SOIL SURVEY OF PIKE COUNTY, GEORGIA.

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DESCRIPTION OF THE AREA.

Pike County is situated in the west-central part of Georgia. Zebulon, the county seat, is 51 miles by rail south of Atlanta and 54 miles north of Fort Valley. Barnesville, in the eastern part of the county, is 43 miles northwest of Macon, the latter city being situated ap-

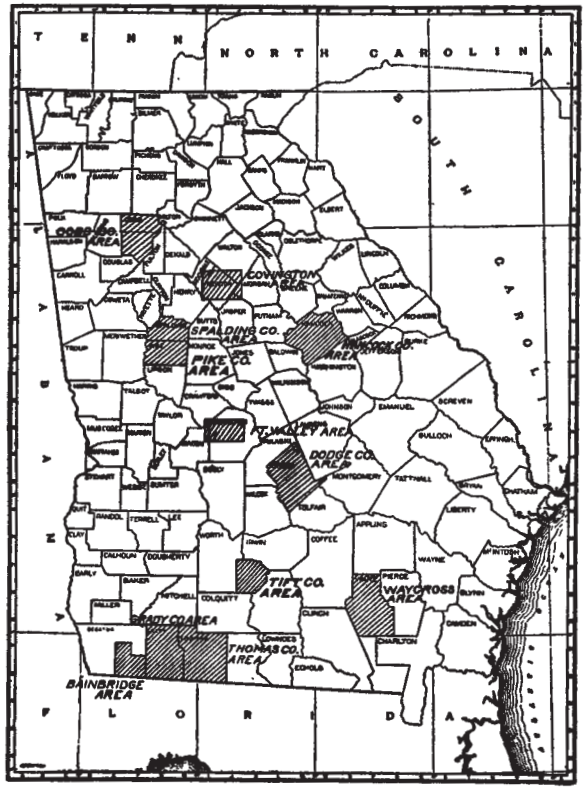

FIG. 20.—Sketch map showing location of the Pike County area, Georgia.

proximately in the geographical center of the State. The county is rectangular in outline and contains 210,560 acres, or 329 square miles. It is bounded on the north by Spalding County, on the east by Monroe County, on the south by Upson County, and on the west

by the Flint River, which separates Pike County from Meriwether County.

Pike County is situated in the Piedmont section of the State, which consists of an eroded plateau with the surface in general ranging from rolling to hilly. The tops of the main stream divides are between 800 and 1,000 feet above sea level, while the main stream courses lie 100 to 200 feet lower. There are three main divides in the county. One occurs in the western part of the county, between the Flint River and Elkins Creek, and is followed by the Southern Railway. There is another separating the drainage of Elkins and Big Potato creeks, in the central part of the county, which is used for a part of the distance by the Atlanta and Fort Valley Branch of the Southern Railway, and another in the eastern part of the county, between Big Potato Creek on the west and the drainage to the east into Monroe County. The position of this divide is indicated in the map by the line of the Central of Georgia Railway. These several divides are broad, with rolling surfaces breaking into steeper slopes only near the streams. In the southern part of the county the topography is varied by a low range of mountains rising from 100 to 300 feet above the surrounding plateau. This range forms part of the southern central boundary and two disconnected lower lying ridges occur farther north as outlyers, one extending eastward from Meansville across the eastern boundary of the county in the vicinity of Barnesville. The topography of these hills is not rugged, though in places there is some rock outcrop and large quantities of loose stone on the surface.

Pike County lies within the drainage basins of the Flint and Ocmulgee rivers. The Flint River, as already stated, forms the western boundary, and by far the greater part of the drainage, or all to the west of the divide followed by the Central of Georgia Railroad, is into this river, mainly through Big Potato and Elkins creeks, the two largest streams within the county. The eastern watershed is so limited within the county that no considerable streams are formed, but the drainage finally reaches the Ocmulgee. The course of the main streams is southerly. Narrow flood plains have been formed along all the streams and branches, and wet, swampy conditions frequently exist.

The first settlement in Pike County is believed to have been made in 1820, a few miles south of Zebulon. Two years later, in 1822, Pike County was organized. Originally it included a much larger area than now, all of Upson County and part of Spalding County having been cut off since. The early settlers came largely from other parts of Georgia, but there were also some additions to the population from Virginia and other near-by States. Settlement gradually

extended over the county and the population is now quite evenly distributed. According to the census of 1900 the population of the county was 18,761, of which number about one-half were negroes. There are very few citizens of foreign birth or extraction. Zebulon, the county seat, has a population something over 500 at the present time. Barnesville, with a population of about 4,000, is the largest town in the county. It is situated on the Central of Georgia Railway, and is quite a manufacturing center. Other towns in the county, all of which are located on the railroad, are Milner, Meansville, Concord, Molena, Williamson, and Piedmont.

The railroad facilities of the county are exceptionally good, no section being far from a railroad station. Three lines of railroad pass through the county: The Central of Georgia Railway through the eastern part, the Southern Railway, the Atlanta and Fort Valley Branch of the Southern through the central part, and the Atlanta, McDonough, and Columbus Branch through the western part. Besides these roads the Central of Georgia has a branch from Barnesville to Thomaston, the county seat of Upson County. These railroads have been of especial importance in the development of the peach industry. An unusually large number of roads reach all parts of the county. They are in fairly good condition and are being steadily improved.

All the towns in the county are connected by telephone lines and have also local service. Rural free delivery of mail is general over the county. County or town schools are within easy reach in all sections of the county.

CLIMATE.

The appended table, showing the mean monthly, annual, and seasonal temperatures, precipitation, etc., at Talbotton, in Talbot County, is taken from Bulletin Q of the Weather Bureau. The data are thought to be fairly representative of local conditions and are the best available, no records of sufficient completeness for the establishing of normals having been kept in Pike County. In general the climate is a mild, temperate one. The winters are short, with only occasional cold spells, when the temperatures may fall to zero or below for a brief period. A small part of the winter precipitation is in the form of snow.

Summer temperatures reach a maximum slightly above 100° F., but on the whole the summers are not uncomfortably hot. Frosts in spring may be expected until the middle of March, and occasionally the last killing frost in spring occurs as late as April. The first in fall is usually delayed until the first part of November, though killing frosts have occurred as early as the middle of October. There is

thus a growing season in which all crops have plenty of time to mature. The liability to frost makes the fruit crops uncertain, but probably not more so than in other fruit sections.

The rainfall is fairly well distributed, though heaviest in the months of February, March, July, and August. The rainfall, as is usual in southern latitudes, is frequently torrential, and this is one cause of the relatively severe damage to the fields by erosion. Droughts of greater or less prolongation occur during the early summer months.

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

Month.	Temperature.			Precipitation.			
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.
	°F.	°F.	°F.	Inches.	Inches.	Inches.	Inches.
December	46	75	7	4.0	4.9	3.0	0.2
January	46	76	10	3.9	6.1	3.8	.3
February	46	79	− 6	6.6	9.3	7.0	1.2
Winter	46	.....	.....	14.5	20.3	13.8	1.7
March	57	86	17	6.3	4.0	7.4	.....
April	62	94	28	3.6	3.6	7.4	.....
May	72	97	41	2.6	1.7	6.0	.....
Spring	64	.....	.....	12.5	9.3	20.8	.....
June	78	103	49	3.4	.4	5.8	.....
July	79	105	55	6.0	2.1	7.1	.....
August	79	103	61	5.7	3.5	3.8	.....
Summer	79	.....	.....	15.1	6.0	16.7	.....
September	74	100	42	2.8	1.8	4.6	.....
October	64	90	29	3.7	7.6	2.5	.....
November	54	82	20	3.1	2.0	1.7	.....
Fall	64	.....	.....	9.6	11.4	8.8	.....
Year	63	105	− 6	51.7	47.0	60.1	1.7

AGRICULTURE.

At an early date in its history two state roads were built through the territory now comprised in Pike County. One of these was the thoroughfare from Atlanta to Savannah by way of Macon, and the other a road built by General Jackson in his expeditions against the Indians. These were main lines of travel and favored the development of the contiguous country. The outlet for the products of Pike County was at Macon, at the head of navigation on the Ocmulgee River. From this place shipments were made down the Ocmulgee and Altamaha rivers to Atlantic seaports, and necessaries were

brought in over the same route. Railroad construction began in the early fifties, and, of course, improved the conditions of transportation to a marked degree, but the agricultural development was not great prior to 1860, and the subsequent interval of war tended to retard it for some years thereafter.

Up to this time the agriculture had been of the self-sustaining type common under pioneer conditions in more isolated communities. Wheat, corn, tobacco (for home use), some cotton, cattle, and sheep, probably kept mainly for their wool, which was manufactured into clothing in the home, were some of the leading products. Hogs were the local source of meat supply. Cattle doubtless formed one of the main exports in the earliest stages of development, and cotton had become important toward the end of the period ending with the civil war.

With the high prices for cotton at the close of the war and for some time thereafter cotton became the principal product of the county, the agriculture changing gradually from a general system where each farm was self-sustaining to a one-crop system, in which the cotton was grown to the practical exclusion of the subsistence crops. From this time the planters have depended more or less completely upon the returns from the sale of cotton to buy the food and other necessary supplies of the family and the feed for the work stock.

For the last three decades of the last century the census reports show that between one-third and one-half of the improved land in farms, or, in other words, about 40,000 acres, has been devoted to cotton, the acreage in 1890 and 1900 being slightly above that figure. There is little doubt that there has been a decided increase in the acreage in this crop during the last decennial period. The yields as shown by the censuses of 1880, 1890, and 1900 were 12,431, 16,586, and 14,003 bales, respectively. These figures show that the average yield is only one-third bale to the acre. The yields vary greatly with the soil types, their condition, the care in cultivation, etc. Maximum yields of 1 bale to the acre are secured, though such a yield is not common and is confined to small patches. One-half bale to the acre is considered good. That this yield could be increased there is no doubt. A smaller acreage to the plow with better preparation of the seed bed, selection of seed, and better cultural methods in general would bring this about. Chiefly the large-bolled varieties of cotton are grown, the favorite sorts being Russell Big Boll and Truitt Improved. The Peterkin, a small-bolled variety, is preferred by some, especially for use on the sandy upland soils. The use of commercial fertilizers for cotton is general.

Corn ranks next in importance to cotton. The acreages, as given by the censuses of 1880, 1890, and 1900, were 29,243, 24,084, 29,990, and the total yield in bushels 244,674, 270,840, and 219,220, respec-

tively. From year to year the average yield ranges from 6 to 15 bushels per acre. Higher yields are secured from better fields on soils well adapted to the crop and where better cultivation and fertilizers are employed. The production for the county is barely sufficient for the maintenance of the farm stock and other domestic use.

Corn does not receive the cultural attention that cotton does, and the use of fertilizers is exceptional, which facts account sufficiently for the low yields. The white dent varieties are preferred. In harvesting the corn the blades are stripped and saved for fodder; the stalks are left in the field and largely wasted. Wheat until comparatively recent years was an important crop. In 1879 the acreage was 7,510 acres and the production 52,880 bushels. Ten years later only 998 acres were reported, while the production had shrunk to 7,264 bushels. A decided increase took place during the next decade, the census of 1900 showing 4,285 acres in wheat in 1899 and a production of 22,050 bushels. It is probable that the acreage has decreased some during the last ten years, though with present prices it could well be given more attention. Only occasional small fields are seen, and the yield on the average does not exceed 8 bushels to the acre. The acreage in oats as given by two censuses was between 2,000 and 3,000 acres, a falling off of about one-half from the acreage returned for 1879. According to the same authority the average yield was 10 bushels per acre. It is interesting to note, as showing the possibilities of this section, into which many hundred bushels of oats are brought each year, that as high as 55 bushels per acre have been secured from a 10-acre field. Fields of oats are to be seen on most farms, and it is probable that the acreage in this cereal is increasing at the present time. A considerable proportion of the oat crop is cut for hay. Winter varieties are grown. A little rye is produced, but the yields are low. This crop should receive more attention, as it makes about the surest winter cover crop for this section, affords winter pasturage and forage, and can be turned under for green manuring early in the spring. The census returns for the years mentioned all show a small acreage in barley.

Very little hay is produced in the county. Cowpeas, millet, small grains cut green, Bermuda grass, and crab grass, the last two volunteering in the cultivated fields, are the chief sources of this product. Bermuda grass is the principal grass of the pastures, while in neglected fields and in open woodland broomsedge also affords grazing in the earlier stages of growth. Very few farms produce sufficient forage for the stock and hay is shipped in and sold to the farmers. The hay crop should certainly be increased. The few trial patches of alfalfa seen indicate that this crop could be produced on some of the soils, but the heavy rainfall in this section would make the curing

of alfalfa in large quantities very difficult, and for this reason it does not appear wise to recommend a very great extension of acreage, though a small field on each farm would be highly desirable.

Sorghum is grown to some extent for the making of table sirup and a small quantity is cut for forage. In some sections in the South this is the main forage crop. Sugar cane is grown universally over the county, though in small patches. The area of soil or, rather, soil of proper moisture conditions, is limited, comprising small areas around the heads of branches and depressions in the fields. Practically every farmer grows enough cane to furnish sirup for his table, and some produce a surplus for sale. There is no doubt that the production of sirup could be profitably increased, and there are many areas (mapped as Swamp) adjoining creeks and branches, now given over to an almost worthless growth of underbrush, that could be brought under cultivation and profitably devoted to sugar cane. Georgia ribbon cane sirup has an established reputation in the large towns and cities, and there is always a good demand at remunerative prices.

Sweet potatoes are grown on every farm for home use, and the surplus is enough to supply the demands of the local markets. Irish potatoes are also grown, but the production is small. The acreage devoted to these crops should be increased, and it is very probable that Irish potatoes could be grown profitably to furnish an early supply for more distant markets. The sandy soils should produce potatoes of excellent quality.

No thought whatever is given to the trucking industry as a commercial possibility, and but slight effort is made to produce enough vegetables for home consumption. Trucking, especially the production of the heavier crops, could be profitably carried on, especially in connection with canning plants, and there is no reason why these products should be shipped in from elsewhere. Tomatoes do exceptionally well. Strawberries give good yields and should be more widely grown, at least for home use. The fig thrives, and many scattered trees are seen. The fruit is preserved for domestic use, but the production on a commercial scale has not been attempted. Other tree fruits should be more generally produced on the farms.

Not enough fat stock is raised in the county to supply the home demands for meat. Every planter and tenant could profitably make enough meat for his own use, and many could easily produce a surplus to supply the needs of the towns within the county. Hogs, as in early days, form the principal source of meat supply, though the consumption of beef is increasing, especially in the towns. Excepting a cow or two to supply milk, few cattle are found on the farms. There are practically no sheep. Lack of fences is one cause for this dearth of live stock. The work stock consists of horses, mules, and oxen.

Mules are preferred by most of the planters. Under the one-crop system and with few soil differences, there has been little incentive to a study of the adaptation of crops to soils. Cotton is grown on all classes of the upland soils. It is recognized in a general way that the "red lands" produce on the whole a greater yield, though the quality of the lint is not quite so good as on the sandy soils, and its value is liable to be reduced by staining. Varietal adaptation is given little consideration by the majority of planters. Some have noticed that on the drier, more sandy, and less productive types the Peterkin, a small-bolled variety, succeeds well, but this variety is not a favorite with many, because it is difficult to pick. Occasionally a planter is found who carefully perpetuates a satisfactory strain by seed selection, but the reverse is the rule. The growers exercising care in this respect have uniformly increased their yields. On the Cecil sandy loam and the Worsham coarse sandy loam around Milner and Meansville a superior fiber is said to be produced and the local mills give preference to the cotton from these localities.

Systematic rotation of crops is not practiced in the county. Cotton is grown year after year on the same land and corn is produced in the same way. The acreage in cotton is so much larger than the acreage of all other crops combined that a balanced rotation could not be followed, even if the planters desired to do so, without a decided change in the general agricultural practices, and such a change would be difficult to bring about under the conditions of tenant farming now prevailing. The few farmers that have made attempts to rotate crops usually plant cowpeas with the corn, follow this with cotton for a few years, then with winter oats, after which, cowpeas, and back to corn. This rotation is recommended by the state experiment station and is one that may be used without great alteration in the relative acreages of the crops at present planted. It depends, however, in part on the use of catch crops planted with the other crops and to this extent is a compromise. A shorter rotation in which cotton did not occupy the land so much of the time would be better, and such a system will doubtless come with greater diversification.

On the whole, the cultural methods are not the best. The small one-horse plow in general use can not be efficient in preparing the seed bed. Cotton is planted on a ridge or bed and the bed is formed at the first plowing, instead of later upon thoroughly plowed land. By this method harrowing is omitted. The beds are alternated each year, what was the furrow the preceding season becoming the bed, and vice versa. A deep and thorough breaking of the fields, followed by careful harrowing to pulverize the soil, with the beds, if level culture is not desired, thrown up in this pulverulent condition, will be found to give much better results.

Fertilizer applications ranging from 100 to 500 pounds, according to the judgment and inclination of the planter, are used in producing cotton. Little fertilizer is used for other crops. Home mixing of fertilizers is practiced to some extent, a combination of cotton-seed meal and acid phosphate being popular. Frequently no potash is added, but when used either kainit or the muriate is selected. The former is considered the better carrier on account of its supposed tendency to prevent rust. Where ready-mixed fertilizers are used a complete fertilizer having a formula of 8–2–2 is usually selected. Besides the commercial fertilizers, the little barnyard manure made, as well as chip dirt and other refuse, is used, but there are few who take the trouble to compost these materials. The expenditures for fertilizers constitute a large item in the cost of production and the planters should employ every means to reduce this outgo. The keeping of more stock and the growing of more leguminous forage crops is the best means at hand to bring about this economy and at the same time to maintain the productiveness of the fields.

The yield of corn, even taking into consideration that there is little or no bottom land used for this crop, is low and could be materially increased by better preparation of the seed bed and more thorough after cultivation. Selection of good seed of a variety known to be adapted to the upland soils of the locality is also suggested as an important change in the culture of crops.

Oats and wheat are sown broadcast or drilled. The more usual method employed with oats is to drill in a comparatively deep furrow, which it is claimed is necessary in order to protect the young plants from freezing. It would seem that in general too much seed is used and that the plants would stool better and give better yields if they were given more room.

Dependence is placed largely on negro labor, which is fairly satisfactory, especially in producing cotton. Where the planter lives on his plantation he usually grows a crop himself, hiring such day labor as is necessary; the bulk of the farming, however, is done by tenants, 70 per cent of the farms being run in this way. Under the tenant system a certain rental is charged, to be paid in cotton. Each tenant is allotted from 25 to 30 acres—popularly called a one-horse farm—for which the usual rental is 2 bales of cotton. No conditions are imposed on the tenant as to the use of the land, except that there be enough cotton planted to make the rental. The tenant furnishes the seed, fertilizer, working stock, tools, and labor. He usually plants about 15 acres to cotton, from which he gets from 4 to 10 bales, and 10 acres or less in corn, which does not yield enough to feed his family and stock. With the land goes a cabin and a garden patch. Tenants who do not have working stock or credit work on a share basis, the landowner furnishing the stock, tools, one-half the

seed, and fertilizer, and the tenant the labor, the crop being equally divided. Negro women and children find employment in chopping and picking the cotton. The latter is all done by weight, the prices ranging from 40 to 75 cents a hundred pounds, depending on the abundance of the cotton.

The value of farm lands has increased greatly during the last few years. This increase, according to the state department of agriculture, has amounted to 100 per cent. Prices range at present from $10 to $50 or more per acre, depending upon location in reference to towns and the kind and condition of the soil. The Cecil clay, "red clay lands," brings a higher price than the sandy types. This advance has been caused by the high prices received for farm products, especially cotton, and these two factors have placed the planters generally in a prosperous condition and with them the business interests, which are closely identified with the agriculture of the region. In the future development of agriculture in Pike County the most important steps are: Further diversification of crops, improved cultural implements and methods, and the introduction of some form of live-stock industry. The one-crop system is certainly not the best for the soils nor is it the safest. The producer of cotton as a sole money crop stakes too much upon uncertain seasons and uncertain prices. With a diversity of products he becomes more independent of the seasonal and price fluctuations and his income is more certain from year to year. Under the present conditions the average farmer or tenant does not raise enough food supplies for himself and stock, although this he might readily do. One feature of diversification will be to make the farm more nearly self-sustaining, and though less cotton may be grown the net income may be as great or greater, for there will be less expenditure for necessaries.

Pike County, with its mild climate and naturally productive soils, can produce a wide range of general farm and special crops, and there is thus no natural obstacle to diversification, and all the products that find a market should be grown. Systematic crop rotation will naturally follow diversification, and improvement and maintenance of the productive power of the soils will become more practicable when this stage of the development is reached.

In any crop rotation recommended for local use four objects should be kept in view, the production of some crop or crops other than cotton for sale, the production of forage and feed for live stock, the growing of winter cover crops to protect the fields from erosion, and the growing of certain crops chiefly if not solely for the purpose of adding to the fertility of the soil. A few rightly selected crops may fulfill all these several requirements. The cereals—wheat, oats, barley, corn—and the legumes, such as cowpeas, vetches, and clover,

should find an important place in every rotation. Alfalfa advisably in small patches should be grown on every farm. With diversification and crop rotation more live stock may be profitably kept. The profit will come in two ways, from the use and sale of meat and from the manure, giving increased yields of the crops with less outlay for fertilizers. In this connection the value of oats and rye as winter cover crops is augmented by their use as pasturage in the winter and early spring, while the value of stubble turned under later is increased by the droppings of the pastured animals.

Improvement in cultural methods comprehends as the important step the better preparation of the seed bed. The light one-horse plow can not be efficient even in the lighter textured soils. Two-horse plows should be used, and the soils gradually plowed deeper each year, and in the Cecil clay or where the plow reaches the compact clay subsoil, the subsoil plow will be a valuable implement. The fields should be plowed broadcast and not simply ridged. The plowed fields should be harrowed thoroughly and the soil reduced to a fine tilth before laying off the fields for planting. In after cultivation of the growing crops more use should be made of the modern forms of cultivators, which are more economical of time and labor than the one-shovel implement now in general use.

In the ultimate utilization of the lands of the county the rougher and poorer areas will be used for forestry. All those areas mapped as Rough stony land are suited to little else and in addition to these the steeper slopes on many farms could well be given to the cultivation of some of the rapid growing trees, to furnish posts, ties, and the wood supply for home needs. Certain areas on which young forests spring up should be protected from fire, and the growth encouraged in every way. Not many years will elapse before this will become one of the most valuable assets of the farm and county.

SPECIAL INDUSTRIES.

Peaches.—While the county as a whole is mainly intent upon the production of cotton, in favored localities near shipping points along the railroads peach growing has been successfully developed. There are many orchards of commercial size at these places. The most important development, however, has been in the section around Barnesville, where there are several hundred acres in orchards.

The growing of peaches began about twenty years ago and has gradually reached its present magnitude. In the past it has proven quite profitable. There is now, however, a tendency among the large growers to reduce the acreage and to keep the orchards on a basis where more attention can be given to the trees with a view of improving the quality of the fruit. The tendency in the earlier stages of the

industry was to plant larger orchards than the conditions of labor warranted, the aim being quantity rather than quality.

The general practice is to give the orchards clean cultivation until harvesting time and then to let the weeds grow, the weeds being used in the place of a cover crop. Spraying is generally practiced, but is not always thorough. The San Jose scale has done considerable damage, and the yellows has been disastrous to some orchards. The trees are generally headed low, but are often badly pruned. The trees are allowed to bear heavily, and as far as known no thinning is done. The general quality of the crop is impaired in this way, and lower prices result.

Fertilization is not generally practiced, the natural productiveness of the soil being depended upon to grow the tree to maturity and to produce fruit. The trees, to all appearances, are more thrifty on the red clay than on the sandy soils. Except where the sandy soil is unusually deep the trees seem to do about equally well on the Cecil clay and Cecil sandy loam, the roots of the trees in each case growing in subsoil of similar derivation and character.

Peaches are produced successfully on both the Cecil clay and Cecil sandy loam, some growers preferring the one and some the other type. Differences of opinion exist as to the relative flavor and keeping quality of the fruit produced on these soils, though the growers generally agree that the peaches from the heavier soil have a firmer flesh.

The Elberta, a variety originating in Georgia, is the favorite with local growers and is planted to the practical exclusion of other varieties. It has proved to be so well adapted to the soil and climatic conditions that there is little likelihood of any other variety soon displacing it. Another variety grown to some extent is the Carmen, an earlier kind ripening in June. The Elberta ripens in July.

Most of the peaches produced in Pike County find their way to northern markets. A canning factory at Barnesville uses some of the surplus crop.

Good orchard sites are found throughout the county and there seems to be no reason why there should not be a considerable extension of the industry. Besides peaches, certain varieties of apples, pears, and plums might be grown with profit.

Pecans.—Nut culture is at present attracting considerable attention and a number of pecan groves are already established in the county. Though most of these have not arrived at the bearing age, there are two older groves which are paying well. Some scattered trees planted in the village home lots have also given very good yields. The growers, basing their opinions on these facts and the general thrifty appearance of the young trees, are generally enthusi-

astic over the prospects of this industry. Improved varieties of nuts about 4 years old from the bud are used in setting the groves. These are expected to begin bearing in five years. The locations selected are usually depressions in the upland soil types or areas on the lower slopes. In such places the soil is deep and moisture conditions more favorable than elsewhere. The bottoms along the streams of this region are not considered as satisfactory for pecan culture as in some parts of the South. Another nut giving promise is the Japan walnut. Individual trees in yards are yielding well, but no plantings have been made on a commercial scale.

SOILS.

Pike County, as has been previously stated, is situated in the Piedmont Plateau. The rock formation of which this plateau is formed consists of a series of highly crystalline, igneous, metamorphic, and eruptive rocks, mainly granites, gneisses, and schists. All the soils of the present survey have been derived through disintegration and decomposition from these rocks, and so intermingled and closely associated are these rocks and the variations within them that it is difficult, in fact practically impossible, to trace the origin of any particular soil to a definite kind of rock. The most that may be said is that the preponderance of one variety of rock has had a marked influence upon a certain soil formation, causing it to vary somewhat in its characteristics as the original rock varies in its composition.

The more or less complete weathering of these rocks has as a whole resulted in the formation of a stiff red clay, for the most part of a considerable depth, over some areas of which has been left a coarser or sandy mantle of varying depth and character. The separation of this more or less homogeneous material into soil types is based upon difference of texture and of other physical properties, such for instance, as color and depth. The soils, as is readily seen, are all closely related in origin and in processes of formation.

The Cecil series is widely distributed throughout the Piedmont Plateau and comprises many members. Only two of these types were recognized in Pike County—Cecil clay and Cecil sandy loam. The sandy loam is probably derived more largely from the harder and more siliceous granites and gneisses, the coarser grains being mainly quartz. The clay appears to have been derived in greater part from the mica schists and the eruptive rocks of lower quartz content. The Edgemont silt loam is approximately derived mostly from a fine quartz schist, but some ledges of quartzite as well as of mica schist are included in the formation. To the greater resistance of the quartzite and quartz schist is due the relatively higher positions

these soils occupy. They are found upon small mountains in the southern part of the county, and where the slopes are steep and stony they have been classed with Rough stony land. A local type, the Worsham coarse sandy loam, probably owes its origin to a diorite formation. The Flint River has built up along its banks a natural levee of transported material, which is mapped as the Congaree fine sandy loam. The small streams likewise have narrow flood plains of varying grades of material, but usually such areas lack drainage and are in a more or less swampy condition. While these areas would probably fall into some of the established alluvial series if drained, they have been included for the present in the miscellaneous type Swamp and are so shown on the accompanying map.

In the following table are given the names and actual and relative extent of the several types shown in the accompanying map:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Cecil sandy loam	132,160	62.7	Rough stony land	5,248	2.5
Cecil clay	30,080	14.3	Edgemont silt loam	2,240	1.1
Swamp	19,328	9.2	Congaree fine sandy loam	576	.3
Worsham coarse sandy loam	15,040	7.1	Total	210,560	
Molena sand	5,888	2.8			

CECIL CLAY.

The Cecil clay, locally called "red lands" or "red clay lands," occurs in two phases; one with more or less sand on the surface and one free or nearly free from such a covering. The latter is the typical Cecil clay, found throughout the Piedmont belt. In Pike County it consists of 6 to 8 inches of a dark brownish red heavy loam, clay loam or clay of a rather loose heavy nature, resting on a subsoil of dark-red soft, sticky clay, which extends below 36 inches, and generally to depths of several feet. In some places, as on small knolls, there occur some black, highly ferruginous stone fragments. In cuts may be seen weathered ledges of the rock from which the type has been in whole or part derived. Both the soil and subsoil are more or less micaceous, the mica being generally in minute flakes.

On the crests of the hills and ridge slopes the sandy phase occurs. Here the soil is a heavy micaceous rather coarse loam or clay loam carrying some coarse particles underlain by micaceous red clay. However, by far the greater part of the Cecil clay in Pike County consists of areas from which the sandy mantle has been largely removed by erosion, so that the subsoil has been exposed or the mantle rendered so shallow that when plowed the underlying red clay mixed

with the sandy material is sufficient to give the soil the physical properties of a clay.

The Cecil clay is of residual origin, having resulted from the disintegration and weathering of highly crystalline igneous, metamorphic, and eruptive rocks. Of these, mica schists seem to be the most prominent, but all the rocks mentioned have entered into the formation in a greater or less degree. The Cecil clay is found in nearly all parts of the county in small disconnected areas. It occurs also in broken belts with a southwest and northeast trend. One of these extends from the county boundary southwest past Williamson; a larger belt enters the north-central boundary from Spalding County, following in a general way the course of Elkins Creek, though broken by areas of Cecil sandy loam. A third belt extends from Libertyhill, in the northeast corner of the country, southward to Barnesville. Besides the areas mentioned there are numerous scattered areas.

The extent of the typical phase of the Cecil clay is not large. It is confined to rather small areas, the largest occurring on the high dividing ridge around Williamson and southwest of that town around Zebulon, and again at Barnesville.

The Cecil clay occupies the tops and slopes of the hills and ridges and ranges higher in elevation than any of the other soils except that found on the tops of mountains. Many of the areas form eroded slopes, but these are in general not so steep as to prevent cultivation. On the broad-topped hills and ridges the areas are gently undulating, with small stretches comparatively level. The topography everywhere promotes good drainage. On the steeper slopes the run-off is too rapid and has caused considerable damage by erosion where the fields have been neglected. The close structure of the subsoil makes it retentive of moisture and fertilizers, though in very dry spells crops suffer for lack of moisture much more than on the Cecil sandy loam, the sandy mantle of the latter being more effective in preventing loss of the stored moisture by evaporation than the heavier soil of the clay type.

The Cecil clay is the most productive and strongest soil in the county, though it does not have the wide range in adaptation to crops that the Cecil sandy loam has. It makes an excellent general farming soil. Cotton is the most important of the field crops. It may be depended upon to yield at least one-half bale to the acre, and larger yields are not uncommon. Cotton is fertilized on this as on all the other soils. One drawback connected with its culture is the liability of damage from staining when dashing rains occur. Corn gives good yields, although the texture of the soil is rather heavy for best results. The cereals and grasses succeed better on this soil than on any of the other types, as these crops prefer a heavy soil. Some peach orchards are found on the Cecil clay and the trees, though un-

fertilized, are strong and thrifty. This soil is, however, not well adapted to either sweet or Irish potatoes, which not only give inferior yields, but are poor in quality. It is also not suited for garden crops, being too heavy and late.

This soil could be greatly improved by the use of green-manuring crops and other coarse organic manures. With the kind of implements locally employed it is a comparatively difficult soil to work. Light implements can not break the soil to sufficient depth nor pulverize it as thoroughly as should be. The disk harrow is used to some extent and does excellent work.

When handled in a wet condition the soil clods badly and is broken down with difficulty in after-cultivation. Care should be taken to work soil of this character only when in the proper condition as to moisture content. This fact is recognized by the planters, but in the rush of work is often lost sight of.

Though the Cecil clay is naturally strong and productive and gives good results, it ordinarily can be made much more so by thorough preparation of the seed bed and careful after-cultivation of the crops. In some sections of the Piedmont the yields on this soil have been doubled by skillful management without increased applications of fertilizers. This type is benefited greatly by subsoiling, the process loosening the rather compact material and giving the roots of crops more room to grow. Subsoiling also increases the power of the soil to retain moisture.

The price of the "red-clay land" is somewhat higher than of the other soils in the same locality. Farms may be purchased for $20 to $60 an acre.

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

Mechanical analyses of Cecil clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
20580, 20582	Soil	2.3	7.8	6.5	22.2	8.8	13.9	38.2
20581, 20583	Subsoil	2.0	6.6	3.7	11.6	4.6	11.5	59.9

CECIL SANDY LOAM.

What is locally known as "gray sandy land" where underlain with a red clay subsoil constitues the type mapped as Cecil sandy loam. The surface soil consists of a sandy loam of varying texture. For the most part it is a medium sandy loam in which there is a considerable quantity of the coarser sands, which give it a coarse, gritty feel. Again, the coarser particles are much less in evidence

and the finer grades of sand predominate, the type approaching a fine sandy loam in texture, though still a medium sandy loam. It also varies from a light sandy loam in which the surface is loose and more or less incoherent to a heavy sandy loam carrying considerably more silt and clay. The latter condition if found where some of the subsoil has been incorporated with the surface material as a result of plowing. As the subsoil is approached the soil generally becomes a little heavier. There is usually present in the soil and upon the surface varying amounts of quartz fragments, ranging from small gravelly pieces to stones several inches in diameter. The proportion of such material ranges from a small percentage to possibly 10 or 15 per cent of the soil mass, but the latter condition does not persist over extensive areas. In parts of the county, particularly in the northwestern part, the fragments and rocks consist of coarse granite, and here the small fragments are so plentiful that the land is locally called "gray gravelly land." The depth of the surface soil is quite variable, ranging from 5 to 15 inches. Between 6 and 8 inches is the usual depth. The color of the soil is gray to light brown, being decidedly gray when dry. In places, however, it is reddish brown, owing to the admixture of the red subsoil material.

The subsoil is uniformly a stiff tenacious red clay, extending below the soil profile (36 inches) to indeterminate depths. In places the partially weathered rock may come to within a few feet of the surface. Between the soil and subsoil there is a distinct line of separation both in color and texture, though the upper few inches of the clay may be quite sandy. Sharp quartz sand, however, is found to some extent throughout the clay formation, as well as larger quartz fragments. Quartz veins are also of common occurrence. Both soil and subsoil are usually more or less micaceous. Most of the mica occurs as minute particles, though occasionally larger flakes are found.

The Cecil sandy loam is more extensively developed than any other soil in the county, covering 62.7 per cent of the area. It is found in all parts of the county in large areas, broken only by the areas of Swamp along the streams and by small areas of the other upland types. It occupies the crests of the divides and extends down the slopes to the streams. The topography of the interstream areas is gently rolling, and the surface becomes hilly only next the stream courses, where the slopes may be quite steep. The surface configuration, however, is, on the whole, such that practically all of the land is capable of cultivation. The surface drainage has been fully established, there being a number of creeks and branches passing through the areas. Though the slopes are not steep as a rule, yet the run-off is rapid enough to cause erosion of many areas, and this tendency is controlled in great measure by the universal practice of terracing.

Over much of this type the sandy mantle has been so much removed that the subsoil is exposed in places, causing what is commonly known as "galled spots," or the soil mantle has at least been removed to such an extent that the subsoil is turned up by the plow. Where the areas from which the soil has been removed are of sufficient size to be shown on a map of the scale used in the survey they have been classified as Cecil clay.

The Cecil sandy loam, having a close retentive subsoil, is very resistant to drought, and the crops suffer for lack of moisture only in very prolonged dry spells. For this reason the type is more certain to produce a paying crop than any of the other soils mapped. Like the Cecil clay, the Cecil sandy loam is a residual type derived from the disintegration and weathering of the underlying rocks in place. These consist of highly crystalline, igneous rocks—granites, gneisses, and schists and some metamorphics, such as mica diorites. The sandy characteristics are probably the result of derivation from the harder and more siliceous forms of these rocks. The weathering has gone on to a considerable depth, though it is probably not so complete as in the case of the Cecil clay, the coarser particles in the soil and the larger quantity of rock fragments indicating this.

Owing to its loose, sandy character the Cecil sandy loam is easy to cultivate—a desirable property generally recognized in the county, where the lighter forms of cultural implements are in general use. Land of this type of soil therefore is generally desired, though it is not as strong as the Cecil clay. All the crops grown in the county are produced on this soil. Some of it is considered the equal of any soil in the county, while some is exceptionally thin and poor. The yield of cotton ranges from one-fourth to 1 bale per acre, with the average yield one-half bale or less.

Corn returns from 10 to 20 bushels to the acre, averaging from 12 to 15 bushels. Potatoes, both sweet and Irish, give fair yields of good quality. As much as 60 bushels per acre of oats have been secured, but the average yield is only 12 to 15 bushels. Wheat makes 8 to 10 bushels. Cowpeas do exceptionally well, and should be more extensively grown, as they will furnish forage for the stock and at the same time improve the soil.

For gardening the Cecil sandy loam is a desirable type. It has a wide range of adaptation and will produce almost all the vegetables in some degree of excellence. Extensive peach orchards are found on this soil type. The trees make a thrifty growth and bear abundantly. The fruit colors well and is of fine flavor. Those locations where the surface soil is shallow are in general preferred. Where the soil is very deep the trees are less thrifty and shorter lived. Some pecan orchards are located on this soil. Lower slopes and depressions are selected for pecans.

Fertilizers are very generally used. They are always applied to the cotton fields and less frequently to corn. Green manuring crops would do much to improve the soil, making it more retentive of moisture and increasing the supply of organic matter, in which this as well as the other soils is deficient. Cowpeas are the best crop for the purpose, though clover and vetch are valuable. The more general use of rye or oats as a winter cover crop to prevent washing can not be too strongly recommended. These crops may be pastured in early spring and later turned under as a green manuring crop. Lime would no doubt prove beneficial. It should be applied once every five or six years, and a good plan is to top-dress fields after a green manuring crop has been turned under.

The general condition of agriculture on the Cecil sandy loam areas is fairly good. Both landowners and tenants seems to be prospering. The value of this soil has greatly increased during the last few years. Prices now range from $15 to $50 an acre. Lands at a moderate distance from towns and railroads can be purchased for $20 to $25 an acre.

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

Mechanical analyses of Cecil sandy loam.

Number.	Description	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
20576, 20578	Soil	6.6	18.9	12.9	27.1	12.4	13.7	8.1
20577, 20579	Subsoil	2.4	10.3	5.8	11.9	4.1	18.2	46.9

MOLENA SAND.

The surface soil of the Molena sand, to a depth of 8 or 10 inches, consists of a medium textured, slightly loamy sand. The color is for the greater part a light to dull gray on the surface changing to light brown. Below Flat Shoals the areas are in part decidedly red from the surface through the subsoil. The subsoil is in texture similar to the soil, but in places varies to a light medium sandy loam. At depths considerably greater than 36 inches these lighter materials may be underlain by red sandy clay. The color ranges from a yellowish brown to yellowish red or sometimes a dark red, the last color being found especially in the lower part of the profile. The surface soil is in places incoherent and subject to drifting, and roads are deep with sand. The subsoil, however, is more compact and stands up well in road cuts. The compactness of the subsoil permits the holding of water fairly well considering its texture, and the subsoil was

found to be generally moist, though the type is more or less susceptible to drought.

The Molena sand occurs along the Flint River in an almost continuous belt a mile or more wide, extending from just below the junction of the river and Line Creek south to the point near Molena, where the Southern Railway crosses the river. This belt is broken at Flat Shoals by areas of other soils reaching to the river, and in other parts by the swampy areas along the streams emptying into the river. A small detached area of the sand occurs on the Flint River above its junction with Line Creek. The areas occupy broad dome-shaped hills, the crests of which reach about 200 feet above the river. The slopes are for the most part smooth, being steep only along the small stream courses. Drainage is good. The porous sandy character permits ready percolation of water, and a few springs are found in the ravines. The topography also favors surface run-off and in some cases this is so rapid as to cause damaging erosion.

The Molena sand is of residual origin and weathering has been so complete that no rock outcrops or even stones are found. It is therefore difficult to identify the rocks from which the type is derived. Granites were seen in areas of other soils adjoining and it is probable that the sand is derived for the most part from similar rocks.

The Molena sand is practically all devoted to the production of cotton. It gives with heavy fertilization an average yield of one-fourth to one-half bale to the acre. The lint is of excellent quality. Corn gives poor yields, this soil being too dry during the critical stages in the growth of this crop. Watermelons do exceptionally well, but are not grown on a commercial scale. Sweet potatoes yield fairly well and are of good quality. The soil is also undoubtedly adapted to the growing of peanuts. Garden and truck crops should also do exceptionally well. The use of green manuring crops would be particularly beneficial, this soil needing more organic matter. Cowpeas will probably be found better than any other crop for this purpose. The value of land of this type of soil ranges from $10 to $20 an acre.

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

Mechanical analyses of Molena sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
20572, 20574.....	Soil.....	0.1	16.7	30.8	34.7	4.0	7.4	6.1
20573, 20575.....	Subsoil	.2	13.4	26.0	35.8	4.5	8.4	11.4

EDGEMONT SILT LOAM.

The surface soil of the Edgemont silt loam consists of 6 to 8 inches of drab or dull-gray to yellowish-gray light, floury silt loam, containing in places considerable quantities of fine, gritty particles and in such places approaching a silty, fine sandy loam in texture. Siliceous rock fragments, in some instances in quantities sufficient to interfere with cultivation, are found but, on the other hand, there are areas almost free of stones. Narrow rock outcrops are also found on the tops of the ridges. Where extensive these have been classed as Rough stony land. The subsoil consists of a pale-yellow silt loam, which becomes heavier with depth, changing at an average depth of 30 inches to reddish, silty, clay loam, and thence into silty clay. Some rock fragments are found scattered through the subsoil and occasionally rock ledges also penetrate it.

The Edgemont silt loam is limited to small narrow bands in the southern part of the county, where it occupies the crests and upper slopes of low mountainous ridges, the outlyers of the Pine Mountains. The surface favors drainage, yet the soil mass itself becomes more or less saturated during periods of wet weather, the water being retarded in its downward movement by the compact, close-structured subsoil. This feature makes the soil, especially on the lower slopes, rather wet and cold. On the other hand, during the summer season the soil becomes very dry and crops suffer for lack of moisture.

The Edgemont silt loam owes its origin to the weathering of highly metamorphosed crystalline rocks, being derived mainly from quartz schist, judging from rock seen most frequently in the soil and subsoil. Ledges of quartzite compose most of the outcropping rock. These ledges upon weathering break up into angular blocks and it is such fragments that make up most of the coarse material found in the soil and subsoil of the type.

Only a very small proportion of the Edgemont silt loam is cleared and cultivated. The uncleared areas now support a light growth of longleaf and shortleaf pine and some hardwood species. Formerly there was a better growth of pine, but the marketable timber has all been removed, and as the type is considered a poor soil for farming the land has very little value at present.

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

Mechanical analyses of Edgemont silt loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
20584	Soil	2.3	5.8	3.4	7.0	5.6	64.3	11.5
20585	Subsoil	2.9	4.7	2.7	5.5	4.6	59.9	19.6

WORSHAM COARSE SANDY LOAM.

The surface soil of the Worsham coarse sandy loam ranges in depth from 8 to 20 inches, averaging 12 to 15 inches. It consists of a sand or heavy coarse sand to light coarse sandy loam, rather loose and incoherent for the first few inches, but becoming more loamy or even slightly sticky at lower depths. The proportion of the different grades of sand in the soil varies considerably. The tendency of coarse particles to mask the true texture of the soil is well illustrated in this soil, for, while in some areas one-fourth of the sand content is of the grade designated coarse sand, the quantities of the medium and fine sand are larger. In places, as in the section around Meansville, the finer grades predominate, though, owing to the gritty feel imparted by the coarse particles, this would hardly seem to be the case. After rains have beaten the surface for some time relatively large quantities of these coarse particles are found in the furrows. These are largely sharp fragments of quartz. There are also generally varying quantities of larger fragments of quartz rock on the surface, and the land is often called, locally, "gray gravelly land." The color of the surface, especially when dry, is a light gray or grayish white, and another local name is "white sandy land." Below the surface the color changes to a yellowish-gray changing with depth to a pale yellow. The subsoil is a pale yellow sticky sandy loam, generally coarse and gritty, grading into a sandy clay at about 30 inches. In the lower depths the material is mottled yellow and red, the yellow predominating, or yellow and drab. The clay content increases with depth, the structure becoming close, impervious, and plastic. In places the heavier subsoil lies nearer the surface than 30 inches and the transition from the soil through the sticky sandy layer takes place within a distance of an inch or two. The subsoil of the type is always in a moist condition, which is to be accounted for by the impervious stratum below. Occasionally the sandy or sticky sand is seen in pockets and extends to depths below 36 inches.

The Worsham coarse sandy loam occurs in all parts of the county, if not in large areas at least in areas too small to be shown in the map. The greatest development is around the town of Milner; other important areas of considerable extent are found around Meansville, west of Concord, and on the road between Williamson and Hollonville. Excepting the more extensive areas most of the type is found on the lower slopes of hills in narrow areas lying next to the Swamp areas along the streams. It is developed especially along the upper courses of the streams. The slopes are smooth and have a gently sloping surface. The larger areas occur on the stream divides, and in these the surface is nearly flat or gently undulating. They extend from the crest of the divide down to the depressions at the

heads of streams or branches. The slope, however, is sufficient to afford good surface drainage and the movement of water into the soil is also free, but the impervious character of the subsoil does not permit further percolation and in the early spring the soil is wet and farming operations are delayed. Underdrainage with tile would undoubtedly prove very beneficial, increasing the length of the growing season, making the handling of the soil easier and giving larger and more certain crops. This is a residual soil derived through weathering from igneous and metamorphic crystalline rocks. From the presence of weathered diorite, occasionally seen in road cuts, it is probable that the soil is largely derived from this kind of rock, though some granitic rocks have probably contributed material in the formation of the type.

The Worsham coarse sandy loam is generally considered a very poor soil, and much of it is not cultivated, but covered by a moderate growth of shortleaf pine and oak. Rather low yields of cotton are secured, though by fertilization as much as one-half bale per acre has been produced. The cotton, however, has an excellent fiber, and the product is in demand on this account. Because of the moist condition of the subsoil cotton is subject to rust and blight. The growers use potash in the form of kainit as a preventive of these diseases. Corn gives only fair yields. Underdrained fields, while better for both cotton and corn, would also make the soil an excellent one for certain truck crops. Some areas are in an acid condition and would be benefited by lime.

The conditions on plantations of this land do not indicate as prosperous a condition on the whole as on other types of soil. Much of the cultivated area is farmed by tenants. The value of the land is somewhat lower than that of the surrounding lands having red subsoils.

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

Mechanical analyses of Worsham coarse sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
20586, 20588	Soil	8.6	25.2	11.9	19.3	10.1	17.1	7.6
20587, 20589	Subsoil	7.9	17.9	8.2	16.6	5.4	19.8	24.2

ROUGH STONY LAND.

The Rough stony land consists of areas too steep and stony to be cultivated. It forms the mountainous areas in the southern part of the county, known collectively as the Pine Mountains. On the

tops and slopes of these mountains, which rise but a few hundred feet above the surrounding country, rock outcrops and loose stones, together with the steepness of slope, preclude cultivation. There are some small included areas that are less steep and stony, and these might be cultivated, though owing to the relatively limited extent of such land it is doubtful if it would pay to reclaim it. The interstitial soil material of the Rough stony land varies from sandy to silty, the sandy texture being the most general. The rock formations are highly metamorphosed crystallines. The predominating rocks are quartzite and quartz schist, the former forming the crests of the hills and being the more resistant to weathering.

These mountains were originally covered by a forest growth, mainly of longleaf pine. Considerable merchantable timber has been removed. The growth now is light and consists of longleaf and shortleaf pine, with some deciduous species. Destructive forest fires have done much damage on these mountains. These lands should be protected from fire and allowed to reforest.

CONGAREE FINE SANDY LOAM.

The Congaree fine sandy loam forms the flood plain of Flint River. Along the immediate banks the soil consists of 8 inches of light-brown loamy fine sand, underlain by the same textured, but lighter colored, material to a depth of several feet. This character of material occupies a natural levee, which is quite narrow. Back of this and sloping downward from it toward the foot of the upland slopes the soil is somewhat heavier, being a light fine sandy loam, often somewhat silty, underlain by similar material of lighter color. In the lower parts the subsoil often becomes much heavier or silty and more or less impervious. Along the contact of the flood plain and the slope from the upland the drainage is often inadequate and the type is wet.

The Congaree fine sandy loam extends along the river for a considerable distance, lying between the stream and the Molena sand. It probably represents largely the wash from the latter soil. The areas are narrow, not exceeding in the widest parts one-fourth mile, with an average width somewhat less than this. Being subject to overflow, it is not fit for cultivation without artificial protection. It is covered by a growth of scattering shortleaf pine and broom sedge, the latter affording some pasturage.

SWAMP.

The Swamp is found along all the larger streams and their tributaries. It occurs as narrow bands of swampy or semiswampy land occupying the stream flood plains. The poorly drained condition

is the result largely of the obstruction of the stream channels by drift material and the holding of overflow water in check by the dense vegetation along their banks. All these lands are subject to annual overflow and the water remains on them the greater part of the year. They are occupied by a water-loving vegetation—dense canebrakes, water oak, gum, poplar, swamp maple, and other hardwood trees, with a scattering of shortleaf pine. A thick mass of vines and other small undergrowths is in many parts almost impenetrable. Those areas along the larger streams probably could not be put under cultivation because of the high flood stages of the streams. Areas along the smaller branches could, however, be cleared and drained to advantage, and besides affording pasturage could be used for corn and sugar cane.

The soils of these bottoms, as might be expected, are variable, changing with changes of soils on the nearby slopes from which the material is washed. Thus in places the bottoms are silty and have a silty plastic subsoil; again they may be of red clay similar in character to the Cecil clay upland, and in other places they may be made up of almost pure sand. The reclaimed areas would therefore vary in crop adaptation. At the present time these bottoms are practically worthless.

SUMMARY.

Pike County is situated in the Piedmont Plateau in the west-central part of the State. Zebulon, its county seat, is 51 miles south of Atlanta. Barnesville, in the eastern part, is 43 miles, by rail, northwest of Macon. The county is rectangular in shape and comprises an area of 210,560 acres, or 329 square miles.

The topography is rolling to hilly, with three main stream divides. In the lower part of the county there is a low range of mountains. The average elevation of the ridge crests is between 800 and 1,000 feet, while the main stream courses are 100 to 200 feet lower.

The county lies in the drainage basin of the Flint and Ocmulgee rivers, the greater part in the former. The main tributaries are Big Potato, Elkins, and Birch creeks.

The settlement of Pike County began shortly before 1820. The county was organized in 1822. Settlement has extended over all parts of the county. The last census gave the population as 18,761.

Barnesville is the largest town, with about 4,000 population. Other towns are Milner, Concord, Molena, Meansville, Piedmont, and Williamson. Four lines of railroad operated by the Southern and Central of Georgia railways afford transportation facilities. Wagon roads are numerous and reach all parts of the county. Telephones connect all the towns, and the rural delivery of mail is general.

Cotton, the money crop of the county, finds a market in the local towns.

The climate is mild and temperate. The mean annual temperature is about 63° F., and the annual rainfall is between 40 and 50 inches.

Prior to 1860 the agriculture was of the general farming type, but with the high prices for cotton following the civil war a change was made to a one-crop system, with cotton the main and money crop. During the last twenty years peach growing has assumed importance. Dependence is placed on negroes for labor, which is efficient in cotton production. The tenant system is universal.

The soils are few in number, and with two exceptions are residual. The rocks from which the soils are derived are granites, gneisses, schists, and metamorphic derivatives.

The soils are of average natural fertility, but have been injudiciously cropped and have suffered from erosion.

The Cecil clay, known locally as "red land" or "red clay land," is a strong productive soil for the general farm crops. It is, however, difficult to cultivate, and needs heavier implements than are at present used. Peaches do well on this type.

The Cecil sandy loam, "gray sandy land," is the most extensive soil. It is a favorite type with the cotton grower because of ease of cultivation. It is less subject to drought than the clay type and has a wider crop adaptation. Cotton yields are somewhat lower than on the heavier soil, but heavier fertilization offsets this disadvantage. Many peach orchards are found on this type.

The Edgemont silt loam, a more or less stony light soil, is largely in forest. It is a cold late soil needing underdrainage, and at present considered one of the poorer soils of the country.

The Molena sand is practically all used for cotton growing. The yields are moderate. The type being droughty is not well adapted to corn. The texture makes it a valuable type for early truck crops. This industry has not been developed to the present time.

The Worsham coarse sandy loam, "gray gravelly land," is a wet, late soil, and not considered very desirable for farming. The yield of cotton is rather low. Drainage and fertilization will cause marked improvement in productiveness. The fiber is of excellent quality. Properly managed the type could be profitably used for trucking as well as for the general farm crops.

Rough stony land is a nonagricultural type found on the crests and slopes of mountains. It should be used for forestry only.

The Congaree fine sandy loam is an alluvial soil found along the Flint River. It is subject to overflow and in its unprotected condition unfit for farming. Some use is made of the areas as pasture.

Swamp includes overflow areas along the larger creeks and their tributaries. Many of the areas could be reclaimed and being of

variable texture would be found valuable for many different crops. Corn and sugar cane would be especially profitable crops on these low-lying lands.

The value of the farm lands of the county has greatly increased during the last ten years, and as a whole the conditions have been improving. Greater advance will take place through a further diversification of crops, the introduction of systematic rotations and better cultural methods in general.

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