

AGRICULTURE IN THE COAL REGIONS OF SOUTHWESTERN PENNSYLVANIA.

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FEATURES OF THE REGION.

Fanning in southwestern Pennsylvania presents many aspects, but among the most striking are the broad range of possible production and the nearness of markets that demand large quantities of food products, from the coarsest to the finest. The intensity of industrial development there—coal mining, together with steel, iron, and other manufacturing industries, based upon cheap coal—so distracts attention from agricultural pursuits that anything pertaining to farming is often scoffed at locally.

In the early days of coal development many farms were sold at a price un hoped for before the coal underlying them began to have a definite value. The price paid at first was only a few dollars per acre more than the farming value of the land at that time, but coal lands have since advanced steadily in price. Other farms were held until the owners believed the coal could no longer increase in value. The few owners of coal lands who have not yet sold, today possess a fortune. Those who did sell at the early prices transferred a fortune to the purchasers. In many cases the lands have been resold several times with a good profit at each sale. The natural result has been that farming has declined and in many cases the productivity of the land has been allowed to run down.

It seems surprising, however, that southwestern Pennsylvania is so little known for its agricultural worth and possibilities, and that the general conception of that interesting region is one of mines only and the consequent industrial activity which the vast stores of coal make possible. The fact is that there are several districts of excellent agricultural soils and that there are many more land areas of good agricultural average in the southwestern part of that great State. There is a general impression, founded in part on fact, that farming can not be carried on at a profit where the coke-smoke nuisance prevails, as it does in some parts of this region. Beyond the confines of the soft-coal region itself there is a vague feeling that this condition is serious. This is a problem in itself and is considered later.

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The central part of the State is notable because of its ruggedness, as the train carries one westward from Harrisburg, and yet glimpses of narrow, productive valleys, dotted with attractive farm residences, good barns, and other improvements, not only lend marked contrast to the rugged hills and mountains, but suggest that they probably lead to even broader farm areas; and this in many cases they do.

For 116 miles west of First Mountain, near Harrisburg, as measured along the line of the winding railway, to Cresson, the summit of the Allegheny Mountains, there is a steady upgrade. From this point to the Ohio line is a broad plateau, which slopes gradually westward, and lies entirely within the Mississippi basin.

This plateau has been deeply cut by erosion, and many of the highways as well as the railways follow the stream courses. But between the stream courses there are extensive areas of good farm lands, which a half century ago supported a thrifty agriculture, and on which in many districts good farming and thrifty gardening are still to be found.

The presence of coal under large areas in southwestern Pennsylvania, however, has not only caused the tremendous industrial development which has its center in Pittsburg and radiates from that city for considerable distances in all directions, but has likewise determined in large measure the use to which the surface soils are put and the type of agricultural development at present found there. Thousands of acres of soils naturally productive are practically idle, and few farms are maintained at a stage even approaching their normal productivity. So keen has been the interest in mining and industrial development that good lands have been allowed to deteriorate very seriously, not infrequently to the point of abandonment.

Through this region ran the Old National highway, which had a preponderating influence in the settlement of the States directly west of the Ohio River. Passing along this road through good lands in the State of Pennsylvania some of the emigrants tarried by the wayside and helped to build the prosperous agriculture for which the region was noted during the following half century.

The Bureau of Soils of the United States Department of Agriculture made during the summer of 1909 a reconnoissance soil survey of the southwestern counties of Pennsylvania. The total area of these counties is nearly 10,000 square miles.

In some counties, particularly the southwestern four in the State, there are considerable tracts of land, largely of limestone derivation, and now mapped as the Brooke series of soils, which formerly supported a high type of general farming. Large yields of corn, oats, wheat, and grass were obtained. Of these wheat was in part a money crop, but the others were fed on the farm, and the excellence of the fat steers marketed gained for the region an enviable reputation. The ease with which pastures of Kentucky bluegrass were maintained was an important factor in the low cost and high quality of the beef.

The soil upon which this type of farming became most highly developed was the Brooke clay loam, which occurs principally in Westmoreland, Fayette, and Washington counties, but the Westmoreland silt loam and the Westmoreland loam closely followed. The Brooke soils were all underlain by the Pittsburg vein of coal, the most valuable vein of bituminous coal in the State, and so on these soils farming has become a secondary interest. The Westmoreland soils, however, were underlain by less valuable veins of coal, and hence large farming areas are still available at reasonable prices. These soils are found most extensively in four counties, viz, Westmoreland, southwestern Indiana, and the southern two-thirds of Armstrong and Butler, though smaller areas occur in the counties previously mentioned and also in Beaver County.

INJURY TO VEGETATION BY SMOKE FROM COKING OVENS.

Two legitimate causes appear for the abandonment of some of the good land, which should be clearly understood by anyone from without the district itself who might be attracted there by some of the favorable conditions. Wherever important veins of good coking coal outcrop or lie near enough the surface for profitable working, series of coking ovens, which often extend for several hundred yards, have been built or will be built as soon as the coal is developed. Already long rows of abandoned furnaces mark the depletion of the coal in some localities. In the immediate vicinity of the ovens the gaseous fumes and heavily laden smoke kill all vegetation, and consequently leave a grewsome landscape. So complete is this destruction that not a living thing can grow for as far as the heavy clouds of smoke extend in the direction of the prevailing wind. Results so dire, however, rarely extend for more than one-eighth mile from the furnaces; but within this "dead line" all trees are killed and no grass remains, the ground being bare and unsightly. The smoke follows the surface contours of the locality, and so in many cases is cut off laterally on one or both sides by narrow ridges. Because of these conditions the safe cropping distance from the ovens is variable, but the smoke injury is most marked for an average distance of half a mile. In some cases the winds carry this smoke a long way, the injury far beyond the "dead line" being still so severe that cropping is not generally profitable. Under such circumstances the land is usually left in sod year after year and in many cases used for pasture. In the outer part of the zone around the smoke center, which is more or less influenced, the casual observer may not notice the presence of a fine soot on the vegetation. If a wisp of grass be drawn through the hand, it will leave the hand sooty. The principal chance for misjudgment by the unsuspecting is near the edge of the zone, where the influence of the seemingly infinitesimal amount of soot on the herbage might appear to be negligible. Experience has shown, however, that cattle will not do their best where even slight amounts of soot are present. Steers may eat a good maintenance ration, but not enough to put on the flesh that these otherwise excellent pastures of Kentucky bluegrass might lead one to expect. This dark side of the situation does not prevail over the whole region, but it has been described in some detail, so that any strangers who think of going there may be guided to the selection of unaffected areas.

SOILS INJURED BY REMOVAL OF COAL NEAR THE SURFACE.

The second legitimate cause leading to the abandonment of some of the good farming lands is the removal of coal veins which lie relatively near the surface. This often causes the surface soils to cave in, and even where this does not occur the soil water disappears so rapidly through the mine shafts that it is impracticable to try to grow crops. Aside from areas so affected, however, there is much land, in fact the greater part of southwestern Pennsylvania, capable of being farmed at a good profit.

OPPORTUNITIES OFFERED BY A GREAT MARKET.

Some grasp of the possibilities of the region may be gained from the fact that to Pittsburg, including the surrounding towns generally spoken of as the Pittsburg district, which combined afford one of the best markets in the United States, tremendous amounts of all kinds of farm produce are shipped in by trainloads from outside the State of Pennsylvania. Much of this produce is grown on soils no better than are found within 50 miles of Pittsburg, yet in the latter region the soils are used largely for growing corn, oats, wheat, and hay, the meadow greatly predominating in acreage.



The opportunity to grow farm products to supply Pittsburg is thus thrown to the winds, as it were, although it is just such a chance as farmers in all well-developed agricultural districts are seeking.

In the future, however, these soils must be utilized along the lines of their special adaptations to take advantage of the local markets, and not in a hit-or-miss way to compete in general agricultural lines with those lands in the Central West and the Mississippi Valley which do not have good markets for special products.

There is no question that the soils of the region are adapted to the production of special crops and products for the large markets.

Their range in character, moreover, renders them adapted to a very wide range of such products. Take the single crop of potatoes, which may be classed as belonging to the intensive system of farming. Soils better adapted to the growth of potatoes are rarely found anywhere, profitable yields of potatoes of unsurpassed quality being easily obtained. The average yield is now low, to be sure, as most average yields are, ranging from 75 to 150 bushels an acre. Yet an illustration of what the soils (in this case the Dekalb silt loam) will do when efficiently handled is furnished by one grower in Cambria County, who in 1909 harvested from 23 acres the remarkable total of approximately 8,000 bushels (7,200 bushels had been dug at the time visit was made, and the owner estimated that those still in the ground would bring the total to about 8,000 bushels).

If more attention were paid to the adaptations of the soils and to their proper management, yields of all the staple crops might be largely increased. But there is a far more striking opportunity in the good prices which the whole Pittsburg district is ready to pay for all sorts of vegetable produce and other high-priced food and animal products, such as the soils of the region are well adapted to produce, yet up to the present time are producing only in small part.

During the progress of the survey referred to a wide range of soils was examined, which represents a similar range of crop adaptation. Excellent corn soils, for instance, are found in considerable area, while other soils in the northeastern part of the region surveyed, particularly the Dekalb loam and the Dekalb silt loam, would be so adapted were it not that their elevated position causes occasional danger from frosts. Good farmers located on some of the good corn soils, such as the Westmoreland loam, the Westmoreland silt loam, and the Brooke clay loam, are able to hold their average yield at 60 bushels of shelled corn to the acre. Better averages, even, are made in exceptional cases, and yet there are soils amounting in the aggregate to thousands of acres which produce from 20 to 30 bushels an acre. It need scarcely be stated that the soils of many such fields are not adapted to corn raising. Neither must the fact be ignored that many fields with good corn soils bring only a low average yield because poorly farmed. Similar conditions in the production of other crops are responsible in great part for keeping average crop yields IOAV, not only in **southwestern Pennsylvania** but throughout the United States.

Important areas, furthermore, of soils ill adapted to the production of general farm crops are well suited to the growth of the very food products which the most excellent local markets now, in many cases, have to seek elsewhere. This is particularly applicable to the fine sands, the sandy loams, the fine sandy loams, and some of the light silty loams of both the Westmoreland and the Dekalb series of soils. Of these soils the sandy types mentioned are well adapted to the growth of early and medium garden crops, while the silty loams of the same series are good for later successions of the same crops or for later maturing garden crops. Thus a region which might well be a land of plenty pays tribute first to other crop districts and then to the public carriers for a haul unnecessarily long, while its own soil resources have been sorely neglected.

Development commensurate with the conditions afforded has taken place only in spots. These include areas near towns which produce profitable crops of garden produce, early potatoes, greenhouse crops, etc. A better profit is obtained by retailing or even by wholesaling in the numerous towns than by shipping to Pittsburg. Onions are grown with a fair measure of success, in small plats, but many more could be grown with profit. Cabbages are produced on an extensive scale in some parts of the region, most successfully probably on the silty loams and light silt loams of the Westmoreland and the Dekalb series. The local demand for this vegetable is very large, and an acreage even greater than the present one should be planted. So it is with the vegetable foods of all seasons of the year.

The range of market demands is broad. The number of wealthy families is sufficient to create one of the finest markets in the world for distinctly high-class food products. The multitude of mine workers and other industrial laborers require enormous quantities of staple food products for which they pay good prices, while a part of this class consume relatively large quantities of some of the coarser and cheaper materials. This does not mean that there is demand for inferior or unsuitable foods in the vegetable line, but that large quantities of wholesome vegetables are consumed with the less expensive cuts of meat. In other words, the workingman of this region always works

intensely, and hence requires a good diet, consisting largely of the coarser yet nourishing foods, and whenever there is work he has the money to pay for such food materials, and is ready to do it.

Thus there is strong demand for a variety of crops which a corresponding variety of soils in the region is amply adapted to produce. When it is realized that it is impossible to conceive under existing conditions—industrial, labor, etc.—that this demand can be locally supplied for a good many years to come, some idea may be had of the wonderful opportunities for agricultural development in this region. But such development can not proceed in a way at all commensurate with the possibilities unless advantage is taken of natural conditions.

The first of these conditions to consider is the suitability of particular kinds of soils for particular crops, especially for crops of high market value. It is commonly believed, for example, that the highest average yields of onions are obtained on muck soils. Onions grown on muck soils, however, are poorer in quality than those grown on very rich fine sandy loams or silty loams, soils which with efficient management will bring highly satisfactory yields. On the other hand, muck soils produce not only larger yields of celery than other soils, but the celery is of the finest quality. Onions may be very successfully grown on selected areas of the heavy fine sandy loams or the light silty loams of the Westmoreland and Dekalb series.

Similar attention must be paid to the adaptation of the many kinds of soils in southwestern Pennsylvania, both to special crops of high money return and also to general farm crops, for without such grasp of soil adaptation, results in full measure will not be obtained.

CROP ADAPTATIONS OF THE SOILS IN THE BROOKE SERIES.

Among the soils encountered, the Brooke clay loam is exceedingly well adapted to dairying, and there is almost unlimited demand for milk and cream. In locations too remote from market for the sale of these products, a fancy grade of dairy butter can be sold at a good profit in surrounding towns and mining villages.

A most favorable point for the dairyman on Brooke clay loam is the marked success with which clover can be grown on that soil, thus furnishing a large supply of home-grown protein. This soil in return, too, receives perhaps as near the maximum amount of benefit as is often attained from a clover crop, in that its structure is improved to a marked extent, in addition to the benefit derived from the increased supply of nitrogen. "Limestone land" is the most common local name for the Brooke clay loam. It all lies to the west of Laurel-Chestnut Ridge, and usually occurs in alternating strips with the Westmoreland soils. The largest areas of this soil are in Fayette County, but it is also an important type in the southwestern part of Westmoreland County and the northern part of Washington County. In Greene County the Brooke clay loam occurs only in local areas. The soils are derived from a series of layers of limestone and shale which have been tilted enough in places to expose alternate edges of these two kinds of rock. Where the layers are nearly horizontal, some of the upper ones have been entirely decomposed, leaving a soil debris at present overlying either the limestone or the shale, as the case may be. The limestones weather into red soils and the shales into brown soils, thus giving a newly plowed field a strikingly mottled appearance. For this reason these soils are often called locally the "red limestone lands," and they are easily recognized. The limestones predominate over the shales in the formation of the Brooke series. The deepest red soil is a heavy clay of such structure that careful tillage is required to prevent clodding and to keep it in good mechanical condition. The brown soil spots are most commonly silt loam, or silty loam, and are not difficult to work. The more mixed these materials become during the processes of tillage, the better. The subsoils are clays or clay loams, which maintain good moisture conditions for growing crops. The most extensive of the limestone types of soil is the clay loam.

The Westmoreland loam, the Westmoreland silt loam, the Dekalb silt loam, the Dekalb loam, and the Dekalb clay loam may all be used to advantage for dairying purposes. All dairying operations must be conducted under modern approved methods, however, as "average" dairying can no longer be made to pay with the present price for labor. The Dekalb soils occur principally in Jefferson and Clarion, and in northern Indiana and Armstrong counties.

Hay is a good money crop on all the soils mentioned as adapted to dairying, and can be used as such to advantage either in combination with dairying or as a special crop where dairying for any reason is not desired. For clean hay of good quality there is ready local sale. To solve the labor problem in part, and also to feed the hay on the farm and thus retain more fertility, colts can be grown by crossing good farm mares with thoroughbred stallions of some one of the draft breeds. A plan even better, for the occasional man qualified to carry it out, is to have one or more thoroughbred draft mares from which to breed.

ADAPTATIONS OF THE SOILS IN THE WESTMORELAND SERIES.

The Westmoreland soils predominate in Greene, Beaver, and Allegheny counties, are associated with the Brooke soils in Fayette, Westmoreland, and Washington counties, and extend also into southwest Indiana and southern Armstrong and Butler counties. In Allegheny County the topography is so broken because of the confluence there of the principal regional rivers, mining and industrial development have been and are now so great, and so much of the county is in demand for residential purposes, that the agricultural use of soils is relatively insignificant; but this does not apply to the other counties. The Westmoreland loam consists of a brown loam to an average depth of 8 inches, which is underlain by a light brown or dark yellow silty clay loam, or heavy silt loam. The Westmoreland silt loam consists of brown silt loam from 6 to 10 inches deep, overlying yellow silty clay loam. These two soil types occur in reasonably level and gently rolling areas in the western half of Fayette County and in the eastern part of Greene County, also in the vicinity of Washington, Mount Pleasant, Greensburg, Indiana, Cochran Mills, Elderton, Elders Ridge, Kittanning, Butler, Harmony, Mars, and Evans City, and in the Conoquenensing and Ligonier valleys. Small areas occur west of Beaver Falls, as do also important areas of the Westmoreland fine sandy loam. The latter type is used there largely for trucking. The surface soil is a yellow to dark brown fine sandy loam 6 to 9 inches deep. This rests upon a yellow or brown fine sandy loam which becomes heavier with depth, and grades into a fine sandy clay or a clay loam at an average depth of 18 inches. This type should not be confused with the Westmoreland fine sand, which has a similar surface appearance, but is underlain by a yellow or brown fine sand. The latter type will produce garden crops a little earlier, which on that account may bring a higher price in market, but for later truck and potatoes the fine sand is less desirable, as it does not equal the fine sandy loam in yield and is more susceptible to injury from drought.

ADAPTATIONS OF THE SOILS IN THE DEKALB SERIES.

The Dekalb soils lie in a broad belt north of the Westmoreland soil, and not only include the four counties previously mentioned, but also stretch northward to the glacial line which marks the southern boundary of the Volusia soils in the northern part of Pennsylvania and in southern New York. Laurel Hill and Laurel-Chestnut Ridge have also been mapped as the Dekalb soils. On these and other ridges and hills within the Dekalb region the soils are, as a rule, sandy, shallow, stony, and rough, though smooth patches of sandy soils often occur. Aside from these relatively small and smooth areas these ridges should be left in forest. On the broad rolling Dekalb uplands farms are usually found in little clusters of three to a dozen. Farm lands thus occupied support thrifty little communities which are separated from each other by local broken areas. The streams in this region characteristically cut V-shaped valleys, the sides of which are so steep that they are most often left in forest, though some afford good pasturage. In many sections these rough areas occupy no more than 20 per cent of the ground, but in others they are much more extensive. Banks and Montgomery townships in northeastern Indiana County, for example, illustrate the condition of farm lands in one of the hilly sections where the soils are of good average productivity. Local inquiry leads to the statement that these are good farming townships, and parts of them are, but there is also a high percentage of rough and steep land adapted to forestry only. In fact, a succession of lofty knobs, frequently steep sided, but again with smooth shoulders, affording favorable locations for farms, gives the key to the topographic character of the region. Again, in the southwestern part of the county, Armstrong, Young, and the western part of White and Center townships comprise a good farming region. On the gently rolling areas between the creek courses the soils are mostly the silt loam and a silt phase of the Dekalb loam, but the steeper hills and the tops of the local knobs are often Dekalb fine sandy loam. The two classes of topography described and the soils associated with them are, broadly speaking, representative for the Dekalb region of Jefferson, Clarion, and Armstrong counties, as well as Indiana County. Such soils when found in farms which it would be practicable to buy range in price from \$30 to \$75 an acre, the latter price being for favorable location. Farms of 100 to 200 acres, with good soils and well improved, may be secured at from \$40 to \$60 an acre at a distance of 3 or 4 miles from towns of 1,000 to 5,000 inhabitants. The rough lands and farms from 5 to 10 miles from town range in price from \$10 to \$40 an acre.

Tree fruits can be grown with success in many parts of the area under proper conditions. But there are certain topographic districts, some kinds of soils, and one artificial condition which should be carefully avoided.

The artificial condition referred to is the coke smoke, which near the ovens destroys all vegetation. The effect of the smoke at greater distances from the active coke ovens is perhaps even more serious. Carried by the winds, soot is deposited on the fruit and other crops, greatly injuring them. Hence no orchards should be planted near any coal openings or where the more valuable coal veins occur, as the eventual damage to annual crops when the coke is burned will be much less than with orchards. For the latter the risk is too great.

The elevation of the Allegheny Plateau is high, much of it approximating 2,000 feet above sea level. The prevailing winds come from the southwest, and the westerly slope of the plateau gives them full sweep across the highest level

of the whole region. The winds are strong and when accompanied by severe storms of sleet are so injurious to fruit trees that orcharding is feasible only in protected locations. High winds, too, at picking time, or a little earlier, sometimes bring disastrous results on exposed locations in the loss from fruit blown from the trees. Areas protected from such fortuitous contingencies occur, but in their selection the opposite topographic extreme must likewise be avoided, for the V-shaped little valleys which are characteristic of the region are unsafe on account of danger from unseasonable frosts. Fortunately these unfavorable conditions may be avoided. The upper slopes of these valleys, local elevations within them, and more extensive areas on slopes and rounded hills nearly up to the plateau level are sufficient in extent for the development of an important orchard industry. For this purpose the Westmoreland loam, clay loam, and fine sandy loam are well adapted, as are also selected areas of the loam, silt loam, and clay loam of the Dekalb series.

HOW THE SOILS MAY BE IMPROVED.

Without going into great detail, three plans of soil improvement may be suggested as being generally applicable to the region as a whole. Because of inadequate farming systems extending over a period of years, many soil areas have become acid. Soils in an acid condition will seldom yield profitable crops. Lime is easily obtained by burning at home in many cases or from a local kiln, and where a local supply is not available it is still cheap because long shipments are unnecessary in this region. Thus the farmer of southwestern Pennsylvania has a very important advantage over competitors in many other farming regions because of a cheap supply of lime with which to overcome soil acidity, and to keep his soil in a friable condition.

The second plan of soil improvement, and that a matter of the utmost importance, is to increase the humus content of the soil by the use of more stable manure, or by growing more leguminous crops, of which the red and alsike clovers are by far the most important for the locality under consideration. One of the principal causes of the frequent failures with clover has been soil acidity, a condition which may be economically overcome throughout the region, as above suggested, and when this has been accomplished a good start will have been made toward a marked increase in crop returns. Alfalfa, the best legume of all when grown under ideal conditions, may be successfully grown in this area. For it the Westmoreland soils are generally the best, though not as good as the Brooke soils where the more loamy parts of the latter have been made so mellow by a large supply of humus that they do not suffer at all from winter injury by heaving. If brought to a state of high productivity the Dekalb loam and the Dekalb silt loam, where deep and well drained, should also bring fairly good returns from this crop.

The third plan which would lead to larger crop yields and an improved farm practice is a system of crop rotations suited to the needs of farmers growing different money crops. The good old rotation of corn, oats, wheat, and grass—and there is no general rotation better on the heavy soils in the Brooke, Westmoreland, and Dekalb series—seems to be out of place in its present use on some of the light soils and under existing cropping methods. In reply to a direct question many farmers are unable to give any reason for growing a crop of oats, for instance, except that it is a historical member of the above long-established rotation, and yet they complain that the crop no longer pays. In such cases the elimination of one of the small grains would be of decided benefit, and would still leave the opportunity to seed with the small grain crop retained. The practice of holding land in sod as long as possible is too prevalent, the farmer taking an unsafe risk in the hope that one more paying crop may be secured, a hope in which he is very often disappointed. Losses of this kind cause in the aggregate a serious decrease in the wealth which the soils might produce. When timothy is grown as a money crop on the Westmoreland and the Dekalb soils it is recommended that the first year's crop of clover mixed with timothy be fed on the farm, and that the pure timothy be sold the following year only from any one field, which should then be plowed again for corn. The fact, however, that the Brooke clay loam is much more difficult to work than the above-mentioned soils, and also that it is a stronger soil, makes it feasible to leave it in timothy for two years by allowing the rotation to run one year longer.

All of these suggestions are based on the assumption that the sod is not top-dressed, because that is an unusual practice, though it could be practiced to advantage, particularly on the heavy Brooke soils and to some extent on the heavy soils in the Westmoreland and the Dekalb series. In this way it would be practicable to leave the land in sod for a longer term of years, a plan not only frequently desirable, but almost a necessity on fields affected to any great extent by coke smoke. This is owing to the difficulty or even the impossibility of securing a successful reseeding where there is very much smoke from the soft-coal furnaces.

The necessity for at least occasional rotation in growing the money crops is not often realized anywhere within the limits of the area surveyed. A striking local illustration of the necessity of this is afforded, nevertheless, by the greatly decreased returns in some instances from cabbage, which is one of the most important special money crops

of the entire area. It is believed, furthermore, that similar intensity of cultivation with many other gardening crops will result at least in decreased yields.

It is fully realized that a certain loss of time often results from bringing land which has been used for the common extensive farm crops into the best condition for certain special crops, and that this fact, together with a restricted acreage, in some cases is largely responsible for holding soil areas in some special crop as long as possible. Cropping experience has abundantly proved, however, that even in such cases a frequent change is necessary from the fact that it leads to a larger net profit from the soils.

SUMMARY.

In brief, then, there are important soil areas in western Pennsylvania which by their differences in character are well adapted to the production of an extensive range of products fitted to supply the large demands of the local markets. A comprehensive use of the soils of the region to supply these markets in accordance with the adaptations of the different kinds of soils to the various crops for which there is such ready sale offers an opportunity seldom surpassed.

Eventually the soils of the region will be brought toward their normal productive capacity. Such growth will be slow as compared to the rapidity with which coal is being taken from the ground, but it will be certain, and the attendant profits, while not leading to great wealth, will look attractive to the great number of farmers that must, in the not far distant future, constitute an important factor in the population and financial production of the region.