PART II.

AGRICULTURAL DESCRIPTIONS
OF THE
COUNTIES OF GEORGIA.
AGRICULTURAL DESCRIPTIONS
OF THE
COUNTRIES OF GEORGIA.

The county descriptions comprised in this portion of the report were made up in part from data obtained from the state geological records, in part from reports of correspondents, and in part from published reports of the state department of agriculture. Errors have doubtless crept into the descriptions because of imperfect data, but in the main they are correct.

The county headings, with the exception of regional areas, are from the census returns of 1880. The term woodland has reference to the original condition of the country without respect to tilled lands. The estimate of the product per acre in seed-cotton and in lint has been made upon the basis of 475 pounds of lint per bale, reported by a number of cotton merchants in Atlanta and Savannah to be the average bale of the season of 1878-79; also upon the generally accepted ratio of 1 pound of lint to 3 pounds of seed-cotton.

To each county description is appended an abstract showing the character of its lands as reported by correspondents, except for a few counties, from which no answers to schedule questions were received. It will be noted that there is sometimes a discrepancy between the statements of the cotton product per acre and that reported as the actual product as given in the census returns. This may be explained in several ways. Correspondents report that would be an average yield in good seasons and under fair culture. It naturally happens that a large number of planters in each cotton county fail to give fair culture to the crop, and the result is a diminished average product per acre. Again, the season of 1879-80, the census cotton year, was one of dryness, and the crop was considered short, making the product per acre smaller than it would otherwise have been.

The counties are arranged with regard to agricultural regions, the names of all comprised in each region, either wholly or in part, being placed at the first and in the order in which they appear. Those whose descriptions are given in other regions are marked by an asterisk (*), and reference is made to the region. The abridgment of many of the county descriptions is made necessary for the following reasons: 1. Because of a comparatively small county area, which precludes much variety in its lands; 2. Because of the great similarity of counties embraced within large regions, such as the metamorphic and pine and wire-grass regions, whose lands of the same character reach over a large territory; 3. Because of so large a number of counties in the state, a full and detailed description of each of which would require a far greater space than can be spared in this report, besides making intolerable the vast amount of repetition in such descriptions. The reader is therefore generally referred to Part I or to the abstract which may accompany the county for detailed descriptions of soils and other features of each region that are represented in a county.

NORTHWEST GEORGIA. (*a)

(Embraces the following counties and parts of counties, Murray: Whitting, Catoosa, Walker, Dade, Chattooga, Gordon, Floyd, Polk, Bartow, and a small part of Paulding.)

MURRAY.

Population: 8,289.—White, 7,362; colored, 907.

Area: 420 square miles.—Woodland, all.

Tilled lands: 47,404 acres.—Area planted in cotton, 5,037 acres, in corn, 14,338 acres; in wheat, 8,178 acres; in oats, 2,185 acres; in rye, 1,125 acres.

Cotton production: 1,017 bales; average cotton product per acre, 0.32 bale, 459 pounds seed-cotton, or 163 pounds cotton lint.

* The description of the counties of Northwest Georgia are by A. R. McCutchen, special agent.
COTTON PRODUCTION IN GEORGIA.

About 20 per cent. of the surface of Murray county is a mountains region belonging to the Cohutta range, and is confined to the eastern side of the county in a width of from 3 to 7 miles. The coves and valleys of the mountains area afford uniformly productive lands, and the soils here vary much in relation to the proportions of sand, lime, and clay, but may generally be described as sandy loams. A common feature of the valleys on the eastern side of the county is the great abundance of cobble-stones. These are so large and so numerous in some localities as to be a great obstacle in the cultivation of the lands. At a distance of 2 to 5 miles west of the mountains there are good bodies of rolling uplands with red calcareous soils. (See general miles west of the mountains the west, in the central and northern parts of the county, by ridges with description.) These lands are bordered on the west, in the central and northern parts of the county, by ridges with description.

ABSTRACT FROM THE REPORT OF WILLIAM J. JOHNSON, OF SPRING PLACE.

The lands cultivated in cotton include the black sandy loams, somewhat elevated, the gray sandy, and the red or mulatto soils. The chief soil is commonly designated a sandy loam, and consists of a coarse sandy and gravelly loam varying in color from gray to blackish and black, and is 4 inches deep. The subsoil is a clay loam of a reddish-yellow color, which contains all kinds of gravel, and is generally underlaid by gray to bluish clay, which is 8 feet deep. Tillage of this land is difficult and laborious in dry seasons. The average size of the cultivated area is 600 acres, and one-fifth of the cultivated area is planted in cotton. The usual and most productive variety is "Bollard." The land is 4 feet to 6 feet, which is wet, warm weather, and the produce is small. No cotton is planted here without fertilizers of some kind, and the crop is improved by their use. On old land the staple rates one-eighth of a cent higher per pound than on fresh land. Crabgrass and rag-weeds are most troublesome. Five per cent. of this land originally cultivated now lies "turned out," but it improves considerably in two years. The slopes are not much damaged by washing and gullying, while the valleys are improved to the extent of 20 per cent. or more. Successful efforts have been made to check the damage by horizontal leveling, filling up gulches, and by planting small trees and other plants in the gulches.

The soil covers one-half of the region, and is characteristic of the black or mulatto land. It is a fine sandy and gravelly loam, varying in color from white to blackish, and is 4 inches deep. The character of the subsoil and the tilth qualities of the surface soil are the same as those of the hills. This soil is of good quality, and produces the best of cotton, and is better suited to the hills than to the plains. One-half of its cultivated area is planted in cotton. The usual and most productive height of the plant is 2 feet, and it never runs to wood. The seed-cotton produced per acre on fresh land is 500 pounds. One-fifth of this land lies "turned out," which improves by resting, especially if it grows up into pines bushes.

The third quality of soil is called red or mulatto soil, black-jack or silty land, which includes one-fifth of the region, and is known to extend for 28 miles in each direction. The soil is a sandy and gravelly loam of a yellow-gray color, 3 inches thick. The subsoil is a light yellow clay, containing a variety of pebbles, underlaid by slate at 8 feet. Tillage is difficult and laborious in dry seasons, and the soil is sandy and warm, but ill drained. The chief crops are wheat, cotton, and grass, the latter occupying about one-fifth of the tilled lands. The usual and most productive height of the plant is 2 to 4 feet. The seed-cotton produced per acre on fresh land is 400 pounds. There is no troublesome weeds on this soil if it be tolerably cultivated. About one-fifth of such land once cultivated now lies "turned out," and does not improve much while in that condition. The slopes wash and gully a little, and are seriously damaged, while the valleys are improved by washing. No efforts have been made to check the gullies.

The balance, or about one-third of the land of this region, consists of the bottoms of rivers, creeks, and smaller streams. It is of superior quality, and produces all the cereals, grasses, and clover, and is better suited to the hills than to the plains. It is better suited to the hills than to the plains. Cotton is grown as fast as planted, and is sent to Dalton by wagons.

WHITFIELD.

Population: 1,100. — White, 9,689; colored, 2,211.

Area: 339 square miles. — Woodland, all.

Tilled lands: 44,190 acres. — Area planted in cotton, 4,063 acres; in corn, 10,992 acres; in wheat, 8,165 acres; in oats, 5,445 acres; in rye, 193 acres.

Cotton production: 1,240 bales; average cotton product per acre, 0.30 bale, 433 pounds seed-cotton, or 345 pounds cotton lint.

The mountains altogether cover an extent within Whitfield county of about 40 square miles, the northern part of the county being divided by lands of low ridges, and generally narrow intervening valleys. A large proportion of the surface of the county consists of comparatively level areas, and this is especially true of the eastern and southeastern parts.

Of the cultivated lands of the county a considerable proportion is river and creek alluvial land. The most important of these are those of the Connesauga river and Coochulla, Mil, East Chickamauga, and Swamp creeks. The soil of the Connesauga bottoms is more sandy than that of most of the smaller streams. The finest quality of uplands is found in the Altamaha valley, in the northern part of the county. This valley extends from Tennessee, a distance of 9 miles, in this county, with an average width of about 1 mile. The lands are generally rolling, and have a durable soil that is easily cultivated and almost equally well adapted to the cotton soil, but differing in appearance but little after a few years' cultivation. These lands are found also at Dalton; also on the eastern side of Chattooga and Rock Creek mountains, and on the southern side of Cowal valley. The lands on this character cover an extent of nearly 20 square miles.

The uplands of greatest extent are the clay lands, amounting to 125 square miles. These belong to Dogwood valley, on the west of Chattooga mountain, to some narrow valleys in the northern part of the county, and to comparatively broad areas in the eastern and southern portions. Some of these on the southeast are nearly level,
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

and are rather unproductive from imperfect natural drainage. The county contains ridge lands, with a gray gravelly soil amounting to about 100 square miles. These lands, except along the borders of the valleys, are but little cultivated. There are two low and narrow ridges, one crossing the western part of the county and the other extending a few miles into the southern part, with unproductive sandy land. Cotton crops average 12.3 acres per square mile. Dalton is the principal produce market.

CATOOSA.

Population: 4,738; White, 4,127; colored, 612.
Area: 180 square miles.—Woodland, all.
Tilled lands: 24,992 acres.—Area planted in cotton, 397 acres; in corn, 10,783 acres; in wheat, 5,011 acres; in oats, 1,563 acres; in rye, 62 acres.
Cotton production: 111 bales; average cotton product per acre, 0.30 bale, 432 pounds seed-cotton, or 144 pounds cotton lint.

A sandstone ridge of 300 or 600 feet in height, known as Taylor's ridge south of Chickamauga gap and as White Oak mountain north of this gap to its terminus in Tennessee, extends nearly north and south through Catoosa county. Another ridge of like character, but of a somewhat less altitude, known as Dick's ridge, runs nearly parallel with this on the east at a distance of about 1 mile. The country to the east and west of Taylor's and Dick's ridges is divided up by belts of low ridges, with intervening valleys, comparatively broad on the western and narrow on the eastern side of the county. The drainage is toward the north, except in the northeastern portion of the country, where the tributaries of East Chickamauga creek run in a southwesterly direction.

The valley of West Chickamauga, and also that immediately west of Taylor's and White Oak mountain, contain productive brown and red calcareous lands. The two valleys cover an area of about 30 square miles, and include within their limits about half of the cultivated lands of the county. Nearly one-fourth of this extent is covered by the rich alluvial lands of West, Middle, and East Chickamauga creeks. Though the streams often overflow the bottom lands during the winter heavy and early spring rains, they are not generally rapidly, and such land is seldom injured by washing. The lands of Puckevine valley and the slope valleys east of Dick's ridge, with an area of about one square miles, are second in importance. The soil contains less lime, and the uplands are somewhat less productive, though the bottom lands are often of equally good quality, that of Puckevine having a good extent for the size of the stream, being from one-fourth to half a mile in width and about 9 miles in length. Within the county. There is an extent of about 4 square miles, with a gray siliceous gravelly soil, belonging to four lines of ridges that cross the county parallel with Taylor's ridge and White Oak mountain.

Ringgold, on the Western and Atlantic railroad, and Chattanooga, Tennessee, are the principal markets for produce.

ABSTRACT FROM THE REPORT OF W. J. WHITSETT, OF RINGGOLD.

The lowlands consist of the second bottom of Chickamauga creek; the uplands of strips of rolling lands, separated by intervening level valleys, with clay subsoils. The color soil cultivated in cotton is commonly designated rolling gravelly land, and includes two-thirds of the area of this region, extending 30 miles north, 50 south, 15 east, and from 12 to 15 miles west. This soil is a coarse sandy and gravelly loam of a whitish-gray color, varying sometimes to mahogany and orange, and is 4 inches deep. The subsoil is heavier than the surface soil, and in some places is red, pulverizing easily, and in others pale in color and inclined to be tough, and contains clayey white gravel. Village of the soil is easy, especially in dry seasons; but in wet weather it is inclined to form in clods. It is moderately early and warm, and tolerably well drained. Corn, oats, wheat, and grasses were the early crops until 1876, since which year cotton production has been rapid on the increase. The rolling lands are best adapted to cotton, and the valley and bottom to corn and grasses. One-third of the cultivated area is planted in cotton. The usual and most productive height attained by the plant is 15 feet. It inclines to run to seed on very rich soils, such as those of the bottoms, which is restrained and brought forward by using fertilizers and planting closer in the field. The seed-cotton product is 1,000 pounds per acre, ruling in market at 400 dollars per bale, and the original production in maintained within two years by the use of fertilizers. The ratio of seed to lint is the same as in the case of fresh land, and the staple is as long as not so fine, and rates two grades below that from fresh land. The most troublesome weeds are crab-grass and crowfoot. Lands which were formerly "turned out" as unproductive for the culture of corn and wheat are now being taken up and planted in cotton.

Cotton is shipped as soon as ginned, by railroad, to Rome.

WALKER.

Population: 11,580; White, 10,492; colored, 1,564.
Area: 449 square miles.—Woodland, all.
Tilled lands: 89,756 acres.—Area planted in cotton, 5,797 acres; in corn, 26,633 acres; in wheat, 15,115 acres; in oats, 5,015 acres; in rye, 195 acres.
Cotton production: 2,831 bales; average cotton product per acre, 0.35 bale, 405 pounds seed-cotton, or 165 pounds cotton lint.

The surface of Walker county presents a great diversity of features, having table-land mountains on the west side and sharp-topped mountains on the east, with the intermediate country subdivided into valleys, knobby belts of ridge lands of varying widths and narrow sandstone ridges running parallel with the mountains in their general direction or encroaching the ends of terminating spurs.

The general altitude of the county is above that of the surrounding country. Its water-courses have their sources within its limits, and run into each of the adjoining counties and into the states of Alabama and Tennessee. The valleys range from 300 to 1,200 feet and the mountains from 1,600 to 2,300 feet above the level of the sea.

22 C 7—VOL. II
COTTON PRODUCTION IN GEORGIA.

The general directions of the drainage from a water divide that crosses the county in a northeast and southwest direction are northward into the Tennessee river and southward to the Coosa river.

About one-eighth of the county is mountainous, and, including with this the steeper portion of "the ridges," about one-fifth of its surface is probably too steep for cultivation. The mountain sides are generally rich, and are covered with a heavy growth of timber. The lands of the county outside of the ridges, however, are less calcareous. The larger portion of the lands of McMullen's cove, containing toward the north side of the county in West Chickamauga valley and for several miles in Chattanooga valley, embrace rich calcareous soils. The same soils are also found in Duck and Dry Creek valleys continued north of the water divide and is again in Dry valley at the western base of Taylor's ridge. Lands similar to these in character of productivity, but with a darker red soil, are found in the valleys west of John's, Horn's, and Chattooga mountains. The area of these valleys altogether amounts to about 35 square miles, about 40 per cent. of which is closted closely and used for fertilizers. These valleys have fine clover lands, and have been devoted mostly to corn, wheat, and oats. Lands having a brown loamy soil, containing much less clay and more sand than those of the above-named valleys, are found in West Armuchee valley, in the shibbomee valley, and for a few miles in the northern part of Chattooga valley. These lands have about 22 square miles, with 70 per cent. of their area originally cultivated to corn, wheat, and oats, and are nearly the only lands on which cotton has been grown without chemical fertilizers. West Armuchee valley is nearly the only locality in the county in which this crop was grown to an extent before the recent general use of commercial fertilizers. Peavine and Chattooga valleys and a part of East Armuchee valley afford a brown loamy soil, covering an area of 36 square miles, with 40 per cent. under cultivation. (See analyses of soils, pages 25 and 26.)

The table-land, with a sandy soil, has an extent of 70 square miles, and the "ridges," with a gray gravelly soil, about 20 square miles. About 10 per cent. of those ridges, and the entire area of each is either too steep or else too rocky for cultivation. The soils of the alluvial lands are generally argillaceous, though those on West Armuchee creek and portions of Chattooga and Duck creeks are somewhat sandy. The county has a great number of streams, most of which are small; but the creek bottoms constitute in the aggregate a considerable proportion of the cultivated lands.

ABSTRACT FROM THE REPORT OF J. A. CLEMENTS, OF VILLAGAN.

Cotton is late in maturing on lowlands unless they are dry and sandy; hence the chief soil cultivated in cotton is the sandy or gravelly and more or less calcareous upland. This upland is rather level, covers about 40 per cent. of this region, and consists of narrow valleys, or creeks, bordered by ridges or mountains. Its surface growth is red oak, black oak, chestnut, etc. The soil is a brown and blackish-brown coarse sandy and gravelly loam 5 inches thick. The soil is more clayey than the surface soil, is generally deep red, sometimes yellow, and does not require artificial drainage. It contains flinty concretions, soft "black gravel," and rounded angular stones, and is underlaid by limestone with flinty concretions from 3 to 10 inches thick. The soil is generally tilled, is well drained, and well cultivated, and apparently best adapted to corn. The chief crops are corn, wheat, oats, and cotton, one-fourth of the cultivated area being planted with the latter. The plant attains a height of from 3 to 4 feet, and is most productive at 2 feet. On dark, rich soil, and in wet seasons in June and July, the plants incline to run to wood, which is restrained and bolling favored by planting closely and using fertilizers.

The seed-cotton product per acre when the land is fresh in 800 pounds, and 1,450 pounds make a 475-pound bale of lint which rates in the market as middling. After 15 years' cultivation the product is 500 pounds per acre, 1,630 pounds making a 475-pound bale but the staple is not quite so good as that from fresh land. Crab-grass is the most troublesome on this soil. About 2 per cent. of such land originally cultivated now lies "turned out," and by the help of fertilizers it produces well when again cultivated. Slopes are seriously damaged by washing and gully the, and the valleys are also slightly injured by the washings. Horizontal and hillside ditching are practiced by the manager and good success when properly done.

ABSTRACTS FROM REPORTS OF J. A. CLEMENTS AND W. P. TAPP, OF VALLEY STORE (CHATTOOGA COUNTY), AND P. M. YOUNG, OF GREENBUSH (ARMUCHEE VALLEY).

Clay and slaty red and yellow lands. — This soil covers from 35 to 50 per cent. of this region, and extends over the ten counties of northwest Georgia. The soil varies from a clay loam to clay, and in color from gray to yellow, brown, and blackish, and is 6 inches deep. The subsoil is usually yellow, but sometimes red, heavier than the surface soil, is impervious when undisturbed, and improves by cultivation and exposure at the surface. It is underlaid at from 0 to 10 feet by red, soft, clayey rock or shale, and in places by limestone. The soil is easy to till in dry, but difficult in wet seasons, in early, warm, and well drained, and is apparently best adapted to wheat, corn, cotton, and oats. One-third of it is planted in cotton. The normal and most productive height of the plant is from 2 to 3 feet. Too much rain in July and August inclines it to run too much to weed, but this may be restrained and bolling favored by shallow cultivation, close planting, toping, and the use of highly ammoniated fertilizers. The produce of seed-cotton per acre of fresh land is from 750 to 1,000 pounds, 1,400 pounds making a 475-pound bale of lint, which rates in the market as middling. After twenty years' cultivation the product of seed-cotton per acre is 400 pounds, 1,350 pounds then making a 475-pound bale of lint, which rates lower than that from fresh land. Crab-grass is the most troublesome weed. About one-tenth of this land originally cultivated now lies "turned out," and when again cultivated does not produce as well as when first cleared. Slopes in some places are damaged by the washing and gully the, but the washings damage the yllables very slightly in some places and improve them considerably in others. To check the damage hillside ditching, horizontalizing, and deep plowing are practiced, with good success; hillside ditching is least effectual.

Bottom lands. — The creek bottoms form about one-fifteenth of the land of this region. They bear a natural growth of white oak, black oak, walnut, poplar, maple, and chestnut. The soil is a dark-colored, fine sandy and gravelly loam, 7 inches thick. The soil is apparently best adapted to cotton and corn, but 80 per cent. of it is planted in cotton. The plant attains a height of from 3 to 4 feet, and is most productive at 3 feet. It inclines to run to weed in wet seasons, which may be restrained by heavy fertilization, close planting, and shallow cultivation. The seed-cotton product per acre of fresh land is from 1,000 to 1,000 pounds, 1,450 pounds making a 475-pound bale of lint, which rates in the market as middling. After from fifteen to forty years' cultivation the product per acre is 1,000 pounds, the rate of seed to lint and the quality of the staple being about the same as in the case of fresh land. The most troublesome weed is crab-grass. None of this land lies "turned out."
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

DADE.

Population: 4,702.—White, 3,618; colored, 1,084.
Area: 150 square miles.—Woodland, all.
Tilled lands: 17,146 acres.—Area planted in cotton, 32 acres; in corn, 5,356 acres; in wheat, 3,096 acres; in oats, 3,000 acres.
Cotton production: 12 bales; average cotton product per acre, 0.38 bale, 534 pounds seed-cotton, or 178 pounds cotton lint.

Lookout valley, with an average width of about 3 miles, extends across Dade county in a northeastly and southwestly direction between the table-land of Lookout mountain on the east and that of Sand mountain on the west. The altitude varies from 600 to 800 feet above sea-level, while the table-lands on each side rise from 890 to 1,500 feet above the valley. Two nearly parallel ridges of from 100 to 300 feet in height subdivide the main valley for most of its course, and the portions lying between these ridges and the mountains are usually quite narrow and trough-shaped, and are known as the "back valleys." A large portion of the county lies on the Lookout and Sand mountain table-lands.

The valley extends back into the Tennessee river by Lookout creek and its tributaries, with the exception of a small area in the northernmost corner of the county.

The valley lands are not surpassed in productivity by any of equal extent in the state, the soils being all more or less calcareous, that of the central part of the valley being especially well suited to cereals, grasses, and clover. Some of these lands are nearly level, others are rolling, while toward the northern terminus of the valley they become quite hilly and afford better yield of wheat. The soils of the back valleys are generally somewhat sandy. (For a description of the table-lands see page 28.)

Very good cotton has been planted in this county; but from the present rate at which the area of cotton culture is extending in the adjoining county of Walker and elsewhere in the state, where neither the land nor the climate can be better suited, it may be inferred that this crop may soon become an important production of the county, especially on the sandy lands of the back valleys and on Lookout and Sand mountains.

ABSTRACTS FROM THE REPORTS OF T. J. LUMPKEN, M. D., OF RISING PAIN, AND W. A. CHAMBERS, OF MORGANVILLE.

The cotton-plant grows large and bolls well, but it is rather cold, and the seasons are so short that the bolls do not open very well unless fertilizers are used. The chief soil cultivated in cotton is the sandy loam, in patches, for example, on the second bottom of Lookout creek, near Lookout mountain, which covers about one-fifth of this region, and extends about 20 miles north and much farther in other directions. It bears a natural growth of hickory, oaks, chestnut, walnut, poplar, boc, gums, and pines. The soil varies from a fine sandy loam to a gravelly loam, and from whitish-gray to yellow, brown, and black in color, and has a depth of from 1 foot to 4 feet. The subsoil is a heavy mellow clay-hard-pan (on the uplands it is a stiff, reddish clay), contains sand, white, rounded gravel, and is underlaid by hard limestone at from 5 to 40 feet. Tillage of this soil is difficult in wet but rather easy in dry seasons, and the soil is early and warm when well drained.

The chief crops are corn, wheat, and oats, but the soil is apparently best adapted to corn and wheat. Not more than one-fifteenth of the cultivated land of this county is planted in cotton. The seed-cotton product per acre is from 1,000 to 1,500 pounds when the land is fresh, the lint rating as middling. Old land produces from 500 to 1,000 pounds of seed-cotton per acre, and 1,500 pounds then make a 475-pound bale of lint, which is a little shorter than that from fresh land. Crab-grass is the worst weed, cockleburr being the next. The soil is so permeated with water and so gravelly, that farmers prevent serious damage by horizontalizing and hillside ditching. The valleys are damaged only to a very limited extent by the washings.

The second kind of land is designated as black Pine land, and extends from the Tennessee river on the north to the Coosa river on the south. The soil is a black calcareous loam from 2 to 6 inches deep, underlaid by a hard, heavy mellow sub-soil, which is again underlaid by limestone at from 5 to 40 feet. Tillage of this land is easy in dry but difficult in wet seasons. The soil is late and cold, but well drained, and is apparently best adapted to corn. Very little cotton is planted on it.

Dade county is connected with Chattahoochee and Rome by rail, freight being from 5 cents to 81 per bale.

CHATTOOGA.

Population: 10,621.—White, 7,981; colored, 2,040.
Area: 400 square miles.—Woodland, all.
Tilled lands: 30,802 acres.—Area planted in cotton, 12,906 acres; in corn, 20,075 acres; in wheat, 7,030 acres; in oats, 1,645 acres; in rye, 35 acres.
Cotton production: 5,247 bales; average cotton product per acre, 0.41 bale, 579 pounds seed-cotton, or 193 pounds cotton lint.

The mountain and steep sandstone ridges of Chattooga county cover altogether about 68 square miles, and the low, nodular ridges 110 square miles. Of the 170 square miles of comparatively level areas about 30 are situated on table-lands of Lookout mountain, ranging in altitude from 1,200 to 2,000 feet above the sea, and the remaining area is in valleys ranging in altitude from 700 to 800 feet. Nearly one-fourth of the valley lands have a brown loam, and being mostly those on the east of Taylor's ridge, and particularly the lands of Diet Town and Shinn river.

Broomtown valley and Chattooga valley cross the county between Lookout mountain and Taylor's ridge, and are parallel with the latter. These afford good clay lands, commonly distinguished here as muckland, and are uniformly productive wherever there is a good depth of clay or subsoil above the underlying shales, as is the case with most of the extent of these two valleys. The area is about 45 square miles.

Of the more calcareous lands, of which there are about 30 square miles, some lying next to Taylor's ridge, on the west, have a dark red soil; and that of Dry valley, and some of the lands immediately east of Shinn river, have a brown and sometimes a gray soil, with an intermixture of gravel, derived from the bordering ridges.

The result of recent trials in the cultivation of cotton with fertilizers on the sandy lands of Lookout mountain is very favorable. The lower average temperature on the table-lands in comparison with the valleys is perhaps
COTTON PRODUCTION IN GEORGIA.

more than counterbalanced by its greater uniformity, there being but little difference in the daily minimum temperature, and by the general absence of chilling days, as well as by a less severity and a longer delay of frosts in the fall.

The gray gravelly lands extend over nearly one-third of the surface of the county. The improved lands of this class, of which there is but a small proportion, are confined to the borders of the ridges to which they belong. There are fine bodies of alluvial lands along the Chattahoochee river and many of the smaller streams. The bottom lands east of Taylor’s ridge, and those of some of the streams running from Lookout mountain, are sandy to some extent. The cotton crop is sold either at Trion Factory, in this county, or in Rome.

ABSTRACTS FROM THE REPORTS OF A. P. ALLEGG, OF TRION FACTORY, AND C. D. HILL, OF RACCOON MILLS.

The chief soil is commonly designated gray loam, which includes about three-fourths of the cultivated land of this region and extends throughout the county. Its chief timber is oak and hickory. It is a grayish clay loam of a gray color 6 inches thick. The subsoil is red and white clay, somewhat leathery, which contains “black gravel” and angular white pebbles. In some places it is underlaid by clay, and in others by limestone, not far from the surface. The soil is rather easily tilled in dry seasons, is somewhat easily and generally well drained, and is best adapted to corn, cotton, and oats, which, together with wheat, potatoes, and sorghum, are the chief crops of this region. About two-fifths of this soil is planted in cotton. The plants attain a height of 3 feet, at which it is most productive. Wet, hot seasons and deep culture incline it to run to weed, but this may be checked and bolling favored by surface cultivation or by topping, or by both. The product of seed-cotton per acre of fresh land is from 800 to 1,000 pounds, 1,429 pounds being made for a 475-pound bale of lint rating as middling. After five years’ cultivation the product is from 300 to 600 pounds of seed-cotton, and 1,500 pounds make a 475-pound bale of lint, which is shorter, but otherwise better than that from fresh land. The troublesome weeds are ragweed and crab-grass. Some of this land has been lying out only because the horses were destroyed during the late civil war and have not been rebuilt till recently; such are now the best cotton lands in this region. Slopes are somewhat injured by washing and gullying, but the valleys are improved by the washings. Horizontazinging is successfully practiced to check the damage.

Additional descriptions of the washlands and bottom lands, by C. D. HILL.

The alluvial soil forms a small part of the cultivated area, and occurs in patches in many parts of the county. Its growth is oak, hickory, chestnut, poplar, with occasionally walnut. The soil is a mahogany-colored loam from 2 to 12 inches thick, and is generally gravelly. The subsoil is a very red clay, free from gravel or grit, and excellent for making brick; in some places it contains “black gravel.” Limestone underlies it at various depths. The soil is comparatively easy to cultivate in wet or dry seasons, is early and moderately well drained, and is apparently best adapted to corn and wheat. Cotton does very well in some seasons, but in others does not open well. One-third or more of this soil is planted in cotton. The plants attain a height of from 3 to 4 feet, but is most productive at 3 feet. It inclines to run to weed generally, and the tendency is increased by too much rain and by deep plowing. The seed-cotton product per acre of fresh land varies from 800 to 1,200 pounds, about 1,429 pounds making a 475-pound bale of lint, which is of good quality, but is a little rough. After five years’ cultivation the product is from 400 to 600 pounds per acre, and about 1,515 pounds make a 475-pound bale of lint, which is not so long, but is of better quality than that from fresh land. Rag- and hog-weeds, and especially crab-grass, are most troublesome on this soil. Little or none of such land lies “turned out,” as it is more durable than the gray land and has a better subsoil. The slopes are not so much damaged by washing and gullying as those of the gray land. The bottom, varying in width from 100 yards to half a mile, are as long as the streams, and bear a natural growth of poplar, sweet gum, wild cherry, hickory, white oak, and chestnut. The soil varies from brown to black, is from 3 to 6 feet thick, and is composed of fine silt and sand. The subsoil is fine sandy, and makes a transition into sandy, loamy clay below, which is in some places underlaid by rock at from 10 to 30 feet below the surface. The soil is easily tilled in dry seasons, is late, cold, and frequently ill drained, and is best adapted to corn and clover. Very little cotton is planted on it, because it is subject to rust. The plant frequently grows to 5 or 7 feet high, but is more likely to bear a crop when from 3 to 4 feet high, yielding from 600 to 1,000 pounds of seed-cotton per acre. After five years’ cultivation the product is not diminished; the yield of seed to lint is the same, the staple is perhaps smoother, and the plant is less inclined to run to weed. The most troublesome weeds are cockleburs, Spanish needle, and crab-grass. None of this land lies turned out.

Shipsments are made to Rome by wagon, commenting on the 15th of October, freight being $2 per bale.

GORDON.

Population: 11,171. — White, 9,341; colored, 1,824.
Area: 360 square miles. — Woodland, all.
Tilled lands: 29,467 acres. — Area planted in cotton, 8,668 acres; in corn, 23,681 acres; in wheat, 14,239 acres; in oats, 6,669 acres; in rye, 169 acres.
Cotton production: 3,901 bales; average cotton product per acre, 0.83 bale, 543 pounds seed-cotton, or 161 pounds cotton lint.

There are two ranges of mountains in Gordon county running nearly parallel, Horne’s and Salacoa, respectively on the west and east side of the county. The intermediate portion of nearly 30 miles’ width is subdivided into narrow valleys by bands of knobby ridges.

A large portion of the cultivated area is of the alluvial lands of the Oostanaula river and its tributaries. The large streams of the county are remarkably crooked, and their broad bottom lands can hardly be excelled in productiveness. Between Horne’s mountain and the Oostanaula river there is a fine body of rolling uplands with brown loam soils (see general description). The lands of this character have an extent of 25 square miles. Most of the valley uplands east of the Oostanaula river, covering 90 square miles, are brown or red clay lands underlaid by shingles, and are of the character often designated as “mulatto lands.” The gray gravelly lands have an area of nearly 70 square miles, in two sets of ridges running through the central portion of the county. The eastern belt of ridges has a width of 3 or 4 miles, and contains some sandy land. On the western side of the county there is a section of several miles in width, extending nearly through the county, covered with steep, rocky hills. These lands are generally poor and but little cultivated. The Oostanaula and the Coosawattee rivers are navigable for small boats for a part of the year.
ABSTRACT FROM THE REPORT OF AARON RUF, OF CALHOUN.

The river lands are sandy and earlier than the valleys of the uplands, and are therefore better for cotton. The lands cultivated in cotton are the gray sandy, the chocolate-colored calcarous, and the red soils. The gray sandy soil, covering one-fourth of the area of this region, is known to extend 30 miles in each direction, and bears a natural growth of hickory, walnut, poplar, pine, and oak. The soil is a fine sandy gravelly loam, chiefly of a gray color, and is 6 inches deep. The subsoil is a red clay, and is underlaid by rock. The soil is late and cold, and is difficult to cultivate and wet seasons. The average size of farms is 136 acres, and the chief crops are corn, wheat, oats, and cotton; but the soil is apparently best adapted to cotton. The usual and most productive height of the cotton-plant is 3 feet. Rainy weather or excessive manuring inclines the plant to run to weed, which may be restrained and bellow favored by topping.

The seed-cotton product per acre of fresh lands is 800 pounds, the lint rating at 6-Class first. After five years' cultivation the product is 600 pounds per acre, with first-class lint. Hog-weeds and rag-weeds are most troublesome. No land of this kind new lies "turned out" and that which was out again cultivated and produces as well as originally, and in some instances better than at first. Slopes wash and gully very little, county is seriously damaged in this way, while the valleys are benefited by the washings. No efforts have been made to check the damage.

Shipments are made as fast as the cotton is ginned, by the Western and Atlantic railroad, to Atlanta, Rome, and Dalton, rate of freight being 12½ cents per 100 pounds.

FLOYD.

Population: 24,418.—White, 14,058; colored, 9,460.
Area: 540 square miles.—Woodland, all.
Tilled lands: 96,747 acres.—Area planted in cotton, 30,615 acres; in corn, 29,872 acres; in wheat, 9,251 acres; in oats, 14,413 acres; in rye, 35 acres.
Cotton production: 14,945 bales; average cotton product per acre, 0.48 bale, 678 pounds seed-cotton, or 226 pounds cotton lint.

The surface of Floyd county varies from nearly level to hilly and mountainous, the principal mountains being in the northern part of the county. The valleys in this portion of the county have a nearly level or rolling surface, and are not generally subdivided by ridges, as is common in most of the county to the north and west. The eastern side of the county is covered principally with cherry ridges, with two or three narrow valleys extending nearly north and south. The southern and southwestern portions are similarly divided, but have broader valleys and comparatively narrow ridges.

The large streams have but little fall, and take a winding course, with broad bottoms on one or both sides. The soil on the river bottoms, and that of some of the creeks, particularly in the northwestern part of the county, is sandy in such proportion as to promote easy culture. These sandy bottoms are among the most productive for all crops, with a special adaptation to the growth of cotton, yielding from 600 to 800 pounds of seed-cotton per acre without fertilizers. There are several valleys with rich calcareous lands in the southern and eastern parts of the county. Van's valley affords the largest body of these lands. (For description, see Cedar valley, Polk county.) The valleys in the northwestern part of the county have generally a brown loam soil, with here and there, next the mountains, a gray gravelly or rocky soil. The gravelly ridge lands cover a large proportion of the eastern and northern parts of the county. The "flatwoods" extend through the county near the Coosan and Coosa rivers. These lands are generally level, are about 30 feet above the high water mark of these rivers, and are covered with a growth of short-leaf pine and scrubby red and post oaks. Cotton is grown here with success on the better lands without fertilizers, and is one of the chief crops on all cultivated land.

Rome is the chief market. The Coosa and Oostanaula rivers are navigable for small boats.

ABSTRACT FROM THE REPORT OF GEORGE S. BLACK, OF ROME.

The seasons are rather short for cotton. It is considered unsafe to plant before April 15, and killing frosts appear early in October, besides this, there are long, withering droughts through July and August. The south and east of the county are in the limestone region, the north and west in the limestone region, and we are on the division line. The soils are so various that it would be impossible to obtain a 100-acre field that would not contain two, or even more, qualities or colors of soil. It frequently happens that a small brook, over which one can stop, divides two distinct qualities of soil in respect both to color and to production. This county has some very productive land, but it is scattered about in patches.

The soils cultivated in cotton are uplands, valleys, and bottoms of rivers and creeks, and vary in color from gray to brown, mahogany, and blackish, and are composed of coarse sand, gravel, and clay, in varying proportions, in different places. Very sandy soil is found only in narrow strips near water-courses. The natural timber growth is oak, hickory, pine, poplar, walnut, maple, beech, birch, ash, cherry, gum, etc. Such soils have an average thickness of 6 inches, and extend 70 miles west, 40 east, 50 north, and 100 miles south. The slopes are heavier than the surface soils; those of river bottoms and valleys are red, very stiff and tenacious clays, and those of portions of creek bottoms and flat uplands are yellow clay and less tenacious. They contain "black gravel" and a variety of pebbles, white ones excepted, and are underlaid by gravel and rock at from 10 to 30 feet.

The soils are difficult to till in wet seasons, and are early and warm, but ill drained. The chief crops of this region are corn, cotton, oats, peas, potatoes, wheat, barley, rye, etc., the first five being best adapted to this region. Cotton occupies one-third of the land. The plant attains the height of from 3 to 6 feet, the higher the more productive. It inclines to run to weed on rich bottom land, and elsewhere if there is too much rain; early tapping will check it and favor bolling.

The product per acre of fresh land varies from 600 to 800 pounds of seed-cotton, 1,565 pounds making a 475-pound bale of lint, which rates in the market as middling. After ten years' cultivation the product per acre is 400 to 600 pounds on uplands and five to seven-tenths more on bottoms, 1,045 pounds then making a 475-pound bale of lint, which does not differ in quality from that on fresh land.

The troublesome weeds are hog-rape, rag-weeds, and crab-grasses, which are more than 30 per cent of them. The producing capacity of it has not again been tried. The slopes wash and gully very little, and the valleys are rather improved by the washings. Some slight and only partially successful efforts have been made to check the washing by horizontalizing, hillocks ditching, and terracing.

311
COTTON PRODUCTION IN GEORGIA.

ABSTRACT FROM THE REPORT OF JOHN H. DENT, OF CAVE SPRING.

The upland red, close-bale kind includes two-thirds of the cultivated lands for 10 miles around, and bears a natural growth of oak, hickory, etc. The soil is 10 inches deep, and its tilth is difficultly adapted to cotton, corn, oats, potatoes, sorghum, and clover, but cotton occupies half its area. The usual and most productive height of the plant is about 4 feet; it inclines to weed in wet seasons, and is restrained by topping. Fresh land produces 1,900 pounds of seed-cotton per acre, and the staple rates as good ordinary; after four years' cultivation the product is 600 pounds, and the staple compares favorably with that from fresh land. The most troublesome weed is ragweed. About one-twentieth of this land lies "turned out," but produces well when again cultivated. The slopes wash and gully badly, but the valleys are only slightly injured by the washings. To save the slopes, horizontal and hillside ditching are successfully practiced.

The time for planting cotton is from the 1st of October to the 1st of January. It is sent to Rome, Savannah, Charleston, and New York, the rate of freight being from $1.00 to $2 per bale.

POLK.

Population: 11,962.—White, 7,805; colored, 4,147.

Area: 330 square miles.—Woodland, all.

Tilled lands: 45,318 acres.—Area planted in cotton, 16,774 acres; in corn, 16,331 acres; in wheat, 6,538 acres; in oats, 6,116 acres; in rye, 28 acres.

Cotton production: 8,128 bales; average cotton product per acre, 0.48 bale; 690 pounds seed-cotton, or 250 pounds cotton lint.

The surface of Polk county is hilly and mountainous. Dug Down mountain extends along the southern and eastern sides of the county, trending east and west on the south side, but curving around to the northeast on the east side and presenting a steep escarpment toward the north and northwest. Three bands of nodular ridges extend from the north side of the county nearly to Dug Down mountain, leaving narrow valleys next to this mountain, which connect almost at right angles with the valleys that lie between the ridges. Cedar Valley is 9 miles long and from 1 mile to 6 miles wide, and is a fine body of undulating upland, with a rich calcareous soil of a brown or red color and a red subsoil. Vals and Redcliffs valleys are similar. (See map, Fig. 37, page 37.)

The valley lands on the western side of the county are generally sandy, and sand rocks of small sizes are often scattered abundantly over the surface, especially in the valleys around or near Indian mountain. The valley lands are nearly all of the best grade of uplands, and, taken altogether, they embrace within the county about one-fourth of its extent. The gravelly gray loams, belonging mostly to ridges, cover about one-third of the extent of the county. In the central portion of the eastern belt the lands are approximately level or but slightly rolling, and are covered with a growth of long-leaf pine; but in the more broken areas, as elsewhere in lands of this character, the prevailing growth is that of the different varieties of oak, with hickory, chestnut, and short-leaves pine. Southeast and south of Dug Down mountain there is a limited area of poor, hilly lands with a gray sandy and rocky soil and a growth principally of red oak, short-leaves pine, and chestnut.

In relation to cotton culture, in comparison with other portions of northwest Georgia, the lands of this county show rather the best average yield per acre for this crop. This is owing in part to a somewhat more favorable climate, being the most southern county in the state, as well as to the general fertility of the lands, which will bear a nearly equally favorable comparison in the production of the cereal and other crops.

ABSTRACTS FROM THE REPORTS OF G. M. EYRD, OF CEDARTOWN, AND T. J. THOMPSON, OF ROCKMART.

Lands are distinguished as bottom, valley, and hill lands. Valley and hill lands are best for cotton, especially the slopes facing to the south and southeast. The bottom lands are cold and late, and are well suited to corn, but not to cotton unless well prepared and stimulated by fertilizers. The bottom lands are generally level, and lie along the streams. The valleys are from 8 to 10 miles wide and from 10 to 30 miles long, and are rolling. The soil of the valleys and hills is in all respects very much alike. Cotton in this county thrives best on old lands if not fertilized. The malato or red land is the best for cotton. Its soil is a red or brownish clay loam from 6 to 12 inches deep; the subsoil is heavier, and has the color of chocolate and dark red, which becomes somewhat impervious to water as the cultivation of the surface soil goes on. It is unfitted by iron ore and limestone. One-fifth of the cultivated land is of this kind; it extends about 90 miles eastward and westward across northern Alabama. Its growth is post oak, red oak, and hickory. The best lands are held in tracts of from 400 to 2,000 acres; poorer lands in smaller divisions. The soil is easily tilled in dry, but with difficulty in wet seasons; it is early, warm, easily drained, and apparently best adapted to the cereals. The chief crops of the region are cotton, corn, oats, wheat, sorghum, potatoes, and clover. Cotton comprises half the crops on this land. The plant grows from 3 to 6 feet high, and is most productive at 5 feet; on fresh land or very rich soil it inclines to grow to weed, which may be restrained by using non-ammoniated phosphates. The seed-cotton product per acre of fresh land is from 600 to 1,000 pounds. After ten years' cultivation the product is from 500 to 600 pounds, but it takes more to make a bale. The most troublesome weeds are beg-weed, coarse-weed, and May-pop. One-fourth of this land (originally cultivated) now lies "turned out," but if the land is not badly gullied and washed it produces well when again cultivated. The slopes are very seldom washed and gullied, but the washings do not improve the valleys. Horizontal and hillside ditching are practiced, and are partially successful in saving the soil of the slopes.

The second quality of soil (as described by Mr. S. M. Eyrd) is designated gray land, which covers three-eighths of the cultivated land, and extends in the same directions and as far as the red land first described. Its timber is hickory, walnut, white oak, and ash. The soil is a whitish-gray loam, containing gravel, and is from 4 to 10 inches deep. The subsoil is heavier, has a pale red color, and contains clayey rock and white angular pebbles. The soil is easily tilled in any season, but the rocks and gravel are troublesome. It is a little late and cold, but naturally well drained, and is apparently best adapted to cotton, with which one-half its area is planted. The plant grows a little taller on this than on red land while fresh; on very rich spots, or on fresh land, it inclines to run to weed, which may be restrained by using phosphates. The product per acre of fresh or of old land is as given in the case of red land. When this soil begins to fall, poverty-weeds and cinquefoils will appear on it. A little more than one-fourth is "turned out"; it produces well for a few years when again cultivated.

The third quality of soil, as given by Mr. Eyrd, is that of the bottoms, which includes one-eighth of the cultivated area, and extends as far as the red and gray soils. Its natural timber is white oak, ash, beech, birch, walnut, sycamore, linden, poplar, hickory, 318.
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

clay, and maple. The soil is a fine silty loam of a whitish color when old or blackish when freshly cleared, and varies from 5 to 24 inches in depth. The subsoil is heavier, and varies from a good yellow clay to white or gray clay, and is somewhat impervious. This soil is difficult to till in wet seasons, is late and cold, and is best adapted to corn. Less than half of it is planted in cotton. The plant attains a height of from 3 to 7 feet, and is most productive at about 5 feet; it inclines to run to weed in ordinary seasons, and many believe that close planting will restrain it and favor bolling. Dry seasons are best for cotton on such land. The seed-cotton produce per acre of fresh land is from 1,000 to 1,500 pounds, and the production does not decline nearly so rapidly as on rolling lands or uplands. The most troublesome weeds are cockleburs, rag-weed, and in some spots smart-weed. Excepting pipe-clay spots that never were rich, very little of this land lies "turned out."  

Pine lands, as described by J. T. Thompson, of Rockmart.

The pine belt is 10 miles wide, extends into Floyd and Bartow counties, and is the most densely timbered pine land in northern Georgia. Its soil is variously composed of fine and coarse sand, gravel, and clay; its color varies from gray to brown and blackish, and reaches 3 inches below the surface. The subsoil is heavier; it is a light yellow, coarse sandy loam; in some places it is white pipe-clay, in others red clay. It is generally sandy, contains a variety of gravel, and is underlaid by sand, gravel, and generally much rock. The chief difficulty encountered in tillage is the abundance of rock at the surface. The soil onlaid drained very well. It is early, warm, and well drained, and is apparently best adapted to cotton and oats. The land is poor and poorly watered, and has very few springs and very little running water. It is hard to prevent wells from caving in; they are as deep as 30 feet, at which depth it is hard to find water. Not much of this land is cultivated. The cotton-plant attains a height of from 15 to 20 inches, the higher the more productive; it all opens well, and does not go to weed. The soil rather needs fertilizers. In ten years its production is decreased one-third, without any material variation of the quality of the staple or ratio of seed to lint. Product per acre of fresh land is from 500 to 600 pounds of seed-cotton, and from 1,450 to 1,485 pounds make a 475-pound bale of lint as good as any in market. Crab-grass is the chiefly troublesome weed. Only a small amount of such land lies "turned out." Slopes wash and gully badly if the soil is not held by gravel; the damage is not serious, and the valleys are slightly benefited by the washings. To save the slopes a very little hillside ditching and horizontaliing is done, and with very good success.

Cotton is shipped, by railroad, to Cartersville at 60 cents per bale, or to Rome at $1.55 per bale.

BAERTOW.

Population: 18,000. —White, 12,419; colored, 6,571.

Area: 900 square miles. —Woodland, all.

Tilled lands: 88,331 acres. —Area planted in cotton, 21,009 acres; in corn, 26,874 acres; in wheat, 15,905 acres; in oats, 9,636 acres; in rye, 164 acres.

Cotton production: 16,011 bales; average cotton product per acre, 0.46 bale, 657 pounds seed-cotton, or 219 pounds cotton lint.

The soil of Bartow county is rolling and mountainous, with broad valleys of excellent lands. The mountains belong to the western escarpment of the metamorphic plateaux extending into the east and southeast portions of the county. This is cut through by the Etowah river and by a number of smaller streams. West of this range for several miles the country is divided up without regularity of outline into nearly level valleys and steep rocky hills. Etowah river crosses the county from east to west, and about two-thirds of its surface is drained by this river and its tributaries.

The most valuable uplands are the red clay lands, commonly distinguished in this county as red mulatto lands. These lands are found around Cartersville, in Pine Log valley, and in various other localities, forming a large proportion of the cultivated area. The production is from 25 to 30 bushels of corn, from 8 to 15 bushels of wheat, from 700 to 800 pounds of seed-cotton to the acre, fertilizers being used only with corn. Most of the valley land, particularly that of Ocoee marsh valley, is argillaceous and more or less calcareous, and is cultivated principally in corn, wheat, and oats. The soil varies in color from a light red to a dark brown.

The gray gravelly ridge lands cover perhaps one-third of the surface of the county. In the southwestern corner of the county these lands are nearly level and somewhat sandy, and are covered with a prevailing growth of long-leaf pine, with red and post oaks. There are some gray and red sandy lands on the east side of the county that have not been cultivated to any great extent, but with fertilizers they give a good yield of cotton. In the southeastern part of the county the soil is a light red color, and loose sparsely-roughs are scattered abundantly over the surface. The alluvial lands of the Etowah river are somewhat sandy and very productive, yielding from 600 to 700 pounds per bale, especially of all on the north side of this river, is more argillaceous, and is not suited to the cotton crop. (See analyses of soils, page 27.)

ABSTRACTS FROM THE REPORTS OF J. O. MCDANIEL, OF ALLATOONA, AND A. F. WOOLLEY, OF KINGSTON.

Both latitude and altitude make the season rather too short for cotton, but by the use of stimulating fertilizers a good average yield is obtained. The upland soils vary from red to gray, and the transition is often very abrupt. On the bottoms cotton is later than on the uplands, an account of later planting and lower temperatures of the soil; it is therefore liable to be prematurely frost-killed.

The kinds of soil cultivated in cotton are: 1. Brown sandy loam of the hilltop, rolling, and level table-lands; 2. Black clay loam of the low bottom; 3. Gray gravelly clay of the uplands. The loose sandy loam of this region, and extends across the southern part of the county. Its color is brown, but more yellow, white, and brown, half the arable area of this region, and is usually well drained, but ill drained. The chief crops are corn, cotton, wheat, oats, clover, peas, potatoes, and turnips. This soil is well adapted to cotton, which occupies from one-half to two-thirds of the tilled lands. This plant usually attains a height of 30 inches, but is more productive at 36 inches. An excess of rain for months on end is injurious to it as well as to its cotton. Fresh land produces 1,500 pounds per bale; after thirty years cultivation the product is 650 pounds per acre, about 1,450 pounds making a 450 pounds per acre.
COTTON PRODUCTION IN GEORGIA.

475-pound bale of lint, which is shorter than and inferior to that from fresh land. Bag-weeds, hog-weeds, and crab-grass are most troublesome. One-tenth of this land lies “turned out”. When again cultivated it produces as well as when fresh, but does not last so long. Hoes do not readily wash or gully, but in some instances they are seriously damaged. Horizontalizing and hillside ditching are successfully practiced to check the damage.

The black clay bottom soil includes one-fourth of the arable land of this region. The soil is 6 inches deep, and is light, cold, ill drained, and rather difficult to till in wet seasons. The subsoil is heavier, and is an impervious, yellowish clay hardpan, underlain by gravel and rock as from 15 to 20 feet. The soil is apparently best adapted to corn, but one-third of the cultivated area is planted in cotton. The plant attains a height of from 2 to 3 feet, and is most productive at 4 feet. It runs to seed in wet weather, for which there is no remedy. The seed-cotton product per acre is from 1,000 to 1,500 pounds; after thirty years’ cultivation the product is 800 pounds. About 1,400 pounds from fresh land and about 1,400 pounds from old land make a 475-pound bale. The staple from old land is inferior to that from new, but the difference is hardly appreciable. The most troublesome weeds are rag-weeds, morning-glories, and grass. None of this land lies “turned out”.

The gray gravelly upland clay soil includes one-fourth of the cultivated area of this region. It is known to extend 15 miles around, and bears a natural growth of post oak, red oak, pine, blackjack oak, etc. The heavier subsoil is a yellow, very stiff, impermeable, containing dirty, hard, angular gravel of white and other colors, and is underlain by rock at from 30 to 50 feet. The soil is early, warm, but ill drained, and is difficult to till in wet seasons. It is apparently best adapted to cotton, with which one-half its area is occupied. The plant attains a height of from 2 to 3 feet; is most productive at 3 feet, and is not inclined to go to seed. The seed-cotton product per acre is from 400 to 600 pounds; after thirty years’ cultivation it is no less; 1,400 pounds from fresh land, or from 1,450 to 1,540 pounds from old land, make a 475-pound bale of lint. The staple from old land does not differ appreciably from that of new land; both are good. Crab-grass is the most troublesome weed. One-tenth of this land lies “turned out”, and after a long rest produces very well again. Slopes are seriously damaged by the washing and gullying of the soil upon them; the washings also injure the valleys to the extent of 5 per cent. To check the damage horizontalizing and hillside ditching are very successfully practiced.

Shipments are made, as soon as the cotton is ready, by rail, to Atlanta at $1 per bale.

THE BLUE RIDGE REGION (METAMORPHIC).

The Blue Ridge region embraces all of the counties of Rabun, Towns, Union, Fannin, Gilmer, Pickens, Dawson, Lumpkin, White, and Habersham. The north county-lines of the latter four rest on the crest of the ridge. The first five counties are out of the cotton region proper, and but a brief mention is necessary.

RABUN.

Area: 400 square miles. Woodland, all; metamorphic, all.
Tilled lands: 15,200 acres. Area planted in cotton, 45 acres; in corn, 8,810 acres; in oats, 455 acres; in wheat, 457 acres; in rye, 1,475 acres.
Cotton production: 14 bales; average cotton product per acre, 0.31 bale; 444 pounds seed-cotton, or 145 pounds cotton lint.

Rabun county occupies the extreme northeastern corner of the state, and is a region of mountains with comparatively little land suitable for tillage. It is well timbered (one-half pine on the mountains), and its soils are chiefly gray, sandy, and gravelly, with clay subsoils. A belt of red land enters the county from the southwest and reaches to Clayton, the county-seat. (For description of lands, see regional part, page 32.) The Atlantic and Gulf water-divides pass northward through the western part of the county. The lands of the Tennessee valley (2,000 feet above the sea) are generally level and highly productive, and here also are situated the largest farms. The county is too broken and transportation to railroad stations too difficult to make the culture of cotton very profitable.

TOWNS.

Area: 180 square miles. Woodland, all; metamorphic, all.
Tilled lands: 14,165 acres. Area planted in cotton, none; in corn, 7,001 acres; in oats, 830 acres; in wheat, 2,052 acres; in rye, 1,329 acres.
Cotton production: None.

Towns county lies on the north side of the Blue Ridge along the North Carolina line, and is drained by the headwaters of the Tuckasegee river, which flow northward. The surface is broken and well timbered. Its soils are gray, sandy, and gravelly, and underlain by clay subsoils. (See regional description, page 32.) No cotton is produced, except, perhaps, in small patches for home use. Corn is the chief crop, with some wheat and rye and a little oats.

UNION.

Area: 330 square miles. Woodland, all; metamorphic, all.
Tilled lands: 30,347 acres. Area planted in cotton, 12 acres; in corn, 14,347 acres; in oats, 2,139 acres; in wheat, 4,012 acres; in rye, 1,064 acres.

344
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

Cotton production: 5 bales; average cotton product per acre, 0.42 bale, 594 pounds seed-cotton, or 198 pounds cotton lint.

Union county lies chiefly on the north side of the Blue Ridge. Its surface is mountainous and broken, well timbered, and drained by streams forming in part the headwaters of the Tennessee river. Soils are mostly gray, sandy, and gravelly, with clay subsoils, as in the adjoining counties. (See regional description, page 52.) The chief crop is corn, with an acreage five times that of any other crop.

Note from C. J. WALTZLORN, or BALSHEVILLE.—The seasons are too short, and the shade is too great in this county for the successful production of cotton for market. It is only planted in patches, and while the plant grows luxuriantly it fails to mature or to open before the frost comes. The red clay lands, while not the best of the county, are the only ones on which cotton is planted, and then fertilizers are used. They comprise 10 per cent. of the county area, and have a growth of all varieties of oats, buckwheat, white, yellow, and spruce pine, cherry, and poplar.

FANNIN.

Population: 7,245.—White, 7,112; colored, 133.
Area: 398 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 27,197 acres.—Area planted in cotton, none; in corn, 14,262 acres; in oats, 1,005 acres; in wheat, 3,640 acres; in rye, 2,099 acres.
Cotton production: None.

Cotton is scarcely planted, except in small patches.

ABSTRACT FROM THE REPORT OF ADAM DAVENPORT, OF MORGANTON.

The lands of the county vary greatly from one ridge to another, being in patches of from 1 acre to 20 acres each. They may be classed as—

Black sticky uplands, lying mostly on southern slopes, and hence better for cotton than the other lands. They comprise about 10 per cent. of the lands of the county, and have a growth of buckwheat, oak, walnut, honey-loquat, mulberry, and sassafras. The soil has a depth of 10 inches, with a clay subsoil. The chief crops are corn, wheat, rye, oats, and potatoes, to the first of which this soil is best adapted. Cotton is planted only in a few small patches for house use, and yields about 600 pounds per acre. The lands are easily won, well drained, and adapted to cultivation in wet seasons.

The heavy, clayey-colored clay uplands, having eastern or southern inclinations, comprise about half the lands, and have a growth of oats, corn, rye, buckwheat, maple, etc. These are best adapted to corn and rye. Cotton grows luxuriantly, but is liable to be killed prematurely by frost. Under the most favorable circumstances only about 100 pounds of lint are obtained per acre from these lands.

GILMER.

Population: 8,586.—White, 8,555; colored, 128.
Area: 480 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 20,275 acres.—Area planted in cotton, 122 acres; in corn, 16,178 acres; in oats, 280 acres; in wheat, 5,000 acres; in rye, 300 acres.
Cotton production: 32 bales; average cotton product per acre, 0.26 bale, 375 pounds seed-cotton, or 123 pounds cotton lint.

Gilmer county lies at the southwestern termination of the Blue Ridge. Its surface is rolling and part is mountainous, is well timbered, and is drained westward by the headwaters of the Coosahee river. In general soil characteristics this resembles the region already described. There is, however, a smaller percentage of its lands under cultivation (9.2 per cent. of county area) than in any county of the region excepting Rabun. Its chief crops are corn, wheat, rye, and oats. Scarcely any cotton is planted.

PICKENS.

Population: 6,790.—White, 6,645; colored, 145.
Area: 230 square miles. Woodland, all; metamorphic, nearly all.
Tilled lands: 26,834 acres, or 15.2 per cent. of county area.—Area planted in cotton, 2,210 acres; in corn, 12,774 acres; in wheat, 5,032 acres; in oats, 1,619 acres; in rye, 290 acres.
Cotton production: 138 bales; average cotton product per acre, 0.63 bale, 474 pounds seed-cotton, or 163 pounds cotton lint.

Pickens county is divided diagonally by the continuation of the Blue Ridge chain passing through the county from northeasterly to southwesterly. These mountains have an altitude of from 1,500 to 2,600 feet, while the rest of the county is broken and hilly. On the north of this range the county is watered by Talking Rock creek and its tributaries, flowing northward into the Coosahee river. On the south are the headwaters of Long Swamp and Stone creeks, flowing southward, tributaries of the Etowah river.

The various schists and gneisses are found over the greater part of the county, forming by their decomposition their characteristic sandy and murallo lands. East from Jasper, the county-seat, silex-schists at first appear, then a wide belt of sandstones, and finally gneisses at the county-line. To the west and southwest are found shales, sandstones, and silex-schists, with hornblende veins near Talking Rock, and the lands are mostly sandy, with red and yellow clay subsoils. Cotton is produced only in patches. Nineteen per cent. of the county area is too mountainous for tillage, and of the remainder 33 per cent. has been cleared and is partially under cultivation. Wheat yields 3
COTTON PRODUCTION IN GEORGIA.

bushels, corn 16 bushels, and oats 8 bushels per acre. On the northwest, where the Fine Log range of mountains cross the county, there are found white marbles of excellent quality. In other sections gold and other minerals exist.

The lands under tillage comprise 18.2 per cent. of the county area. Of this 8.2 per cent. is in cotton, averaging 9.6 acres per square mile.

DAWSON.

Population: 5,837.—White, 5,479; colored, 358.
Area: 180 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 24,953 acres.—Area planted in cotton, 2,188 acres; in corn, 14,068 acres; in wheat, 4,949 acres; in oats, 882 acres; in rye, 396 acres.
Cotton production: 250 bales; average cotton product per acre, 0.39 bale, 553 pounds seed-cotton, or 184 pounds cotton lint.

Dawson county touches the Blue Ridge chain only on the northwestern corner, but the rest of the country is hilly and broken. The rocks are highly micaceous, with the exception of an area of sandstone northwest of Dawsonville. There is a belt of red hornblende lands south of the town, but the lands in general are gray and sandy, with clay subsoil. The Chattahoochee and the Etowah rivers approach very near each other on the northeast, and are separated only by a low ridge. Twenty-one and seven-tenths per cent. of the county area is under tillage, and 8.8 per cent. of this is in cotton, averaging 12.2 acres per square mile. Ten per cent. of the county is too mountainous for tillage.

LUMPKIN.

Population: 6,918.—White, 6,075; colored, 451.
Area: 290 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 21,012 acres.—Area planted in cotton, 269 acres; in corn, 11,393 acres; in wheat, 2,781 acres; in oats, 1,534 acres; in rye, 582 acres.
Cotton production: 100 bales; average cotton product per acre, 0.41 bale, 576 pounds seed-cotton, or 192 pounds cotton lint.

Lumpkin is one of the chief gold-bearing counties of the state, Dahlonega being the center of large mining operations. The surface of the county is hilly, and in the northern mountains. The principal streams are the Etowah river and the Chastataee. Twenty-five per cent. of the county is too mountainous for tillage. The soils are of the gray sandy and red clayey varieties, with clay subsoils, usual to the metamorphic region. (See regional description, page 32.) The average yields are 12 bushels of corn, 7 of oats, and 15 of wheat per acre. The average of cotton product per acre is very high as compared with that of other counties of the metamorphic region. Tilled lands comprise 13.3 per cent. of the county area; of this 1.3 per cent. is devoted to cotton, which averages 0.9 acres per square mile.

Shipments are made by wagon to the nearest railroad station, and there mostly sold to local buyers.

John C. Brittain, of Dahlonega, says:

The altitude of this county is too great for the cultivation of cotton, being from 1,600 to 3,500 feet above sea-level. Consequently no cotton, except a little for home use, is made in the county.

WHITE.

Population: 6,341.—White, 4,781; colored, 560.
Area: 183 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 19,889 acres.—Area planted in cotton, 228 acres; in corn, 11,097 acres; in oats, 2,228 acres; in wheat, 2,319 acres; in rye, 439 acres.
Cotton production: 65 bales; average cotton product per acre, 0.30 bale, 426 pounds seed-cotton, or 142 pounds cotton lint.

The surface of White county is rolling and broken, largely mountainous, and well timbered. The topographical and agricultural features are fully given in the following abstract, taken from the unpublished geological report on this county made by the late Professor F. H. Bradley, formerly of the state survey:

Nearly half of the surface of White county is covered by the spurs of the Blue Ridge, along whose crest lies the northern boundary-line. On the northeast we find the heavy mass of Tray mountain, with long, high spurs and deep, narrow valleys, including several small amounts of level land that all but the outermost portions are destitute of houses and fields. In the northwest, on the contrary, the Horse range, a distinct spur of the Blue Ridge, and running at right angles to its general trend through fully half the length of the county, furnishes considerable high, flat areas, upon which are located several farms. Between this and Bassari mountain, still northwest, along Town's creek, a narrow belt of farms follows the Tuscante turpentine; and along Spool's Cane creek, between the Horse range and Tray mountain, another belt follows the Unicoi turpentine far toward the crest of the divide. The valleys at the base of the mountains are from 1,500 to 1,700 feet above the sea, the mountains from 2,000 to 4,400 feet. Through the center and southern portion of the county there is a rather scattering string of isolated knolls, of which Yoshih (5,105 feet high) is the most prominent. The valleys have mostly a southerly trend with the spurs of the Blue Ridge, excepting Nanoocoee valley, which lies nearly due east and west and forms a sort of gathering place or "low-ground" for all the smaller streams, which here form the Chattahoochee river.

The valleys have generally a fertile soil, and are mostly cultivated, producing good crops of corn and sorghum-cane, with smaller areas devoted to rice, hay, and pasturage. The second bottoms (or terraces, some 70 feet above stream-level) and lower uplands are mainly cultivated in corn and wheat, with some oats, tobacco, cotton, potatoes, etc., in small quantities for home use. Most of the bottom lands give evidence, by graves, palm-tree, implement, etc., of having been under cultivation for several centuries. While the vegetable portion of the soil has often been restored through lying fallow for years and through having crops of weeds and grasses plowed under, yet the mineral portion has not thus been restored, except by the floods which occasionally overflow the lowest portions of the bottoms and deposit sediment.
Agricultural Descriptions of the Counties.

The ridges of the lower half of the county are dry and mostly sandy. At the southern extremity they bear considerable areas of good yellow pine timber, together with tracts of scrubby oak, hickory, etc. Passing northward, the pine rapidly decreases and the hard woods increase in amount and variety. In the northern and more mountainous portion the forests have been less cut away, and the ridges, as well as the valleys, are therefore more abundantly wooded and covered with a heavy growth of large timber—white, red, and Spanish oaks, hickory, black walnut, maple, chestnut, poplar, locust, cherry, gum, hemlock, holly, sassafras, etc. The soil here is mostly a black loam, and is covered with a scattering undergrowth of sourwood, etc., and an abundant growth of pes-voices, wild grasses, etc., thus making this a favorite pasture-ground.

HABERSHAM.

Population: 8,718.—White, 7,327; colored, 1,391.
Area: 400 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 28,360 acres.—Area planted in cotton, 14,762 acres; in corn, 14,797 acres; in wheat, 2,458 acres; in oats, 1,021 acres; in rye, 662 acres.
Cotton production: 607 bales; average cotton product per acre, 0.34 bale, 483 pounds seed-cotton, or 161 pounds cotton lint.

Habersham county has for its most prominent feature the various high mountain ranges and points, all well timbered. The Blue Ridge lies on the northern boundary, Tallulah mountain, an offshoot, trending southward to the Chattahoochee ridge. The surface of the country, exclusive of the mountains, is rolling, with valleys and uplands large areas of excellent lands for cultivation. Only 10 per cent of the entire county is too hilly for tillage.

The rocks of the country comprise a great variety of the metamorphic series, and are highly siliceous. A belt of magnetite or talcose slate, with a limestone stratum of varying thicknesses, containing some gneiss, passes across miles south of Clarkville in a southwest course. The belt is so narrow that the lands on either side are not perceptibly benefited by the presence of the limestone. Lime-kills have been in operation at several of these limestone exposures. The table-lands on the northeast have a sandy soil, derived from a dark sandstone (the almost exclusive rock), and are thinly settled, being too thickly for cultivation to any great extent.

Large areas of red-clay land occur in several portions of the county, especially on the north, where a belt 2 or 3 miles wide passes north of Batesville. (For description of lands and analyses, see general part, page 53.)

Tilled lands comprise 11.1 per cent of the county area, and of this 0.2 per cent is in cotton, averaging 4.4 acres per square mile.

The Raleigh and Augusta Air-Line railroad furnishes transportation to market.


The red lands are the only ones devoted to cotton, and comprise the largest part of the area under cultivation. They have a soil 6 inches deep and a mica-clay subsoil. The growth is pine, oak, hickory, chestnut, ash, etc. Cotton comprises one-twentieth of the crops, and fertilizers are used to hasten its maturity. The yield is from 200 to 250 pounds of seed-cotton. The crops are troubled most with rag-weeds, cockleburs, Spanish needles, and crab-grass. The uplands wash readily if there is much mica-clay in the soil, otherwise not. But little damage is done. The crops of the county are corn, wheat, oats, potatoes, etc.

MIDDLE GEORGIA (METAMORPHIC).

This region embraces the counties of Franklin, Hart, Banks, Hall, Forsyth, Milton, Cherokee, part of Bartow,* Haralson, Paulding, Cobb, Fulton, De Kalb, Gwinnett, Jackson, Madison, Elbert, Oglethorpe, Clarke, Oconee, Walton, Rockdale, Clayton, Campbell, Douglas, Carroll, Heard, Coweta, Fayette, Spalding, Henry, Newton, Morgan, Greene, Tallasferro, Wilkes, Lincoln, and Columbia; parts of McDuffee, Warren, and Hancock; Putnam, parts of Baldwin, Jones, Bibb, and Jasper; Butts, Monroe, Pike, Upson, parts of Crawford, Taylor,* Talbot, Meriwether, Troup, Harris, and Muscogee.

FRANKLIN.

Population: 11,453.—White, 8,906; colored, 2,547.
Area: 339 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 61,177 acres.—Area planted in cotton, 16,901 acres; in corn, 20,223 acres; in wheat, 6,590 acres; in oats, 4,821 acres; in rye, 15 acres.
Cotton production: 6,723 bales; average cotton product per acre, 0.34 bale, 483 pounds seed-cotton, or 161 pounds cotton lint.

The surface of Franklin county is rolling and hilly, 5 per cent. being too much so for tillage. It is well timbered, and comprises the usual gray, sandy, and gravelly, as well as red-clay lands. (See regional description, page 34.)

The latter chiefly prevail, a wide belt of a deep red color, derived from hornblende rocks, passing through the latter chiefly prevail, a wide belt of a deep red color, derived from hornblende rocks, passing through the latter chiefly prevail, a wide belt of a deep red color, derived from hornblende rocks, passing through The latter chiefly prevail, a wide belt of a deep red color, derived from hornblende rocks, passing through The latter chiefly prevail, a wide belt of a deep red color, derived from hornblende rocks, passing through The latter chiefly prevail, a wide belt of a deep red color, derived from hornblende rocks, passing through The latter chiefly prevail, a wide belt of a deep red color, derived from hornblende rocks, passing through
COTTON PRODUCTION IN GEORGIA.

ABSTRACT FROM THE REPORT OF O. C. WYLY, OF CARNEGIEVILLE.

The lands of the county are intermixed very generally, and comprise the red and the gray sandy and gravelly. The general yield is 400 pounds of seed-cotton per acre on fresh lands, and an increase of 100 or 200 pounds after four years' cultivation. The lint rates are middling. One-sixth of the lands now lies out; they wash readily, doing much damage. These old lands produce cotton finely, and are troubled chiefly with crab-grass and hog-weed.

Shipmentsof cotton are made by the Elizabeth and Air-Line railroad, or by wagon, to Athens, at 50 cents per 100 pounds.

HART.

Population: 9,004.—White, 6,312; colored, 2,692.
Area: 330 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 39,730 acres.—Area planted in cotton, 14,025 acres; in corn, 14,312 acres; in wheat, 4,046 acres; in oats, 4,979 acres; in rye, 10 acres.
Cotton production: 5,604 bales; average cotton product per acre, 0.34 bale; 486 pounds seed-cotton, or 162 pounds cotton lint.

Hart is a rolling, timbered county; with level table-lands between the streams. Gray sandy lands, from micaceous schists, cover almost the entire county south from Hartwell and north for several miles. Red lands then prevail in the Franklin county-line, formed from the decomposed hornblende rocks. (For character of lands, etc., see general description, page 28.) All of the lands of the county are considered tillable. The lands under cultivation comprise 18.8 per cent of the county area; 37.6 per cent of tilled lands is planted in cotton, averaging 45.2 acres per square mile. Its yield per acre is a little more than the average for the region.

ABSTRACT FROM THE REPORT OF W. W. SNEDELL, OF HARTWELL.

The gray lands are chiefly devoted to cotton. They cover two-thirds of the county, lying along the uplands at some distance from the creeks and rivers, have a sandy gray upland loam soil from 3 to 4 inches in depth, with generally a red-clay subsoil, and contain much quartz gravel. The growth is principally pine, with some oak, hickory, gums, ash, etc. The soil is early and easily tilled, producing cotton, corn, wheat, rye, oats, and potatoes. Cotton comprises two-thirds of the crop, grows to a height of 5 or 4 feet, runs to wave on very rich land, and yields about 260 pounds of seed-cotton per acre. Cultivation of three years improves it and increases the yield to 375 and 400 pounds. Crab-grass is the most troublesome weed. Very little of the land now lies out, and it washes but slightly on slopes. The bottoms of Savannah river are rich and productive, and are best adapted to corn. In this county the cotton crops are cut early by early frosts in the fall, but this is obviated by the use of fertilizers, which cause cotton to open in time to prevent damage. Shipment is made to Augusta, Charleston, and Baltimore. The rates of freight are $3 35 to Baltimore and $2 75 to Charleston per bale.

BANKS.

Population: 7,387.—White, 5,830; colored, 1,507.
Area: 350 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 31,261 acres.—Area planted in cotton, 8,261 acres; in corn, 11,789 acres; in wheat, 3,636 acres; in rye, 2,023 acres; in cotton, 2,663 acres; average cotton product per acre, 0.36 bale, 510 pounds seed-cotton, or 170 pounds cotton lint.

Banks county, with its northern boundary resting on the Chattahoochee ridge at an elevation of a little over 1,000 feet above the sea, gradually declines southward from the foot of the ridge, the general elevation being then about 700 feet. The surface of the country is hilly, 2 per cent. being too much broken for successful tillage. Sixty-seven per cent of the entire county is still covered with its original timber-growth of oaks, short-leaf pine, chestnut, hickory, and gum on the uplands, and gum, ash, maple, oak, and poplar on the bottoms and lowlands. The tributaries of Broad river flowing southeast into the Savannah drain the surface of the county.

The usual variety of gray sandy and red clayey soils, with their clay subsoils, occur throughout the county. (See general description, page 34.)

Red clay lands cover the southerly portion of the county, and a narrow belt lying 6 miles north of Homer extends in a southwestwardly course across the county. These red lands are interspersed throughout with gray sandy soils, while the rocks, though chiefly hornblende, are associated with gray and micaceous gneisses. The lands along the streams are sandy, while the bottoms are narrow and present but small areas suitable for cultivation. The lands devoted to the cultivation of cotton are the uplands, which have a depth of from 6 to 10 inches and a red clay subsoil.

The cultivated lands comprise 35.8 per cent of the county area. Cotton is the second crop in acreage, and averages 25.8 acres per square mile, or 26.4 per cent of tilled land. Its average product per acre is above that of the region at large, and also of the state.

ABSTRACT FROM THE REPORT OF C. C. SANDERS, OF gainesville.

This county is too near the mountains to produce cotton well. The cold and late spring incident to the high elevation above sea-level retard the growth of cotton in early spring and the early frosts of autumn prevent opening. With fertilizers and good cultivation the crops since the war have generally come in in sufficient time. Several classes of land may be distinguished, viz:

1. The red, grey, and red-clay uplands, covering three-fourths of the county, and best adapted to corn, wheat, oats, and potatoes, though cotton comprises one-third of the crops, and yields on fresh lands 800 pounds of seed-cotton per acre. After five years' cultivation (unharvested) the yield is only from 260 to 300 pounds, and 2,500 pounds are required for 475 pounds of lint. The stalk grows to an
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

HALL.

Population: 15,286.—White, 13,040; colored, 2,286.

Area: 840 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 94,981 acres.—Area planted in cotton, 12,545 acres; in corn, 26,632 acres; in wheat, 8,771 acres; oats, 4,798 acres; in rye, 369 acres.

Cotton production: 5,133 bales; average cotton product per acre, 0.42 bale, 977 pounds seed-cotton, or 199 bales cotton lint.

Hali county is divided by the Chattahoochee river, on the south side of which, at a distance of several miles, is a ridge forming the Atlantic and Gulf divide. The surface of the county north and south of this ridge is hilly and broken. On the north, and lying near the railroad line, is a narrow strip of magnesian limestone, with associated gravel in localities, accompanied by magnesian and talcose slates; but the belt of these is not wide enough to give to the lands any marked difference from those of the other rocks. In the southern part of the county rises a belt of red lands derived from decomposed herbaceous rocks, which also comprise a large part of the lands of the county, though the gray sandy lands are most abundant, being derived from gneisses and micro-schists filled with gold-bearing quartz veins. (For description of soils, see page 34.)

Gold-mining is carried on extensively in the country north of Gainesville. Ten per cent. of the county is too rocky for tillage, and 30 per cent. has been cleared. The crops are corn, wheat, oats, cotton, potatoes, grapes, and vines. The percentage of county area under tillage is the same as that of Hart (18.3 per cent.), cotton averaging 27 acres per square mile, or 18.8 per cent. of tilled lands. Cotton has been planted in this county since 1872, and is now the chief industry. The average yield of the county per acre is excellent, there being but nine counties in the state with a greater croptage.

ABSTRACT FROM THE REPORT OF DR. M. F. STEPHENSON, OF GAINESVILLE.

Cotton is planted equally on gray sandy and red uplands and on alluvial lowlands, and comprises one-fourth of the crops. The blato and red lands are considered the best, and constitute one-half of the area of the county. The soil has a depth of 24 inches, with reddish-brown subsoil and a growth of oaks, hickory, walnut, cherry, poplar, and pine. It is easy to till, and is early and well drained, yielding half a bale, or 700 pounds of seed-cotton per acre on fresh lands. It is improved by cultivation, yielding the fifth year from 700 to 1,500 pounds of seed-cotton per acre. The soil is of a height of 2 feet, and is cultivated mostly by wag-wheels. One-tenth the land originally under cultivation now lies out, and when taken in again is almost as productive as when fresh, and only as much older deep plowing is practiced. These lands wash readily, but no serious damage is done.

The gray sandy lands are best adapted to cotton culture. They produce from 400 to 700 pounds of seed-cotton when fresh, but only 500 pounds after five years' cultivation. The growth is good, hickory, dogwood, and poplar. The bottom lands have a fine, sandy loam soil from 5 to 12 feet deep, yielding from 450 to 600 pounds of seed-cotton after five years' cultivation.

Under the old system of farming the average yield was of wheat from 7 to 10 bushels per acre; now, under the new, the yield is from 4 to 10 bushels. Of corn cultivated 24 inches deep without manure the yield ranged from 10 to 15 bushels; now, by turning under green crops in the fall, with lime composted with ashes and manure, the product is from 30 to 50 bushels, with promise of 100 or more. Clover is our main helper. Sheep-raising is being introduced successfully. Our people are slow to adopt modern improvements; they are 14 farmers in the whole county have adopted modern systems, and they are more than double their crops with the same labor. With 24 set of subsoiling they could quadruple their products. With proper tillage we can make 2 bales of cotton per acre, instead of half a bale. 100 bushels of corn instead of 16 bushels, and 100 bushels of wheat instead of 7.

We cling to the old and ancient system of "animalism"—just enough to live on—and let science go. Nine-tenths of our farmers feed all their crops with the same manure, without respect to character of soil or wants of each crop. I have raised 456 bushels of Irish oats from one acre, highly manured with ashes, which the year before made only 17 bushels. It is the kind of food, and not the quantity given to the crops, that produces best yields.

Shipment of cotton and other produce is made by railroad.

FORSYTH.

Population: 10,509.—White, 9,072; colored, 1,487.

Area: 280 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 83,043 acres.—Area planted in cotton, 12,121 acres; in corn, 20,524 acres; in wheat, 7,097 acres; oats, 6,040 acres; in rye, 74 acres.

Cotton production: 6,044 bales; average cotton product per acre, 0.42 bale, 504 pounds seed-cotton, or 198 bales cotton lint.

The monocoty of a rolling metamorphic country is varied in Forsyth county by Sawnee mountain, a low range of hills north of Cummins, which passes at first in an easterly direction, connects with Coal mountain, and turns to the northeast, forming the water-divide between the Chattahoochee and Etowah northward.
COTTON PRODUCTION IN GEORGIA.

Rivers. The highest point of the mountains is only 400 feet above the surrounding country and 1,968 feet above the sea. The crest of the ridge is sharp and the sides rather steep, a mesocratic sandstone (facemilitate) overlying the summit. Five per cent. of the county is too hilly and broken for tillage, and one-half of the rest has been cleared. The northern part lies in the gold belt, and its lands are mostly gray sandy and gravelly, with narrow belts of red clays.

In the central part there is a belt of red and unbleached lands 6 or 8 miles wide, from micaceous and some hornblende gneisses, while on the south the lands are again gray and gravelly, with large quartz fragments lying on the surface. This also is gold-bearing. One-third of the county area is under tillage, and of this 22.9 is in cotton, which has an average of 48.5 acres per square mile. The soils are described in the following abstract:


The lands may be classified as follows: Red or yellow soils, covering three-fourths of the county, with a sandy clay soil from 6 to 18 inches deep and a subsoil mostly of red clay, firm and compact, and which drains easily. These lands are best adapted to corn, wheat, though of late years the culture of cotton has increased 100 per cent., and it now comprises one-third of the crops. The average yield on fresh land, and also on land ten years in cultivation, is 500 pounds per acre, or 800 when manured, 1,428 pounds making 725 pounds of "middling" lint from fresh and 1,428 pounds from old lands, the lint then rating as good middling. The lands are found to produce cotton better when old than when fresh, and hence only 10 per cent. of the lands now lie out, while a few years ago there was 20 per cent. Very little damage is done by washing of the hills. Ragweed and crab-grass are troublesome. The gray sandy gravelly lands, covering one-fourth of the county, are found mostly on ridges, and have a light red or yellow subsoil at 6 inches depth. Cotton very rarely runs to seed on this land, but grows to a height of 3 feet, and produces, when fresh and after four years' cultivation, 500 pounds of seed-cotton per acre, the staple rating the same as on red lands. These old lands are also considered best for cotton.

Cotton is shipped soon after picking, by wagon, to the railroad, and thence to Atlanta. Rates are 90 cents for 40 miles, and $1 for 50 miles, per bale.

MILTON.

Acre: 110 square miles. Woodland, all; metamorphic, all.
Tilled lands: 30,620 acres. Area planted in cotton, 9,089 acres; in corn, 13,039 acres; in wheat, 4,157 acres; in oats, 3,626 acres; in rye, 115 acres.
Cotton production: 4,490 bales; average cotton product per acre, 0.45 bale, 442 pounds seed-cotton, or 214 pounds cotton lint.

The surface of Milton county is rough and broken, the water-divides between the Chattahoochee and Etowah rivers running through it. The lands are largely gray sandy and gravelly, with clay subsoils, and their surface is covered with quartz fragments from the many large veins and seams (gold-bearing) that intersect the mica-schists and gneisses. In some localities the rocks are highly garnetiferous, covering the soil with that small rounded material. The county is well timbered with oak, hickory, and pine, and a variety of undergrowth.

Ten per cent. of the area of the county is either too hilly or too swampy for cultivation, and about 40 per cent. has been cleared. The uplands yield 16 bushels of corn per acre when cultivated.

The lands are similar in character, and the methods of culture are the same as in the lower part of Forsyth county, and 43.5 per cent. of the county area is under cultivation; 33.9 per cent. of this is in cotton, the average being 60.9 acres per square mile. The average yield of cotton for the county is excelled but by five counties of the state, due probably in part to the rich alluvial valley lands of the Chattahoochee river on the southern border.

Cotton is hauled by wagon to the railroad, and thence shipped to Atlanta.

CHEROKEE.

Population: 14,325. White, 12,600; colored, 1,725.
Acre: 470 square miles. Woodland, all; northwestern, 11 square miles; metamorphic, 459 square miles.
Tilled lands: 43,289 acres. Area planted in cotton, 13,789 acres; in corn, 26,390 acres; in wheat, 10,283 acres; in oats, 5,172 acres; in rye, 416 acres.
Cotton production: 5,618 bales; average cotton product per acre, 0.41 bale, 582 pounds seed-cotton, or 194 pounds cotton lint.

The entire surface of Cherokee county is hilly, 15 per cent. being too broken for cultivation, especially in the northwestern and east, where the Pine Log range of mountains passes through the county. On the east the lands are more level, and on the south, along Little river, they are undulating.

The lands embrace the usual gray sandy and gravelly and the red clayey varieties common to the region. (See general descriptions, page 32.) A few miles south of Canton small common garnets cover the lands in great abundance.

The surface of the county is well timbered with oaks and hickory, and is comparatively sparsely settled.

The dark gray gravelly lands predominate, especially in the northern part of the county, and are interspersed throughout with small patches of red. On the south of Canton there are a number of narrow belts of red lands derived from hornblende rocks. The larger of these belts has a width of several miles. Twenty-one per cent. of the county area is under tillage, and 21.7 per cent. of these tilled lands are in cotton, the average being 20.3 acres per square mile; its yield per acre is large.

The following experiment of M. S. Paden, of Woodstock, was reported to the state department of agriculture:

Soil, gray and sandy, with a unbleached subsoil, was cleared about thirty years ago. Original growth, red oak and black-jack, with some chestnut and pine. The land had been lying out since the war, and had grown up in grasses and young pines. When again cleared and planted the yield of the rows was about 240 pounds of seed-cotton per acre. These rows having 200 pounds of fertilizers per acre double applied, yielded from 350 to 1,086 pounds per acre. The application of lime alone gave a yield of 490 pounds per acre. Rights different brands of commercial fertilizers were separately used in this experiment, the result of each being noted.
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

ABSTRACTS FROM THE REPORTS OF ELIAS C. FIELD, OF CANTON, AND M. S. PADES, OF WOODSTOCK, NEAR THE CORB COUNTY-LINE.

The lands of the county are: 1. The red clay or maize loam lands, considered the best in the county, though comprising but one-fourth of the area with its belts and patches. Corn succeeds better than cotton on this soil, though the latter comprises one-half of the crops. Six hundred pounds of seed-cotton per acre are raised on fresh and 600 pounds on old lands of ten years' cultivation. Three feet is the most productive height of the soil, and very heavy manuring and tilling are practiced to prevent its running to weeds in wet weather. The most troublesome weeds are cocklebur and hog weed. The cotton rates as good middling. The growth on the uplands is past oak, poplar, hickory, with some buckeye. The soil is 6 inches deep, and has a deep red clay subsoil, rather free from sand, which bakes very hard when first exposed, but gradually partsake of the nature of the soil. It is quite imperious when undisturbed. The lands formerly worn out are now considered the best cotton lands of the uplands, as they are loose and sandy, and fertilizers can be used to great advantage.

2. The light sandy bottom lands are thought by some to be the best cotton lands of the county. They extend along the streams in small patches sometimes for miles, and have a growth of pine, sweet gum, sourwood, and poplar. The depth is but a few inches to a very stiff mallet soil, which is underlaid by sand and gravel at 2 feet. Cotton comprises 25 per cent. of the crops on these lands. They have a productivity equal as first to the red lands, but wear out more rapidly. In ten years the land produces but 300 pounds per acre without the aid of fertilizers, and as a consequence about one-half of this land now lies out. Sorrel and "poor Joe" are the most troublesome weeds.

3. The dark sandy second bottoms of the streams comprise but a small proportion of the lands of the county, and differ from the sandy first bottoms in yielding but 500 pounds of seed-cotton per acre as first and 300 after ten years' cultivation, and is having as troublesome weeds the Spanish needles and smart-wool. One-fourth of this land now lies out, and is judged one-fourth by the washings of the hills. The growth of these bottoms is oak, willow, and black gum. Cotton on the low flat lands is liable to be late and is more subject to being killed by frost than on the uplands, and hence the latter are preferred as cotton lands. In this county the crops are slow in starting, but grow very rapidly through the latter part of May and on until matured. Before the late civil war very little cotton was planted in this county, but by the use of fertilizers it has been brought up to a high standard.

As soon as ready, cotton is shipped by the North Georgia narrow-gauge railroad to Marietta at 40 cents, or to Atlanta for $1 per bale.

* * *

BARTOW.

(See "Northwest Georgia"

HARALSON.


Area: 330 square miles—Woodland, all; metamorphic, all.

Tilled lands: 28,225 acres—Area planted in cotton, 4,800 acres; in corn, 13,048 acres; in wheat, 4,990 acres; in oats, 2,736 acres; in rye, 88 acres.

Cotton production: 2,035 bales; average cotton product per acre, 0.43 bale, 597 pounds seed-cotton, or 199 pounds cotton lint.

The Dug Down mountains of Haralson county form the northern limit of the metamorphic region in this part of the state. Southward from the mountains the surface of the county is well timbered, broken, and hilly, with mostly the dark-gray sandy lands described in the general part, page 32. A red clay belt crosses in a southwestward course into Carroll county. Seven and one-half per cent. of the surface of the county is said to be too hilly for cultivation, and 3 per cent. is of irreclaimable swamp. The rocks are the usual metamorphic gneiss and mica-schists, filled with gold-bearing quartz seams and veins.

The tilled lands embrace 13.4 per cent. of the county area. Of these 17.3 is in cotton, its average being 14.7 acres per square mile. The yield per acre is more than that of the region or of the state at large.

ABSTRACT FROM THE REPORT OF W. C. McINTIRE, OF DRABETOWN.

The cotton lands of the county may be classed as gray uplands, red uplands, and white pine woods soil.

1. The gray sandy uplands, with oak and hickory growth, comprise two-thirds of the county area, and are best adapted to corn, wheat, and oats, though 60 per cent. is planted to cotton. The yield is 600 pounds of seed-cotton per acre on fresh lands and from 500 to 700 pounds after five years' cultivation. Bag and hog-woods are most troublesome. The lands wash readily after three or four years, but the damage done is not great. Efforts to check it are made by hollowing ditches and by rock dams.

2. The red lands extend northeast or southwest indefinitely, and are from 3 to 10 miles wide. The growth is hickory, oak, chestnut, poplar, dogwood, buckeye, persimmon, and black gum. In all respects these lands resemble the gray sandy lands already mentioned.

Shipments of cotton are made to Atlanta and Rome.

PAULDING.

Population: 10,887—White, 9,968; colored, 948.

Area: 340 square miles—Woodland, all; northwestern, 46 square miles; metamorphic, 294 square miles.

Tilled lands: 52,604 acres—Area planted in cotton, 16,188 acres; in corn, 21,568 acres; in wheat, 6,372 acres; in oats, 6,101 acres; in rye, 116 acres.

Cotton production: 7,393 bales; average cotton product per acre, 0.46 bale, 648 pounds seed-cotton, or 216 pounds cotton lint.

The northern part of Paulding county, perhaps comprising one-third of the entire area, is very hilly and broken. The Dug Down mountain chain covers a large portion of it. A water divide also comes in from the Lost and Keen cassette mountain range on the east and turns southwest and south into Carroll county. The streams are thrown
COTTON PRODUCTION IN GEORGIA.

into three directions by these ridges, those on the north emptying into the Etowah river, those on the southeast into the Chattahoochee, and the rest into the Tallapoosa, on the southwest. On the south the country is rolling but nearly all tillable. The entire county is well timbered, and about 53 per cent. is said to be cleared, 8 per cent. being too mountainous or rocky for tillage. Gold and copper ores and mica are found in the county. A small area of the county on the north is covered by the conglomerate region. Its lands are sandy, and the section is but little in cultivation, except along the larger streams.

Over the rest of the county southward the red clays and gray sandy soils are found intermingled throughout, but all have yellow or red clay subsoils, and are similar to other lands of the region (see pages 32, 43). The red lands form one or two narrow belts across the county, agreeing in course with their accompanying hornblende rocks, viz., southwest and northeast.

In going from Dallas to Draketown, on the southwest, red lands are found to predominate for the first 4 miles; then a belt of 2-3 miles of gray sandy lands is crossed, followed by three-fourths of a mile of red lands again. Thus they alternate through the county. On the southeast they alternate in belts of from one-half mile to one mile in width. Granite outcrops are abundant in this southeast section. One area 4 miles south of Dallas has a width of 5 miles, and a growth of long-leaf pine. Tilled lands comprise 30.2 per cent. of the county area. Of these 30.2 are in cotton, with an average of 22.2 pounds per square mile. The crops of the county are cotton, corn, wheat, oats, and potatoes.

Cotton is one of the principal crops of the county, and with the aid of fertilizers the average yield per acre is high. But four counties of the state are above it in this respect.

ABSTRACT FROM THE REPORT OF J. R. FREDKETT, OF DALLAS.

The gray sandy and the red clay lands are chiefly devoted to cotton culture. The gray sandy lands comprise three-fifths of the area of the county, and has a depth of 4 inches, a yellow-gray subsoil, and a growth of pea, white, and red oak, hickory, pine, and some pepper. Cotton, which comprises one-half of the crops, grows a height of 3-4 feet, and yields 900 pounds per acre on fresh land. Ten years' cultivation (unmanaged) reduces this yield to 600 pounds, and 1,200 pounds are then required to make 750 pounds of lint. Bag-wool gives cotton crops most trouble. One-fifteenth of these lands now lie out, and with ten or fifteen years' rest yield as well as at first. Both uplands and valleys are injured to some extent by the washing away of the soil and the formation of gullies. Some farmers make efforts to check the damage, and with good success.

The red lands have a growth of oak and hickory and an orange-red sandy clay loam soil 6 inches in depth, underlaid by red clay. The soil is sandy, well drained, and difficult to till in wet seasons. Cotton comprises one-third of the crops, grows a height of 3-4 feet, and yields 600 pounds of seed-cotton per acre on fresh land. Ten years' cultivation (unmanaged) reduces this yield to 200 pounds.

Two per cent. of this land now lies out, and unless fertilized does not yield well again. The uplands do not wash much.

Shipment of cotton are made to the various towns along the railroad, by wagon, at 40 cents per 100 pounds.

COBB.

Population: 30,748.—White, 14,734; colored, 6,014.

Area: 400 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 88,578 acres.—Area planted in cotton, 27,728 acres; in corn, 29,600 acres; in wheat, 10,147 acres; in oats, 6,789 acres; in rye, 35 acres.

Cotton production: 13,909 bales; average cotton product per acre, 0.48 bale, 654 pounds seed-cotton, or 228 pounds cotton lint.

The surface of Cobb county is rolling and hilly, with a number of isolated and prominent low mountains. A dividing ridge, and water-divide, passes through the county. Sweet mountain on the northeast, Black Jack and Kennethaw in the center, and Lost mountain on the west, being prominent points of the ridge, without which it would hardly be noticed, on account of the slight elevation.

The first two of these mountains are composed of quartz rock almost exclusively, and are situated on the southeastern side of a broad belt of deep red lands derived chiefly from hornblende rocks. (See analysis, page 35.) Kennethaw and Lost mountains are composed of hornblende gneiss and schists, and are in the northern part of the red belt as it passes westward out of the county. Kennethaw is the most prominent of these mountains, standing out much higher above the rolling country around as to be seen from a great distance. All of these mountains have narrow summits and abrupt sides, their trends following the course of the red belt as marked on the map. On the north of this water-divide are Allatoona and Noonday creeks, flowing northward into the Etowah river; on the south the drainage of the streams is into the Chattahoochee river. On the north, at the Cherokee county line, the red belt has a width of only 3 or 4 miles, which increases to 8 or 10 miles after it reaches the middle of the county and turns westward.

The soil is deep and usually quite free from gravel. In the northwestern corner of the county the country is rolling, with a gray sandy soil full of quartz gravel, overlying a red and yellow clay subsoil at depths of from 6 to 12 inches. Some red sand is found in this section also. This part of the county is gold-bearing.

On the south of the red belt the soils are very changeable. A large granite area lies between Marietta and Powder Springs on the southwest, the soils of which are gray and deep sandy. Associated with it are gray gneisses, with biotite micas and muscovite schists. This last, with quartz seams, covers nearly all the eastern and southeastern portions of the county, which is rolling and hilly, the valleys between the hills being chiefly cultivated. The soil is usually gray and sandy, though occasional red spots of an outcropping granite or decomposed hornblende rock appear. On cultivation, the thin sandy soil becomes mixed with the clay subsoil, and a reddish or nulato soil is the result.

The river valleys are not very wide, unless at some turn of the river where the current has been so long thrown against the opposite bank as to wear it away and leave an alluvial deposit in the bend. Some of these are subject to overflow, and all are very productive. The county is well timbered, and 34.6 per cent. of its area is under cultivation. Of the tilled lands 30.8 per cent. is in cotton, the average of that crop being 68.1 acres per square mile.

Cobb is one of the two counties of the state having the highest average yield of cotton per acre, almost half a bale.
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

J. T. Lindley, of Powder Springs, reports to the department of agriculture the results of an experiment on the dark mulatto land that has been under cultivation thirty-three years:

Fertilizers occasionally used; original growth, oak, hickory, and chestnut; yield without fertilizers, 700 pounds of seed-cotton; yield with 500 pounds commercial fertilizers from 1,300 to 1,600 pounds of seed-cotton. Another experiment with 500 pounds of fertilizers yielded 2,050 pounds of seed-cotton.

ABSTRACTS FROM THE REPORTS OF H. M. HAMMET, OF MARIETTA, AND JAMES ROSSWELL KING, OF ROSSWELL.

The season in this county being very short, it is found necessary to use fertilizers to hasten the maturity of cotton crops. A sandy loamy soil is best adapted to the cultivation of cotton, comprising two-thirds of the lands of the county, and having a growth of pine, post, red, and white oaks, and hickory, poplar, and beech, a depth of 10 inches, and a grayish-black clay subsoil. The soil contains much quartz gravel. It is late, ill drained, and easy to till in wet but difficult in dry seasons, and is best adapted to corn; but if fertilized, cotton grows best. The country north and west of crop, grows to a height of from 3 to 3 feet, and produces from 600 to 700 pounds per acre on fresh lands. Three years' cultivation reduces the yield to 300 pounds. The plant is inclined to run to weed when planted too close on rich land in wet weather, or when it is fertilized by strong manures. The usual methods of restraining it are top dressing and the use of commercial fertilizers, and these are often as effective as common tillage, but the labor is shorter on old lands. Bag-wheat and crab grass are now troublesome on these lands, about 10 percent of which now lie out, but after a rest they produce as well as at first. They wash readily, doing serious damage in some places, but improving the valleys. Hillside ditching is employed to prevent this, and with satisfactory results.

The red clay lands, interspersed with the gray, cover about one-fourth of the county, and have a heavier subsoil at a depth of from 5 to 10 inches, containing flinty angular pebbles. The growth is pine and red oaks, hickory, and pine—more hickory than on the sandy lands. It is easily tilled in dry weather, is cold and ill drained, and is best adapted to small grain, though cotton comprises about half the crop. The height usually attained by cotton on this soil is 3 feet, and it yields from 300 to 400 pounds of seed-cotton per acre, 1,540 pounds being required for 260 pounds of lint, rating as low middling. Three years' cultivation reduces this yield to 150 or 200 pounds of seed-cotton.

Very little of this land now lies out, and it does not as readily wash as the sandy land.

FULTON.

Population: 43,137.—White, 28,295; colored, 8,842.

Area: 200 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 38,735 acres.—Area planted in cotton, 10,638 acres; in corn, 13,088 acres; in wheat, 2,636 acres; in oats, 3,060 acres; in rye, 24 acres.

Cotton production: 4,295 bales; average cotton product per acre, 0.43 bale, 600 pounds seed-cotton, or 200 pounds cotton lint.

The surface of Fulton county is rolling and well timbered, and mostly suitable for tillage, 25 per cent. being said to be too broken.

The Atlantic and Gulf water-divide, entering the county from the east, turns southward at Atlanta to East Point and into Clayton county. The altitude of Atlanta is 1,050 feet above sea-level and 238 feet above the Chattahoochee river where crossed by the Western and Atlantic railroad.

The country north of Atlanta is covered with a gray sandy, gravelly soil, with large fragments of quartz-rock lying upon the surface and thickly deposited in many places, derived from somewhat gold-bearing quartz seams in the micaceous schists and gneisses which form these lands. On the extreme north, near the river, there are large areas of gray sandy, gravelly soil, also found on the west of the city toward the river.

On the north and west there is a large granite area, with many abrupt and rounded hills and large masses of granite, forming a rough and broken country. The rocks are coarsely crystalline, and are accompanied in some places by hornblende material. The lands are gray, sandy, and gravelly, the material being usually coarse; the subsoils being yellow and red clays, which sometimes are exposed by denudation. Narrow belts of red lands also accompany the granite or granite belt.

The country bordered by the granite is bounded by Sandy creek on the north, while the Central railroad lies a little to the east of it, extends into Campbell county on the south, and on the west, separated from the river by a narrow belt of iraconchite sandstone and micaceous schists.

The southeastern part of the county has a great variety of soils, derived from micaceous, hornblende, gray gneiss, and slate-tites (soapstone). The red clay soils seem to predominate, and when sandy soils exist the red-clay subsoil approaches frequently near the surface as to be turned up by the plow, forming with the gray soil a red mulatto land.

A prominent ridge of soapstone or saponite, with asbestos and serpentine, begins 3 miles south of Atlanta, and, passing along the south side of South river near the county-line, enters DeKalb county. The valleys formed in the lands of the river are in some places quite broad, and have a rich and highly productive sandy loam soil.

The are, however, devoted to corn, as cotton is too liable to injury from early frosts and is too late in maturing. The cotton is sown in the spring, and is harvested in the autumn, its average season being 52.5 per cent. of the tilled lands, and averaging 56.2 acres per square mile. The average yield is considerably high, the county ranking ninth in the state in its cotton product per acre.

The city of Atlanta is the market for the cotton product of many of the counties, a large cotton factory using much of that brought in; but the greater part, after being reduced in bulk at the Morse steam cotton-compress, is shipped to northern or European markets over the many railroad lines that center in the city. The rates of freight are per 100 pounds.

The following experimental results were reported by Colonel J. W. Avery, of Atlanta, to the department of agriculture:

The soil was an ordinary clay land with a clay subsoil, that had been cleared for fifty years and tilled the previous year. The yield in 1879 was 600 pounds of seed-cotton per acre without fresh manures; with 500 pounds of commercial fertilizers of various brands, and applied alone and in compounds, on twenty-five experimental plots, the yield varied from 700 to 1,380 pounds of seed-cotton per acre, an average of the plots yielding over 1,000 pounds per acre.
COTTON PRODUCTION IN GEORGIA.

ABSTRACTS FROM THE REPORTS OF J. C. TUCKER, OF BEN. MILL P. O., AND THOMAS MOORE, OF BOLTONVILLE.

The uplands, with their gray and red soils, are the cotton lands of the county, one-third of the area under cultivation being devoted to this crop. The growth of the uplands is poplar, blackjack, chestnut, pine, and white oak. The soil is usually a depth of 6 inches over a red and sometimes yellow subsoil, which makes 80 pounds of seed-cotton on fresh lands. After four years' cultivation this yield is reduced to 400 pounds, and in ten years to 300 pounds. The saplings are shorter and the seed lighter. About one-half of this land now is cut, and is grown up in seed-cotton or in old-old glazes or "pine orchards." The latter do well when taken in late, but lands covered with edge-grass remain poor for a year or two. Most of the fields are cut up by the washings of the land. Hillsides are cut, and also deep plowing, providing this damage to a great extent. Crab-grass is the chief enemy to crops on these uplands. The ragweed is very common.

DE KALB.

Population: 14,497. —White, 9,054; colored, 4,443.

Area: 200 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 80,020 acres.—Area planted in cotton, 19,018 acres; in corn, 21,084 acres; in wheat, 5,846 acres; in oats, 5,974 acres; in rye, 26 acres.

Cotton production: 8,000 bales; average cotton product per acre, 40.41 bales, 591 pounds seed-cotton, or 197 pounds cotton lint.

The surface of De Kalb county has the usual undulating character of the metamorphic region. Some mountains, a bald mass of granite, is the most prominent point in the county, and the village near its foot, Stone Mountain, formerly had the name of New Gibraltar. These mountains extend east and south over the rest of the county, covering it with gray sandy and gravelly soils and yellow clay subsoils. Over the rest of the county are found the usual red clay and gray sandy lands, with the intermediate grades of mullato.

A red belt, and the only one of any extent, passes through the county, via Decatur, and southwest, into Fulton county, south of Atlanta, and has a general width of about 6 miles. North of this the land is gray and gravelly, with fragments of quartz on the surface, and are slightly gold-bearing. On the south of the red belt the county is grey sandy until the ridge of schist or sapping is reached in the southern portion. This ridge enters from Fulton county with an easterly trend, but is not continuous. Asbestos (short fiber) is associated with the rock. The lands from these rocks are rather red, but the area is not very great, and the magnesium character of the material, from decomposition, is lost in the soil by its large intermixture with other constituents. Seventy-five per cent. of the county is said to have its original timber growth.

A little more than one-third of the county area is under cultivation. Cotton acreage is less than that of corn, but comprises 33% per cent. of the tilled lands, and averages 66 acres per square mile. Fertilizers are used in its culture, and the yield for the county is very good. There are but fourteen counties of the state having a greater average yield.

ABSTRACTS FROM THE REPORTS OF P. A. RAGSDALE, OF LITHONIA, AND T. J. FLAKE, OF PANTHERSVILLE.

The soils may be classed as bottom and upland gray, red, and mullato lands. There is but little bottom land in the county, and it is seldom planted in cotton, as that crop runs too much to weed and matures too late; corn and oats alone are planted. The uplands are very much mixed. The mullato soil is best for all crops, the red next; but the gray is easier cultivated, and the increase in the number of acres to both stock and lands renders the gray soil preferable for cotton. One could, with a mule, cultivate so much more of the gray lands than of the red or mullato that the result is a greater total number of bales.

The gray upland soils cover about two-thirds of the county. They are usually gravelly and fine sandy to a depth of 5 or 6 inches, and have a stiff clay subsoil. These lands are moderately well drained and easy to till. The chief crops of the county are cotton, corn, wheat, oats, and sweet potatoes, but this land is best adapted to cotton and oats. The former grows to a height of 30 inches, producing from 700 to 800 pounds of seed-cotton per acre when fresh, or from 200 to 400 pounds after six years' cultivation. Crab-grass and "poor Joe" are admitted on no gray soils. One-fifth of these lands are not cut, and when taken in again yield about 600 pounds of seed-cotton per acre. They suffer serious damage by washing on slopes, but the valleys are not much injured by it. Hillsides are kept to avoid the damage.

The red uplands are not continuous, and are the wheat lands of the county. They have a growth of oak and hickory principally, with some elm, oak, poplar, blackjack, ash, etc. The soil is a stiff clay red, which, when exposed to the sun, becomes very hard, and plowing is then impossible. It has a depth of 4 or 5 inches, and contains hard, rounded, and angular rocks. When well drained it is easier than the gray soil. Cotton grows to a height of from 30 to 40 inches, producing 800 pounds of seed-cotton per acre when fresh and 600 pounds after six years' cultivation. About 10 per cent. of this land now is cut, but after a rest of two or three years it is equal to fresh land.

"Gingerbread" mulato soil cover about one-sixth of the county, intermixed with the red and the gray. The growth is oak, hickory, dogwood, poplar, etc. Its depth is 6 or 6 inches over a heavier soil, which, when broken up, becomes much like the surface soil. It is easier cultivated than the red, and resembles it in productivity. The bottom lands are not devoted to cotton, as it usually runs to weed too readily and matures too late. These lands are therefore given up to corn and oats. Near the creeks and rivers the crop is most liable to be killed earlier by fall fogs than a few miles away, on the ridges, and it is also later in growing off in the spring.

Fifteen hundred and forty pounds of seed-cotton make 475 pounds of lint, which, when clean, raises 125c. Shipments are made to Atlanta by railroad or by wagons.
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

GWINNETT.

Population: 19,831. — White, 16,010; colored, 3,815.
Area: 470 square miles. — Woodland, all; metamorphic, all.
Tilled lands: 96,632 acres. — Area planted in cotton, 27,549 acres; in corn, 35,068 acres; in wheat, 11,138 acres; in oats, 5,558 acres; in rye, 98 acres.
Cotton production: 11,819 bales; average cotton product per acre, 0.43 bale, 612 pounds seed-cotton, or 294 pounds cotton lint.

The surface of Gwinnett county is rolling, hilly, and is in places somewhat broken. It is well timbered. The Atlantic and Gulf water-divide passes southwestward through the western part of the county near the Chattahoochee river, but with an ascent so gradual from the east as not to be perceptible, except on the north, where the county is hilly and broken, Hog mountain being the most prominent range of hills. The latter, with its unusual southeast trend, forms a sharp bend in the “divide” to the southeast. The summit of the mountain is narrow, and traversed between Lawrenceville and Decatur by the southern terminus of Hog mountain and passes through Lawrenceville southwest into DeKalb county. It has a width of several miles.

Across the lower part of the county, northeast and southwest, and to within 34 miles of Lawrenceville, is a belt of granite, a continuation of the Stone Mountain region, with “flat rocks” and rounded boulders and a level country for the most part. Quartz crystals are abundant in localities along the granite belt, but with one terminal only complete.

Along the river there are some valley lands having a sandy loam soil, rich and very productive, but not very broad.

Cotton on these lowlands runs too much to weed and is late; hence the uplands are preferred for that crop.

The uplands are devoted to corn.

The upland country along the river is very broken and hilly as far back as the “divide.” Of the entire county 5% is said to be too broken for tillage.

The lands under cultivation comprise 32.1 per cent. of the county area. Of these, 23.5% is in cotton, with an average of 66.6 acres per square mile. In its cotton product per acre there are but seven counties in the state that rank above Gwinnett.

ABSTRACT FROM THE REPORT OF R. D. WINN, OF LAWRENCEVILLE.

The cotton lands of the county embrace the light gray sandy, the red clays on slopes and level places, and the chocolate or mullatto soils. The gray sandy soils, with their tough red-clay subsoil, cover two-thirds of the county, and have a growth of oaks of all species, hickory, chestnut, ash, beech, etc. They are well adapted to all crops that are produced in the county, viz., corn, wheat, oats, rye, cotton, sweet and Irish potatoes, peas, beans, tobacco, etc. But one-half of the cultivated land is devoted to cotton. The hillside and slopes wash readily, doing serious damage to the uplands, but very little to the valleys, as the “settings” are beneficial. One-fifth of the area originally under cultivation now lies idle. When grown up in pines, after fifteen or twenty years, and reclaimed with fertilizers, the land yields as well as ever.

Fresh lands produce from 300 to 400 pounds of seed-cotton, or one-third the weight of lint, which rates as good middling.

Cultivated years reduce this to 200 or 200 pounds, with a slightly inferior staple, 1,400 pounds then being 470 pounds of lint.

Crap-grass is most troublesome. The deep red clay land, after twenty years’ cultivation, without fertilizers, yields from 600 to 800 pounds of seed-cotton per acre. Its growth is pest and red oaks and pine.

Shipments are made mostly to Atlanta.

JACKSON.

Population: 16,297. — White, 11,139; colored, 5,158.
Area: 300 square miles. — Woodland, all; metamorphic, all.
Tilled lands: 67,109 acres. — Area planted in cotton, 24,974 acres; in corn, 27,675 acres; in wheat, 7,485 acres; in oats, 7,385 acres; in rye, 24 acres.
Cotton production: 9,482 bales; average cotton product per acre, 0.38 bale, 643 pounds seed-cotton, or 311 pounds cotton lint.

The surface of Jackson county is rolling or undulating, with extensive level areas, and the entire county was at one time thickly timbered with post oak, pine, hickory, poplar, chestnut, etc.

A broad belt of red lands extends from Franklin county on the northeast through the center of this county to Jefferson county. Its width is from 8 to 10 miles, and the lands are mostly derived from hornblende rocks. Gray lands are found throughout the belt, and are the prominent feature of the northern and western parts of the county.

The entire county is considered tillable, the lands under cultivation comprising 29.1 per cent. of the county area. Corn has the greatest acreage, that of cotton averaging 60.1 acres per square mile, or 37.1 per cent. of the tilled lands.

ABSTRACT FROM THE REPORT OF E. M. THOMPSON, OF JEFFERSON.

The lands under cultivation may be classed as the red and gray uplands, the dark second-bottom lands of branches, creeks, and rivers, and the alluvial bottoms of Oconee river. The uplands are chiefly the cotton lands, as the crops of the lowlands are often caught by early frosts, and the staked is destined to run to seed. The soil is sandy and gravelly to a depth of 1 or 2 inches, and has a hard and dark clay subord impervious to water, which is easy to cultivate, and is easily well drained. The crops of the county are corn, cotton, red-clay subord, impervious to water, which is easy to cultivate, and is easily well drained. The crops of the county are corn, cotton, wheat, oats, potatoes, but three-fifths of the land is planted in cotton. Fresh lands yield from 300 to 500 pounds of seed-cotton per acre, rating as middling. Hog and hog-woods are most troublesome. One-fourth of the land now lies fallow, and by several years' rest it produces well when again cultivated. In some localities the land is seriously damaged by washings, and the valleys are also sometimes invaded to a small extent. Hillop ditching is resorted to by some to check the damage, and when properly done is successful.
COTTON PRODUCTION IN GEORGIA.

The second bottoms of the creeks and rivers cover about one-sixth of the county, and have a fine sandy clay loam soil 3 feet in depth and a dark red clay subsoil or white pipe clay. The growth is abundant and good. The soil is difficult to till in wet seasons, but easy in dry. Cotton comprises one-sixth of the crops on these bottoms, grows to a height of 4 feet, and yields from 800 to 1,000 pounds of dry seed-cotton. Coddlers and rag-weeds are most troublesome. Very little of this land now lies fallow.

The below lands on creeks and rivers have a growth of maple, poplar, walnut, and beech, and a clay loam soil 3 feet in depth, underlaid by a white pipe clay. The soil is difficult to till, and only a very small percentage of cotton is planted on it, although it sometimes yields as much as 1,500 pounds of seed-cotton per acre. The staple raises the very highest. Rag-weeds are most troublesome.

Shipments are made to Athens by wagon, and to Savannah by railroad.

MADISON.

Population: 7,078.—White, 5,392; colored, 2,686.

Area: 300 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 51,718 acres.—Area planted in cotton, 12,029 acres; in corn, 14,471 acres; in wheat, 6,168 acres.

In oats, 4,631 acres; in rye, 25 acres.

Cotton production: 4,018 bales; average cotton product per acre, 0.38 bale; 587 pounds seed-cotton, or 179 pounds cotton lint.

The surface of Madison county is hilly and broken and well timbered. A north and south dividing ridge on the west throws nearly all of the waters eastward into the several forks of Broad river. The lands are nearly all of the gray or gravelly, with patches of mulatto here and there, and are derived mostly from gray biotite gneisses and mica-schists. Five per cent. of the county is said to be too hilly for cultivation, and 1 per cent. too swampy.

On the northwest, near the Banks county line, is a belt of red lands from hornblende gneiss, and on the east occurs an exposure of soapstone rocks.

The bottom lands, while rich, are not very extensive, and are chiefly devoted to corn. The lands under cultivation comprise 20.9 per cent. of the county area. Of these lands, 25.3 per cent. are in cotton, its average being 41.4 acres per square mile. The average yield per acre is not as great as in some of the adjoining counties; it is, however, over the "third of a bale per acre" rule. Fertilizers are used extensively, and an instance of the results that might be expected from them when properly applied is shown.

In the experimental report of R. F. O'Kelley, of this county, both the red and the gray lands were used:

1. Dark red soil on a yellow, loose nature and clear of rocks; had been cleared for about fifty years and grown up in old-field pines, recheared in 1876 and planted in sorghum, corn, and wheat. No fertilizers used. Original growth, oak, hickory, dogwood, and pine. In 1879 it yielded without fertilizers 300 pounds of seed-cotton per acre; with 200 pounds of commercial fertilizers the yield was from 1,000 to 1,570 pounds per acre.

2. Light sandy soil with gray subsoil; cleared twenty years, and no fertilizers ever applied. Original growth same as No. 1. Yield 490 pounds of seed-cotton without fertilizers and 500 pounds with 300 pounds of fertilizers. The season of 1879 was dry.

ABSTRACT FROM THE REPORT OF R. M. MERRONDY, OF DANIELSVILLE.

The lands of the county may be classed as gray sandy, comprising one-half of the area; mulatto, comprising one-fourth; and gray gravelly, nearly the same amount. The gray sandy soils, with gravelly gray subsoils at a depth of 3 inches, have a growth of pines, oaks, hickory, and black-jack. The soil is easily cultivated, is early, warm, and well drained, and is best adapted to cotton, which comprises about one-half of the crops. Cotton grows to a height of from 18 to 24 inches, and yields 600 to 700 pounds of seed-cotton per acre on fresh land. After five years' cultivation this yield is only from 200 to 400 pounds, 1,400 pounds from fresh, and 1,650 pounds from old land making 470 pounds of middling lint. One-fourth of the soil now lies out, and when taken in again produces as well as ever for a few years, and when fertilized holds its own afterward. The lands are much injured by washing, and valleys are damaged 10 per cent. Some efforts have been made to check this.

The red or mulatto lands are considered the best for grain, though one-half of the crops consist of cotton. The sandy surface is only 1/4 or 2 inches deep. The subsoil is gravelly and somewhat sandy, and the growth is pine, oak, hickory, black-jack, and pine. These lands are inclined to take hard in dry weather. Cotton grows from 2 to 4 feet high (most productive at 3 feet), and yields from 600 to 700 pounds of seed-cotton per acre on fresh land. The stalk runs to weed with deep cultivation, to prevent which the stalk is killed by shallow cultivation is resorted to. After five years' cultivation the yield is only from 300 to 400 pounds, and, while the staple is about the same, 20 percent more seed-cotton is required to make 470 pounds of lint. The crops are troubled most with long-weed and crab-grass. About one-fourth of this land now lies out.

The gravelly soils, with coarse gravelly subsoils at 2 inches depth, comprise about one-fourth of the lands of this county, and are not considered well adapted to anything. Very little cotton is planted on them, as its yield is only from 100 to 200 pounds of seed-cotton per acre, and the stalk grows to a height of only 18 or 20 inches on fresh land. Five years' cultivation reduces this yield to 60 or 100 pounds of seed-cotton per acre. The crop is much troubled with poor-weather and crab-grass. One-half of this land now lies out, and is worthless afterward. It wades badly, and efforts have been made to reclaim it.

This latitude is rather too high for cotton cultivation, and the seasons are rather short. Cotton is frequently killed in the spring or injured in the fall by frost. In the latter case a yellow cotton is produced, and occasionally the bolls are prevented from opening.

Shipments of cotton are made to Athens at 81 per bale.

ELBERT.

Population: 12,037.—White, 9,685; colored, 6,372.

Area: 440 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 70,806 acres.—Area planted in cotton, 20,533 acres; in corn, 20,360 acres; in wheat, 7,058 acres; in oats, 6,553 acres; in rye, 60 acres.

Cotton production: 8,526 bales; average cotton product per acre, 6.34 bale; 450 pounds seed-cotton, or 162 pounds cotton lint.
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

Elbert county lies along the Savannah river, and is bordered by Broad river on the west and south. Its surface is mostly rolling and somewhat hilly, and is well timbered with oak, hickory, and pine. It is covered chiefly with gray sandy and gravelly soils, underlaid by clays, derived from granites and gneissies. Areas of red lands occur throughout the county. The granite around Elberton is a fine-grained siliceous rock with small particles of biotite mica, but not in sufficient quantity to form red lands. These gray sandy granite lands extend 5 miles south of Elberton to a low strip of red clay derived from hornblende material. South of this is a flatswood belt, from 5 to 7 miles in width, which extends from the Savannah river (north of the mouth of Broad river) in a westerly course into Oglethorpe county. Professor D. C. Burrow says of this belt:

The surface is broad and level, with ponds of water and a growth of stunted black-jack oaks. The land is a dark pipe-clay kind of soil, with coarse gravel in places, and is almost useless for agricultural purposes; in wet weather very boggy, and in dry as hard as a brick. It seems to have been at one time a long marshy and boggy slough. The underlying material is a kind of silicious and rough-clay stone, with seams of angular quartz.

The sandy and red lands are similar in character to other lands of the region. (See regional description, page 36.) The bottom lands of the rivers cover but a small area. It is estimated that 65 per cent of the county is cleared land. Tilled lands comprise 28.2 per cent of the total area, the population averaging 20 persons per square mile. Cotton is the chief crop, its acreage being 58.7 acres per square mile, or 32.5 per cent of the lands under cultivation.

The following experiments have been reported to the state department of agriculture:

Brooks B. Beard, of Elberton: Farm land, soil dark; subsoil, yellow clay. Growth, hickory, pine, and oak, and second growth of pine. Without fertilizers the yield was about 400 pounds of seed-cotton per acre; with 500 pounds commercial fertilizers the yield on four plots ranged from 1,560 to 1,930 pounds.

R. F. Burrow, of Coldwater: Old land, soil gray and gravelly, with yellow subsoil. Original growth, pine, oak, and hickory. Was turned out twelve years before as exhausted upland, and was covered with broom-sedge; never fertilized. The season of 1859 was poor, and a large portion of the crop did not mature. Without fertilizers, the average yield was 70 pounds of seed-cotton; with 100 pounds, the yield was about 597; with 200 pounds, about 350 pounds of seed-cotton per acre.

ABSTRACT FROM THE REPORT OF ROBERT HESTER, OF ELBERTON.

Cotton, which comprises one-half of the crops of the county, is confined to the gray sandy lands, which are early, warm, well drained, easy to till, and best adapted to its growth. The soil reaches an average height of 3 feet, and notching is done to prevent its running to waste in wet weather and to encourage rolling. Grass is the most troublesome. The uplands wash readily, and injury is done to them and to the valleys to the extent of 25 per cent. One-half of the area formerly under cultivation now lies out; after resting it yields very well, but wears out again in three-fourths of the time. It is estimated that three acres will produce an average of 160 pounds of seed-cotton.

Shipments of cotton are made, as soon as baled, to Charleston, Baltimore, and New York, by rail.

OGLETHORPE.

Population: 10,400. White, 5,469; colored, 991.
Area: 510 square miles.—Woodland, all; metamorphic, all.
Tilled land: 92,772 acres.—Area planted in cotton, 35,296 acres; in corn, 22,019 acres; in wheat, 7,184 acres; in oats, 6,519 acres; in rye, 19 acres.
Cotton production: 12,936 bales; average cotton product per acre, 0.35 bale; 496 pounds seed-cotton, or 166 pounds cotton lint.

The surface of Oglethorpe county is rolling and broken, resembling in its general features the adjoining counties. The greater part is drained into the Savannah river, the divide between it and the Oconee river lying in the western part of the county; on the south another dividing ridge gives to the Ogeechee river some of the drainage water. In the middle of the county there is a granite ridge, extending in a slight north-eastern curve into Elbert county and dividing the tributaries of Broad river into two groups—those on the north flowing directly into Broad river, the rest emptying first into Long creek, and thence northeast into Broad river.

The granites extend south to Long creek and southwest into the upper part of Greene county, the hills becoming lower, though the country is very broken.

In the southeastern part of the county the black-jack flatswoods pass in a southward course to the red belt just south of Woodstock. It has here a width of 3 or 4 miles, and the lands are more sandy than in Elbert county, producing cotton for a few years only. (See description in Wilkes county, p. 162.) On the north of the granites the red lands cover the rest of the county, with mixtures of gray sandy areas. (See analysis of land, page 36.)

The soils of the granitic area are gray, gravelly, and sandy, with red mullato lands intermixed. Quartz crystals are found in abundance in various sections, and include some large and beautiful amethysts. Of the county area 3 per cent is too broken for cultivation. The crops are corn, cotton, wheat, oats, and potatoes, and 28.4 per cent of the county area is under cultivation. Cotton is the chief crop, its acreage comprising 38.1 per cent of the tilled lands, and averaging 63.3 acres per square mile.

ABSTRACT FROM THE REPORT OF WILLIAM L. JOHNSON, OF STEPHENS.

The uplands of the county vary from sandy to red stiff mullato and black-jack soils in large areas. Cotton on the lowlands is liable to be late and prematurely frost-killed; hence the uplands are preferred when the soil is fair. The sandy uplands, lying mostly level in fields of from 10 to 20 acres, comprise one-half of the tillable lands of the county. The growth is oak, pine, ash, gum, and hickory. The soil has a depth of 6 inches or more, with a tough yellow clay subsoil, which becomes clayey at 4 feet, but changes in a short time by cultivation to the color of the soil. It contains coarse gravel and sometimes pebbles, and is underlain by a very stiff clay. The soil is early when well drained, and is easy to till. Cotton, which comprises one-half the crops, grows to a height of 3 feet.
COTTON PRODUCTION IN GEORGIA.

Of 3 feet, and yields from 600 to 1,100 pounds of seed-cotton per acre. Crab-grass gives the most trouble to cotton crops; weeds follow grain crops. Lands turned out thirty years ago and cleared now do better in cotton for three years than the original forest lands. Those uplands are much injured by washing and gullying, and the valleys are often greatly injured. Horizontalizing and hillside ditching are very successful in checking the damage.

The red uplands, comprising one-third of the lands of the county, have the same growth as the gray sandy, and are usually rolling and hilly. The soil is a red or mixed clay loam, 10 inches in depth, with a tough yellow-clay subsoil, which pulverizes quickly and changes color on being exposed. It is early when well drained, rather difficult to till, and is best adapted to grain, though cotton comprises one-half the crop. Cotton grows to a greater height on this land than on the gray sandy, and cotton growers in some localities tend to fertilize their land when reclamined. The uplands wash readily, causing serious injury to the valleys.

The bottom lands differ in character, some being stiff and others a dark sandy loam. The soils are about 2 feet deep, and are underlaid by a stiff pipe-clay or gravel. They are hard and chilly in dry seasons, and are best adapted to corn. They are more or less liable to overflow, and but little cotton is planted on them. The plow ground usually 6 or 8 feet high, and runs to weeds when the rows are close together, or in wet weather. The yield is from 1,000 to 1,500 pounds of seed-cotton per acre.

Stalks are made to Augusta, by railroad, at 60 per bale.

CLARKE.

Population: 11,705—White, 5,513; colored, 6,192.
Area: 260 square miles. Woodland, all; metamorphic, all.
Tilled land: 39,857 acres. Area planted in cotton, 39,857 acres; in corn, 7,375 acres; in wheat, 1,387 acres; in oats, 1,755 acres; in ryegrass, 30 acres. Cotton production: 6,310 bales; average cotton product per bale, 0.41 bale, 568 pounds seed-cotton, or 196 pounds cotton lint.

Through the middle and western sections of Clarke county flow the several forks of the Oconee river, separated in the east from the tributaries of the Broad river by a low ridge running north and south, which is also a part of the main Oconee and Savannah water divides. The surface of the county is very hilly and broken, being deeply cut by the various streams. The county was once heavily timbered, but it has been estimated that 78 per cent of the original forest has been removed. The lands of the county present the usual variety of the red clay and gray sandy soils, more or less gravelly, that are found over the entire metamorphic region, and are underlain by clay subsoils. They occur very much intermixed, but, as in other counties, there are large areas in which one is predominant.

There are two belts of red (hornblendic) lands that extend across the county, and another red area covers the southern portion. Otherwise the lands are chiefly gray and sandy. They are described as sand in wet weather and abstract. (See also analysis on page 335.) The bottom lands are very narrow, the uplands often approaching to the water's edge and forming high bluffs.

A little more than one-fifth (20.3 per cent.) of the county area is under cultivation. Cotton is the chief crop, its acreage comprising 34.4 per cent, of the total, and averaging 44.0 acres per square mile. The production per acre is comparatively high.

The following experiment was reported to the department of agriculture by Thomas W. Ginn, of Athens:

Soil clay, with red-clay subsoil; has been cleared fifty years; part of the time an old field. Original growth, pine, oak, chestnut, and short leaf pine. No manure previously used. Yield, without fertilizers, about 450 pounds of seed-cotton per acre. With over 500 pounds of fertilizers the yield varied from 260 to 1,100 pounds per acre.

EXPERIMENTAL FARM OF THE UNIVERSITY OF GEORGIA.—This gray soil, with red-clay subsoil; not cultivated for thirty years. Original growth, pine and oak. Yield of non-fertilized row avarages 204 pounds; with 500 pounds of various fertilizers the yield varies from 394 to 1,200 pounds of seed-cotton per acre.

ABSTRACT FROM THE REPORT OF PROFESSOR D. C. BARROW, JR., OF THE UNIVERSITY OF GEORGIA, ATHENS.

The lands may be classed as red clays, gray sandy, mullato, and alluvial bottom soils. The red clay lands cover about 60 per cent. of the county area, and extend chiefly in two belts across the county, each about 6 miles wide. The dark red soil has a depth of about 18 inches, with a tough red-clay subsoil, which is excellent for smalls. The soil is fine grained and compact, retaining moisture for a long time, having little sand in its composition. It is very durable, resisting both washing and the taking up of the riches by the plants, and produces crops for a number of years with very little decrease in yield. Its growth is red, Spanish, black, and white oak, chestnut, pine, hickory, dogwood, and some walnut. The soil is cold and naturally well drained, and is tolerably easy to till in wet seasons. It is best adapted to corn, clover, and wheat, though cotton forms 60 per cent. of the crops. Forests produce from 1,000 to 1,200 pounds of seed-cotton, and this yield ceases for a number of years without any apparent diminution. About 1,545 pounds of seed-cotton are required to make 415 pounds of lint, the staple rating as good middling. The lands are not troubled so much by weeds as by crab-grass. They also have a tendency to wash, and on steep hillsides are much damaged; the valleys are also injured by these washings, especially on small streams. Hillside ditching is practiced with good success in checking the damage.

The gray sandy lands, which form a belt 3 miles wide in the middle of the county, comprise 30 per cent. of the lands. The soil is gray and more or less sandy, 10 inches deep, and is underlaid by light yellowish or reddish clay, much less tough than that of the red lands and much less retentive of moisture. It is not as durable as the red lands, is greener in giving up its plant-food, and is more readily washed off by rains than is the red. It also decreases in productivity more rapidly. The growth is white, red, Spanish, and post oak, hickory, pine, chestnut, last being more abundant than on red lands. Whenever it is possible, farmers use chestnut rails for fencing purposes, and gray lands are often marked by chestnut fences. These lands are less adapted to cotton and oats, 70 per cent. of the lands are underlaid by a tough pipe-clay, white or bluish in color. The land is best adapted to corn, 10 per cent. only of cotton being planted. Cocklebur and ragweed are most troublesome.
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

OCONEE.


Area: 3,359 square miles. Woodland, all; metamorphic, all.

Tilled lands: 34,233 acres. Area planted in cotton, 12,363 acres; in corn, 9,960 acres; in wheat, 2,136 acres; in oats, 2,215 acres; in rye, 29 acres.

Cotton production: 4,307 bales; average cotton product per acre, 0.35 bale; 492 pounds seed-cotton, or 1.04 pounds cotton lint.

Oconee county embraces a long and narrow area between Barber creek and the Oconee river on one side and the Appalachian river on the west. The surface is hilly. A high dividing ridge passes longitudinally through the country, and a small ravine in either direction being very short.

The southern portion of the county is covered with gray sandy lands, which extend to within 3 miles of Watkinsville, on the Union Point road; the rocks are massive in character, with gneisses and folioporites.

Tilled lands form a belt across the county from the upper portion of Clarke southward into Morgan county. Watkinsville lies within this belt, the lands extending ½ mile west and 3 miles south. Hornblende gneisses form the prominent rock on the eastern and biotite gneiss on the western half of the belt. Gray lands cover the extreme northwestern section.

The subsols of all of the soils are mostly yellow and red clays. The character of the soils and methods of cotton culture are similar to those of Clarke county. The timber growth is cedarly red and post oaks, hickory, and short-leaf pines, and it is estimated that 89 per cent. of the growth has been cut away. One-third of the county area is cotton under cultivation, and of this 36 per cent. is in cotton, the chief crop averaging 76.9 acres per square mile. The average product per acre is much less than that of Clarke county, though greater than for the region or state at large.

Shipments are made by wagons to Athens, where most of the cotton is sold.

WALTON.

Population: 15,032. White, 9,331; colored, 6,001.

Area: 409 square miles. Woodland, all; metamorphic, all.

Tilled lands: 58,228 acres. Area planted in cotton, 31,979 acres; in corn, 26,769 acres; in wheat, 9,418 acres; in oats, 4,354; in rye, 97 acres.

Cotton production: 12,034 bales; average cotton product per acre, 0.39 bale; 561 pounds seed-cotton, or 187 pounds cotton lint.

Walton county is largely covered with red clay and mullato lands. This is especially the case in the middle of the county, where the belt is very wide and extends in every direction from Monroe. Narrow areas of gray sandy lands are found on both sides of this red section, and in the extreme west appear the graminies of the large central region. The difference between the gray sandy and the granitic lands is so slight that they might very well be classed together. The gneisses also are granitic in character, and black mica enters largely into the composition of both. The subsols are very generally the usual red and yellow clays of the metamorphic region.

The surface of the country is hilly and broken, 1½ per cent. being too much so for successful tillage. There are two prominent and isolated points in the county, viz., Alcovna and Jack's mountains, the former having an elevation of 1,998 feet above the sea, or about 200 feet above Social Circle. They are formed of sandstone or quartzites, and have rounded summits.

Thirteen per cent. of the county area is reported to be of irreclaimable swamp. Over half of the original timber has been cleared away. The lands under cultivation embrace 29.3 per cent. of the county area. Cotton is the chief crop, its acreage having an average of 79.5 acres per square mile, or 38.5 per cent. of the tilled lands.

In product per acre the county ranks well among the counties of the state.

ABSTRACT FROM THE REPORT OF H. H. CANNON, OF WALNUT GROVE.

The uplands alone are planted in cotton, and may be classed as light gray and red lands. The gray sandy lands cover about 80 per cent. of the county, and have a growth of pine, oak, hickory, chestnut, and dogwood. The soil is 3½ inches deep; the subsoil is a buff-colored clay, unsupportive when not mixed with the soils. The crops of the county are cotton, corn, wheat, potatoes, and oats. Cotton comprises half of these crops, and yields 520 pounds in the seed per acre on fresh gray lands. Cultivation of five years reduces the yield to 420 pounds, and 1,462 pounds makes 40% of lint, which is hardly as good as that from fresh land. Cotton grown from 30 to 45 inches high, and is most troubled by rag-weeds. One-half the land now lies turned out, and, if not washed, is, after resting, as good as the original. Hillside ditching and horizon-tailing prevent this washing, but some of the uplands are already much injured. The valleys do not suffer.

The red lands comprise 20 per cent. of the tilled lands, and have a growth of pine, oak, hickory, chestnut, dogwood, and gums.

The subsols of these lands are lind and stiff, and is inclined to bealk when exposed to the sun. Cotton comprises half the crops, grown to 60 inches high, and yields as on the sandy lands.

Commercial fertilizers were first used here in 1860.

Cotton is sold to local buyers at the nearest railroad station, and thence it is shipped to Augusta, Atlanta, or Savannah.
COTTON PRODUCTION IN GEORGIA.

ROCKDALE.

Population: 6,838.—White, 4,149; colored, 2,689.

Area: 120 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 33,929 acres.—Area planted in cotton, 14,445 acres; in corn, 9,951 acres; in wheat, 3,268 acres; in oats, 2,401 acres; in rye, 25 acres.

Cotton production: 4,385 bales; average cotton product per acre, 0.30 bale; 432 pounds seed-cotton, or 144 pounds cotton lint.

Rockdale is covered almost entirely by granite rocks (in bowlders or flat rock) and granite soils (see general part, page 35). In the extreme eastern part gray sandy soils, derived from glaciares, generally prevail.

The surface of the county is rolling and broken, with an elevation of a little over 900 feet above the sea. It is estimated that at least 44 per cent. of the lands are too rocky for cultivation, and that 05 per cent. of what was once well timbered have already been cleared.

The crops of the county are cotton, corn, wheat, oats, rye, peas, and potatoes, with fruits, vis, peaches, apples, pears, grapes, etc. Tilled lands comprise 43.7 per cent. of the county area. Cotton has by far the greatest acreage, its average being 120.4 acres per square mile, or 43.1 per cent. of the tilled land. In the former regard it ranks as sixth in the state, but in percentage of tilled land many counties are above it. Its product per acre is low.

* ABSTRACT FROM THE REPORT OF W. L. PERK, OF CONyers. *

The soils may be classed as sandy, with red subsoil; red, with stiff clay subsoil; and sandy, with yellow sandy subsoil. The gray sandy soils, with red subsoils, cover half of the county, and are the chief cotton lands. They extend 40 miles east and west and 15 north and south, and have a growth of history, red and post oak, pine, and chestnut. The soil is only from 1 inch to 3 inches deep, and is underlaid by rock at from 1 foot to 3 feet. Twenty per cent. of the lands once under cultivation now lie out. They wash readily, causing serious damage occasionally. Cotton grows to a height of one-half to 3 feet, yielding on fresh land from 500 to 1,000 pounds of seed-cotton per acre, the lint rating as middling. Cultivation of ten years reduces this yield to 300 or 400 pounds, the staple remaining about the same. Crab-grass is most troublesome.

Cotton comprises one-half the crops, and shipments are made by railroad to Augusta at 75 cents per bale, and to Atlanta at 50 cents.

CLAYTON.

Population: 6,037.—White, 4,038; colored, 2,009.

Area: 340 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 39,995 acres.—Area planted in cotton, 17,422 acres; in corn, 11,468 acres; in wheat, 3,849 acres; in oats, 3,496 acres; in rye, 24 acres.

Cotton production: 6,606 bales; average cotton product per acre, 0.31 bale; 549 pounds seed-cotton, or 180 pounds cotton lint.

Clayton county is almost entirely included in the central granite area. The Atlantic and Gulf water-divide passes southward through it, the Central railroad marking its summit, which otherwise is not prominent.

The northern part of the county is undulating and hilly, the summits of the ridges being rounded or often flat, in many places furnishing areas of almost level lands, well suited for farms. The lower portion of the county is not so hilly. The streams have low banks and narrow, sandy bottom lands. The soils are mostly the usual gray sandy or gravelly, peculiar to the granite (see general part, page 35).

One per cent. of the area of the county is said to be too broken and the same proportion too swampy for tillage. The character of the soil and growth and methods of culture are similar to those of adjoining granite counties. A large proportion of the original timber growth has been removed. Lands under cultivation embrace 44.6 per cent. of the county area, cotton being the chief crop, its acreage averaging 124.4 acres per square mile, or 43.6 per cent. of the tilled lands. In the former regard it is surpassed only by the counties of Pike, Troup, and Houston. Cotton is shipped by railroad either to Atlanta, Macon, or Savannah.

The experiment with fertilizers, by J. M. Hull, of Jonesboro, on sandy lands that had been under cultivation for fifteen years and partially manured, gave the following results:

The yield without fresh application of fertilizers was about an average of 800 pounds per acre of seed-cotton. With fertilizers the yield varied from 600 to 1,000 pounds in twenty-five experiments with different fertilizers. The season was unfavorable for cotton. With corn, the application of fertilizers increased the yield from 13 to 15 bushels.

CAMPBELL.

Population: 6,970.—White, 5,885; colored, 3,085.

Area: 240 square miles.—Woodland, all; metamorphic, all.

Tilled lands: 31,411 acres.—Area planted in cotton, 21,445 acres; in corn, 14,066 acres; in wheat, 5,774 acres; in oats, 5,268 acres; in rye, 31 acres.

Cotton production: 5,696 bales; average cotton product per acre, 0.42 bale; 597 pounds seed-cotton, or 192 pounds cotton lint.

The surface of Campbell county is rolling, broken, and hilly, and is well timbered. The Chattahoochee river forms its southern boundary, receiving the drainage from a large portion of the county. On the northeast the streams are tributary to Flint river.

Granitic lands cover the largest part of the county in two separate areas, which, however, unite on the north. The largest of these covers that part of the county lying east of the Atlanta and West Point railroad, and forms a
Agricultural Descriptions of the Counties.

Portion of the large central granite region of the state. The country is high and rolling, with some broad and level tracts, the rock appearing both as outlying bowlders and as "flat rock." The latter is seen at Palmetto, where it forms a short distance the bed of the railroad. Both the black and light varieties of mica enter into the rock composition, and red lands are found occasionally, though the soils are generally gray and sandy.

The other granite area forms a narrow belt near to and parallel with the Chattahoochee river, and on the southeastern side of it is a strip of inclosing sandstone with mica-schists, which form the ridge on which Campbellton is situated.

The granite appears in large bowlders, and these on the southwest are very numerous and "weather" slowly. Between the two granite outcrops or sections there is a region of country broken and hilly, with broad level areas, and having gray, malar, and red lands, the latter forming a belt which extends southwestward into Coweta county. Some trap-rocks are found a short distance west of Palmetto. This central portion is comparatively thinly settled. Within the belt the surface of the country is broken and the soils are generally thin and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The other narrow granite belt lies in the middle of the county from Criswall creek eastward, and is characterized by a level country and a growth of long-leaf pine. The soil is gray sandy and rocky. Between these granite belts the surface of Douglas county is hilly and broken, and 10 per cent. is thought to be much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The other narrow granite belt lies in the middle of the county from Criswall creek eastward, and is characterized by a level country and a growth of long-leaf pine. The soil is gray sandy and rocky. Between these granite belts the surface of Douglas county is hilly and broken, and 10 per cent. is thought to be much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.

The surface of Douglas county is hilly and broken, and 10 per cent. is thought to be too much so for successful tillage. The drainage is all to the Chattahoochee river, which forms the southern boundary. There are two belts of granite extending across the county in an eastern course. One of these, in the northern part, forms a low ridge on which Douglasville, the county-seat, is situated, and extends from Pine Mountain, near Villa Rica on the west, to Salt Springs on the east, where it passes northward into Cobb county. The soil of this ridge is gray gravelly and sandy, and, owing to its narrow and rocky area, is not very much under cultivation. On the north of this belt the red clay lands predominate, derived from decomposed hornblende material. Some of the lands have a thin sandy soil over the red clays.
COTTON PRODUCTION IN GEORGIA.

Carroll county has a rolling surface, and is covered very generally with gray sandy and gravelly soils. Quartz fragments, some quite large, are found in various sections, and common garnets from the size of a pea to an inch or two in diameter are often associated with the garnets.

Red lands from horblends occur in small and large areas over the county, but the most prominent are on the Tallapoosa river, west of Carrollton, and along the county-line on the north. The county is well timbered throughout with oak, hickory, short-leaf pine, etc., and 24.8 per cent. of its area is under cultivation. The county properly belongs to the chief gold belt of the state, and several mines are worked. Copper ore also exists. Carroll is the chief crop of the county, while cotton comprises 39.4 per cent. of the tilled area, and averages 41.5 acres per square mile. In average product per acre it ranks as seventeenth. The following experiment was reported to the state department of agriculture by G. A. McDaniel:

The yield of freshly-clared gray sandy land without fertilizers is 300 pounds per acre; the same with 300 pounds of commercial fertilizers, 600 pounds of seed-cotton per acre. On land nine years in cultivation and previously fertilized the yield was 560 pounds per acre; the same with a fresh application of 200 pounds gave a yield of from 1,050 to 1,500 pounds of seed-cotton per acre. Red lands that had been twenty-five years in cultivation and partly manured gave a yield of 850 pounds. The application of 850 pounds fertilizers produced a yield of 1,900 pounds per acre.

ABSTRACT FROM THE REPORT OF E. H. SPRINGER, OF WHITEBURG.

The uplands vary greatly in character, from good to those worthless except for timber. They are preferred to the bottom lands, which are late in their crops. Three varieties or classes of soils are distinguished. The light sandy uplands, with pine, oak, and hickory growth, and a depth of 6 inches to a red or yellow or clay subsoil, is early, warm, well drained, easy to till, and is best adapted to cotton, which requires about 50 per cent. of the crops. It yields when fresh about 400 pounds of seed-cotton per acre, or 880 pounds of lint, rating as first-class low middling. Ten years reduces this yield to 250 pounds of seed-cotton and the staple to "ordinary", 1,545 pounds being required to make 475 pounds of lint. The plant runs to weed with too much rain, heavy fertilizing being the remedy. Crab-grass and rag-weeds are most troublesome on this land. Horticulturalizing is used, with only partial success, in preventing the clay washings from hilly slopes, which cover up and impoverish the valleys.

The red lands, with their heavy red-clay subsoil and growth similar to that of the gray lands, are early, warm, and easy to till. Cotton, which comprises one-third of the crops, grows to a height of 2 feet, and yields, when the land is fresh, 700 pounds of seed-cotton per acre, 1,545 pounds making 475 pounds of lint. The land rapidly deteriorates, and in ten years the product is only about 200 pounds of seed-cotton, 1,545 pounds being required for 475 pounds of lint.

The bottom lands, 6 inches deep, with red and yellow clay subsoil, are also devoted largely to cotton, which grows 4 feet high and yields 800 pounds of seed-cotton per acre on fresh land, the lint rating as first-class. These lands also rapidly fall, and in ten years the yield is only 300 pounds, and its lint rate second class.

Shipments of cotton are made, by railroad, to Newnan, and thence to Atlanta and other points.

HEARD.

Population: 8,760.—White, 5,674; colored, 3,086.
Area: 290 square miles.—Woodland, all; metamorphic, all.
Tilled lands: 97,701 acres.—Area planted in cotton, 17,348 acres; in corn, 17,300 acres; in wheat, 4,900 acres; in oats, 2,023 acres; in rye, 40 acres.
Cotton production: 5,900 bales; average cotton produce per acre, 0.34 bale, 480 pounds seed-cotton, or 162 pounds cotton lint.

The Chattahoochee river divides Heard county into two sections. On the east side there is a granite belt or ridge from 150 to 200 feet above the river, which crosses it below Franklin and extends into Alabama. The rest of the county on the east and southeast is rolling and broken, the ridges being broad and flat, with granite and gray gneisses, which form gray sandy and gravelly soils, and have a growth of oaks, hickory, and chestnut on the uplands, and beech, maple, poplar, and sweet and black gums along the streams.

The country west of the river is rugged and mountainous, rising toward the northwest to an elevation of 600 feet above the river. This northwestern portion is extremely broken and hilly and rather thinly settled. Black Jack ridge crosses the corner of the county from Carroll county into Alabama.

The "Buckboard" ridge lies to the west, having in its formation intrusive sandstone and magnesium rocks; but to the northwest the formation is chiefly composed of mica-schists and gray gneisses full of small quartz veins, forming soils mostly gray, with the usual associated red clays and sands in patches and narrow belts. These lands extend southward over the rest of the county, which is much more level. The growth of this western section is tall long-leaf pine, scrub oak, and hickory, and on uplands some small areas have oak, hickory, and chestnut exclusively. On the banks of the streams are poplars, gum, ironwood, laurel, and wild cotton trees.

About 3 per cent. of the county area is said to be too broken for tillage, and the same amount is of irremovable swamp. The lands under cultivation comprise 26.7 per cent. of the county area. Cotton and corn have nearly the same acreage, the former having an average of 39.8 acres per square mile, or 36.5 per cent. of the tilled lands.

The effect of judicious fertilization on both gray and red lands is shown in the following experiments by J. C. Brewer, on three plots of land:

1. Gray sandy soil, red-clay subsoil, cultivated six years; no manure previously used. Original growth, pine, hickory, post oak, and red oak. Yield without fertilizers, 650 pounds of seed-cotton per acre; yield with fertilizers, from 910 to 1,111 pounds of seed-cotton.

2. Similar growth same as No. 1; has been but slightly manured previously, and has been in cultivation fifty years. Yield, about 600 pounds per acre; when freshly fertilized, from 910 to 1,375 pounds of seed-cotton per acre.

3. Still red clay soil; original growth, oak, hickory, poplar, and black gum. Cleared in 1874, and well fertilized each year. Yield, 1,500 pounds per acre; yield with fresh fertilizers, from 1,010 to 1,977 pounds of seed-cotton.

In this last plot the effect of yearly fertilization is shown by the large yield without fresh applications. These results were corroborated in the next year by a still greater yield.
AGRICULTURAL DESCRIPTIONS OF THE COUNTIES.

Abstract from the Report of E. E. Jackson, of Franklin.

The grey sandy lands of the county are the ones chiefly devoted to cotton. The grey soils of the river bottoms are also very rich, having a depth of 30 inches, and produce good crops of cotton, corn, wheat, and oats, but are best adapted to cotton. This growth is to a height of 48 inches, producing from 600 to 1,000 pounds of seed-cotton per acre, the lint rating as good ordinary. After a few years’ cultivation the yield is diminished to 300 to 500 pounds per acre, still material, from 500 to 1,000 pounds per acre, and 1,000 pounds are required to make 475 pounds of lint. Rag-weeds and crab-grass are most troublesome to these crops. One-twentieth of the land now on cotton is due probably to the washing and gullying to which the soil is very subject. The valleys are not much injured. Hillys

COTTON.


Areas: 440 square miles—Woodland, all; metamorphic, all.

Tilled land: 110,006 acres—planted in cotton, 44,844 acres; in corn, 28,930 acres; in oats, 10,585 acres; in rye, 76 acres.

Cotton production: 16,528 bales; average cotton production per acre, 34 bales; 477 pounds seed-cotton, or 159 pounds cotton lint.

The general elevation of Coweta county is about 975 feet. Its surface is hilly and broken on the east and west, and higher, though quite level in the central portion—the water-divide. The lands embrace belts of gray and red soils underlaid by clay subsoils. The small streams are tributary in part to the Chattahoochee river on the east and in part to the Flint on the west.

On the west and northwest is a large area of feldspatic granites—a very broken and hilly country having a 5 miles in width, also giving a gray sandy soil, intermixed with some red sands, from associated mica-schists and hornblende rocks. Between this belt and Newnan on the east, a distance of 8 or 10 miles, are two belts of red and hornblende clay lands, extending a little east of north into Campbell county and southward into the northwestern corner of Meriwether county. But little gists are found in these belts, and between the belts are found the gray and red soils underlaid by clay subsoils.

Newnan, East of Newnan to Sharpsburg are chiefly red soils, derived from hornblende rocks and mica-schists, but east to the county-line the lands are chiefly gray, with outcrops of feldspatic gneisses and some granite. These latter soils are characteristic of the northeast, east, and southeast portions of the county. They contain much quartz gravel, and the country is very broken, with a prominent growth of long- and short-leaf pine.

Newnan, and passes east of White Oak Creek, with an increasing width southward into Meriwether county. Its breadth is about 125 miles. The rocks are of all sizes, very hard and rounded, the weathered and decomposed surface forming deep yellow soils; its area is not tillable.

The lands under cultivation embrace 41.5 per cent. of the county area. The crops are cotton, corn, small grain, sorghum-cane, and potatoes. The acreage of cotton is by far the largest, averaging 110.3 acres per square mile, or 41.5 per cent. of the tilled lands. In the former respect the county ranks as tenth in the state and as fourth in the total number of bales produced.

Abstract from the Reports of A. W. Stokers and Benjamin Leigh, of Newnan.

The lands of the county may be classed as—

1. Grey sandy or gypseous lands, covering the largest part of the county, and having grey sandy soils, 3 inches deep, sometimes black in the pine woods from decayed vegetation. The subsoil is a pale red clay, compact and stiff, changing sometimes to a pale yellow, and to white about the swamp, making hard when exposed, but gradually becoming like the surface soil when properly cultivated.

2. The red suff or varietal lands cover about one-fourth of the county, and have a growth of post and red oaks and hickory, with some chestnut, poplar, and pines. The soil is gravelly in places, has a depth of from 4 to 6 inches and a stiff tough red clay subsoil, that bakes very hard when worked wet. It is properly called red-pan, is quite impervious, and is ruinous when mixed with the soil. The soil is easily if well drained and not worked too wet. It is best adapted to wheat, corn, and oats, though cotton competes about one-third of the crops. This latter grows to a height of 2 feet, producing, when fresh, 500 pounds of seed-cotton per acre with long and strong lint. Five years’ cultivation reduces the yield to 300 pounds, and the lint is shorter, barren, and raises about two grades lower; 1,000 to 1,529 pounds are required to make 475 pounds of lint. The “Maypop” and “saw briers” are most troublesome. Two-thirds of this land used turn out.

3. The bottom lands along the streams are very narrow, and, while extremely rich, are not so much esteemed for cotton as the adjacent uplands. The stalk runs too much to weed, and does not mature soon enough to produce a remunerative crop before frost.

Cotton is sold at Newnan, the county seat.