THE SOIL FACTOR AND LAND USE IN BARBOUR COUNTY, ALABAMA

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Barbour County in east-central Alabama lies within two regions of the Upper Coastal Plain of Southeastern United States, the Clay Hills and the Southern Red Hills. In the Clay Hills or northern portion of Barbour County are found soils belonging to the Susquehanna series. In the Southern Red Hills portion, are found soils belonging to the Ruston and related series. Numerous cultural contrasts exist between the northern and southern portions of the county, many of which can be explained in terms of this soils difference.

The highest summit level of the cuesta produced by the Clayton formation which almost bisects the county is generally considered to be the line of demarcation between the Clay Hills and Southern Red Hills. The Clay Hills section is underlain by the Ripley formation which consists of gray to greenish-gray sands and clays. The southern portion is underlain by the Naheola formation which consists mainly of reddish sands, and which rests upon the white limestone of the Clayton formation.[1]

Northern Barbour County lies on the lower portion of the dip slope of the cuesta produced by the Ripley formation, and as a result, is maturely dissected. Its surface configuration is featured by broad, open valleys and some rather conspicuous narrow, steep-sided ridges. On the other hand, Southern Barbour County lies mainly on the upper portion of the dip slope of the cuesta produced by the Clayton formation. Hence its dissection has just begun and its surface configuration is featured by rather broad, open ridges and shallow, rather narrow valleys.

Despite these contrasts in surface configuration, the topographic factor is not the significant one in explaining differences in land use. For both areas have approximately the same amount of land in which, topographically speaking, agriculture is possible, even though in one case it is in valley bottoms and in the other on ridge tops.

The original vegetation of the two areas was similar, consisting of mixed deciduous and coniferous trees, including

[1] Lithic descriptions from "Geological Map of Alabama", *Geological Survey of Alabama*, 1926.

among others long-leaf and short-leaf pines and various species of oak, hickory, and gum. In both areas hardwoods were most common either on the ridges or poorly-drained lowlands, while pine was most common on slopes and on sandy areas. Coniferous trees were slightly more numerous in the southern area, comprising about 47 per cent of the total stand as compared to 38 per cent of the total stand in the northern area.[2]

More important than any other single physical elements in explaining contrasts in land use within the county is the soil factor. The Susquehanna soils of the northern portion have developed from the clayey Ripley formation and hence are rich in clays. The Susquehanna soils, which belong to the Red Podzolic group of soils, usually have a thin, yellowish A-horizon, lack a B-horizon, and are underlain by tough, compact clay subsoils. These clay soils, although richer in minerals than most sandy soils, have the disadvantage of being cold, wet, and difficult to fertilize. If they lose their A-horizon, and this has happened in this area because of careless cultivation and continuous cropping in clean-tilled crops, they become almost too stiff to cultivate by ordinary methods. The soils of the southern portion of the county belong mainly to the Ruston series, though the Norfolk and Orangeburg are also represented. The Ruston soils, developed in the sandy Naheola formation, are light gray to grayish-brown sands, loamy sands, and sandy clays with friable sandy clay or sand subsoils. They are slightly acid and rather low in mineral content, but have the advantage of being well-drained, easy to cultivate, and very responsive to fertilization.[3]

Not only present land use, but also past land use in Barbour County is closely related to the character of these contrasted soils series. When the county was first settled (between 1830 and 1840) the Susquehanna areas attracted the large-scale cotton producers, since its richer soils encouraged the large capital investment necessary to buy land and slaves. The Ruston areas were thus left to the small-scale pioneering farmers.

This contrast between the plantation economy of the north and the self-sufficient pioneering economy of the south continued even after the Civil War. It was not until commercial fertilizers came into common use that the yeoman farmers were able to compete with the white-owned, negro-operated plantations in cotton production. With this shift from a self-sufficient economy to a cotton economy, the amount of land in cultivation in the southern area increased rapidly, and accompanying this was a great increase in population. The present status of the southern area in these respects was reached about 1910.

The coming of the boll weevil in 1914-1915 had more serious repercussions in the northern than in the southern area. The best method of overcoming the ravages of the weevil is to plant early-maturing varieties of cotton. However, such varieties of cotton require light, well-drained soils, fertilization to promote growth, and thorough tillage before and after planting. It can be seen that the heavy clay soils of the northern area prevented all these measures from being carried on effectively. Also, by this time the farmers of the northern area were faced with a new problem. Because of continuous cropping in clean-tilled crops, the thin top soils of the area had been removed, leaving the tough clay subsoils exposed at the surface.

In contrast, the economy of the southern area was not seriously shaken by the boll weevil, although some efforts were made to diversify. Chief amongst the crops which were added was the peanut. Peanuts are utilized both as a cash crop and as a forage crop in hog production. They do best in sandy soils, since dark-colored soils discolor the hulls and thereby reduce their commercial value.[4] It is also true that when peanuts mature, they are apt to sprout and become rancid in wet, clayey soils. For these reasons, peanuts, which have proved so beneficial in bolstering the economy of the southern area, have never become a significant crop in the northern. Other crops which proved successful in the southern, but not in the

[2] Harper, R. M., "Economic Botany of Alabama, Part I", *Geological Survey of Alabama*, Monograph No. 8, p. 92 and p. 102.

[3] Soil descriptions from: "Soils and Men", U.S.D.A. *Yearbook*, 1938; Marbut, C. F., "Soils of United States", *Atlas of American Agriculture*, Part III.

[4] Sturkie, D. G., "Peanuts", *Alabama Experiment Station*, Leaflet No. 5.

northern area, are cowpeas, soy beans, velvet beans and pecans.

The one bright spot in the future of the northern area lay in the fact that several types of good native and imported pasture and forage grasses do well on its clayey soils, a condition not common in sandy areas. So about 1920, encouraged by this fact, white plantation owners began consolidating their farm units and turning cultivated land into pasture land. As can be realized, this process was a painful one, since it resulted in the dispossession of many already very poor tenant farmers. Despite numerous mistakes and handicaps, a farm economy based on cattle-raising as well as cotton production is now fairly well established in the northern area.

Thus, at the present time, mainly because of soil differences, numerous cultural contrasts exist between the northern portion and the southern portion of Barbour County. The northern portion is an area of decreasing population, of land abandonment, of large, white-owned farms operated by negro tenants, an area where pasture land is supplanting cultivated land, and where an economy based upon cattle and cotton is being substituted for one based on cotton alone. The southern portion is an area of static population, of small farms usually operated by their white owners, an area where rather intensive cultivation of cotton, corn, peanuts and other crops is supporting a cotton, peanuts, and hogs agricultural economy. Some of the present contrasts between the two areas are shown statistically in Table I, in which Spring Hill Township represents the northern portion of the county, and Reeders Mill Township, the southern portion.

TABLE I. COMPARATIVE STATISTICS*

Item	Spring Hill Twp.	Reeders Mill Twp.
Population per sq. mile	18.0	36.4
Per cent population decrease 1920-30	21	4
Per cent population negro (est.)	90	35
Per cent total area in farms	33	76
Per cent total area in crops harvested	15	41
Average size of farms (acres)	96	68
Per cent farm land cultivated	39	55
Per cent farm land in pasture	44	15

* Bureau of Census: 1930.