from 20 to 40 bushels per acre of the latter crop. Clovers and grasses do well, and it is an excellent soil for strawberries and peaches and truck crops, such as potatoes and melons.

The soil is in need of organic matter, and the addition of this material, together with deeper plowing, rotation of crops, and proper fertilization, would greatly increase the yields. The gravel content of the soil makes it more retentive of moisture, and for this reason it is better able to resist drought than the other upland soils of the valley.

The Clarksville gravelly loam is valued at $10 to $50 an acre, depending on location and improvements.

**COLBERT SILTY CLAY LOAM.**

The Colbert silty clay loam consists of a gray to light-brown, compact silty clay loam, underlain at a depth of about 6 to 10 inches by a yellow to yellowish-brown or mottled yellow and gray, stiff, plastic, sticky clay, which often contains black oxide of iron concretions in the lower depths, the result of poor drainage conditions. It is a difficult soil to plow and cultivate.

This type is derived from the weathering of a light-gray limestone. In places the parent rock comes near the surface or actually outcrops, but usually the soil material is over 3 feet deep.

Areas of this soil are found throughout the valley region of the county, occurring as flatwoods and also in the vicinity of streams, where the surface configuration often suggests an alluvial type. Frequently there is no alluvial soil of any importance even next the banks of the streams. The soil is usually wet and soggy, except during the dry season, and even then the water table is only a few feet below the surface. It is locally called "crawfish land."

The type supports a moderately heavy growth of oak, hickory, holly, and cedar and an undergrowth of shrubbery and water grasses. Cotton, corn, oats, and grasses, including lespedeza, produce fairly well on this soil when the seasons are favorable, but only a few small areas are under cultivation. Drainage is necessary before the type can be used generally for cultivation. This can be effected by ditching. Applications of lime in liberal quantities would be decidedly beneficial.

The value of this land ranges from $10 to $25 an acre, depending on location and improvements.

The table following gives the results of mechanical analyses of samples of the soil and subsoil of this type.
Mechanical analyses of Colbert silty clay loam.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Fine gravel</th>
<th>Coarse sand</th>
<th>Medium sand</th>
<th>Fine sand</th>
<th>Very fine sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>413158</td>
<td>Soil</td>
<td>2.7</td>
<td>2.0</td>
<td>1.5</td>
<td>7.8</td>
<td>6.9</td>
<td>53.0</td>
<td>26.4</td>
</tr>
<tr>
<td>413159</td>
<td>Subsoil</td>
<td>3.1</td>
<td>2.5</td>
<td>1.7</td>
<td>6.9</td>
<td>4.8</td>
<td>53.2</td>
<td>28.1</td>
</tr>
</tbody>
</table>

**COLBERT SILT LOAM.**

The Colbert silt loam to a depth of about 6 to 8 inches consists of a yellow to light-brown silt loam, underlain by material similar in texture, structure, and only slightly browner than the soil. In places it becomes more sticky and plastic and contains black iron oxide concretions in the lower depths. Some grayish mottling is encountered in the lower subsoil of the poorer drained areas.

The type is associated with the Colbert silty clay loam and occupies flat to undulating valley positions slightly more elevated than this type. Along the crests of some of the low ridges the type is somewhat lighter than the average, sometimes approaching a light loam. The type is usually mellow and is more easily cultivated than the Colbert silty clay loam.

The Colbert silt loam is residual in origin, derived from the same light-gray limestone as the Colbert silty clay loam.

Like the other valley soils, the original forest growth of the type consisted of oak, hickory, and cedar, much of which is still standing.

The type is mainly well drained, yet sufficiently retentive of moisture to insure the proper development of crops. Some of the more level areas have poor surface drainage. A good tilth can be maintained by cultivating under proper moisture conditions and by deep fall plowing. The soil is well adapted to corn, oats, grasses, and a number of forage crops, and is more productive than the associated Colbert silty clay loam. The ordinary yield per acre of corn is 15 to 25 bushels and of oats 20 to 30 bushels. From 1 to 2 tons of hay per acre is secured. These yields could be improved by ditching the flatter areas and by applications of lime.

The value of this type of soil ranges from $10 to $30 an acre.

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

Mechanical analyses of Colbert silt loam.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Fine gravel</th>
<th>Coarse sand</th>
<th>Medium sand</th>
<th>Fine sand</th>
<th>Very fine sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>413152</td>
<td>Soil</td>
<td>1.4</td>
<td>2.2</td>
<td>3.0</td>
<td>8.7</td>
<td>12.1</td>
<td>62.4</td>
<td>9.6</td>
</tr>
<tr>
<td>413153</td>
<td>Subsoil</td>
<td>1.8</td>
<td>1.8</td>
<td>2.1</td>
<td>5.9</td>
<td>6.5</td>
<td>56.6</td>
<td>25.1</td>
</tr>
</tbody>
</table>
The Colbert stony clay consists of a yellowish-brown to brown heavy clay loam or clay, underlain at 4 to 8 inches by a yellow to brownish-yellow heavy clay, tenacious and plastic in character. Boulderers and outcrops of a light-gray limestone occur throughout the type, making it unfit for cultivation in most cases.

The type occupies slightly elevated knolls and ridges and is usually associated with the Colbert silty clay loam and Colbert silt loam, though small detached areas are sometimes found. The topography of the type is usually rough and the drainage is excessive, except where protected by rocks and vegetation.

The Colbert stony clay is residual in origin, derived from a light-gray limestone, fragments of which are disseminated through it. Owing to its stony character, it is unfit for cultivation, and the type is for the most part in forest. It supports a timber growth of oak, hickory, beech, and cedar. Native grasses afford some pasturage and by cutting off the timber and allowing the grasses to take possession all but the roughest stony areas can be developed into fairly good pasture lands.

As this type usually occurs in small areas, it is generally sold with the adjacent valley lands at prices ranging from $10 to $25 an acre.

The following table shows the results of mechanical analyses of fine-earth samples of the soil and subsoil of the Colbert stony clay:

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Fine gravel</th>
<th>Coarse sand</th>
<th>Medium sand</th>
<th>Fine sand</th>
<th>Very fine sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>413160</td>
<td>Soil</td>
<td>1.5</td>
<td>3.0</td>
<td>3.0</td>
<td>7.1</td>
<td>11.7</td>
<td>48.7</td>
<td>25.3</td>
</tr>
<tr>
<td>413161</td>
<td>Subsoil</td>
<td>1.0</td>
<td>2.1</td>
<td>1.6</td>
<td>5.3</td>
<td>8.1</td>
<td>49.2</td>
<td>32.6</td>
</tr>
</tbody>
</table>

The following sample contained more than one-half of 1 per cent calcium carbonate (CaCO₃): No. 413160, 3.02 per cent.

HOLLYWOOD CLAY.

The Hollywood clay consists of dark-gray to black, plastic, intractable clay, underlain at 10 to 12 inches by a dark-gray to yellowish tenacious, heavy clay, which, at a depth of 2 to 3 feet, becomes slightly mottled with gray, yellow, and sometimes red. In places black iron concretions occur in the subsoil. It is a difficult soil to cultivate, as it bakes and clods badly if not cultivated at the proper time.

The type occurs mainly in the Tennessee River Valley near Hollywood and Scottsboro. The general topography is low and flat and in some of the lower situations it is subject to overflow, as it occupies low areas back from the first-bottom lands of small streams. It appears to be a limestone soil.
Most of the type is under cultivation, and it produces fairly well when the seasons are favorable and it is cultivated at the proper time. It is usually planted to corn and grasses, and, except when the seasons are too wet, the yields are fairly good. The main drawback to the type is a lack of drainage, which could be improved by opening up the natural drainage channels and digging lateral drains or by laying in tile drains.

As it occurs only in small, isolated areas, this land is usually sold with associated valley lands of higher agricultural value. The price ranges from $15 to $30 an acre.

The following table gives the average results of mechanical analyses of samples of the soil and subsoil of the Hollywood clay:

<table>
<thead>
<tr>
<th>Number.</th>
<th>Description</th>
<th>Fine</th>
<th>Coarse sand</th>
<th>Medium sand</th>
<th>Fine sand</th>
<th>Very fine sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>413134, 413136</td>
<td>Soil...........</td>
<td>.1</td>
<td>1.1</td>
<td>2.3</td>
<td>9.5</td>
<td>6.2</td>
<td>58.0</td>
<td>22.5</td>
</tr>
<tr>
<td>413135, 413137</td>
<td>Subsoil.......</td>
<td>.2</td>
<td>1.4</td>
<td>2.6</td>
<td>8.3</td>
<td>6.3</td>
<td>56.7</td>
<td>24.5</td>
</tr>
</tbody>
</table>

**ROUGH STONY LAND.**

Rough stony land comprises mainly areas of blufflike slopes of mountains between plateau and valley lands where bowlders, ledges, and outcrops of rock occur in quantities sufficient to preclude any kind of agricultural utilization, except for timber and scanty pastureage.

The largest areas mapped occur on the bluffs of Cumberland and Sand Mountains, which face the Sequatchie Valley. Other areas occur on the bluffs and slopes leading down to the smaller streams in the mountainous region. As a rule the surface is very rough, being characterized by bowlders, ledges, and outcrops of Bangor limestone, except near the crests, where sandstone belonging to the Coal Measures usually occurs.

The soil material consists of 4 to 8 inches of a yellow to yellowish-brown clay loam, underlain by a yellow to yellowish-brown clay of a tenacious, plastic character.

The most of the Rough stony land is still in forest, very little of it having been cleared for pastures or for cultivation. Cedar forms a valuable timber growth, with some poplar, oak, and other hardwood. By cutting off the timber and allowing the native grasses to take possession most of it could be developed into fairly good pasture land. On the sandstone areas, where not too rough, fruit would do well, but for the most part it is better to let it remain in forest, as it erodes rapidly when cleared. Probably the best utilization of this type would be to reforest with cedar for the production of pencil stock.
HUNTINGTON SILT LOAM.

The Huntington silt loam, like the Huntington silty clay loam, is an alluvial soil and somewhat variable but, in general, may be described as a mellow, dark-brown loam to silt loam, 10 to 12 inches deep, underlain by a dark-brown silt loam to silty clay loam, becoming heavier with depth. Both the soil and subsoil contain considerable quantities of fine sand, in some cases in sufficient quantities to cause the soil to approach a fine sandy loam, but these areas were too small to be shown on the map. Owing to its open structure, the soil is easy to cultivate and a good tilth is easily maintained.

The type occurs as first-bottom land along Paint Rock River and many of the smaller streams of the county. It varies from a few rods to three-fourths mile in width. The areas are subject to occasional overflows but for the most part are well drained. A few of the depressed areas are in need of artificial drainage.

The type is composed of an intermixture of sand, silt, and clay, which have been washed in from adjacent uplands. The soil is being constantly built up by each successive overflow, which brings in fresh materials from the uplands. A few small areas are developed slightly above the typical first-bottom overflowed soil. Also some patches occur in slight drainage-way depressions, where there is more or less colluvial influence.

Most of the Huntington silt loam is under cultivation. Though planted almost exclusively to corn, it is an excellent soil for most of the staple crops of the region. Corn produces from 20 to 50 bushels per acre without fertilizer and the better-drained areas produce from one-half to 1 bale of cotton per acre. Bermuda and other native grasses and lespedeza do well. On the higher, better-drained portions oats give good yields. Although the type is naturally productive, crops seem to be benefited by applications of fertilizers, which, together with a systematic rotation of crops, would greatly increase the yields now obtained.

The Huntington silt loam is highly prized as an agricultural soil, its value ranging from $15 to $50 an acre.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Huntington silt loam:

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Fine gravel</th>
<th>Coarse sand</th>
<th>Medium sand</th>
<th>Fine sand</th>
<th>Very fine sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>413128</td>
<td>Soil</td>
<td>0.0</td>
<td>0.1</td>
<td>0.1</td>
<td>2.7</td>
<td>7.4</td>
<td>73.3</td>
<td>16.5</td>
</tr>
<tr>
<td>413129</td>
<td>Subsoil</td>
<td>.0</td>
<td>.1</td>
<td>.2</td>
<td>4.4</td>
<td>9.1</td>
<td>69.4</td>
<td>17.3</td>
</tr>
</tbody>
</table>
The Huntington silty clay loam to a depth of 8 to 15 inches consists of a dark-brown to grayish-brown silt loam to silty clay, underlain by a dark-brown to grayish-black silty clay. In depressions the soil is darker colored, owing to accumulation of organic matter, while occasional small areas occur next to banks of streams in slightly higher positions, containing more silt and sometimes a small quantity of fine sand. Such areas are usually grayish-brown in color.

This type is the predominating bottom-land soil of the area. Being of alluvial origin, it varies somewhat in color, texture, and structure. Where well drained it is comparatively easy to cultivate, but if plowed when too wet, it clods and bakes badly.

The type occurs as first-bottom land along the Tennessee River and some of the creeks, in areas ranging from one-fourth to 1½ miles in width. It is subject to occasional overflow, but the water seldom remains on the land long enough during the growing season to affect crops. The surface is level to undulating and for the most part the drainage is adequate. Occasional depressions occur where artificial drainage is necessary.

The Huntington silty clay loam is composed almost entirely of an intermixture of clay and silt, which materials have been transported long distances and deposited by floods or washed in from adjacent uplands. The area is being built up by each successive overflow, which brings in fresh materials.

The type is used mainly for the production of corn, to which it seems best adapted, and yields of 20 to 75 bushels per acre are obtained. Cotton is not very well adapted to this soil and is often injured by early overflows. For this reason it is not extensively grown. Native grasses and lespedeza do well. Cowpeas and oats could be grown on the better drained areas and should be planted more extensively. Corn should not be grown continuously on this soil, as is largely the practice at present, but should be alternated with oats, cowpeas, or grass crops.

The Huntington silty clay loam is among the most productive soils of the county and is prized very highly by the farmers. Its value ranges from $25 to $100 an acre.

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

*Mechanical analyses of Huntington silty clay loam.*

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Fine gravel</th>
<th>Coarse sand</th>
<th>Medium sand</th>
<th>Fine sand</th>
<th>Very fine sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>413132</td>
<td>Soil</td>
<td>0.1</td>
<td>0.2</td>
<td>1.3</td>
<td>13.4</td>
<td>15.4</td>
<td>48.9</td>
<td>22.1</td>
</tr>
<tr>
<td>413133</td>
<td>Subsoil</td>
<td>0</td>
<td>0.4</td>
<td>6.0</td>
<td>17.2</td>
<td>47.6</td>
<td>28.6</td>
<td></td>
</tr>
</tbody>
</table>
HOLLY FINE SANDY LOAM.

The Holly fine sandy loam varies from light-gray to whitish fine sandy loam to silty fine sandy loam, underlain at 8 to 10 inches by a sticky, plastic, fine sandy clay, mottled gray and yellow. The surface soil is somewhat variable, in some places approaching a silt loam, while in others it is almost entirely a fine sand. Only very limited areas of this soil occur, aggregating not more than 3 square miles, encountered along the heads of streams.

The type is largely alluvial in origin, having been washed in from sandy plateaus of the mountains and adjacent valley uplands in which the streams have their source. The topography is level and the drainage is very poorly established.

Very little of the Holly fine sandy loam is under cultivation. Corn and oats will grow on the better drained portions, but the yields are light and uncertain. It supports a native growth of broom sedge and native grasses and is used principally for pasturage, for which purpose it is probably best adapted.

The value of the land ranges from $10 to $20 an acre.

The following table shows the results of mechanical analyses of samples of the soil and subsoil of the Holly fine sandy loam:

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Fine gravel</th>
<th>Coarse sand</th>
<th>Medium sand</th>
<th>Fine sand</th>
<th>Very fine sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>41350</td>
<td>Soil</td>
<td>0.2</td>
<td>1.0</td>
<td>30.0</td>
<td>44.9</td>
<td>11.4</td>
<td>16.1</td>
<td>16.1</td>
</tr>
<tr>
<td>41351</td>
<td>Subsoil</td>
<td>0.6</td>
<td>1.5</td>
<td>8.6</td>
<td>36.9</td>
<td>8.8</td>
<td>29.1</td>
<td>14.4</td>
</tr>
</tbody>
</table>

HOLLY SILT LOAM.

The Holly silt loam to a depth of 6 to 12 inches consists of a light-gray to yellowish-gray silt loam, underlain by a plastic silty clay loam, mottled with light gray and yellow, and frequently containing black oxide of iron concretions in the lower depths. Under cultivation the soil bakes and clods badly and is not so productive as the Huntington soils.

The type is alluvial in origin, occurring only along some of the smaller streams near Scottsboro and Hollywood and a few of the smaller streams to the south of Larkinsville. The areas are low and flat and subject to frequent overflow. The water table is sufficiently near the surface to keep the soil wet and clammy in most places. Occasional small areas have been cleared and put in cultivation, but for the most part it is still in forest, consisting of oak, beech, maple, and gum. It is sometimes locally called “crawfish land.” Corn, native grasses, and lespedeza yield fairly well when the seasons are favorable, but owing to the frequent overflows the
yields are uncertain. It would be better to clear it for pasturage
instead of trying to cultivate it. Applications of lime would be
advisable following the establishment of better drainage conditions.
Land of this type ranges in value from $10 to $25 an acre.

MEADOW.

Meadow embraces first-bottom land along some of the smaller
streams, mainly on the plateaus of Cumberland and Sand Mountains.
The soil is very variable in color, texture, and structure, ranging
from a light-gray to brown fine sandy loam to a light-gray fine sand.
It is underlain by a mottled light-gray and yellow fine sandy loam to
a light-gray fine sand.

The type is usually flat and most of it is inclined to be wet, except
during the dry season. This feature could be overcome by straightening
the natural drainage channels and cutting lateral drains to pro-
vide for the seepage water. The soil is subject to overflow, but the
water seldom remains on the land long enough seriously to affect crops.

Meadow is of alluvial origin, being composed largely of materials
washed down from adjacent uplands. It is for the most part in
forest, very little of it being cleared and under cultivation.

Where not too wet the type is very productive, the yield of corn
being from 20 to 40 bushels per acre and the yield of cotton from one-
half to two-thirds bale per acre. It is well adapted to the staple
crops of the region and the more sandy areas to many of the vegetables

SUMMARY.

Jackson County is situated in the northeastern corner of Alabama.
It has an area of 1,136 square miles, or 727,040 acres. The county
embraces three distinct topographical divisions, the spurs of the Cum-
berland Mountains, the Sequatchie Valley, and Sand Mountain. Elev-
ations range from 600 to 1,600 feet.

Practically all of the drainage of the area is through the Tennessee
River and its tributary creeks and branches.

The climate is mild and equable, with a long growing season and
fairly well distributed rainfall. The winters are short and mild. The
annual average precipitation amounts to 52.69 inches, of which a
slightly larger portion falls during the spring months. The average
date of the first killing frost in fall is October 20 and of the last in
spring April 15.

Transportation facilities are fairly good, a large part of the area
being accessible to railroads and the Tennessee River.

Corn and cotton are the principal crops and have been since the
early settlement of the area. Stock raising receives some attention
in the upland mountainous section, where free range still exists and
where cattle and hogs are raised. Some oats are grown as forage and
the native grasses grown for hay on the better valley soils.
Crop rotations are not practiced except by a few of the more advanced farmers, who appreciate the value of including legumes in their cropping systems as a means of replenishing the supply of organic matter in the soil. Cowpeas and soybeans are generally selected for this purpose. Commercial fertilizers are extensively used, especially in the mountainous regions.

Farms range in size from 40 to 500 acres. About 43 per cent are operated by the owners, the rest by tenants. Farm lands have increased considerably in value during the last few years. Valley lands are held at $10 to $75 an acre, mountain plateau lands at $2 to $50, and lands on the mountain sides at $2 to $5, depending upon whether cleared or not.

Nineteen soil types, including Rough stony land and Meadow, were mapped in the area. The Hagerstown, Colbert, and Decatur series found in the area each embrace three members, while the Dekalb, Holly, and Huntington soils are each represented by two members. In addition there are the Clarksville gravelly loam and the Hollywood clay.

The Decatur soils include three types, a clay loam, loam, and stony loam, the first-named being one of the strongest soils in the county. The loam type is limited in extent to the flat and undulating portions of the area. All of these soils are adapted to cotton, corn, oats, cowpeas, clover, and grasses. The stony loam is suited to fruit and well drained.

The Hagerstown soils found in the area (clay loam, loam, and stony loam) are naturally well drained and productive, with the exception of the loam type, which would be improved by artificial drainage. This is a valley soil. All three types are used for cotton, corn, oats, grasses, and alfalfa. The stony loam is an excellent fruit soil.

The Rough stony land is nearly all in forest and should remain so. The Huntington silty clay loam is the predominating bottom-land type of the area. It is prized very highly for corn.

The Huntington silt loam, though not quite so productive as the Huntington silty clay loam, is more easily cultivated, on account of its open structure. It is an excellent soil for corn and forage crops.

The Hollywood clay is very limited in extent. It is poorly drained and not very productive. Artificial drainage will be necessary before the soil can be cultivated to any extent.

Meadow includes first-bottom lands along streams on the plateaus of the mountains. This soil is subject to occasional overflow, but the water seldom remains on the land long enough seriously to affect crops. It is well adapted to corn, and the more sandy areas to vegetables.
The Dekalb fine sandy loam is the most widely cultivated soil in the area. While not naturally very productive, it is easily cultivated and gives good results from fertilizers, the addition of vegetable matter being particularly effective. Cotton and corn, the principal crops, give good yields, and sweet potatoes, Irish potatoes, melons, and most truck crops do well.

The Dekalb stony loam is in most cases too rough for cultivation. Some small areas are desirable for fruit, but for the most part it is in forest and should remain so.

The Holly silt loam is an alluvial type. It is not very productive and is poorly drained in most places. It produces some corn and grasses. Its best use is for pasturage.

The Holly fine sandy loam is an alluvial type and only occurs in very limited areas. It supports a native growth of broom sedge and grasses. It is used almost entirely for pasturage.

The Colbert silt loam is of limestone origin. This soil occupies positions a few feet higher than the associated Colbert silty clay loam. It is well drained and fairly retentive of moisture. It is well adapted to corn, oats, and grasses.

The Colbert silty clay loam is a flat-woods type and is of limestone origin. It is poorly drained and water stands on it a great deal of the time, owing to its stiff, plastic subsoil. It supports a moderately heavy timber growth of oak, hickory, holly, and cedar. Drainage is necessary before the soil can be cultivated to any extent.

The Colbert stony clay is too stony and rough in most places to be cultivated. If cleared and the native grasses allowed to grow it would afford fairly good pasturage.
[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.]
NRCS Accessibility Statement

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual’s income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA’s TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.