

## THE SETTLEMENT PATTERN ON THE CUMBERLAND PLATEAU IN TENNESSEE

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### Introduction

In many ways the people of the Cumberland Plateau are uniquely related to the land. Their dwelling units are distributed over the landscape in a manner which, by casual observation, can be noted to be different from that found in many other regions of the United States. The homes are not completely disseminated across the countryside, nor are they confined to close-knit villages. Furthermore, although the people are living in quasi-agglomerations, they cannot be said to be grouped into urban settlements. The settlement pattern does not present the uniformity found in a rectangular distribution, yet there is a noticeable system to the arrangement.

What is the settlement pattern of the Cumberland Plateau? How does it differ from that of other regions? What is the organization of the social groups? How are the family units related to each other? What are the factors to which such an arrangement seem to be related? These are some of the questions into which the writer has probed with this study.

### Areal limitations and surface features of the region

The Cumberland Plateau in Tennessee is a region of approximately 4,500 square miles which comprises about ten per cent of the total area of the state. This upland is restricted principally to ten of the state's ninety-five counties which are Fentress, Scott, Campbell, Morgan, Cumberland, Van Buren, Bledsoe, Grundy, Sequatchie, and Marion. Only a small portion of the eastern parts of six more counties, Pickett, Overton, Putnam, White, Warren, and Franklin, extend onto the plateau's dissected western edge; and four others, Hamilton, Rhea, Claiborne, and Anderson have small areas which reach up over the eastern escarpment.

The Cumberland Plateau is usually considered to include all that portion of the Appalachian Plateaus which lies south of the Kentucky River (1). The sections which extend northward into Kentucky and southward into Alabama, however, are more maturely dissected, and consequently do not possess surface features which are ordinarily thought of as being typical of a plateau.

N. M. Feenman best describes the surface of this northeast-southwest trending tableland when he says, "In its most typical part, mainly within the state of Tennessee, the Cumberland Plateau has an undulating surface submaturely dissected by young valleys whose steepness and depth increase toward the edges" (2). There are two areas of the plateau in Tennessee, however, which present exceptions to the general youthfulness. At its southern end, mostly in Marion County, the plateau has reached maturity, therefore no appreciable flat-topped interfluvies remain. In the northeastern section of the province, in parts of Scott, Campbell, and Morgan counties, where the strong Pottsville sandstones are still overlain by weaker rocks, the plateau surface is also maturely dissected, and the higher divides are sharp (3).

The general levelness of the present surface of the plateau is due to peneplanation, but this fact is of little geographic consequence, for the rocks which have been but little disturbed lie nearly horizontal. The only notable exceptions to virtual horizontal bedding are the Sequatchie anticline and the Pine and Cumberland mountains. The Sequatchie anticline extends from approximately midway of the plateau in Tennessee to the province's southern end in Alabama. Pine and Cumberland mountains are in the northeastern part of the province, limited in Tennessee principally to the central part of Campbell County. Other than in these two areas of structurally controlled trellis drainage, the drainage pattern of the plateau is dendritic.

Extending through the central part of the plateau is a flat-topped area of varying width. The topography of this section is more typically that of the true plateau. Here the present erosion cycle has just begun, therefore the valleys are quite narrow and have not reached great depths. The flat-topped section is widest in Cumberland County, allowing this county to possess geographic conditions most like those thought to be typical of the tableland.

### The distributional pattern of settlement

The pattern made by the distribution of people on the Cumberland Plateau is similar to that made by the roads. This is true of most settled areas of the world, for people desire to live close to transportation routes. There remains a problem worthy of consideration, however, for if there are peculiarities in the road pattern there will be peculiarities in the settlement pattern. The first question to be answered is, to what other factors are the roads related.

Topography is a strong factor shaping road patterns. The pattern found on the Appalachian Plateaus stands in sharp contrast to that of many other regions of the United States, for example the Interior Lowlands. The roads of the greater part

of the plateau are winding and without apparent system, a result of following the easiest courses over an irregular terrain, whereas the plains of the lowlands permit a uniform rectangular arrangement of transportation routes.

The Cumberland Plateau in Tennessee can be divided topographically into three sections: (1) the northeastern mountainous area in Scott, Campbell, and Morgan counties; (2) the young central area; and (3) the southern maturely dissected area. In all three of these sections, with the exception of the two limited areas mentioned above, the dendritic drainage pattern has made itself felt in directing the routes of travel. The principal difference among the sections is that in the maturely dissected areas the roads are in the valleys, whereas in the youthful areas the roads seek the more level land of the interflaves. In the central flat-topped section, however, the road pattern is only slightly affected by the topography. In Cumberland County, for example, the roads converge upon the market and trading center, Crossville, like the spokes of a wheel.

The people of the Cumberland Plateau are found to be distributed largely along the main roads. This arrangement leaves some relatively large, virtually unpopulated expanses between the principal routes of travel. In areas which have irregular surfaces that are mostly in timber, both the cleared places and the roads tend to be on the land with least slope. If the topography is youthful, least slope will be found on the interflaves, whereas in mature lands the valley bottoms may be more nearly flat. Thus, conveniently, the clearings and roads assume identical patterns. This allows the people to live both on their clearings and along the roads which in the young central area of the plateau are on the higher lands between the streams.

Valley settlements have resulted in the parts of the plateau which are in a later stage of erosion, for example, in the plateau's southern end. Broader valleys have been cut into the underlying limestone allowing for the formation of more fertile soils, a result best typified by the Sequatchie Valley. The valleys of the plateau's southern end permit relatively easy intra-regional communication as well as free access to other regions. The valley settlement pattern in the sub-mature northeastern sections, however, has brought about a greater degree of internal isolation, for communication from one narrow valley to another is always handicapped. The valley settlement pattern has not permitted easy access to a centrally located market as in the youthful central section with its ridge settlements. Furthermore inter-regional relations have been less well developed in the northeastern valley settlements, for, even though the valleys ultimately lead to the Great Valley on the east or the Interior Low-

lands on the west, the necessity of following the circuitous courses of streams makes travel more difficult.

### The agglomerated settlements

By definition of the U.S. Bureau of the Census the Cumberland Plateau tableland in Tennessee is completely rural, and only one town within the boundaries of the physiographic province in Tennessee meets the urban requirement of 2,500 people. This one example with a population of 2,573 in 1950 is South Pittsburg in the Sequatchie Valley near the Alabama state line. Seven of the ten plateau counties are limited to one incorporated place each, the county seat. The county seats of two counties, Bledsoe and Sequatchie, are in the Sequatchie Valley, with the result that these counties have no incorporated place on the upland.

The lack of urbanization of the people on the plateau is in keeping with their predominant occupations. The extractive industries, lumbering and mining, and subsistence farming have continued to employ most of the people. The manufacturing plants are everywhere small; consequently, according to the generally accepted geographical definition, as well as by the definition of the Bureau of the Census, the people of the plateau are rural. The meager development of manufacturing industries and the small per cent of cultivated land in this physiographic province are closely tied to soil conditions and slope and relief of the land.

The use made of the land has in turn resulted in a relatively low density of population on the plateau. In 1950, the average density of population in the province was only thirty-four per square mile, less than half the density for the whole of Tennessee which had an average of 78 persons per square mile.

The rural population of the plateau is not disseminated uniformly across the land in single dwelling units as they are found typically in the central plains of the United States. Instead, the people of the plateau tend to live in agglomerated settlements more on the order of those found in most parts of the world outside Anglo-America, Australia, and New Zealand.

### Rural communities and neighborhoods

The term *rural community* has come to be used by sociologists to indicate the relationships existing between people and institutions in the area composed of a village and its surrounding farms (4). Such rural communities are typical of American agricultural regions in which farm families are dispersed over their lands about a village or town which serves as a center for their buying, marketing, church-going, recreation, and other common activities. The conception has been that of a town-

country community, supplied with specialized stores, a bank, a high school, garages, and marketing or shipping facilities. Because these services might be found only in the county seat and because of a feeling of unity furthered by such factors as the interests of civic organizations, the counties of the Cumberland Plateau function in many respects as communities. Even though in most counties many of the institutions necessary for the proper functioning of a total community are found only in the county seat, the one town in the county, this conception of a rural community must be modified for the Cumberland Plateau counties. Modification is necessary because there are many areas on the plateau, within counties, which do not contain towns that provide all the necessary functions, but which are considered to be communities and which, in some cases, are even formally organized for such purposes as "community improvement."

How then are the people of the Cumberland Plateau organized into social groups on some areal basis smaller than the county? The unit next larger than the family that functions in rural regions is the *neighborhood*. The neighborhood consists of a group of families, living in a more or less continuous area, who have frequent face to face contact with each other, and in which a consciousness of belonging to a group is felt (5). Members of neighborhoods on the Cumberland Plateau have a strong feeling of belonging to a group, to a particular neighborhood. These neighborhoods all have formal names, for example the General Highway Map of Cumberland County published by the State Highway Department contains fifty-four neighborhood names which are locally used, and in some instances rather widely known. The neighborhoods on the Cumberland Plateau are frequently referred to by the people of the region as *settlements*; the term *settlement* is used synonymously with *neighborhood*, possibly because of the origin and/or the isolated conditions of some of the neighborhoods.

The neighborhoods of the Cumberland Plateau vary considerably in size, service agencies, and degree of self sufficiency. With respect to number of members, they vary from as few as ten to as many as 150 families.

The neighborhoods tend to focus upon a church, a school, or a store which serves as the principal point of contact for the member families. A church and some kind of store are found in nearly all of them, and most of them had a school at some time in the past. Consolidation, permitted by better roads, has eliminated the schools from many.

Nearly half of the fifty-four neighborhoods of Cumberland County, or at least twenty-five of them, once had U. S. post offices. Previously, isolation which resulted from the dearth of good routes of travel made rural free delivery impractical

in this region, but improved roads and modern modes of travel have now caused the rural post office to vanish along with the one-room school. Only four post offices remain in Cumberland County outside of Crossville.

Church buildings are found in most of the neighborhoods, but in many of them Sunday School is the only regular weekly service. For worship services the people of these neighborhoods depend upon "circuit riding" ministers whose Sundays are shared with other churches.

In some instances a grist mill was the chief attraction bringing people together at the focal point of the neighborhood. Some of these old mills may still be seen.

The members of many neighborhoods have associations with other neighborhoods because of the limited services rendered in their own areas. Thus, in a number of cases there is a functioning social group which includes several neighborhoods; this is the *rural community* of the Cumberland Plateau. About forty-five neighborhoods are combined to make up the twelve rural communities of Cumberland County (6).

The extent to which neighborhoods can be grouped together into communities is dependent upon means of transportation. Families financially able to own an automobile may drive a considerable distance to trading centers where wider selections of goods can be had, whereas those dependent upon walking must trade either at the local neighborhood store or with "rolling stores."<sup>1</sup> Retail stores may be the strongest force shaping community structure, but the general pattern will be followed by other community functions. The size of the area served by a church, for instance, will be no greater than the distance people feel they can afford to travel to the services.

The communities, as do the neighborhoods, occupy given areas, and thus have a spatial concept. They both tend to have recognized focal points, which, as was pointed out above, may be either a store, a church, a school, or a combination of these. The focal points are likely to be located at crossroads, which points bear the neighborhood or community name. Although a community consists of a group of neighborhoods, the same name by which the community is known is the name of one of the neighborhoods comprising it.

The fact that communities are likely to receive the name of one of the neighborhoods composing them results from the nature of the development of rural communities; and centripetal

<sup>1</sup>Rolling stores consist of trucks, loaded with groceries and sundry household items, which make scheduled trips over regular routes through rural areas, stopping from house to house.

forces of superior or more extensive services of one neighborhood lead families of other neighborhoods to have associations with it.

In areas where resources are greater and travel is easier, the families from a number of neighborhoods may conveniently converge upon one place for certain community functions, but in some of the more isolated areas of the Cumberland Plateau it is difficult for a significant proportion of the families to get to places other than their own neighborhood centers. Thus, there are many neighborhoods whose member families have little association with other neighborhoods, except for their infrequent contacts with their respective county seats. Consequently, these groups of families are recognized as independent neighborhoods and are not joined with others to form communities.

### Summary

In summary, these major findings can be noted: The topographic, geologic, and soil conditions of the Cumberland Plateau have encouraged such land uses as have produced only a relatively sparse population.

The limited number of people have not developed urban characteristics. The drainage pattern, which is dendritic in general, has molded a road pattern and a pattern of settlement which are similar. Both the people and the roads are in the valleys of the maturely eroded and structurally controlled areas, but they are on the divides of the youthful areas. The people are not disseminated evenly over the land, but tend rather to be agglomerated into rural neighborhoods and communities, of varying sizes and degrees of independence, for purposes of social, economic, and other common activities. These rural agglomerations have focal points usually at crossroads where there is a school, church, or some other vital service, yet both the neighborhoods and communities have a spatial concept such that boundaries can be drawn placing the member families in the neighborhood and/or community to which they have a definite feeling of belonging.

### LITERATURE CITED

1. N. M. Fenneman, *Physiography of Eastern United States* (New York: McGraw-Hill Book Co., Inc., 1938) p. 333.
2. *Ibid.*, p. 337.
3. *Ibid.*, p. 341.
4. Carl C. Taylor, et al., *Rural Life in the United States* (New York: Alfred A. Knopf, 1949), p. 56.  
*Ibid.*, p. 57.
6. H. J. Bonser and R. G. Milk, "Neighborhoods and Communities of Cumberland County, Tennessee," Department of Agricultural Economics and Rural Sociology, University of Tennessee, Rural research series. Monograph No. 129 (Unpublished, 1941), pp. 1-14.

## PREPARATION AND INFRARED SPECTRUM OF TRANS-1,4-(diisothiuronium dihydrobromide)-2-BUTENE<sup>1</sup>

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A mixture of 2.14 g. (0.01 mole) of trans-1,4-dibromo-2-butene, 1.52 g. (0.02 mole) of thiourea, and 50 ml. of absolute ethanol was refluxed 6 hours and allowed to cool to room temperature. The white product which formed was separated by filtration and washed well with dry ether, m. p. 216-218° C. (with decomp.). The yield was 3.14 g. (85.4%).

Anal. calcd. for C<sub>6</sub>H<sub>14</sub>Br<sub>2</sub>N<sub>4</sub>S<sub>2</sub>: Br, 43.65. Found: Br, 43.19

The infrared spectrum of this salt appears to confirm the proposed structure. In the high frequency region were found several bands due to N-H stretching vibrations. Amine hydrohalide frequencies were found in the region from 2400-2600 cm<sup>-1</sup> while a strong band at 1635 cm<sup>-1</sup> indicated the presence of the C=N linkage. A weak band, appearing at 1650 cm<sup>-1</sup> as a shoulder on the 1635 cm<sup>-1</sup> band, was undoubtedly due to the C=C bond stretching vibration. A medium strength band, appearing at 1430 cm<sup>-1</sup> and of unknown origin, was found in the spectrum of S-methyl isothiuronium hydriodide. The band at 1430 cm<sup>-1</sup> quite likely was due to the C-H bending vibrations on the carbon adjacent to the sulfur.

This compound is of interest for possible anti-cancer activity and reduction of hypertension.

<sup>1</sup>This work is published with the permission of The Chemstrand Corporation, Decatur, Alabama.

### NEWS OF TENNESSEE SCIENCE

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Dr. J. Orvin Mundt of the U-T Bacteriology Department has been awarded a \$5,500 National Science Foundation grant to continue studies on streptococci. Recent studies by Dr. Mundt have shown that the Group D streptococci do not necessarily indicate pollution of food, and future studies will deal with the distribution of these organisms under natural conditions.

Dr. Roland H. Alden, chief of the Division of Anatomy at the University of Tennessee Medical Units in Memphis since 1949, has been named to the newly created position of associate dean of the graduate school for medical sciences. Dr. Alden began his new duties January 1, retaining his position as chief of the division of anatomy. Dr. Alden will be taking over a portion of the duties performed by Dr. T. P. Nash, Jr., dean of the School of Biological Sciences. Dr. Nash will continue in his position as dean of the School of Biological Sciences.

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