

SOIL SURVEY OF SCOTT COUNTY, KENTUCKY.

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LOCATION AND BOUNDARIES OF THE AREA.

Scott County, Ky., lies in the north-central part of the State, in west longitude $84^{\circ} 31'$ and north latitude $38^{\circ} 14'$. It is irregular in outline, and has an area of about 280 square miles. It is bounded on the north by Owen, Grant, and Harrison counties, and on the east by Harrison and Bourbon counties, while the counties of Fayette and Woodford lie to the south and Franklin and Owen to the west. The South Elkhorn River is the boundary line between Scott and Woodford counties.

Scott County includes the towns of Georgetown, Stamping Ground, Sadieville, Oxford, and Newtown, as well as a number of smaller villages.

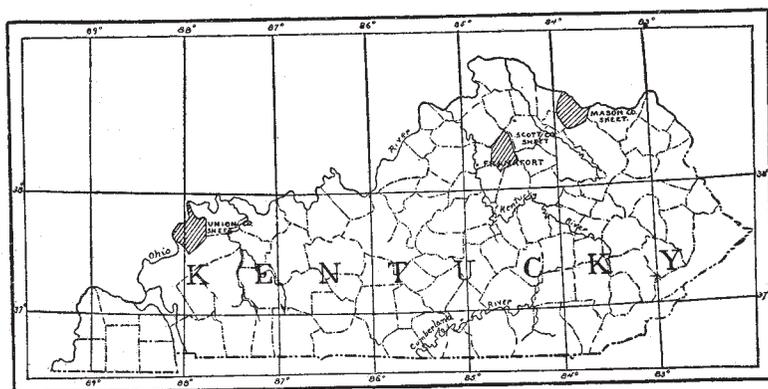


FIG. 29.—Sketch map showing location of the Scott County area, Kentucky.

HISTORY OF SETTLEMENT AND AGRICULTURAL DEVELOPMENT.

The first settlement in Scott County was made at Royal Spring, now within the limits of Georgetown, by a party from Pittsburg, under the leadership of one John McClellen. Near this spring they built a cabin, which was later converted into a blockhouse for protection against the Indians. This fort, afterwards known as McClellen's Station, was the first to be built north of the Kentucky River. It was used later as an outpost for operations against the Indians, but was subsequently abandoned, the settlers returning to Harrodsburg Station.

The lands around Royal Spring were again taken up in 1782, and in 1790 the town was incorporated by the legislature of Virginia. This

was the earliest permanent settlement in Scott County, then part of Woodford.

Fayette was one of the original counties of the Territory of Kentucky. With the increase in settlement and population, Woodford was detached in 1788, and in 1792, when Kentucky was admitted as a State, Scott County was organized. In 1793 its area was reduced by the formation of Harrison County, and again the next year, when Campbell County was constituted.

The native forest which covered the greater part of this region consisted of hickory, sugar maple, hackberry, bur oak, walnut, mulberry, ash, box elder, etc. The undergrowth consisted of dense cane and pea vines.

The first settlers came from Virginia, North and South Carolina, Pennsylvania, and Maryland. They were a hardy, self-reliant people of very simple habits. Each settler would prepare the logs for his house and his neighbors would help him raise it. Around his house he usually cleared enough land to produce his corn, tobacco, flax, and vegetables. The county abounded in game, and for this reason the early settlers were subjected to frequent attacks by the Indians, with whom this part of Kentucky was a favorite hunting ground. It was because of its value to them that the Indians so fiercely resented the encroachment of the white men on this territory. No tribes occupied the region permanently, but the Wyandot, Shawnee, and Delaware came here annually from beyond the Ohio River, and the Catawba and Cherokee came from the South to hunt the deer, elk, and buffalo which roamed the forests and grazed in great numbers on the natural pasturage.

The plows of the pioneers consisted of the old "bar share," with or without coulters, all having the wooden moldboard. The hoes and axes were usually made by the local blacksmith, and were clumsy implements, having little or no steel in them.

The soils were wonderfully productive, and the forest gradually gave way to cultivated fields. The acreage of corn, wheat, flax or hemp, and tobacco rapidly increased, and production soon exceeded the demand. The more portable products, such as bacon, grain, and whisky; were hauled, at certain seasons, to the Kentucky River, and thence floated down the Kentucky, Ohio, and Mississippi rivers in flatboats to New Orleans, at that time the only accessible market of importance. These products were sometimes sold for cash, but more frequently exchanged for sugar, coffee, and molasses. The return trip was made overland. These trips were not only arduous, but were often attended by great danger. After the victory of 1794, which drove the Indians out of Kentucky, the settlement of Scott County progressed rapidly, and a local market was found for the production of the area.

The following yields of crops are given as the average for the bluegrass lands in 1797: Wheat on corn land, 25 bushels; on fallow land, 35 bushels; corn, 60 bushels; potatoes, 250 bushels; hemp, 800 pounds, and tobacco, 2,000 pounds per acre. The hill country is said to have been just as productive.

The population gradually increased until 1830, when it was 14,677. It then decreased until 1870, when it was only 11,607. Since that time, however, it has gradually increased, and is now about 18,000.

During the decade from 1890 to 1900 the acreage of corn remained stationary and the acreage of wheat increased from 14,802 to 22,526, while that of tobacco more than doubled, being 4,260 acres in 1890 and 8,715 acres in 1900. But important as are these interests, it is the live-stock industry that really dominates the agriculture of this region. Scott County has long been noted for its fine stock. The South and West look to the bluegrass region for their supply of breeding animals, and the East for fast trotting horses, while many of its best animals have been used to improve the studs and herds of Great Britain. Scott County is also an important sheep-grazing section. In general, the live-stock interests are in a flourishing condition.

The soils of Scott County have been under cultivation without fertilization for more than one hundred years, and yet show comparatively little decrease in yields.

CLIMATE.

The following table, compiled from records of the Weather Bureau, shows the normal monthly and annual temperature and precipitation at Lexington and Frankfort. These stations lie outside the area surveyed, but near enough to give a general idea of the climatic conditions. It is regretted that stations within the area have no records, as there are doubtless differences in the climate of the two physiographic divisions that it would be interesting to bring out. It will be noted that the monthly temperature ranges from 30° to 77° F., and the monthly precipitation from 2 to 5 inches.

Normal monthly and annual temperature and precipitation.

Month.	Frankfort.		Lexington.		Month.	Frankfort.		Lexington.	
	Temperature.	Precipitation.	Temperature.	Precipitation.		Temperature.	Precipitation.	Temperature.	Precipitation.
	° F.	Inches.	° F.	Inches.		° F.	Inches.	° F.	Inches.
January	36.7	3.51	33.1	3.82	August	74.5	3.22	74.0	3.52
February	35.4	3.38	36.2	3.70	September ..	68.1	2.75	68.9	2.54
March	45.1	4.94	42.6	4.90	October	56.1	1.91	55.8	2.22
April	55.4	3.37	55.9	3.72	November ..	46.6	4.10	44.5	3.72
May	65.2	4.09	63.0	3.49	December ...	37.7	3.17	38.6	3.40
June	73.8	4.02	73.6	4.25	Year ...	56.0	42.13	55.1	44.38
July	77.0	3.67	75.4	5.10					

The following table shows the last and first killing frost in spring and fall, giving the latest and earliest date at each of the stations during the last nine years and the average date, computed on the full records for this period.

Dates of killing frost.

Station.	Spring.		Fall.	
	Latest.	Average.	Earliest.	Average.
Frankfort.....	May 17.....	Apr. 13.....	Sept. 21.....	Oct. 18.
Lexington.....	May 9.....	Apr. 11.....do.....	Oct. 22.

There is a difference in the time of planting field crops in the two physiographic divisions. This is to be attributed partly to climatic and partly to soil conditions. Corn is planted on the stony phase of the Hagerstown clay about two weeks earlier than on the Hagerstown loam. The latter type suffers in some seasons from drought, and the bluegrass pastures are frequently injured during the hot weather.

PHYSIOGRAPHY AND GEOLOGY.

Scott County is divided into two great physiographic divisions by a line extending from east to west through its center. This line passes through the towns of Oxford in the eastern, and Stamping Ground in the western part of the county. The northern area is commonly known as the "hill country," and the southern area as the "bluegrass region."

The bluegrass region consists of a level to gently rolling country, and occupies about 40 per cent of the county. About 4 miles west of Georgetown it is relieved by a ridge of moderate elevation, varying in width from 1 to 3 miles. This ridge extends slightly north by west to the Franklin County line, a distance of 6 miles from the place of beginning. It rises rather abruptly from the North Elkhorn Creek and is of a rolling character, usually marked by beautifully rounded outlines.

The great divide is of very irregular outline and rises gradually from the bluegrass region. It has the same topographic features as the ridge just described. To the north of this the country is very rolling, becoming more and more broken as the distance from the divide increases.

The country is watered by the North and South Elkhorn and Eagle creeks, and the tributaries of these three streams. The Kentucky River receives the greater part of the drainage, which passes thence to the Ohio and finally to the Gulf of Mexico.

An irregular line running through Kinkaid, Great Crossings, and Stamping Ground separates the strata of the Lower Hudson from the

Lexington limestones. These are both of the Lower Silurian era. The earlier deposits are calcareous, while the later ones are arenaceous or shaly. These materials are in a very finely divided state, and were deposited in remote geological times at great distances from land, in deep, quiet waters.

South of the above line occur the Lexington limestones (Trenton by the old Kentucky survey). These limestones are almost entirely calcareous. They are quite generally dark blue gray, fossiliferous, semi-crystalline limestones, alternating with beds of marly shale, and usually weather into a clay of reddish-yellow color, and give rise to what is locally known as "bluegrass land."

The Lower Hudson (synonymous with the Utica of New York) lies to the north of the indicated division line, and consists of rough interbedded limestones and shales of a hard resistant character. Through these strata are partings of marly beds of shale and limestone. Part of this section is commonly known as the "barren limestone."

The Hudson series extends to a point about 14 miles north of Georgetown, where a siliceous mudstone outcrops and gives rise to a very hilly area of broken country.

SOILS.

But two types of soil are found in Scott county and these occur in large unbroken areas. The following table shows the extent of each of these types:

Areas of different soils.

Soil.	Acres.	Per cent.
Hagerstown clay.....	102,528	57.2
Hagerstown loam.....	76,800	42.8
Total.....	179,328

HAGERSTOWN LOAM.

The Hagerstown loam forms a part of the famous bluegrass region of northern and central Kentucky. This soil is a brown or brownish-yellow loam varying in depth from 12 to 24 inches. Where it has the greater depth the material becomes a heavy loam at 10 inches, grading at 24 inches into a yellow clay. In general, the depth of the soil proper increases as it approaches the Fayette County line, where in a few borings it had a depth of 3 feet. It decreases in depth as it nears the Hagerstown clay area, where the more rolling surface of the divide has permitted greater washing.

The Hagerstown loam occupies almost the entire southern half of the county. The surface features are level to gently rolling, becoming more rolling as the type approaches the water courses.

This soil is derived from the decay in place of the massive limestone which was laid down during the Lexington age of the Lower Silurian. The soil and subsoil represent the residue of the rock after the lime and other more soluble constituents have been leached away by rain water. Decomposition has taken place to great depths, and generally there are no outcrops of rock in the area occupied by this type of soil, although in places the more resistant shaly layers are nearer the surface. The rock outcrops badly along the water courses where erosion has been excessive.

The original forest on this type consisted of a heavy growth of bur oak, locust, sugar maple, buckeye, hackberry, and wild cherry, with a dense undergrowth of cane and papaw. Remnants of these great forests are still to be seen, but are gradually disappearing. The approaches to many of the old colonial mansions are bordered by some of these large trees.

The Hagerstown loam is used at present for the production of tobacco, hemp, corn, wheat, and grass. Tobacco yields from 1,500 to 2,000 pounds; hemp, about 1,200 pounds; corn, from 35 to 70 bushels; wheat, about 20 bushels; and hay, from 1 ton to 1½ tons to the acre. This soil has been under cultivation for more than one hundred years without the use of commercial manures. Judging by the figures of average yield, already quoted for 1797, it would seem that there has been a slight diminution in its productiveness. It is, however, impossible to make a definite comparison, since the figures cover but one year and the climatic conditions are not known.

Tobacco or hemp is usually followed by corn, and then by wheat or rye, followed by grass for two years. Tobacco or hemp is usually planted upon the newly broken meadows, but the pastures may run for indefinite periods. The five-year rotation is a growing custom, as the lands are becoming too valuable to be left in permanent pastures.

This soil is now often deficient in organic matter, and the continuous cultivation of hemp, in which little vegetable matter is returned to the soil, is one cause of the deficiency. Stable manure is not generally saved, while the hemp hurds—as the refuse from the hemp crop is called—are burned instead of being plowed under in the fields. No commercial fertilizers are used, the productiveness of the land being maintained by the incorporation of the timothy and clover or bluegrass sod in the course of rotation. The interval between renovations of this kind is altogether too long. When there is a continuous cultivation of tobacco, wheat, or corn, rye is used as a green manure for this purpose. A better practice would be to pasture before the sod is turned.

The soil produces bluegrass naturally, and wide areas of the finest pasture are found upon it. It is the more productive soil for tobacco and hemp. The variety of tobacco produced is the White

Burley, a type used for the manufacture of pipe-smoking and plug tobaccos.

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

Mechanical analyses of Hagerstown loam.

No.	Locality.	Description.	Organic matter.								
				Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.06 mm.	Silt, 0.06 to 0.005 mm.	Clay, 0.05 to 0.001 mm.	
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	
8324	1 mile W. of White Sulphur.	Loam, 0 to 13 inches..	2.03	0.98	1.68	0.76	0.74	0.86	71.64	23.34	
8322	3 miles S. of Stamping Ground.	Loam, 0 to 18 inches..	3.05	.82	3.48	2.04	2.86	2.56	61.78	26.44	
8320	4 miles N. of Georgetown.	Loam, 0 to 13 inches..	3.08	.20	1.02	1.10	1.76	1.88	63.84	30.20	
8325	Subsoil of 8324.....	Yellow clay, 13 to 36 inches.	.92	1.14	3.10	1.20	1.40	3.36	64.04	25.72	
8323	Subsoil of 8322.....	Yellow clay, 18 to 36 inches.	1.59	2.64	5.06	2.66	5.32	3.84	35.76	44.72	
8321	Subsoil of 8320.....	Yellow clay, 13 to 36 inches.	1.64	.20	.60	.68	2.44	2.80	34.32	58.96	

HAGERSTOWN CLAY.

The surface soil of the Hagerstown clay consists of a heavy-textured brown or yellow soil from 3 to 12 inches in depth. The subsoil is a heavy yellow clay and extends to a depth of 3 feet or more. This type occupies about three-fifths of the entire area of the county, lying to the north of the Hagerstown loam. It is found in two unbroken areas, the smaller occupying the ridge to the west of Georgetown.

The rocks from which this soil is derived belong to the Lower Hudson—a division of the Lower Silurian. They are made up of roughly bedded limestones and shales, with partings of a marly nature. These rocks are more resistant to the agencies of decomposition than those of the bluegrass region, and to this is attributed the higher altitude of the Hagerstown clay. The surface features consist of peculiarly rounded hills, resulting from the greater cutting power of surface waters on the slopes, in connection with unequal weathering of the subjacent strata. In general, the soil of the Hagerstown clay is very shallow, and in places the surface is furrowed and gullied by surface washing.

A stony phase of the Hagerstown clay occupies a very large part of the county. It is commonly known as the "barren limestone," and consists of a stiff, plastic, yellow clay, varying in depth from 1 to 36 inches, but rarely exceeding 15 inches—the average depth to bed rock. The soil is much deeper as it occurs on the tops of the trailing

divides and ridges. The sloping surfaces are generously strewn with rocky plates, and often broken by bold outcrops of ledge rock.

This phase occurs in the northern half of the county, in one unbroken tract. It also is a residual soil, derived through degradation in place of the underlying limestones and shales of the lower Hudson and of the siliceous mudstone—a transition between the lower and the middle Hudson. As already pointed out, the soil varies from relatively deep to shallow, and this depends on its position and the character of the subjacent rocks. The limestone gives rise to deep soils, where surface washing does not interfere with the accumulation of the materials resulting from disintegration and decomposition. They are more easily weathered than the siliceous mudstones, and the latter are more generally covered by a thinner soil mantle. This phase of the Hagerstown clay occupies a roughly rolling and hilly country, and has a surface much more broken than that of the typical soil. The streams are not bordered by bottom lands, and the valley slopes are steep, with many outcrops of rock exposed by long-continued washing and erosion.

The typical Hagerstown clay is valued at from \$20 to \$70 an acre. It is used at present for the production of tobacco, corn, wheat, and grass. Hemp is not grown. Tobacco yields from 800 to 1,200 pounds; wheat, from 25 to 35 bushels; corn, from 25 to 40 bushels; and hay from 1½ to 2 tons to the acre. These crops are supplemented by a large acreage of bluegrass pasture. Tobacco is usually the first crop grown after the breaking of the meadow pastures; then corn, followed by wheat or rye, in which timothy or clover is sown. Tobacco and corn may be grown continuously for two or more years on the same fields, and fields are often kept in pasture for ten years or more.

On the stony phase of this soil the same crops are produced, but the yields are lower—tobacco, 500 pounds; corn, about 25 bushels; wheat, less than 12 bushels.

The methods of cultivation in this rougher part of the county are often inefficient and improvident. The systems of rotation practiced, if indeed they may be called systems at all, are very ineffective, as a rule, in maintaining the productiveness of the soil. Tobacco is often grown for a number of years in succession, then corn is planted, and this is followed by wheat or rye, in which timothy or clover is sown, giving rise to a sod which is most frequently allowed to occupy the land for two years. Corn and tobacco are frequently alternated, often two or more years of each, until with declining yields cultivation becomes unprofitable and the land is abandoned, to grow up again in bluegrass, provided the washing will permit a catch. Rye is grown in this part of the county solely as a soiling crop or for winter pasturage.

The use of rye as a green manure and the turning under of the sod of timothy and bluegrass pastures are the prevalent methods of maintaining the productiveness of the soil, but, as in the case of the Hagerstown loam, the intervals between such operations are much too long.

The Hagerstown clay is a good grain and grass land, but it is rapidly deteriorating from continuous surface washing, more particularly where the slopes are not protected by vegetation. This could be prevented by seeding the slopes to bluegrass, which naturally flourishes here, but where continuous cultivation is necessary they should at least be protected by sod terraces or strips 4 or 5 feet wide at 20-foot intervals. Unless better methods are speedily adopted this soil type will soon reach the condition of its stony phase, locally known as the "barren limestone" land.

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

Mechanical analyses of Hagerstown clay.

No.	Locality.	Description.	Organic matter.								
				Gravel, 2 to 1 mm.	Coarse sand, 1 to 0.5 mm.	Medium sand, 0.5 to 0.25 mm.	Fine sand, 0.25 to 0.1 mm.	Very fine sand, 0.1 to 0.05 mm.	Silt, 0.05 to 0.005 mm.	Clay, 0.005 to 0.0001 mm.	
			<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	
8312	5½ miles N. of Georgetown.	Clay loam, 0 to 6 inches.	3.02	1.22	2.72	1.40	1.22	2.24	73.60	17.34	
8310	2 miles E. of Stamping Ground.	Clay loam, 0 to 3 inches.	1.16	.62	2.28	1.60	1.90	3.40	67.84	22.26	
8314	3 miles E. of White Sulphur.	Clay loam, 0 to 10 inches.	3.65	.78	1.98	.88	1.08	2.88	64.42	27.54	
8311	Subsoil of 8310.....	Stiff yellow clay, 3 to 36 inches.	.63	.96	3.04	1.58	2.40	3.50	53.36	35.16	
8313	Subsoil of 8312.....	Stiff yellow clay, 6 to 36 inches.	1.86	.68	2.20	.96	1.16	2.12	52.24	40.32	
8315	Subsoil of 8314.....	Clay loam, 10 to 36 inches.	1.75	.22	1.10	.70	1.34	2.44	48.70	45.40	

AGRICULTURAL CONDITIONS.

The southern half of Scott County is included in the bluegrass region of Kentucky—the home of thoroughbred horses and fine cattle. From this part of the State, as has already been noted, the South and West get their main supply of breeding animals, while some of the breeders and fanciers of England have improved their studs by blood drawn from this source.

Besides thoroughbred horses, Scott County also produces some fine draft types, while a considerable number of mules are raised for southern markets, especially in the hill country. The greater number of pure-bred cattle are Polled Durhams, although many herds of Aber-

deen Angus are seen. The latter are very highly esteemed and may in time become the leading breed. The greater part of the cattle are Polled Durham grades. The sheep are of good grades, usually crosses between the Cotswold and Southdown breeds, or one of these and the native stock. The hogs are of good blood, being graded Berkshires, or the latter crossed with the Poland China.

Aside from live stock, tobacco and hemp constitute the most important agricultural products. These are supplemented by corn and grass, which are largely converted into beef, pork, and mutton.

In the area of Hagerstown loam, known as the bluegrass region, there are large colonial mansions on many of the farms, surrounded by lawns and gardens, shaded by groves of handsome trees, and approached by well-kept roadways. On such farms there are usually large tobacco barns and outbuildings for housing stock and forage. The fields are fenced with wire, and along the highways with neatly trimmed hedges or stone walls. In short, considerable pains has been taken to beautify the farms, as is always the case where the lands have been settled many years, are valuable, and are given to the production of crops bringing good returns in ready money.

After passing into the Hagerstown clay country, however, the buildings become poorer as the distance northward increases. In this rough, rolling country the accommodations for live stock, hay, grain, and other feed stuffs are generally inadequate. The stock, consisting of cattle, sheep, horses, and mules, old and young, are usually fed in the field, the forage or grain being hauled to them from the shock or stack. Even where some of the finer animals are driven into the barns during severe weather, these structures are so open that little protection is afforded.

In 1900 there were 1,921 farms in Scott County, a little more than half of which were operated by owners or part owners. Over 600 were operated by tenants on the share system, while cash tenants held only about 10 per cent of the total number cultivated. The rent charged varies greatly in different parts of the area, and in fact locally. Perhaps the most common agreement in the Hagerstown loam area is for one-half the tobacco and one-third of the grain. In the hill country, where the lands are generally considered poor, the burden on the tenant is even heavier, for one-half of all crops is reserved, and the care of the owner's live stock is also often included as a part of the work to be done by the tenant. The crops to be grown are usually determined by the landlord. This system of tenantry has led to the growing of tobacco and corn almost exclusively, and to methods of farming not conducive to the maintenance of the productiveness of the soil. The system of crop liens obtains here much as it does in the cotton belt, and crops are often mortgaged to their full value long before maturity. The wages paid agricultural laborers vary from \$8

to \$20 a month, with board in addition, the average being about \$12. The laborers are for the most part transients, and the proximity of Lexington and Cincinnati renders it difficult to keep help long at a time.

The tobacco grown in Scott County is an export leaf commonly known as White Burley. Manufactured smoking and chewing tobaccos are largely made from this type. The cultivation and manipulation of this variety are very similar to the methods used in other tobacco areas. The tobacco is air cured in large tobacco barns. The leaves of the plant are sorted into five different grades, some of the finer leaves being used for plug wrappers.

The acreage of tobacco increased wonderfully during the decade ending with 1900, but owing to the monopoly of the markets and the alleged manipulation of prices, which range as low as 5 cents and rarely above 12 cents a pound, the profits in this industry have recently fallen off, and the farmers are beginning to look for a more remunerative crop. It is probable that this condition in the tobacco industry will give added impetus to the live-stock interests.

The production of hemp in America is confined to a very few districts, and since it is so important a product in Scott County its cultivation and manipulation call for some comment.

Hemp is sown broadcast or drilled on a surface prepared by plowing and harrowing, as is done for wheat. It is lightly gone over with a drag or harrow. At maturity it has a height of from 5 to 10 feet, including the flowering heads. The crop is harvested with reapers or hand sickles and shocked in bundles. Subsequently it is scattered, to rot or ret in the fields. In November it is again set up in shocks, and in March and April it is broken. This crop is cultivated for the fiber, which is used in the manufacture of cordage and coarse cloth. The waste products, commonly known as hemp hurds, are raked together and burned. No use is made of the resinous exudation of the juice of the plants, or of the seeds. The hemp breakers are paid by the piece, receiving a cent for each pound of fiber cleaned. The fiber, which is worth about \$5 a hundredweight, is put up in bundles weighing about 100 pounds each, and is then ready for market.

Wheat and corn are important products where general farming is practiced. Their acreage is increasing, the gain in the case of wheat being especially large. A large part of the oats and corn is not thrashed or husked, but is fed to the live stock in the meadow pastures from the stack or shock. Little provision is made for the storing of grain, and all the wheat in excess of the quantity needed for home use is sold to the millers at the time of thrashing, regardless of the ruling price.

Rye is used as a winter covering for soils that are subject to washing. It is generally turned under in the spring, considerable importance being attached to its manurial value, although it is not nearly so good

for this purpose as the legumes. During wet seasons it has a beneficial influence in improving the drainage, but in dry seasons it has been found to break the capillary columns, thus causing the surface soil to become very dry. It is also apt to reseed the next year, unless carefully turned under in plowing. It is rarely pastured, although this is a much better practice, care being taken that the stock are not turned in when the field is in a wet condition, since this would result in puddling the soil.

Referring again particularly to the question of the adaptation of the soils of the county to the crops grown, or that might be grown, it is seen that the Hagerstown loam, judging by the yield, is the soil best suited to the production of hemp. It is also the main tobacco soil, although the quality of the leaf is not so good as in the rough, hilly country of the stony phase of Hagerstown clay. While furnishing a basis for these two special crops, the Hagerstown loam is admirably adapted to general farming, and is especially productive of hay and grain. The bluegrass pastures, while suffering considerably from drought during the summer months, are practically permanent. Land of this soil type is valued at from \$60 to \$125 an acre.

The Hagerstown clay is a somewhat better soil for grass and grain than is the Hagerstown loam. It also affords excellent pasturage. While naturally a strong soil, it is subjected to very severe erosion, owing to its hilly surface, and both the crop yields and the land values are declining. At present lands of this soil type range in value from \$20 to \$70 an acre.

The stony phase of the Hagerstown clay, owing to its rough and broken surface, is the least valuable soil in the area for use in general farming. Farms in this type can be bought for from \$12 to \$40 an acre, depending on the character of improvements, location with respect to transportation facilities, and the condition of cultivation. Many farms are run down, chiefly as the result of careless methods of farming practiced by the tenant class, which forms a very considerable proportion of the population of this part of the county.

Many of the hillsides are too steep for the cultivation of corn and tobacco, and washing is very destructive once the natural covering of bluegrass is plowed under, while it is very difficult to establish a sod on the steep slopes after washing has begun. Under the prevailing conditions grazing and the growing of apples and grapes are the industries to which this type of soil is best adapted.

The transportation facilities of the area are fairly good. The Queen and Crescent and the Frankfort and Cincinnati railroads intersect at Georgetown, and pass through the county in a north and south and east and west direction, respectively. These enable producers to reach easily the great markets at Chicago, Cincinnati, and New Orleans, besides many others of lesser importance nearer by.

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