To the Graduate Council:

I am submitting herewith a thesis written by Todd Michael Ahlman entitled "Backwards Farmers or Modernizing Farms? The Tennessee Valley Farms of East Tennessee in the 20th Century." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Anthropology.

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BACKWARDS FARMERS OR MODERNIZING FARMS? THE TENNESSEE VALLEY FARMS OF EAST TENNESSEE IN THE EARLY TWENTIETH CENTURY

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ABSTRACT

The Tennessee Valley Authority was created in the 1930s to bring electricity and jobs to the depressed South. Characterized by the popular media as "backward," East Tennessee became a center of governmental social reform. What these popular images ignored, however, was that some valley farmers were in the process of modernizing their farms. These farmers were integrating modern farming and construction methods with their traditional methods of agriculture. This transitional stage, from traditional to modern, is a product of modernization.

This thesis addresses the transitional farmstead as it appears within the Watts Bar Reservoir area in East Tennessee. This reservoir is located in a region defined as the Upland South. First, the thesis defines the transitional farmstead of the early 20th century based on previous definitions of traditional Upland South farmsteads and concepts of "ideal" Southern farms of the early 20th century. Next, sociological and architectural analyses are conducted using documentary and archaeological data concerning tenure class differences to demonstrate that even though there are tenure differences they do no have an affect on modernization. Archaeological data from testing of four farmsteads are presented for intersite comparisons between the four sites. Additionally, the archaeological data are employed for intersite comparisons with seven other sites to discern if there is a distinctive transitional Upland South farmstead artifact pattern.

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CHAPTER ONE

INTRODUCTION

The construction of the Watts Bar Reservoir (WBR) by The Tennessee Valley Authority (TVA) in the late 1930s marked the end of a way of life for many farm families (Figure 1). No longer were the floodplains available for crop production and livestock raising for they had become the home to fish and hundreds of recreationists enjoying the beautiful scenery and fine fishing.

At the time of reservoir construction, the people living in the Tennessee Valley were considered backward folk who still did things the "old-fashioned" way. The Tennessee Valley was characterized agriculturally, like most of the South, as totally oriented toward cotton in the lowlands or coal mining in the mountains (Whitman 1939; Munzer 1969). In addition, the people were characterized as living in log or box shacks and using a single mule to plow their fields (Whitman 1939; Munzer 1969). These popular images, perpetuated by the media and the government, led to the development of the TVA reservoirs to provide jobs for the poor of the area and to bring electricity to the homes in and around the valley to make them "modern."

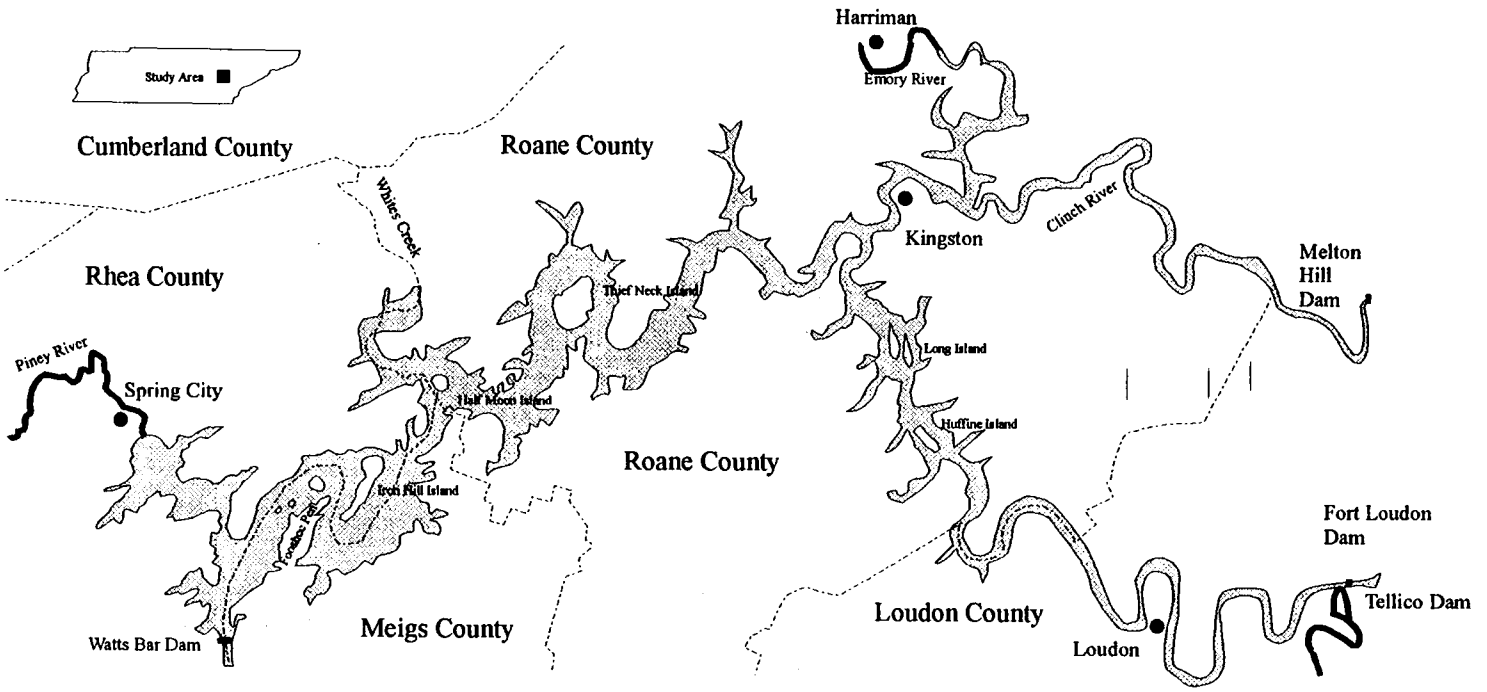


Figure 1. Location of Watts Bar Reservoir.

The problem with these images is that they ignore what was truly happening in the Tennessee Valley at that time. Unlike farming throughout much of the South, mono-cropping was not occurring in the valley. Instead, Watts Bar area farmers were diversified and utilized local and non-local markets. Fruits, vegetables, livestock, and grains were being sold to eastern markets. Prior to WBR construction, Rhea County was one of the largest strawberry producing counties in Tennessee. Produce was being shipped from Dayton and Spring City via railroad to Chattanooga to the south and, more importantly, to the Northeast and the East coast (Luebke et al. 1939).

An on-going archaeological survey of TVA owned land in and around the Watts Bar Reservoir has recorded many early 20th century farmsteads. These farmsteads have provided much information about the settlement patterns of the valley (Ahlman 1994), but have also raised questions about the popular images discussed above. Were the farmsteads of the Tennessee Valley as backward as portrayed by the government and popular media or were they actually commercial ventures heading toward modernization but lagging behind the popular perception of modernity at that time?

The first goal of this study integrates the archaeological and the archival records to show that many farmsteads in the Watts Bar Reservoir area in the early 20th century were in a transitional period between a traditional and a modern farm. The idea of a transitional farmstead is based in modernization theory. This theoretical principle examines regions within historical and environmental contexts to evaluate the development from traditional to modern states.

A problem based within modernization theory models is that they do not take into account variability within a study region. The second goal of this thesis will demonstrate that there is variability between and within those farmsteads classified as transitional and traditional within a region. Differences can be seen in architectural detail and inferred activities, as well as gross structure.

In addition, this study also reveals that tenure did not affect the modernization of these farmsteads. Unlike farms in other parts of the southeastern United States, socioeconomic status was not the defining factor for whether or not modernization occurred on a farm. Income differences are considered as an alternative explanation to why farmsteads are classified in the defined transitional state.

The third goal of this thesis demonstrates that artifact patterning may be influenced more by temporal period than by region. Extending work conducted by Groover (1993), intersite artifact pattern comparisons are made that suggest that the temporal period of a site may affect the artifact patterning more than the influences of a cultural region.

Chapter 2 examines previous definitions of Upland South farmsteads, evaluates the modernization theoretical perspective and defines modernization. This chapter also outlines the data sources used to study and evaluate the Watts Bar area farmsteads.

Chapter 3 presents the historical context of early 20th century agriculture. The external and internal forces acting on the farmsteads are examined, as is the concept of the modern farm in the early 20th century. This aids in defining the transitional farmstead that is a focus of this thesis.

The next chapter is an environmental overview which addresses those aspects of the environment and physiography that are important to agriculture. An environment conducive to agricultural production can be inferred from the archaeological record by the types of buildings and their construction methods. Environments that led to good crop production also resulted in excess wealth that could be used for improvements on the farmstead.

Chapter 5 covers sociological and architectural analysis involving TVA records and archaeological survey. This chapter examines the question of whether or not there are difference between tenure classes in income, acres farmed, livestock, house size and construction methods, and outbuilding number and construction methods.

Chapter 6 employs results from archaeological testing of four farmsteads to examine intersite artifact patterning among four transitional farmsteads. These data, when compared to other farmsteads, suggest that similarities and differences among farmsteads are due more to temporal period than region.

The final chapter contains the synthesis of the results of the various analyses to show that farmstead modernization is variable in the path and rate that are taken. In addition, suggestions are made concerning future research strategies for 20th century farmsteads.

CHAPTER TWO

DEFINITIONS, THEORY, AND BACKGROUND

The Watts Bar Reservoir affected the four county area of Loudon, Meigs, Rhea, and Roane counties in East Tennessee, having its greatest impact on the latter three (see Figure 1). This chapter addresses definitions of traditional and modern Upland South farmsteads as well as defining a transitional farmstead. The definition of a transitional farmstead in this thesis is a product of modernization theory.

Defining Traditional Farmsteads of the Upland South

The Upland South culture region encompasses "Southern Appalachia and portions of the Ohio Valley, the Midwest, and the Mississippi Valley" (Newton 1974; see also Hill et al. 1987; McCorvie 1987; Moir and Jurney 1987; Rotenizer 1992). The WBR area falls within these defined boundaries of the Upland South culture region. Farmsteads within the region have been characterized by "a reliance upon a diversified general farming complex, a wood oriented technology, the importance of the family as a cooperative unit . . . and a stratified social system . . . "(Hill et al. 1987:251).

Farmsteads classified as belonging to the Upland South tradition have been the focus of several studies. Areas that have received attention are in north central Texas (Moir and Jurney 1987; Jurney and Moir 1987), southern Illinois (Hill et al. 1987; McCorvie 1987; McCorvie et al. 1989), and northeast Missouri (O'Brien et al. 1982;

Selby et al. 1984). These studies have focused on the farmsteads occupied by farmers who migrated from the upland areas of Tennessee, Kentucky, and North Carolina into the surrounding areas, i.e., southern Illinois, north central Texas, and northeast Missouri. One of the central themes in these studies is the continuance of Upland South traditions on the farmsteads in the areas studied.

A set of defining features has become associated with 18th and 19th century Upland South farmsteads. Features of the traditional farmstead are (Moir 1987; Rotenizer 1993):

1. Outbuildings and barns arranged around a dwelling on a hilltop in a seemingly disordered cluster determined by the occupant's changing conceptions of convenience.

2. Major buildings are dwelling, barn, storehouse, food storage shed or smokehouse, and animal pens, often serving multiple functions.

3. The location of the well, privy, storage shed, and chicken house is tied closely to the dwelling and form areas that are usually associated with female activities and are periodically swept.

4. Barns and larger animal and equipment shelters associated with male activity areas are located further away from the dwelling and its closely tied support structures (mentioned in #3 above). Access to these structures is around the dwelling and its yard rather than through its immediate yard.

5. Dwelling faces probable path of human approach.

6. Dwelling is shaded by trees.

7. Fields and pastures are irregularly arranged, often dictated by topographical features.

8. Wide use of horizontal log construction.

9. Universal concept of modular construction is based on the pen or crib.

These characteristics focus on the more "traditional" or 19th century aspects of the farmstead. As Groover (1993) has pointed out, the model as it is currently presented is atemporal and atheoretical and ignores one of the main goals of archaeology--culture change. There currently is no unifying theory within the model to explain both differences between farms and changes in a farmstead's layout over time.

The changing nature of the farmstead is a reflection of the individual's concept of the world around him or her. One the characteristics of the Upland South farmstead is that its layout changes through time due to the changing concepts of convenience of the occupant. What are the driving forces behind these changes? The majority of the changes that occurred on the farmstead can be explained by examining new technologies and the economic conditions and choices on the farmstead.

Modernization Theory

Changes that occurred on the farmstead can be addressed through a theoretical principle that has been common in the disciplines of sociology and cultural anthropology over the last 40 years: modernization theory. Modernization theory has its roots in the post World War II world where new nations were emerging while nations such as France and Great Britain were losing their colonial power (Sanderson 1995:203). It is meant to be used as a tool to explain the developmental path that the newly liberated states were to go through from a "traditional" society to become an industrialized "modern" state like that of the United States or Great Britain.

In modernization theory, societies are grouped into either traditional or modern classes. The traditional groups maintained "old-fashioned modes of technology and business organization, lacked modern entrepreneurial attitudes and skills, and embraced values and religious traditions that were conservative rather than forward-looking" (Sanderson 1995:204). Modern societies had the characteristics of industrialized states such as the United States or those of Western Europe.

Modernization theory is based on two theoretical concepts: evolutionary theory and functionalist theory (So 1990:18). The evolutionary theory used by the modernization school is unidirectional with a hint of inevitability where societies moved from a simple stage to a more complex one (Ferrorotti 1985:78; So 1990:19). Rostow (1960) described modernization as staged where societies went from a simple, traditional structure to a more complex, industrialized one. Modernization in this view also is homogenizing because all societies become similar to each other and to the United States or a Western European country (So 1990).

The functionalist theory adopted by the modernization school is based on Parsons' (1951) view of culture as a biological organism in that everything works together to keep the organism alive. Everything within culture works to achieve a level of homeostasis. When one part of a society changes there is a chain of events that is set off resulting in change within the whole culture to reach an equilibrium (So 1990:21). Parson also developed a set of pattern variables to distinguish traditional from modern societies. Traditional societies are often affective communally, particularistic, collective oriented, ascriptive and functionally diffused whereas modern societies are affective neutral,

universialistic, self-oriented, achievement oriented, and functionally specific (Parsons 1951; So 1990).

Modernization theory has been criticized for three reasons: 1) it has an unidirectional evolutionary trend, 2) it tends to neglect the external and internal forces influencing development, and 3) it ignores history (So 1990; Sanderson 1995). Critics point out that all developing societies do not have to follow the path of the United States to modernization and that not all societies have or will experience the same stages that the United States or Great Britain went through to achieve their current states of development. Critics also attack the traditional/modern dichotomy inherent to the modernization theorists, noting that traditional values are present in modern societies and they seem to coexist at times (Roxborough 1988; So 1990).

Proclaimed dead by the late 1970s, modernization theory appears to have made a comeback in the late 1980s (Roxborough 1988; Sanderson 1995). New modernization theory contains refined functionalist and evolutionary principles and adopts a Marxist/Neo-Marxist perspective. New modernization theory, according to So (1990), contains several innovative changes in policy. For example, it does not treat tradition and modern as separate traits, but as traits that can coexist. Tradition is considered an additive effect to modernization rather than a hindrance. New modernization theory attempts "to show the beneficial role of tradition" (So 1990:61) in the modernization of countries.

New modernization theory also ties history into concrete case studies. This allows for more in-depth analysis and comparison between different developing areas. In addition, this allows for multidirectional paths of development (So 1990:61). Instead of a

single path that developing nations must take to become "modern," there is a myriad of paths that a nation may follow. These paths are set out by the history of a particular country or area, and not by what has occurred in the United States or the United Kingdom.

External forces are also considered in new modernization studies. Although the focus is still on internal factors such as religion and class structure, external factors, such as outside governmental policies, are given more attention and play a larger role in analysis.

Within new modernization theory, modernization is defined as "the growth in capacity to apply tested knowledge to all branches of production; modernity is the social, cultural, and psychological framework that facilitates the application of science to the process of production" (Nash 1984:6). This acceptance of new technology brings about marked change within the culture. Accepted knowledge is adjusted to fit old ways and old ways are adjusted to fit new technologies. This acceptance and change occurs differentially throughout societies and is not the same everywhere (Nash 1984; Roxborough 1988).

By incorporating new modernization theory's emphasis on external forces, historical perspectives, and the duality of traditional and modern with the older modernization theory's concept of a transitional entity, this paradigm may provide a framework for discussing the changes in WBR farmsteads in the 20th century. Transitional societies/regions are those in the process of becoming modern (Roxborough 1988). This term has been criticized because of its unidirectional connotations. If

transitional is not meant to be unidirectional -- traditional to modern by one path -- but means the integration of traditional and modern features evolving together toward a definably modern farmstead then it is an adequate term. This modern farm does not have to be the equivalent of a new farm like that shown in farming publications, where there are all shiny new buildings perfectly arranged with electricity, new tractors and equipment and a brand new house, but rather an amalgamation of traditional elements and modern elements.

According to new modernization theory, identifying social forms as transitional also must account for external forces which are acting on a society. In the agricultural world these forces originate from the government and/or from higher social classes. Governmental programs aimed at pushing farmers to become modern are common place. These programs generally are based on current scientific research or are meant to control production. In fact, what many of these programs do is force new technology onto farmers. The acceptance of these programs at face value is dependent upon the beliefs of the farmer. Incorporating these programs into their agricultural production, farmers are accepting scientific methods but are also being influenced by external forces.

Detecting Modernization of Upland South Farmsteads

For this study, several avenues were examined to study modernization of the early 20th century Upland South farmstead. The applications and acceptance of modernization can be evaluated using combined archaeological and documentary records. Various documents were used to provide insight into the social environment of the Tennessee Valley, and the South as a whole during the early 20th century. These documents include

historical commentaries recording the political and social environment of the period, governmental and popular literature concerning farm modernization, and TVA records recorded prior to the construction of the Watts Bar Reservoir. When studying modernization, relationships between the government and farmers and between farmers and the market are important to note because they can provide important information regarding the forces, external and internal, that may be guiding change.

A primary documentary resource used is the extensive records of the TVA. Prior to reservoir construction, TVA made extensive property inventories. These inventories include types of buildings, construction materials of buildings, and maps that have the approximate locations of these buildings plotted on them. During the current survey these maps have proved invaluable in locating buildings that were standing prior to reservoir construction and provide ideas about a farm's layout for those farmsteads not found during the survey. However, these maps are not perfect since in many cases structures were identified in the field that were not shown on these maps. These structures may have been removed or abandoned before the inventories were made or were not included in the final map when transferred from field maps.

Another archival resource produced by TVA is extensive sociological relocation studies. These studies recorded income, tenure, tools owned, and general information of the families engaged in farming activities during 1939. Information included in these forms was gathered by TVA field agents during the first part of 1940. Generally the information was gathered by interviewing family members about crop production, income, how long they had lived on the farm, livestock owned, education, and tools owned.

Subjective assessments about intelligence, house and farm upkeep and general quality of life were made by the interviewer. Tenure information was gained from family interviews, interviews with employers, and the interviewer's assessments.

The archaeological record gives insight into architectural and artifactual materials on a site. These materials show acceptance of modernization by representing the consumer choices made by the occupants of the farmstead. Two methods of archaeological survey were being used in the study and were made easier by the above-mentioned maps.

Initially sites were identified by surface survey of the beach exposed by reservoir draw down and TVA owned tracts of land. During winter months TVA draws down reservoir levels to compensate for flooding and to control mosquitoes. This draw down exposes many archaeological sites that are right at or just below the summer pool level of the lake. Many foundations or foundation remains and/or artifact scatters are exposed along with domestic and nondomestic artifacts. Unfortunately, many foundations or other remains have been destroyed by erosion so this information has been lost. The farmsteads recorded on TVA owned land have high integrity because they have been virtually undisturbed since the buildings were razed and the farmsteads were abandoned. Locating these farmsteads was aided by the TVA Land Acquisition Maps. Although they may be inaccurate at times, these maps generally led the survey team right to a site.

Sites identified on TVA owned land were further investigated by shovel testing across the site. Generally, shovel testing involved placing pits at 20 meter centers and with intuitive tests. Four selected farmsteads were tested at ten meter intervals with tests

placed around most of the buildings. These four farmsteads will be the focus of part of this thesis and the methods used at each farmstead will be explained in more depth later.

CHAPTER THREE

HISTORICAL CONTEXT

Agricultural Climate

Various internal and external forces were acting upon the Southern farm during the early 20th century. Externally, the government was enacting various programs aimed at improving farming and living conditions. In addition, various journals were publishing articles portraying the ideal farm. The concept of an "ideal" farm was based on new technologies concerning convenience and sanitation.

Southern agriculture was characterized as an economically depressed venture that focused more on subsistence than capitalism during the first 30 years of the 20th century (Fite 1984). By the 1930s, the Depression that gripped the nation also tightened the strangle hold on the South. The federal government had put into motion various programs that were intended to push the Southern farmers toward more capitalistic and modern agricultural practices.

This modernization of Southern agriculture involved a push toward mechanization, crop rotation, and the use of commercial fertilizers. Replacing the mule with shiny new tractors was one priority of the modernization of Southern agriculture. New price supports and government loans meant more farmers could afford new machinery. During the 1930s, "the number of tractors per 1,000 acres of cropland harvested doubled in some

southern states . . . [while] horse and mule numbers declined" (Fite 1984:154). However, the South fell behind the more profitable northern and Midwestern agricultural states in investment in machinery.

Crop diversification and rotation along with fertilization was another aspect of the modernization of Southern agriculture. Planting soil-enriching crops and fertilizing depleted soil were employed to increase production. The planting of corn, hay, fruits and vegetables and turning unproductive upland fields back into pasture and woodland were also part of this process. Additionally, TVA provided "cheaper fertilizers, cooperated with farmers to control soil erosion, encouraged the planting of soil conserving crops, and showed farmers how to improve their production methods" (Fite 1984:149).

Various internal forces were also acting on the modernization of Southern agriculture during the early 20th century. One factor was the rejection of new technology and economic improvement fostered by a desire to stay true to the "old way." McDonald and Muldowny explain that in the Norris Basin people had a tight community connection that they knew would disappear with modernization and they were not ready to give that closeness up (1982:66-68). The acceptance of machinery, tractors or trucks meant a change in the culture of the South. Kirby expresses the belief that the farmer changed from having a bond with his animals and the land to a mechanic who had no real bond with the land (1987:195-196).

The structure of Southern agriculture also hindered modernization. The small size of many Southern farms made mechanization difficult and did not allow for generation of enough capital to purchase the needed machinery. Government programs recognized this

and encouraged reorganization of farms into larger units. This meant that farmsteads grew in size at the expense of the number of farmers or laborers working the land.

Not all factors affecting modernization were negative. The factors listed above represent the hinderences that slowed modernization. There were many internal and external factors that made the transition to modern agriculture easier for farmers of the Tennessee River Valley of East Tennessee.

The Tennessee River Valley in the Watts Bar area differs slightly from most of East Tennessee in having wide floodplains, reaching over a mile wide in some areas, which were fairly agriculturally productive. While agriculture in the East Tennessee was classified as subsistence farming, the WBR area was actually characterized by a fruit-vegetable and grain-dairy-livestock production scheme (Kirby 1987). Kirby comments that this portion of the South "had the shortest and probably the easiest road to modernization" (1987:129). These areas were characterized as predominately white, having low tenancy rates, and possessing adequate machinery (especially animal power) (Kirby 1987:129).

Meigs and Roane counties fall within the grain-diary-livestock classification while Rhea County was classified as a fruit-vegetable growing county. In Rhea County many farmers also engaged in grain-dairy-livestock production and a few farmers in Meigs and Roane counties were also engaged in fruit-vegetable production (Luebke et al. 1939). In general, farmers within the Tennessee Valley utilized bottom land for crops such as corn, wheat, tobacco, and hay and uplands for hay and pasture land (Luebke et al. 1939; Hasty

et al. 1942; Swann et al. 1948). Within the study area, many made the bulk of their income off livestock.

Fruit and vegetable markets were available both at a distance and nearby. The East Coast was a popular destination for the fruits of the Valley. More often, fruits and vegetables probably were shipped to markets in Chattanooga down-river and Knoxville up-river. Local canneries in Rockwood and Dayton made more distant markets accessible (Luebke et al. 1939:87).

Smaller than Midwestern farms, the average size of farms within the WBR area was large for Tennessee. Meigs County had the largest average farm size listed in the 1930 and 1935 census. Table 1 lists the average farm size for the three county study area and the state average for 1930 and 1935.

Early 20th Century Conceptions of a Modern Farm

In addition to modernizing farming operations, modernizing the farmstead itself was also important to Government agents and farm reformers. Many Southern farms were characterized as "unsatisfactory" (Williams 1935:137) with poor sanitation facilities, inadequate buildings and inefficient farmstead layouts. To combat this, agricultural magazines, journals and books published and County Extension agents demonstrated ways in which farmers could improve the farm's living standards and sanitation.

United States Department of Agriculture bulletins and books concerning farming improvements, published between 1900 and the early 1940s, were examined to determine what was considered a modern or "ideal" farmstead during this period. The perception of the modern farmstead changed slightly through this time period due to changing

Table 1. Average farm size for study area and Tennessee overall.

Year	Meigs	Rhea	Roane	State Average
1930	161.1	98.7	130.3	73.3
1935	149.5	86.5	103.7	69.7

technology and the acceptance of these advances. Refined construction techniques and improved sanitation were meant to lead to better housing facilities, clean and adequate water sources, sanitary waste disposal (including sewage and household trash), sturdy outbuildings, and efficient farm layouts.

These bulletins emphasized that adequate housing facilities were important to the farmstead because the house was the central feature. The center of all activities, it was commonly the first building seen on a farm. Early in the 1900s it was recommended that house foundations be constructed of brick or cement although the former was considered the better of the two (Hill 1901:22-23). By the late 1930s cement or concrete was believed to be the best foundation (Scoates 1937). Throughout the early part of the century, frame construction was considered the best type of house construction. In the early 1940s, asphalt and asbestos shingles were considered superior to metal and wood shingles (Carter and Foster 1941).

Though a frame house with a continuous concrete foundation was advocated as the best type of housing, a United States Department of Agriculture (USDA) *Miscellaneous Publication* indicated that other styles could be used for lower cost housing (USDA 1940). Several board and batten or box houses were illustrated with what may be either concrete or brick piers. These "low cost" houses may have been intended as housing for tenants or sharecroppers.

Besides changes in building techniques, improvements in milling techniques and transportation also played a role in housing improvements. In *The Log House of East Tennessee*, Morgan (1990) explains that by the end of the 19th century the log house had

begun to disappear due to the development of balloon frame construction and cheaper milled lumber. In addition, the expansion of roads and railroads into formally inaccessible areas made the latter possible. The development of the portable sawmill also made milled lumber more readily available since the mill came to the location of the planned building and cut the lumber there resulting in reduced costs.

A sufficient and sanitary water supply was necessary to the farmstead, especially for household usage. Bulletins and books stated that wells were to be placed away from farm buildings and privies to prevent contamination. A cement, tile or sealed brick curb extending several feet below the ground surface was important to protect from surface drainage and cave-ins (Warren 1925; Bullock 1944:274-278). Wood was not recommended for the curb because it "will give a foreign taste to the water" (Bullock 1944:276) and will rot quickly resulting in the possibility of cave-ins (Warren 1925).

Various types of barns were used on the farmstead including: hay, stock, dairy, and general purpose barns. The modern barn of the late 1930s and 1940s had a concrete slab floor and foundation with wood frame construction. Other building techniques were commonly used, but this type of construction was considered the most efficient. Metal roofing was considered better than wood shingles or boards in the early 1900s because it lasted longer and was considered a good protection from fire (Hill 1901:28). Similar to house roofing standards, asbestos and asphalt shingles were top of the line, but metal was also considered a quality roofing item for barns by the 1930s (Scoates 1937b:146-148).

Roofing material is a good indicator of improvements on the farm. Edgar and Miller discuss the different types of roofing material in a 1935 *Farmers' Bulletin*. Three

main types of roofing material were listed which include: rigid roofing, including wood, slate, and asbestos shingles; bituminous roofing including tar paper, asphalt or composition shingles, and built up or tar roof; and metal roofing including tin standing seam and corrugated sheet steel roofing. As mentioned above, asbestos shingles and tin roofing are fairly durable and fire resistant making them the best roofing choice. Asphalt shingles are also durable, light weight and were relatively inexpensive. Because of the durability and cost, these shingles were becoming "a very important and widely" used roofing material (Edgar and Miller 1935:11). Wood shingles were considered good in that they were inexpensive, attractive and provided good insulation. The drawback is that they tend to decay rapidly in humid climates and are not very fire resistant. Tar paper or roll felt paper was considered a good temporary and low cost roofing material. In addition to durability and fire resistance, cost probably played the most important role in selecting a roofing material. The most expensive materials were asbestos shingles and standing seam tin while asphalt shingles, wood shingles and corrugated galvanized steel were moderately priced and the lowest cost material was roll roofing (tar paper). Table 2 lists the estimated costs for 100 square feet of roof to cover.

The concrete silo is another important feature of the modern farm. First developed in 1875 by Manly Miles for "ensilaging green materials for feeding animals"(Roberts 1900:317), its uses evolved to include the storage of roughage and grains. The first silos were wooden with brick or stone foundations and clay or "grout" floors. Wood was used because it was inexpensive and was thought to preserve the fodder the best (Roberts 1900:316-320; Plumb 1903). By the 1910s, the concrete silo had become the silo of

Table 2. Estimated cost of roofing for 100 square feet of roof (adapted from Edgar and Miller 1935).

Roofing material	Cost per square*
Asbestos Shingles	
American Pattern	$18 to $25
Dutch Pattern	$12 to $17
Hexagonal Pattern	$11 to $16
Asphalt Shingles	$5 to $10
Corrugated Galvanized Steel	$6 to $9
Roll Roofing	$3 to $10
Slate	$15 to $25
Standing Seam Tin	$12 to $20
Wood Shingles	$6 to $10

* = square is equal to 100 square feet of roof

choice because of its durability, though wooden silos were still in use because they were inexpensive (Rabild et al. 1914). By the late 1930s, the most common silos were concrete and tile with other types including brick, wood and metal (McCalmont 1939; Carter and Foster 1941:252-261). The two main features of the concrete silo are a foundation that extends below the frost line and a concrete floor.

Concrete or cement foundations or floors are important improvements to note on the modern farmstead. Though it was developed earlier, cement was not widely used on the farm until the 20th century. The use of cement was advocated because of its economical and structural durability. Correctly used in construction it could last a long time. Though concrete may have been inexpensive to purchase, constructing with it was generally not. The biggest expense in laying concrete is the forms or preforms used. Miller, in a 1937 *Farmers' Bulletin*, points out that the forms cost as much if not more than the concrete itself (Miller 1937:17). In addition, labor for laying the concrete and building the forms may be high, depending on the job, greatly increasing the cost.

Another type of building that may appear on the modern farm landscape includes the garage or tractor house/shed. Cars, pickups, and tractors were luxuries that were common on farms in many parts of the United States by the late 1930s and early 1940s, but were rare in the South. The function of these buildings is hard to detect archaeologically but insight into their use may be gained through written records or informant interviews.

Just as certain architectural features appeared on the landscape with the modern farmstead, other traditional buildings started to disappear. Smokehouses, food storage

sheds, and privies began to disappear as electricity and running water made it easier for activities associated with these features to be performed in the house. The function of buildings may also change through time due to changing technology. What was once a wagon shed may become a garage or tractor shed. It is also important to note that building function may change to accommodate modern implements, but the building construction method may not change.

Similar to the traditional Upland South farmstead, a set of characteristics can be associated with the modern or early to mid-20th century Upland South farmstead. These elements are based on the above mentioned characteristics and from other sources (Moir 1987; Carlson 1990; Morgan 1990):

1. Buildings with concrete foundations or concrete slab construction, siding, electricity, and indoor plumbing,
2. Absence of smokehouses, food storage shed, and/or privy.
3. Reliance on mechanized farming.
4. Frame or board and batten housing.
5. Abandonment of activities performed in the traditional yard.
6. Appearance of silos next to barns.

The Transitional Farmstead

Like most cultural change, modernization of the Upland South farmstead was a gradual process. The persistence of traditional features, such as the smokehouse, continued up to the present. As Stewart-Abernathy has pointed out, smoking hog meat was practiced in the South "well into modern time" (1986:162) and smokehouses were

recorded on farmsteads in the Normandy and Tellico reservoirs in Tennessee in the 1970s (Reidl et al. 1976; Carnes 1980).

The coexistence of the previously defined traditional and modern features on the farmstead landscape is an important characteristic of a transitional farmstead. The transitional farmstead incorporates both modern features, i.e., concrete foundations or mechanized agriculture, and traditional features, i.e., a smokehouse or log construction of buildings. No set combination of features or structures should be defined for a transitional farmstead because, as will be seen, each farmstead incorporates different modern features into the traditional farmstead at different rates based on economics or acceptance of different technologies. Defining a required set of elements to make up the transitional farm, an unidirectional evolutionary model is created. If the definition is left broad, each farmstead can be assessed and then compared with other farms. Classification of individual farmsteads is made in relation to other farmsteads within the defined study area. Without viewing a region, subregion, or community as a whole one does not get a sense of what is going on in that area.

Though there are no required elements for a transitional farmstead, certain elements carry more weight or should be more heavily weighted than others when considering whether a farm is in a transitional state or not. These elements are: mechanized farming, concrete foundations, and concrete silos. These elements are indicative of improvements to the farm that occurred in the 20th century.

Certain features may be common for both traditional and modern farmsteads. For instance, metal roofing was common on buildings at the turn of the century and was

considered a viable roofing material in the late 1930s as seen above. Other types of elements or features that may be common to both modern and traditional farmsteads include cisterns and wells, although concrete, tile or brick lined were considered modern, and brick foundations of houses. The appearance of these elements on the farmstead is probably more indicative of a transitional or traditional farmstead rather than a modern farmstead because they were generated from traditional contexts.

The transitional farmstead may be detected archaeologically on extant or poorly documented sites by the appearance of modern and traditional cultural remains in conjunction at a single identified building. For instance, a building identified by its stone piers may have modern artifacts like asbestos shingle fragments around it or a concrete foundation may have roofing nails for wood shingles or metal roofing. An increase in glass and metal containers across the site and in discrete disposal areas through time indicates increased consumerism that some have attributed to modern farms (Jurney and Moir 1987; Moir and Jurney 1987) and is a sign of the transition to a modern farm.

CHAPTER FOUR

ENVIRONMENT

Environment is crucial to agricultural development. Topography plays a role in the types of crops grown and where they are grown. Growing season and rainfall amounts are critical to crop selection and growth. Soil types affect fertilization and retention of fertilization.

Topographically southeastern Tennessee is located in the Ridge and Valley Physiographic Province. This region extends from the St. Lawrence Valley in the north to the Gulf Coastal Plain in the south (Fenneman 1938:196). The Ridge and Valley Province is characterized by lowlands flanked by even-topped longitudinal ridges (Fenneman 1938:196). In the southern area of the province the valley floor widens and the ridges become lower and less abundant (Fenneman 1938:265). The ridges and valleys run in a northeast-southwest direction with elevational differences between the valley floors and the ridges ranging roughly from 200 to 400 feet (Hasty et al. 1948:7).

The current topography is the result of differential erosion of the underlying parent bedrock (Fenneman 1938; Hasty et al. 1948:6). The underlying parent materials are limestones, dolomites, and sandstones (Swann et al. 1942; Hasty et al. 1948; Warren 1974). Weathering of these parent materials has produced fertile soils, especially in the valleys.

The main feature of the Watts Bar area portion of the province is the Tennessee River. From its origin at the confluence of the French-Broad and Holston rivers just north of Knoxville, the Tennessee River flows parallel to the strike of the rocks and ridges. The dolomites, limestones, and sandstones are responsible for this flow pattern. From Loudon to Kingston the river cuts across several faults exposing various dolomites, limestones, and sandstones. Below Kingston, the river again parallels the ridge lines through Chattanooga out of Tennessee (TVA 1936:67).

The modern climate is temperate continental, characterized as humid and mesothermal having periods of drought that are of minimal consequence (Thornewaite 1948). Average temperature for the study area is 15.28 C with December being the coldest month having an average of 4.94 C while July is the warmest with an average of 26.11 C (Dickson 1974:370-384). An average growing season for Roane County is 196 days (Swann et al. 1942:7), for Meigs County 191 days (Warren 1974:3), and for Rhea County 192 days (Hasty 1948:8). This is generally from around the middle of April to around the end of October (Swann et al. 1942:7; Hasty 1948:8; Dickson 1974:370-384; Warren 1974:3). Frosts have been recorded as late as May 10 and as early as September 26 in the valley in Roane County (Swann 1942:7).

Precipitation amounts are important to the production of good agricultural crops. Within the study area rainfall is adequate for most crops to flourish (Hasty et al. 1948:8). The average rainfall for the area is 127 cm (Dickson 1974:375). Spring and summer are generally the wettest seasons of the year while the fall is generally the driest with January being the wettest month. Rainfall lows range from 36 to 42 inches and highs have been

recorded from 66 to 70 inches (Swann et al. 1942:7,8; Hasty et al. 1948:8,9; Warren 1974:2).

Due to the mild winter temperatures, snowfall is sporadic and seldom lasts for more than a few days. This is beneficial to annual crops such as alfalfa, fall sown crops like wheat, and allows for the planting of some winter vegetables (Hasty et al. 1948:8).

Late summer thunderstorms occasionally strike the valley bringing with them high winds and infrequent hail, tornados, and flooding. Several major floods have struck the valley through recorded history. The greatest flood recorded was March 6-7, 1867 (TVA 1964:2,4). The Clinch River crested at 745.6 ft AMSL in Kingston during this period (TVA 1957). This is 4 ft higher than the current lake level is maintained during summer pool. Flooding rejuvenates floodplain soils, but conversely it destroys crops and farm buildings.

Because of the physiography of the region, climate is variable due to elevational changes and slope aspect. On the Cumberland Plateau to the west, average temperatures and rainfall are lower than within the valley (Hasty et al. 1948). Areas in valleys (hollows) and slopes not facing the sun are more susceptible to frost than ridge-tops and sun facing slopes.

Well-drained, fertile soils are very conducive to high yield crop production. The undulating nature of the Ridge and Valley Province provides for a variety of fertile soil types. There are four general classes of soils: 1) soils of the uplands, 2) colluvial soils, 3) soils of the terraces, and 4) bottom land soils (Swann et al. 1942; Hasty et al.1948; Warren 1974). Uplands are the areas at elevations higher than the surrounding bottom

lands, colluvial areas, and terraces. Colluvial soils are located in the areas at the foot of mountains, ridges, or hills where material has accumulated from the higher elevations. Terraces are bench-like areas above the floodplain and are not subject to flooding. The bottom lands border rivers and streams and are subject to flooding (Swann et al. 1942; Hasty et al. 1948; Warren 1974).

As can be expected, fertility is related to soil classification. The upland soils are characterized by medium to low productive silty clays, clay loams, and clays. Colluvial soils are characterized by low and highly productive soils. The highly productive soils are silty clay loams and silt loams while the low productive soils are the clays and clay loams. Terrace soils range from low to highly productive soils. Generally, the soils in the WBR area are productive. The bottom lands are characterized by fertile moderate to highly productive soils. The only drawback is the lack of drainage of most of the soils (Swann et al. 1942; Hasty et al. 1948; Warren 1974).

The physiography and climate of southeastern Tennessee has led to a diversified farming complex. The farmers utilized the productive floodplains for grain crops while they used the unproductive uplands for pasture and timber lands (Swann et al. 1942; Hasty et al. 1948; Warren 1974). This diversity was beneficial to the farmer because he relied less on commercial products through time, especially during times of economic stress (McDonald and Muldowny 1982; Kirby 1987).

CHAPTER FIVE

SOCIAL AND ARCHITECTURAL ANALYSIS OF FARMSTEADS

More than 832 farmsteads were affected by the government purchasing land for the inundation of the Watts Bar Reservoir (TVA 1949:349). Before inundation TVA conducted in-depth sociological and architectural analyses of all the farmsteads. The sociological, or relocation studies as they are referred to, and the architectural data are used in this chapter to study tenure classes and differences between tenures in various categories. In addition, the architectural data are used to study modernization of building manufacturing techniques.

In order to detect differences between tenure classes one-way Analysis of Variance of unequal sample sizes tests are used. The ANOVA test is a statistical procedure by which "differences in sample means are judged statistically significant (or not) by comparing them to the variation within samples" (Ott 1993:771). The ANOVA test takes into account the within-sample variation and the between-sample variation. The within-sample variation determines whether the difference in the means is due to the variance of the sample. Between-sample variance determines whether the variability of the sample is determinate in the differences in the means. If the variance of the samples is similar than the difference in the means is not due to the variability of the data (Ott 1993:770-771). To simplify the ANOVA test, samples are taken of the populations and the sample means

and variances are computed. The null hypothesis, where all means are equal, is then tested against the alternative hypothesis that at least one of the means is different from the others.

The ANOVA test returns a F-value from the test of equality of the population means (Ott 1993:774). This value is compared with the F-critical value set by the degrees of freedom and alpha. If the F-value is higher than the F-critical value, the null hypothesis is rejected and the alternative hypothesis is accepted. The opposite is true if the F-value is lower than the F-critical value.

Sociological Analysis

Ninety-one farmsteads were chosen for in-depth study of income, tenure, total farm acreage, and whether the farm owned a tractor based on the sociological data. This method consists of examining information found in the relocation files generated by TVA that are currently located at the National Archives-Southeast Region, East Point, Georgia. These files contain in-depth information about the residents of the area and their relocation progress prior to reservoir inundation.

The information contained within these files was gathered by TVA agents during 1939 to December 1941, when all farmers were required to vacate their farms. The agents went to each farm and interviewed the residents as to their sources of income, crops, acres, number and types of farm animals, and farm tools. The agent also made subjective assessments of the living conditions, intelligence, and ambition of the farm family.

A brief description of the data gathered from these files will clarify the type of information contained within them. The TVA agent listed the farmer's tenure class along

with his employer if he was not an owner or operator. Ten tenure classes were devised based on this information. Table 3 lists the different tenure types and a brief definition of each tenure class.

Tenure class 1 consists of owners who are engaged in agricultural activities. These people are in control of their crops and own their farm machinery. They may also employ laborers to help out on the farm or rent land to tenants or sharecroppers.

Tenure class 2 consists of non-land owning farmers that share characteristics with owners. They are engaged in agricultural activities, have fairly complete control of their farm, and also own their equipment. This class may also hire laborers to work on the farm and may take part in sharecropping activities.

Tenure class 3 and 4 are very similar. Class 3 are classified as share tenants. These farmers pay rent with a share of the crops, but seem to have more freedom than tenure class 4 in what crops they plant. Tenure class 4 consists of sharecroppers that seem to be tied to what their landlord wants them to plant and occasionally work for their landlord. Both tenure classes own their own agricultural tools.

Tenure classes 5 and 6 consist of laborers. Tenure class 5 are farm laborers while class 6 are non-farm laborers. Those in tenure class 5 work on a per day basis of payment where they receive between $0.60 and $1.00 per day. They may occasionally farm a few personal acres from which they receive a few dollars. Tenure class 6 consists of non-farm laborers engaged in lumbering, quarrying, or working for TVA or WPA.

Tenure class 7 is another sharecropper class which is distinguished from tenure classes 3 and 4 not owning any agricultural tools. This group probably had little control

Table 3. Tenure class listing and definition.

Tenure Class	Class Type	Definition
1	Owner	Owns and operates own farm. May employ tenants and/or sharecroppers.
2	Operator	Rents land and operates farms. May employ tenants and/or sharecroppers. Also includes farm managers.
3	Share Tenant	Rents land by sharecropping. Supplies own crops and owns tools and equipment to do cultivation.
4	Sharecropper	Sharecrops and works for landlord. Owns tools and equipment to do cultivation
5	Farm Laborer	Works on farm for daily wage. May cultivate a very small plot of land for self.
6	Non-Farm Laborer	Works off farm for wage but lives in rural context.
7	Sharecropper	Sharecrops and works for landlord. Tools and equipment for cultivation are furnished by landlord.
8	Non-laborer	Does not work, receives some form of assistance to get by.
9	Cash Rent Tenant	Pays cash rent for property. Supplies own tools and equipment for cultivation.
10	Owner Non-Farm	Owns rural property but does not farm. Rents out agricultural land to tenants.

over which crops they were planting. They also worked frequently as day laborers doing agricultural or non-agricultural work to supplement their farming income.

Tenure class 8 consists of those persons receiving some type of assistance to get by. This funding could have been either from the government or from a relative or friend.

Tenure class 9 consists of cash tenants. This class is very similar to tenure class 2 except that they do not seem to hire any laborers to help on the farm. They own their own tools and control which crops they plant.

The final tenure class, tenure class 10, consists of owners that are not engaged in any agricultural activities. They rent out their farms to other tenure classes or live on a place of which they are partial owners.

Such a complex breakdown of tenure may seem like overkill. Generally, tenure is viewed as three different classes, consisting of owner/operator, tenants, and sharecroppers, or more commonly two classes, consisting of owners or tenants. These simplified breakdowns ignore the subtle differences that exist between the different classes. As will be shown throughout the remainder of this thesis, there are important differences between each tenure class, and grouping them into only a few categories may obscure these differences.

Tenure classes 1, 2, 3, 4, 5, and 7 are used in the study because of their agricultural basis. Tenure classes 6, 8, and 10 are not included in the study because they are not agriculturally related. Class 9 is also excluded from this study because of the low number in the sample (n=4) and missing information for two of the cases.

Income was also listed based on that reported by the respondents as agriculturally related. This was broken down into different categories such as income from corn, wheat or truck crops and also agricultural labor. Other income, like government work, non-farm labor or timber, was also listed. Few farms of the tenure classes included in the analysis have income from these sources. If the farm did have income from these non-farm sources it was not included in the analysis.

The average number of acres per farm was broken down into several categories. The three main categories are those acres in cultivation, in pasture and in meadow. The remainder of acres not in those categories are either in timber or not in any type of production, while the number of acres set aside for truck crops, meaning fruit or vegetable crops, was not listed, income from these products was. If truck crops were listed, it was noted under income rather than a separate cultivated crop type.

Livestock listed in the files are mainly larger animals. The number of animals was listed under four categories: horses, mules, cattle, and hogs. Horses and mules were grouped together in this study because they generally represent draft animals. Poultry was not listed under the livestock category but the amount of income from poultry was listed under income.

A final category noted was whether the farm had a tractor. This was listed under the equipment inventory. This variable is important to note in that mechanized farming is one of the characteristics of a modern farm.

When income across tenure classes was compared, a statistical difference was noted. The mean income for each tenure class is listed in Table 4. The results are

Table 4. Average income per tenure class.

Tenure Class	Number	Average income
1	19	$2436.54
2	9	$782
3	25	$552.24
4	10	$555.26
5	16	$151.31
7	28	$274.41

predictable in that owners and operators have the highest income while laborers and sharecroppers without tools have the lowest income. The ANOVA analysis returned a F-value of 3.874 and a F-critical value of 2.269. The null hypothesis of equal income is rejected and the alternative hypothesis of unequal income is accepted.

A comparison of acreage across tenure classes only partly reflects the trend seen for income. Table 5 lists the average farm acreage per tenure class. Owners and operators have the largest farms while laborers and sharecroppers without their own tools have the smallest farms. The most interesting result is that sharecroppers owning tools had larger farms than share tenants. This is different from what is reflected in the average income for the two classes where it is about equal. This is probably reflective of the fact that share tenants may have had more control over what they produced than sharecroppers. Like income, a statistical difference exists in the acreage per tenure class. The ANOVA test returned a F-value of 6.567 and a F-critical of 2.277 indicating that there is a difference across tenure classes for total farm acreage.

It was mentioned above that the average farm size is large in the three county study area compared with the remainder of Tennessee (see Table 1). Of the 91 farms subjected to in-depth study, the average farm size is 185.63 acres. This is larger than for Tennessee as a whole and for each of the three study counties.

Livestock on the farm is also an indicator of whether there are differences between tenure classes. As mentioned above, three different classes of animals were listed on the relocation files: horses and mules, cattle, and hogs. A comparison across tenure classes showed that a difference exists between the average number of horses and mules owned

Table 5. Average farm size per tenure class in acres.

Tenure Class	Number of Farms	Average Acreage
1	19	433.47
2	9	274.11
3	25	149.06
4	10	192.00
5	16	3.19
7	28	17.59

by the tenure classes. Table 6 lists the average number of horses and mules per farm by tenure class. The results of the ANOVA analysis returned a F-value of 9.38 and a F-critical value of 2.27. Tenure classes 5 (laborers) and 7 (sharecroppers without tools) were not included in the ANOVA sample because the low average would definitely show a difference.

A statistical difference is seen across all tenure classes in the average number of cattle owned. Owners and operators on average owned more cattle than did the other tenure classes. This is predictable considering the results of the other tests. Table 7 lists the average number of cattle owned per tenure class. The F-value of the ANOVA test run to discern if there was a difference in the means was 2.46 and the F-critical value was 2.26. This shows that there is a difference across tenure classes.

When tenure classes 5 and 7, laborers and sharecroppers without tools, were removed from the analysis a different result was returned. This test showed that no difference between tenure classes exists. The ANOVA test returned a F-value of 1.93 and a F-critical value of 2.70. This shows that there is no statistical difference in the mean number of cattle per farm across tenure classes.

The final livestock category to be considered is hogs (Table 8). The ANOVA test, run to see if there is a difference in the mean number of hogs on a farm, returned a F-value of 3.73 and a F-critical value of 2.27. This shows that a difference across tenure classes in

Table 6. Average number of horses and mules per farm by tenure class.

Tenure Class	Average Number of Horses and Mules
1	3.21
2	2.67
3	3.2
4	2.4
5	0
7	.25

Table 7. Average number of cattle per farm by tenure class.

Tenure Class	Average Number of Cattle Per Farm
1	26.42
2	16.33
3	7.56
4	6.9
5	.5
7	2.64

Table 8. Average number of hogs per farm by tenure class.

Tenure Class	Average Number of Hogs
1	.53
2	.78
3	.2
4	.3
5	0
7	0

the number of hogs owned per farm exists. However, when tenure classes 5 and 7 were removed from the analysis, again a different result was returned. The F-value of the ANOVA test was 1.44 while the F-critical value was 2.70. This indicates that there is no difference in the means across tenure classes 1, 2, 3, and 4.

The use of a tractor on the farm is an important sign of modernization and an indicator of differences across tenure class. Only tenure classes 1, 2, 3, and 4 were considered in this category because they are associated with owning equipment while the other two categories are not. Table 9 lists the breakdown of tractor ownerage per tenure class.

Like the other categories, owners and operators (tenure classes 1 and 2, respectively) on average owned more tractors than did share tenants or sharecroppers (tenure classes 3 and 4, respectively). Though numerically there may be a large difference, statistically there is not. The ANOVA analysis produced a F-value of 1.45 and a F-critical of 2.70. The null hypothesis cannot be rejected, suggesting there is no difference in the average number of tractors per farmstead.

These ANOVA tests indicate that there are differences between tenure classes based on income, size of the farm, livestock, and whether the farmer owned a tractor. These tests indicate that there is variability across tenure class of the farmsteads within the WBR area. Although not surprising, the results of these analyses will help in demonstrating that modernization is a variable between farms and across tenure classes.

Table 9. Average number of tractors owned by tenure class.

Tenure class	Average
1	.53
2	.78
3	.2
4	.3

Architectural Analysis

Architectural analysis has been conducted previously in the Southeast to determine differences across tenure classes and modernization. Cabak and Inkrot (1996) and Ahlman (1995) have used architectural elements of farmsteads to examine modernization. This section will examine the architectural elements of the houses on 42 WBR farmsteads. These farmsteads were chosen based on the amount of sociological and architectural information available. The architectural features of the outbuildings for 41 of these farmsteads will also be examined.

The analyses used in this section will compare the different building techniques, whether they are traditional or modern, across tenure class. Differences in house size and number of floors will be examined using the same type of ANOVA test described previously in this chapter. Other comparisons made in this section are of relative proportions of the different categories. This will lead to the classification of each of the 41 farmsteads as either traditional or transitional. Finally, a t-test will be employed at the end of the section to statistically test for a difference in mean income between transitional and traditional farmsteads.

The data used in these analyses originate from farmstead inventories conducted by TVA agents to assess property value. These inventories contain deed research, the breakdown of acres into crop and soil types, and an inventory of the farm buildings. The farm building inventory includes a listing of the different buildings on the farm, the size of each building, and the construction materials and methods used (except for foundation material in most cases). Unlike the relocation files, these data are not based on an

individual farmstead basis but rather they are grouped by farm owner. This caused confusion when assessing some farmsteads because of the large number of buildings on some farms. This was remedied by comparing the lists to the buildings shown on the Land Acquisition Maps (LAM) and by some files that had field versions of the LAMs which indicated where each building on the list was located. These files are located in Chattanooga, Tennessee in the TVA Land Management Office. In addition, archaeological survey data concerning foundation material are also incorporated in the study.

Previous tests (Ahlman 1995; Inkrot and Cabak 1995; Cabak and Inkrot 1996) have examined differences in house construction to determine differences between tenure classes. These tests have included comparing number of rooms, size of house (usually square feet), and number of stories and doing both relatively and statistically. In addition, types of construction materials have also been considered in an attempt to show that differences in tenure class will be seen in the type of home construction.

Cabak and Inkrot (1996) studied early and mid 19th century farmsteads on the Aiken Plateau in South Carolina and found that there were statistical differences in the house size between operators and tenants. The average operator house size was near 1000 sq. ft. while the average tenant house size was a little over 500 sq. ft.

For the Watts Bar Reservoir farmsteads, house size is a little larger compared to those found on the Aiken Plateau but the difference between tenure class also exists. Table 10 lists the average house size per tenure class. This shows that owners and operators (tenure classes 1 and 2) lived in the largest houses while tenants lived in smaller

houses, which is no real surprise. What is surprising is that tenure class 7 (sharecroppers without tools), which has had the lowest average income and acreage, has a larger average house size than does tenure classes 4 and 5 (share croppers with tools and laborers, respectively). Actually this may be misleading owing to the fact that there were only three houses for tenure class 4 and four for tenure class 5.

The ANOVA test indicates that there is a difference across tenure classes. The F-value for the test is 4.72 with a F-critical of 2.33. This indicates that similar to other variables (income and average farm size) there was a difference in house size across tenure classes.

The number of rooms per house is related to house size, the larger the house the more rooms it contains (Table 10). Therefore, it is not much of a surprise that owners and operators have more rooms on average than do the other tenure classes. The ANOVA test for variance returned a F-value of 5.32 and a F-critical value of 2.33. This indicates that there is a statistical difference in the mean number of rooms per tenure class.

The average number of rooms for all the studied houses is slightly larger than for Tennessee as a whole. The average number of rooms per house for the WBR sample is 4.6 while for Tennessee as a whole it was 4.3 based on a 1935 survey (USDA 1939). This average falls right between the averages of two other East Tennessee counties, Knox with 5.1 and Sevier with 4.1, and just above Bradley County, which had an average of 4.5 rooms per house (USDA 1939). The high average number of rooms for Knox County may be attributable to the fact that it is an urban county.

Table 10. Average house size per tenure class.

Tenure Class	Number	Average house size in sq. ft	Average number of rooms
1	8	1499.75	5.25
2	4	1467.50	6.25
3	13	1075.06	4.69
4	3	682	3.67
5	4	546.00	3.25
7	10	974.80	4.10
Average	42	1134.76	4.60

Construction methods are also considered closely tied to tenure class. Cabak and Inkrot (1996) used construction method to show differences between operators and tenants on the Aiken Plateau. They again found that there were differences between operators and tenants. Their results show that operators tend to use more modern techniques and materials than do tenants.

Based on information from above, modern foundations would be considered concrete although brick could also be included in that category. Limestone foundations would be considered traditional. Table 11 lists the type of foundation material per tenure class. The unknown foundation type represents those sites recorded on the reservoir beach where no foundation remains exist because of erosion. Due to this factor, only 29 houses are considered in the foundation analysis.

The most common foundation for tenure class 1 houses was brick followed by limestone. No houses with concrete foundations were recorded. For tenure class 2, brick and limestone foundations were equally chosen. This is misleading, however, since the foundations of only two houses were recorded and are used in the sample. The most common foundation for tenure class 3 was limestone, and brick was the second most common. Of the 29 houses with a known foundation material, only one had a concrete foundation and this was in tenure class 3. One tenure class 4 home had a brick foundation, one had a stone foundation, and one was unknown. Stone was the most frequently used foundation material for tenure class 5. It was used for three homes while brick was used at one home. Tenure classes 4 and 5 are questionable in their representation of their respective tenure classes because of the low number in the sample.

Table 11. Type of building materials used in housing per tenure class.

Building Method	1	2	3	4	5	7
Foundation						
Brick	3	1	3	1	1	1
Concrete	0	0	1	0	0	0
Limestone	2	1	6	1	3	6
Unknown	3	2	3	1	1	3
Construction						
Frame	2	3	4	0	1	2
Brick	0	1	0	0	0	0
Box	4	0	8	2	1	6
Log	0	0	0	0	0	2
Log & Box	0	0	0	1	2	0
Log & Frame	0	0	1	0	0	0
Brick & Frame	1	0	0	0	0	0
Roofing						
Shingle	3	2	2	0	0	3
Metal	2	2	8	1	2	4
Composite	1	0	1	0	0	1
Board	1	0	1	0	0	2
Board & Composite	1	0	0	2	0	0
Metal & Board	0	0	1	0	0	0

The most common foundation type for tenure class 7 was limestone with one house having a brick foundation.

These results indicate that though there are differences in other categories for the tenure classes, foundation material does not necessarily correlate with tenure class. All the tenure classes have at least one brick foundation and tenure class 3 has the only concrete foundation. Limestone foundations or piers are the most common overall, and their appearance in each tenure class is indicative of the fact that tenure may not affect modernization.

Construction method of the house is another indicator of modernization as mentioned above. As shown in Table 11, frame and box construction are the two most common construction methods. These methods far exceed the other construction methods. Of the 42 houses examined, 21 were of box construction and 12 were of frame construction. These two more modern techniques were used in combination on one house and were used in various forms as additions or improvements on five houses. Two houses were made of brick with one having a frame addition.

Traditional log construction was noted for total or partial construction of six of the houses. Four of these houses had additions or they were additions to another house that was of box or frame construction. A form of log construction was used by tenure classes 3, 4, 5, and 7 but not classes 1 and 2. The fact that log housing was used by lower tenure classes indicates some differences in construction methods. It does not really indicate that tenure is determinate in housing, however, since box construction was the dominate housing type across tenure class.

The final construction method to be considered for the farmstead houses is roofing type. A multitude of different roofing types were in use in the early 20th century. The most common roofing type for all tenure classes was metal roofing, found on 20 houses. Tenure classes 3 (n-8), 5 (n=4) and 7 (n=4) had the largest number of dwellings with metal roofing within their respective classes. Shingle roofing was present on three tenure class 1 (owners) homes, two tenure class 2 (operators) homes, two tenure class 3 (share tenants) homes, and three tenure class 7 (sharecroppers without tools) homes. Composite roofing was present at one house each for tenure classes 1, 3 and 7. Wood shingle or board roofing was present at one tenure class 1 home, one tenure class 3 home, and two tenure class 7 homes. A combination of board and another material was seen at one tenure class 1 home (board and composite), one tenure class 2 home (board and metal), and two tenure class 7 homes (board and composite).

The occurrence of shingle roofing on houses of four of the tenure classes and metal roofs across all tenure classes, in addition to board roofing seen in four tenure classes, indicates that acceptance and utilization of these materials is not restricted to tenure classes 1 and 2. It seems that it is just as likely to have a roof of either shingle or metal versus board on any tenure class home.

The occurrence of a modern foundation, construction material and roofing at a single house indicates a total modern home, but a combination of traits shows an integration of modern and traditional elements or a transitional home. Since only one home had a concrete foundation, it would be logical to predict this dwelling would be of frame construction and have a shingle roof. This prediction was close, the house was of

frame construction and it had a metal roof. This indicates that home builders were not always utilizing the most modern methods when constructing a new house but were relying on materials known to be quality materials in conjunction with modern techniques.

There does not seem to be a trend in acceptance and use of modern construction methods and materials across tenure class. As can be seen in Table 12, there is no pattern in preferred or common construction methods by tenure class. For instance, board, composite, metal, and shingle roofing is used by tenure class 1 (owners) and the same is true for tenure class 7 (sharecroppers without tools). The only difference between tenure classes that can be seen is that tenure classes 1 and 2 have no houses constructed of log while the lower tenure classes have a few homes that are of log construction. Outside log construction, construction methods appear not to be associated with any particular tenure class.

The appearance of traditional construction methods, i.e., limestone foundations or log construction, with modern construction methods, i.e., frame construction or shingle roofing, shows that traditional and modern characteristics appear in conjunction. This appearance is similar to what the new modernization theorists are saying about modernizing nations, that is the presence of traditional features on a farm does not necessarily mean that it is traditional, but rather indicates an integration of modern into the existing traditional infrastructure. More importantly, this shows that homes in the Watts Bar Reservoir were beginning to move toward modernization. Thus, they were modernizing.

Table 12. Construction methods per tenure class. Construction methods are arranged by foundation/construction material/roofing material.

Construction Methods	1	2	3	4	5	7	Total
Concrete/Frame/Metal	0.00	0.00	1	0.00	0.00	0.00	1
Brick/Brick & Frame/Shingle	1	0.00	0.00	0.00	0.00	0.00	1
Limestone/Brick/Shingle	0.00	1	0.00	0.00	0.00	0.00	1
Brick/Frame/Metal	0.00	0.00	1	0.00	0.00	0.00	1
Brick/Frame/Shingle	1	1	2	0.00	0.00	1	5
Limestone/Frame/Metal	0.00	0.00	0.00	0.00	1	1	2
Unknown/Frame/Metal	0.00	2	0.00	0.00	0.00	0.00	2
Unknown/Frame/Board	1	0.00	0.00	0.00	0.00	0.00	1
Brick/Box/Metal	1	0.00	0.00	1	0.00	0.00	2
Limestone/Box/Metal	0.00	0.00	4	0.00	0.00	2	6
Limestone/Box/Board	1	0.00	0.00	0.00	0.00	1	2
Limestone/Box/Composite	1	0.00	1	0.00	0.00	0.00	2
Limestone/Box/Metal & Board	0.00	0.00	1	0.00	0.00	0.00	1
Unknown/Box/Metal	0.00	0.00	1	0.00	1	1	3
Unknown/Box/Shingle	1	0.00	0.00	0.00	0.00	2	3
Unknown/Box/Board	0.00	0.00	1	0.00	0.00	0.00	1
Unknown/Box/Board & Composite	0.00	0.00	0.00	1	0.00	0.00	1
Limestone/Log/Composite	0.00	0.00	0.00	0.00	0.00	1	1
Limestone/Log/Board	0.00	0.00	0.00	0.00	0.00	1	1

Table 12. Continued.

Construction Methods	1	2	3	4	5	7	Total
Limestone/Log & Box/Metal	0.00	0.00	1	0.00	1	0.00	2
Unknown/Log & Frame/Metal	0.00	0.00	1	0.00	0.00	0.00	1
Limestone/Log & Box/Metal & Board	0.00	0.00	0.00	1	0.00	0.00	1

Another indicator of tenure differences and modernization is seen in outbuildings. Types of outbuildings have been shown to be correlated to tenure class (Cabak and Inkrot 1996). On the Aiken Plateau a higher percentage of owner/operator farms had machinery sheds, garages, and other outbuildings characterizing modernization. In addition to types of buildings, number of outbuildings and type of construction methods can also be indicators of modernization and tenure class differences.

One farmstead was excluded from this analysis of outbuildings (reducing the number to 41) because one house of tenure class 7 was on the farmstead of his landlord. It is assumed that this person did not use any of the outbuildings independently of his landlord.

Twenty different types of outbuildings, including cisterns and wells, existed on Watts Bar area farmsteads (Table 13). The most common outbuilding on all farmsteads was the outhouse, found on 32 farms. This sanitary method, though traditional, is also indicative of a modern farmstead element. Whether the privy was lined with brick or concrete is a sign of a true sanitary privy, but limited archaeological testing carried out on the WBR sites did not reveal whether any of the privies were lined or not. The fact that a privy was used on a farm, rather than indoor plumbing with a septic tank, is probably more characteristic of a lack of electricity for a pump to provide the house with indoor plumbing.

Table 13. Types of outbuildings present on WBR farmsteads.

Outhouse	Shed
Barn	Tool Shed
Chicken House	Shop
Smoke House	Cellar
Crib	Tractor House
Cistern	Dairy
Well	Berry Shed
Hog House	Silo
Garage	Stable
Wood Shed	Potato House

The second most common building on farms was the barn (n=27), followed by the chicken house (n=26). Although there are many different types of barns, i.e., hay, stock, or general, they were all combined for this study. Chicken houses and barns represent the raising of livestock and the diversification of the valley farmer.

The fourth most common building on the WBR farmsteads represents a tradition that is probably still found on some farms today. Smokehouses were recorded on 21 of the studied farmsteads. The presence of these buildings represents the mix of modern and traditional features stressed by the new modernization theorists. Corn cribs or granaries were the fifth most common building on farms in the study area. These represent storage of grain, an indication of surplus crops.

The remaining buildings all have a frequency of less than ten. These buildings cover a wide variety of types. These include garages and tractor sheds, berry sheds, potato houses, shops, stables, and several others. These buildings are also good indicators of modernization either by their function; e.g., a garage or tractor house symbolizes mechanization, or how they are constructed; e.g., having a concrete foundation or having a shingled roof.

As can be seen in Table 14, building type is fairly dispersed across tenure class. There is at least one outbuilding of the five most common types represented in each tenure class, except for smoke houses in tenure class four. As a general trend, a higher percentage of tenure classes 1 and 2 farms (owners and operators) have the top four outbuildings on them than do the other tenure classes.

Table 14. Number of each outbuilding type across tenure class.

	Tenure class					
Outbuilding	1	2	3	4	5	7
Outhouse	8	4	8	3	2	8
Barn	6	4	11	2	1	3
Chicken house	4	4	7	3	1	7
Smoke house	7	4	6	0	1	3
Crib	3	2	4	2	1	2
Cistern	2	3	1	2	1	2
Well	5	1	4	0	0	1
Hog house	3	2	1	0	0	3
Garage	3	2	2	0	0	2
Wood shed	2	1	3	2	1	1
Shed	1	0	2	1	1	0
Tool shed	1	3	0	0	0	0
Shop	3	0	0	0	0	0
Cellar	0	2	1	0	0	1
Tractor house	0	2	0	0	0	0
Dairy	1	1	0	0	0	1
Berry shed	1	0	0	0	0	0
Silo	0	2	0	0	0	0
Stable	0	0	0	1	0	0
Potato house	0	1	0	0	0	0

Tenure classes 1 and 2 have a higher average number of outbuildings then do the other tenure classes (Table 15). The other tenure classes have lower than six outbuildings per farmstead. These results indicate a difference across tenure class in the average number of outbuildings per farmstead.

An interesting result of the average number of outbuildings per farmstead is that tenure class 2 had a higher average then did tenure class 1. Three of the four farmsteads with the highest number of outbuildings were operated by farmers of tenure class 2. Additionally, all the silos and tractor sheds were recorded on tenure class 2 farmsteads. It is not surprising that these structures were on farms of this tenure class; however, that they did not appear on tenure class 1 farms is surprising.

The six most numerous outbuildings along with the garage/tractor house, cistern, well and silo were subjected to analysis of construction method. This analysis was conducted in a similar manner as that for the farmstead homes. One hundred sixty eight outbuildings from 41 farmsteads were analyzed in this manner.

The foundation material for many outbuildings is unknown for the same reasons as indicated for the houses. One reason is foundation materials were usually eroded away on sites recorded on the beach. For sites recorded above the reservoirs cutbank, the foundation material for the outbuildings may have been removed when the farmstead was salvaged by the occupants prior to reservoir construction, the outbuilding had no foundation, or they rested on wood piers that have deteriorated to where they would be visible only with excavation.

Table 15. Average number of outbuildings across tenure class.

Tenure Class	Average Number of Outbuildings
1	7.25
2	12.75
3	4.38
4	5.67
5	3.67
7	3.67

The most common foundation material for all the outbuildings was limestone. Of buildings with known foundations, 27 had stone piers or foundations. This constitutes 16.27% of the total outbuildings and 77.14% of buildings with known foundations. Concrete was the other known foundation material. Eight foundations were made of concrete which made up 4.82% of all outbuilding foundations and 22.86% of the foundations of known material.

Construction method information was gained from archival inventory files. There were three main construction methods: box, frame, and log. Combinations of these methods existed but they were very rare. Usually the outbuilding was built with a single construction method.

The most common construction method was box followed by log than frame. There were four buildings constructed of both frame and box methods. Box construction constituted 138 (82.14%) of the outbuildings being studied. This probably represents economical savings for the farm since box construction was cheaper than frame construction. Thirteen outbuildings (7.74%) were built of logs making it the second most popular construction method. One barn, five cribs/granaries, two smoke houses, and five chicken houses were made of log. Frame construction was used for 10 outbuildings (5.95%). Three barns, three smoke houses, one chicken house, one garage, and two outhouses were frame. Two outhouses (1.19%) were of unknown construction (1.19%). One barn, one crib/granary, one chicken house, and one garage were made of box and frame construction (four buildings making up 2.39% of the total outbuildings being studied).

Roofing is the last variable to be examined. Wood (58 roofs, 34.52%) and metal (57 roofs, 33.93%) are the two most common roofing materials. Composite/tar paper was the third most common roofing material covering 35 roofs (20.83%). Asphalt or asbestos shingles were present on twelve roofs (7.14%), and metal and shingles were present on one roof (.59%). Five roofs had an unknown roofing material.

In-depth analysis of each outbuilding type gives insight into how modernization is occurring on individual outbuilding types. Since modernization of the farmstead is not an instantaneous event, it is a good idea to look at individual outbuilding types. Of the 16 barns with known foundation material, 13 (81.25%) were of stone and three (18.75%) were of concrete. Of the stone foundations, one was on a tenure class 1 farm, two on tenure class 2 farms, seven on five tenure class 3 farms and two on tenure class 7 farms. One tenure class 1 farm had a barn with a concrete foundation and one tenure class 7 farm had two barns with concrete foundations. The buildings with concrete foundations represent new construction and an improvement on the farmstead.

The construction method of the barns was heavily weighted toward box construction. Thirty one (88.57%) of the 35 barns were constructed by that method while three (8.57%) were frame and one (2.86%) was built of log. All the barns with concrete foundations were box while one frame building with a known foundation was stone. This frame barn with a stone foundation was on a tenure class 3 farm. The other two frame barns had unknown foundation materials.

Eighteen barns (51.43%) had metal roofing making it the most popular roofing material. Board roofing was the second most popular covering nine barns (25.71%),

composite/tar paper was third most popular covering six barns (17.14%), and two barns (5.71%) had asphalt or asbestos shingles.

Fifteen of the metal roofed barns were box and three were frame. The three barns with concrete foundations were box construction and had metal roofs. All the board roofed barns were box except for the single log building. The composite and shingle roofed barns were all box with stone or unknown foundations. Composite and shingle roofed barns represent improvements to a barn or a combination of traditional methods (stone foundations) and modern methods (composite or shingle roofing).

Of the 14 cribs, only one crib had a known foundation stone. This crib was on a tenure class 2 farmstead. The majority of unknown foundation materials of the cribs is due to the majority being on sites recorded on the beach. Construction method may have been a factor since the log buildings may have been built without piers or foundations.

Eight cribs (57.14%) were box, five (35.71%) were log, and one crib (7.15%) was of box and frame construction. This large number of log cribs is not unusual. A survey of traditional architecture in the Normandy Reservoir, in Middle Tennessee, revealed that log cribs were still present on farms into the 1970s (Riedl et al. 1976). In the Tellico Reservoir on the Little Tennessee River, just east of the study area, log cribs were also present on farms into the 1960s (Carnes 1980). Although log construction is a traditional method of construction for cribs, its persistence into the 1970s in other areas of Tennessee makes it logical that farms in Watts Bar may have had log cribs.

Roofing materials for the cribs consisted of four (28.52%) with metal roofs, six (42.86%) with board roofs, three (21.42%) with composite roofs, and one (7.15%) with a

shingle roof. Three of the box cribs and one log crib had metal roofs. Three of the log and three of the box cribs had board roofs. The composite roofs were all on box cribs. The occurrence of a shingled roof on a log crib is another indicator of the co-occurrence of traditional and modern features.

Twenty-three smokehouses were noted on 22 of the 41 farmsteads with only one farmstead having two smokehouses. The majority of smokehouses (n=16, 69.57%) did not have any identified foundation material. Five smokehouses (21.73%) had a stone foundation and two smokehouses (8.70%) had a concrete foundation. No single smokehouse foundation may be prevalent since Reidl et al. pointed out that smokehouses in the Normandy Reservoir rested "directly on the ground" while those with a "raised wooden floor might well have served as 'meathouses'" (Reidl et al. 1976:109). Two smokehouses recorded on the Aiken Plateau did not have foundations but sat on the ground (Brooks and Crass 1995:49, Fig 8. p. 53, Fig 15. p. 61). The majority of the sites with smokehouses were recorded on the beach so erosion probably removed most foundation materials.

Like the other outbuildings, box construction was the most popular for smokehouses. Eighteen smokehouses (78.26%) were box while two were log (8.70%) and three were frame (13.04%). Three of the box smokehouses sat on stone foundations while the remainder had unknown foundations. One frame smokehouse had a concrete foundation. One of the log smokehouses had a stone foundation while the other one had a concrete foundation.

The most common roofing material for smokehouses was metal, which was found on ten smokehouses (43.48%). Wood/board was used as roofing on nine smokehouses (39.13%). Asphalt or asbestos shingles were used on three smokehouses (13.04%) and composite/tar paper covered one smokehouse (4.35%). Eight of the box smokehouses had metal roofing, eight had board roofing, one had a shingle roof and one had a composite roof. The log smokehouse with a stone foundation had a board roof while the log smokehouse with a concrete foundation had a metal roof. Two of the frame smokehouses had shingle roofs and the third had a metal roof.

Chicken houses were found on 25 out of 41 farmsteads but were the most frequently recorded outbuilding with a total of 39. Most farmsteads had only one chicken house and nine had more than one. The most chicken houses on any one farm was five. The chicken house is also a traditional building, and it, like the smokehouse, continued to exist on area farmsteads well into the 1970s (Reidl et al. 1976; Carnes 1980).

Thirty-three of these buildings (84.62%) had an unknown foundation material while five (12.82%) had a stone foundation or piers and one (2.56%) had a concrete foundation. The unknown nature of chicken house foundation is not unexpected. Most chicken houses probably did not have concrete or stone foundations but simply rested on the ground or had wooden piers. Another method was to rest the chicken house on skids to move it around the farm and put it in a clean place every year (Carter and Foster 1941:231; Bullock 1944:377-381)

The construction method for chicken houses was heavily weighted to box, accounting for 32 (82.05%) of the 39 structures. Of the remaining seven, five were of log

construction (12.82%), one was frame (2.56%), and one was of frame and box construction (2.56%). One box chicken house had a concrete foundation while three had stone foundations. The remainder of the box chicken houses did not have identified foundation materials. Both a log and a frame chicken house had a stone foundation. The other log, frame and box, and frame chicken houses did not have any identified foundation material.

The two most common materials used for roofing were board/wood and composite/tar paper. Sixteen chicken houses (41.03%) had board roofing while 15 chicken houses (38.46%) had composite roofing. The other two materials used were metal on seven chicken houses (17.95%), and asphalt/asbestos shingles on one chicken house (2.56%). This pattern is slightly different than that found in the Normandy Reservoir survey where all of these buildings recorded had metal roofing (Reidl et al. 1976:113).

All the log chicken houses had board roofs, as was the same with ten of the box buildings. Board roofing was used on the frame chicken house with a stone foundation. All the metal and composite roofed chicken houses were constructed of box or box and frame. The one chicken house with a concrete foundation had a composite roof.

The high number of board and composite roof chicken houses indicates the low investment that probably went into constructing these buildings. This could also be true of wall construction methods and the foundation. Box construction was a low cost construction method; therefore, it would not be that unusual to see it used for building

chicken houses. Having no foundation or utilizing local resources is another way to make low cost outbuildings. All this is evident when examining the recorded chicken houses.

The outhouse occurred on the most farmsteads (32 of 41 farms), signifying a tradition but at the same time being a marker of sanitation that is a characteristic of the modern farmstead. Thirty-three outhouses were recorded across all tenure classes. Seventy eight percent of all farms had an outhouse.

The foundation material for most of the outhouses is unknown. Thirty-one foundations were unknown (93.94%) while one was stone (3.03%) and one was concrete (3.03%). There were no indications in any of the *Farmers' Bulletins* or books describing the desired outhouse foundation material. A privy noted in the Normandy Reservoir survey appeared to have concrete foundation (Reidl et al. 1976) and a privy on the Aiken Plateau also had a concrete foundation (Crass and Brooks 1995: Fig 18, p. 64, 141).

Twenty nine of the outhouses were of box construction (87.88%) while two were frame (6.06%) and two were of an unknown construction type (6.06%). The use of box is an indicator of expedient and economical construction. Of the four outhouses with known foundation material, all were of box construction.

The roofing material was a little more diverse than the foundation material and construction methods. The most common roofing material was metal, present on 12 of the 33 outhouses (36.37%). All the privies recorded in the Normandy Reservoir survey had metal roofs (Reidl et al. 1976:115) as did the privy recorded on the Aiken Plateau (Crass and Brooks 1995:55). Board and composite were the next two popularly used materials, both present on seven outhouses (21.21% each). Asphalt or asbestos shingles

were recorded for two of the outhouses (6.06%) and five had an unknown roofing material (15.15%). The board roofed privies probably represent traditional or older outhouses. The composite and shingle roofed privies represent either new outhouses or improvements to the existing privies.

Twelve hog houses were present on ten of the 41 farmsteads. Only one hog house had a known foundation and it was stone (8.33%). The other eleven foundations were unknown (91.67%). All the hog houses were box. Roofing for the hog houses consisted of five having composite roofing (41.67%), four having board roofing (33.34%), two with metal roofs (16.66%), and one with a shingle roof (8.33). All these structures were box buildings. The one hog house with a stone foundation had a metal roof.

Twelve garages or tractor houses were present on nine farmsteads. Of the 12, two had stone foundations (16.66%), two had concrete foundations (16.66%), and the other eight had unknown foundation materials. Ten of these buildings were of box construction (83.33%), one was frame (8.33%), and another was box and frame (8.33%). The one frame garage had a concrete foundation with a concrete driveway. A box garage sat on the other concrete foundation. Two of the box garages had stone foundations while the remainder of the garages or tractor houses had unidentified foundations. The roofing material for the garages and tractor houses consisted of four metal (33.34%), seven wood (58.33%), and one metal and shingle roof (8.33%). All the metal roofed buildings were box. Six of the board roofed buildings were box and one was the frame garage with a concrete foundation and drive. The box and frame garage had a metal and shingle roof.

Silos are another sign of farm modernization. Three concrete silos were recorded on two farmsteads. Several more concrete silos were recorded on farms throughout the valley but the farmsteads on which they were located were not included in the study for various reasons. All the silos were recorded on tenure class 2 farmsteads.

Wells and cisterns are considered traditional but at the time, with most homes without electricity, they could be considered modern if they were built a certain way. As demonstrated above, wells or cisterns should have a concrete curb and be partially lined with concrete, tile or brick. Twelve cisterns were recorded on 11 farms and 11 farms had wells. The building method for five cisterns and seven wells is unknown, either due to the fact they were filled in completely so that the construction method could not be discerned, or they were associated with a site recorded on the beach and no evidence of these features was found.

Four cisterns on three farms were brick lined with a concrete curb. One cistern was brick lined and may have had a concrete curb. This cistern was recorded on the beach and erosion had greatly affected the site. The final cistern was limestone lined. Of the wells, one was brick lined with a concrete curb, two were concrete with a concrete curb, and one was tile with a concrete curb.

The combination of traditional and modern building methods on buildings associated with modern technology, such as garages or tractor houses, indicates several interesting cultural patterns. One is that new buildings were built on old foundations indicating improvements to the farm and the economical nature of the farmer. Another

pattern is that older buildings were possibly recycled for use with newer ideas. For example, the old wagon shed would become a garage or tractor shed.

The changing nature of the Upland South farmstead is a characteristic of these farms. The analysis of the WBR outbuildings indicates that farm occupants were incorporating modern technologies with traditional technologies when constructing or repairing outbuildings. All this can be considered part of the modernizing farmstead grounded in principles of modernization theory.

Individual Farm Analysis

The analysis of individual outbuilding types indicates that overall modernization was occurring on the farmsteads in the valley. Buildings with concrete foundations, frame or box construction and shingle or composite roofing all support this conclusion. However, such analysis does not show the extent to which modernization was occurring on individual farms. The transitional farmstead should have both traditional elements and modern elements. To examine this, each individual farm was classified by the number of traditional and modern characteristics it exhibited.

Modern farm characteristics are based on what was considered a modern farmstead in the early 20th century (see Chapter 3). Modern building elements include a concrete foundation, frame or box construction, asphalt or asbestos shingles or composite/tar paper roofing, concrete silo, and mechanized farming that can be recognized by a tractor, tractor shed or garage. Since electricity was not available to most homes in the valley before reservoir construction, indoor plumbing was not possible. Therefore, a

privy and a cistern or well with a concrete curb signifies the most modern sanitation facilities available to the farmer.

Traditional elements on the farm consist of those characteristics identified by Newton (1974) and others (Jurney and Moir 1987; Moir and Jurney 1987; Rotenizer 1992). Traditional building construction consisted of stone foundations or piers, log construction, and wood shingles. Traditional farming was based on animal labor. The privy, cistern or well may be unlined with no curb or a wooden curb. The presence of a smokehouse or meathouse is also traditional.

There are several elements that may be common to both traditional and modern farmsteads. For instance, brick foundations can occur early but were also considered a very viable foundation material in the early 20th century. In addition, metal roofing is considered traditional but it, too, was considered as a viable material in the early 20th century because of its durability and economical pricing.

To determine whether a farmstead was modernizing (i.e. transitional) or traditional, each building and characteristic of an individual farm was examined and classified as to whether it was modern, traditional or common to both categories. In addition, the occurrence of a privy, cistern or well, silo, tractor, or smoke house was considered. The number of elements by class was then used to determine whether the farmstead was traditional or in the process of modernizing.

Determining whether a farmstead can be considered in the process of modernizing or still retaining mainly traditional characteristics is a fairly subjective venture. A key element to consider is if the traditional elements outnumber the modern elements. For

instance, 40RH200 has three traditional elements and one modern element (see Table 16). The traditional elements consist of a log chicken house with a board roof and a board roof on the modern box house.

If the modern elements outnumber the traditional elements the farmstead can be considered a transitional farmstead. For instance, 40MG224 is a good example of a modernizing farmstead. Some of the modern elements on the farm include a frame smokehouse with a shingled roof, a frame garage with a concrete foundation, a frame outhouse and a well with brick lining and a concrete curb. The traditional elements include board roofing on three roofs and stone foundations for many of the buildings.

Other things to consider when classifying farmsteads is whether they are mechanized or not, whether there is a concrete silo, adequate sanitation facilities (outhouse, cistern or well), absence of traditional elements in conjunction with modern elements such as a garage (indicating a motorized vehicle), and if there is running water and electricity in the house.

When these characteristics are combined they result in a very subjective classificatory system. It is difficult to classify a specific farmstead as traditional or modern without examining multiple farmsteads from the same area. That is why this scheme should be used very tentatively on a single farmstead without having other farms to compare it to.

Using the variable set discussed above, each of the 41 farmsteads were classified as traditional or transitional. The results, shown in Table 16, indicate that 14 of the 41 farms could be considered traditional and 27 could be considered transitional. This breakdown

Table 16. Classification of WBR farmsteads into traditional and modernizing categories.

Site #	Ten	Mod Elem	Trad Elem	Com Elem	Privy	Cist	Well	Silo	Trac	Sm. H.	Class
40MG241	1	8	7	3	Y	N	Y	N	Y	Y	TS
40MG230	1	6	7	0.00	N	N	Y	N	N	Y	TD
40RE216	1	4	2	1	Y	N	N	N	N	Y	TS
40RH199	1	4	2	3	Y	Y	Y	N	N	Y	TS
95-42	1	18	7	2	Y	N	N	N	N	Y	TS
95-57	1	9	7	1	Y	N	Y	N	N	Y	TS
94-22	1	18	2	6	Y	Y	N	N	Y	Y	TS
96/167	1	5	2	2	Y	N	N	N	N	N	TD
40RH216	2	20	7	4	Y	Y	N	Y	Y	Y	TS
96/76	2	16	0.00	4	Y	N	Y	N	Y	Y	TS
94-15	2	11	1	6	Y	Y	Y	Y	Y	Y	TS
40RH208	2	16	10	4	Y	N	Y	N	Y	Y	TS
40MG225	3	8	6	3	Y	N	Y	N	N	Y	TS
40MG224	3	10	7	5	Y	N	Y	N	N	Y	TS
40MG227	3	6	5	1	N	N	N	N	N	Y	TS
40MG246	3	3	1	2	N	N	N	N	N	N	TS
40MG223	3	2	2	1	N	N	N	N	N	N	TD
40RE208	3	7	2	5	Y	N	N	N	Y	Y	TS
40RH200	3	1	3	0.00	N	N	N	N	N	N	TD
95-4	3	2	2	2	N	N	N	N	N	N	TD
95-133	3	5	2	3	Y	N	N	N	N	N	TD
95-43	3	4	4	4	Y	N	N	N	Y	Y	TD
96/143	3	8	1	3	Y	N	N	N	N	Y	TS
94-21	3	1	1	1	N	N	Y	N	N	N	TD
95-63	4	8	4	0.00	Y	N	N	N	N	N	TS
40RH218	4	7	6	1	N	Y	N	N	N	N	TS
40RH211	4	5	6	2	Y	Y	N	N	N	N	TD

Table 16. Continued.

Site #	Ten	Mod Elem	Trad Elem	Com Elem	Privy	Cist	Well	Silo	Trac	Sm. H.	Class
40MG226	5	2	2	1	Y	N	N	N	N	N	TD
96/168	5	3	2	0.00	N	N	N	N	Y	N	TS
40RH210	5	4	2	2	Y	Y	N	N	N	Y	TS
94-25	5	4	2	2	Y	N	N	N	N	N	TD
40RE215	7	3	2	2	Y	N	N	N	N	N	TD
40RE212	7	7	7	3	Y	N	Y	N	N	Y	TS
40RE217	7	3	1	2	Y	N	N	N	N	N	TD
95-108	7	0.00	3	0.00	N	N	N	N	N	N	TD
40RE182	7	14	3	5	Y	N	N	N	N	N	TS
40RH206	7	6	6	2	Y	N	N	N	N	Y	TS
94-24	7	5	1	1	Y	N	N	N	N	N	TS
40RH202	7	5	1	2	Y	Y	N	N	N	Y	TS
96/163	3	8	4	2	Y	Y	N	N	Y	N	TS
40RH204	7	3	3	0.00	Y	N	N	N	N	N	TD

Ten = Tenure
Mod Elem = Modern Elements
Trad Elem = Traditional Elements
Com Elem = Common Elements
TS = Transitional
Cist = Cistern
Trac = Tractor
Sm. H. = Smoke House
N = No Y = Yes
TD = Traditional

shows that a majority of the farms in the Watts Bar area were progressing toward what was considered a modern farm in the early 20th century.

One of the hypothesis tested in this thesis is that even though there are differences across tenure class of the farmsteads based on income, acres in production, livestock, etc., modernization of WBR farms were not totally affected by tenure class. As can be seen by the results of the classification, transitional farmsteads occur in all tenure classes. Seven of eight farmsteads of tenure class 1 are classified transitional. In tenure class 2 all the farmsteads are considered transitional. Seven of the tenure class 3 farms are transitional and six are traditional. Two tenure class 4 farms and one tenure class 5 farm are transitional while one tenure class 4 farm and three tenure class 5 farms are considered traditional. There were five tenure class 7 farms that could be considered transitional while four could be considered traditional. That more than half the farmsteads in each tenure class, except tenure class 5, could be considered to have been transitional indicates that modernization was not dependent on tenure class; instead, the transitional stage may relate to other ideological choices that are not indicated directly in architectural or archaeological remains.

It is very likely that income played a significant role in modernization. The average income in 1939 for the transitional farmsteads was $1134.84 while the average income for those farmsteads classified as traditional was $244.36. However, the income of the transitional farms is inflated because of one farm. The income for farm 94-22 was $14121 in 1939, a figure about ten times more than the next closest income. If this income is removed, the average income for transitional farms is $613.36.

A t-test assuming unequal variance with a 95% confidence interval was run to determine if there is a difference in income between transitional and traditional farmsteads. Both the t-test including the 94-22 ($t=1.68$, $df\ 25$, $p=.05$) income and the one A t-test excluding the 94-22 income ($t=3.68$, $df\ 32$, $p=.0004$) indicate that there is a statistical difference between the incomes.

It is important to note, however, that there are four transitional farmsteads with an income of $200 and under ($50, $96, $189 and $200) and seven with an income above $1000. Six traditional farmsteads had an income of less than $200 and one had an income of over $1000. This indicates that even farmers who were not earning much money were still making improvements and that farmers having higher incomes were maintaining traditional ways in their building construction.

CHAPTER SIX

ARCHAEOLOGICAL ANALYSIS

Previous archaeological studies of traditional 18th and 19th century Upland South farmsteads have attempted to define traditional architectural features and artifact patterns (Faulkner 1984; McCorvie 1987; Jurney and Moir 1987; Moir and Jurney 1987; Garrow et al. 1989; McCorvie et al. 1989; Rotenizer 1992). Archaeological testing of four WBR transitional farmsteads was conducted to discern if a transitional Upland South farmstead artifact pattern can be defined for these 20th century sites. Groover (1993) has shown that there was no distinctive Upland South artifact pattern in the several traditional Upland South farmsteads studied by him. Given this, there may not be an artifact pattern typical of transitional farmsteads.

Field Methods

Limited archaeological testing of four Watts Bar transitional farmsteads (see Figure 2) was undertaken to examine the material culture of these farmsteads. This testing involved systematic shovel testing of the site to discern the extent of the artifact scatter over the farmstead. Shovel tests (STPs) were placed at ten meter centers on a grid line across the site. The direction of the line was based on the layout of the farm. Each STP was approximately 30 cm in diameter and was excavated to sterile subsoil. Sterile subsoil was reached at approximately 30-40 cm below surface in most of the STPs. Excavated

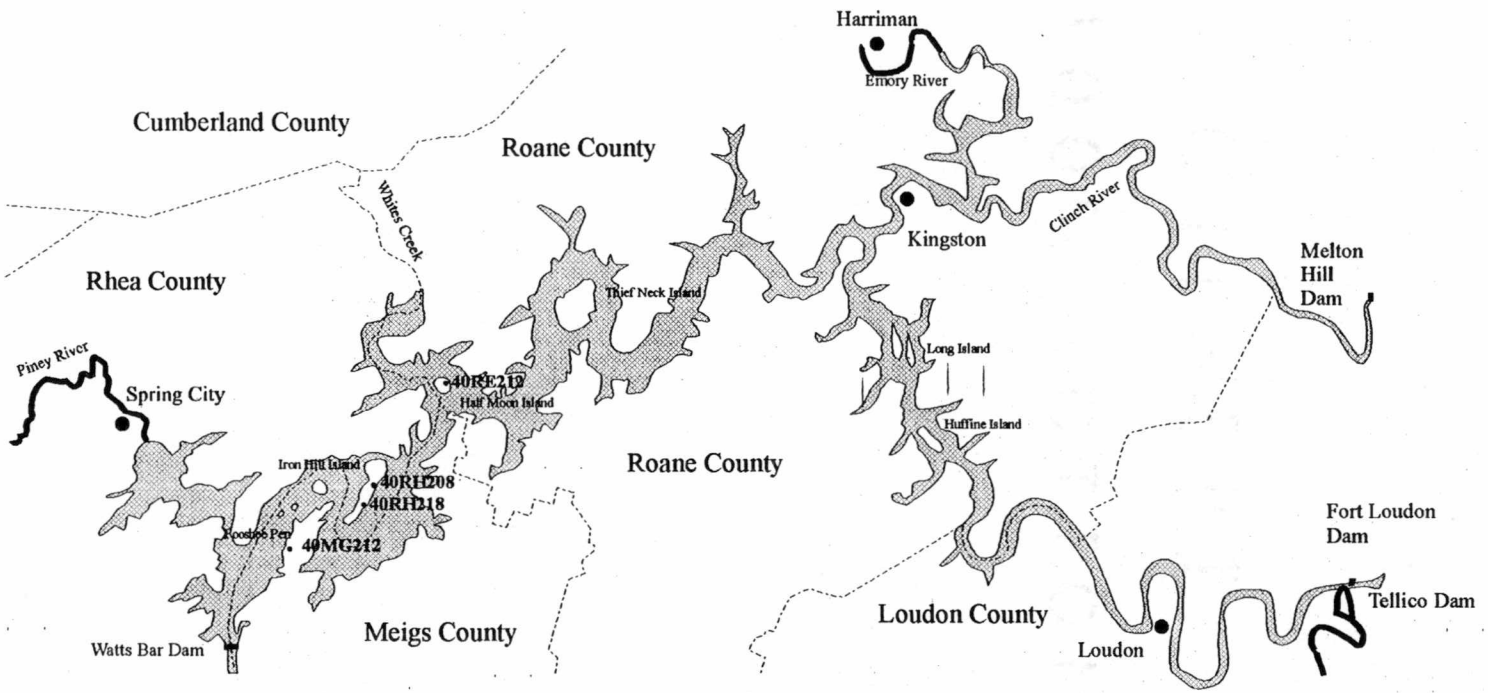


Figure 2. Location of four archaeologically tested farsmteads.

soil from each STP was screened through 1/4" hardware cloth and all cultural materials, except brick and mortar which were noted on field forms, were retained and returned to the laboratory for processing. Each STP was sequentially numbered with the line number first and the STP number on that line second. Soil characteristics for each STP were noted on field forms.

In addition to systematic grid shovel testing, STPs were excavated around the major buildings such as the house, barn, smokehouse, and privy. The testing of specific buildings was determined by the type and number of buildings on the site and by the time allotted for testing of the site. Testing around the dwelling on each farmstead consisted of a series of STPs placed one meter outside of the footers and foundations where the walls stood. The first STP on the line was excavated one meter off a corner of the house and subsequent STPs were dug around the house at either five, four, or three meter intervals based on house layout.

For outbuildings like barns, chicken houses, smokehouses, or privies, one STP was excavated along each side of the building. Larger barns were tested by two STPs along each side. For some buildings one or two STPs were excavated in the middle of the structure.

This method of testing has proven to yield effective data in the analysis of farmsteads. Moir (1982) has demonstrated the effectiveness of this method in testing historic sites in the Richland Creek Reservoir in north central Texas (see also Jurney and Moir 1987; Moir and Jurney 1987). Later applications (Carlson 1984; Jurney and Moir

1987; Moir and Jurney 1987; Crass and Brooks 1995) have also proved successful in providing data for intra and intersite analysis.

Analytical Methods

Each individual site will be described before intersite interpretations are presented. Site descriptions will include a brief summary of the exact testing methods employed on each site and a description of the material remains of the buildings identified on the site. Building descriptions include field observations and archival information. The construction method and roofing material information was recorded from the TVA inventory files. As previously discussed, archival information was gained from the farm inventories and relocation files. Finally, the artifactual data from the site are presented.

Artifacts from each site are classified into functional categories based on a scheme developed by Orser (1988:232-233). This typology was developed for a 19th and early 20th century plantation in South Carolina. Its application to the WBR farmsteads is appropriate because of the contemporanity and geographical similarity (located in the southeastern United States) between the plantation and the WBR sites.

Orser's (1988) functional typology contains five different classes: foodways, clothing, household/structural, personal, and labor. The foodways category includes items used in food procurement, preparation, service and storage, and faunal and floral remains. The clothing category includes fasteners, manufacture, and other, the latter including items like shoe parts or clothes hangers. The household/structural category includes architectural and construction items like nails, flat glass, and brick. It also includes hardware and furnishings/accessories (stove parts, furniture, lamp parts). Personal items

include medicinal, cosmetic, recreational, monetary, decorative, and other items like pocket knives or pencils. The labor category are those items related to agricultural activities. These include wire, horse and mule tack, plow parts, tractor parts, and tools.

Site Descriptions

40MG224

This site was occupied by two families at the time of reservoir construction. The Ed Smith family was renting the upstairs portion of the dwelling and were working for the Boyd Mullins family who were living in the downstairs portion of the house. The Mullins were share tenants (tenure class 3) and will be the focus of the discussion. They had lived on the farm eight years. Boyd Mullins worked with his father and his brother. The farm's tools were owned by the Mullins although horses were shared between his father and the brothers working the farm.

The buildings on the site consist of a dwelling, two barns, garage, smokehouse, chicken house, woodshed, outhouse, and well with a shed. No photographs of the house were located so the exact style is unknown. In the inventory the house is listed as being a two-story frame building with a metal roof. The foundation recorded in the field consisted of stone piers. Two piles of machine made brick were noted within the center of the southern portion of the house (see Figure 3). This house was probably an I-house with two centrally located chimneys.

All of the outbuildings have stone piers except for the well house which is concrete. Barn 1 was a frame structure with a metal roof while Barn 2 was a box structure with a board roof. The smokehouse was a frame structure with an asphalt roof.

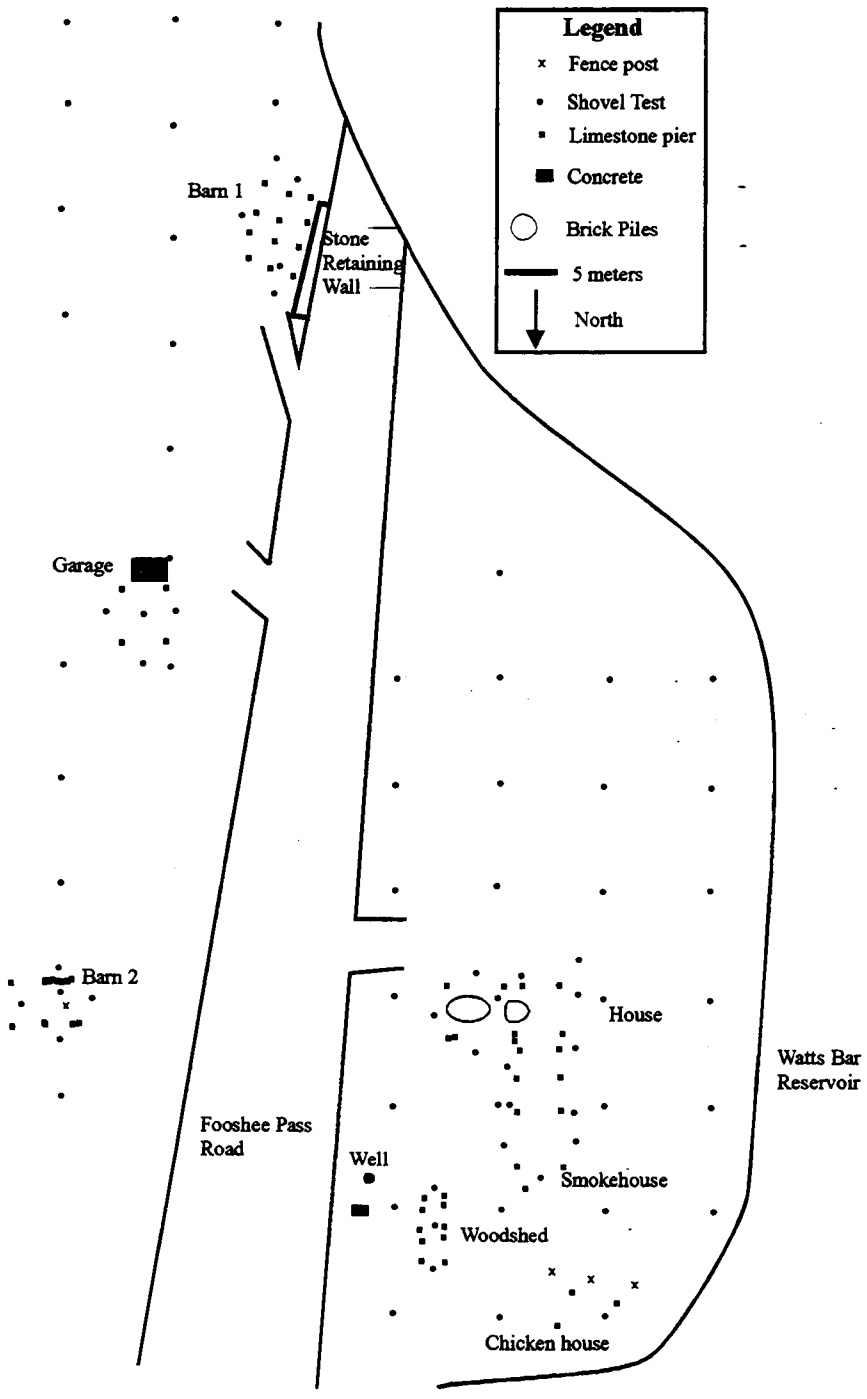


Figure 3. Layout of 40MG224 and location of STPs.

The chicken house was frame with a board roof. The garage was frame with wooden roof. On the southern end of the latter building a concrete pad was recorded during archaeological testing. The woodshed was box with a metal roof. The outhouse and well house were both frame with metal roofs.

A road, the Fooshee Pass Road, bisected the site. This road was the main road through the community. It appeared to have been graveled and was probably well maintained by the county. The dwelling, smokehouse, outhouse, well, chicken house and woodshed were located on the west side of the road. These outbuildings were situated on the north side of the house. A drive ran from the road to the southern side of the house which was probably the facade of the house. On the east side of the road was the garage and two barns. A drive ran from the road to the southern side of the garage and another drive ran to the northern side of Barn 1. Along the edge of the road near Barn 1 there was a stone retaining wall.

Erosion of the cutbank around the site is slowly encroaching on it (Figure 3). This erosion , along with the road bisecting the site, affected how the testing was conducted. On the western side of the road testing was conducted on a north-south grid with the first STP being placed northwest of the house 2 m from the cutbank. STP lines ran to either the cutbank or until there was a negative STP.

On the eastern side of the road the STP lines were excavated to determine the edge of any midden areas. These lines ran north-south between buildings until there was a negative STP. The placement of these lines was partly intuitive and partly determined by topography.

Eighty STPs were excavated across the site. Forty-six STPs were excavated on the west side of the road and 34 STPs were excavated on the east side of the road. Sixteen STPs were positive on the western side of the road and six were positive on the eastern side of the road.

A total of 86 artifacts was recovered from shovel testing and general surface collection (Table 17). Seventy-six of the artifacts came from the STPs and ten came from the surface collection across the site. The majority of the artifacts (n=64) were collected from the western side of the road around the house and eight were recovered from the eastern side of the road. An average of 3.45 artifacts were recovered per STP. On the western side around the house, smokehouse, well and woodshed, the average was 4.00 artifacts per STP. On the eastern side of the road, around the barns and garage, the average artifacts per STP were 2.00.

The largest number of materials recovered, with a total of 58, are household/structural items. Cut nails are the most frequent item with 28 found. Seventeen wire nails and seven wire roofing nails with a lead washer were also in the assemblage. One flat glass fragment and a strap hinge were also recovered.

Foodways items were the second most frequent item found. Twenty-six artifacts were recovered from STP and surface contexts. Fifteen artifacts were from STPs and nine were from surface collections. The majority of these artifacts are curved glass (n=19). Ten of these were from shovel testing and nine were from surface contexts. All the surface artifacts are either fruit jar bases or bodies. Five ceramic sherds were recovered

Table 17. Artifact inventory for 40MG224.

Description	Number
Household/Structural	58
Cut nail	28
Wire nail	17
Roofing nail with lead washer	7
Flat glass	1
Strap hinge	1
Foodways	26
Curved glass	19
Ceramics	5
Milk glass lid liner	1
Tin beer can	1
Labor	7
Wire	4
Chain	1
Iron	2

from STPs. One milk glass lid liner was found on the beach. A tin beer can was found on the retaining wall by Barn 1.

Labor related artifacts made up the remaining artifacts. These include four pieces of wire, one short length of chain (two links), and two unidentified pieces of iron that are assumed to have been labor related items.

The majority of the artifacts date from the late 19th to the early 20th century suggesting that the farmstead was probably established sometime around 1870-1880. The use of concrete in construction and the recovery of wire nails on the site indicate that repairs and improvements occurred on the site during the early 20th century.

40RH218

This site, located on Iron Hill Island, was the farmstead of another share tenant (tenure class 3). Allen Jolly and his family lived on this site at the time of reservoir construction. They rented land from his father, who was an operator and rented from Annie Hampton Shepherd. She was a large landowner who owned over 1200 acres and rented it all to operators and sharecroppers. Jolly and his family worked with and for his father and brothers. They owned their own farming tools and shared the use of a tractor with Jolly's father and brothers.

The buildings on the farm consisted of a dwelling, barn, two chicken houses, woodshed, outhouse and cistern (Figure 4). The dwelling was a one story log and box hall and parlor with a metal roof and limestone piers. It was reported to have had four rooms. The building appeared to have been a log structure that was later covered with

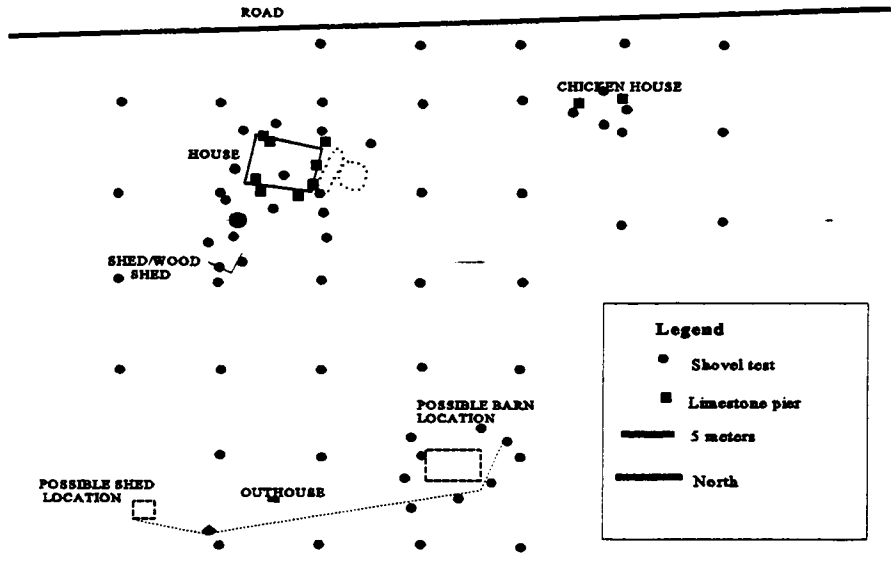


Figure 4. Layout of 40RH218 and location of STPs.

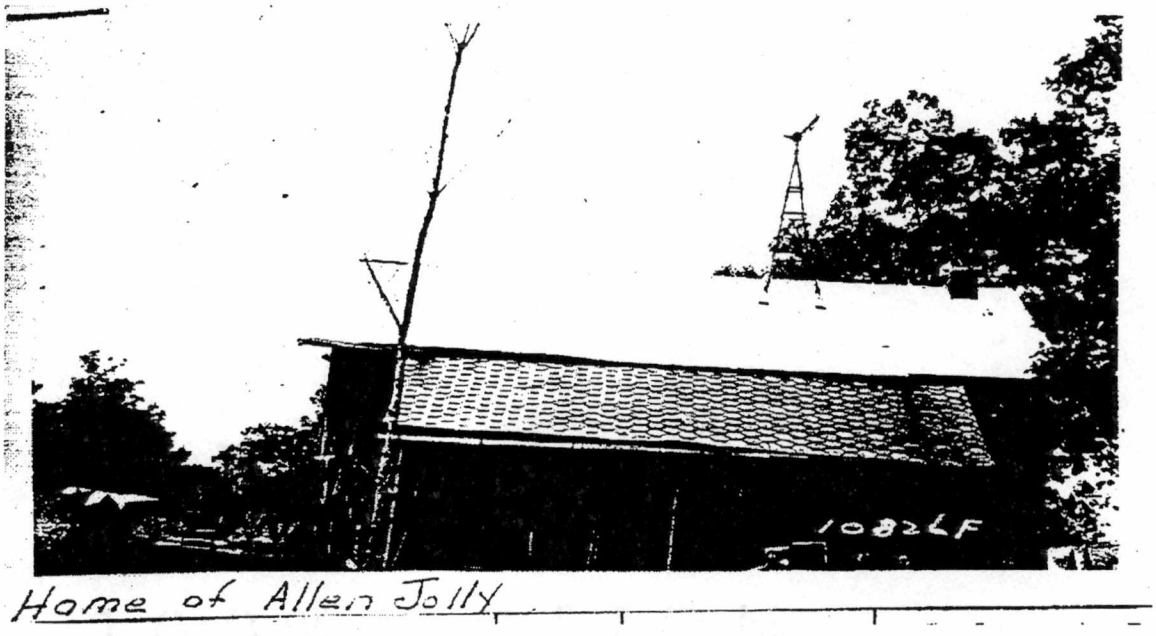


Figure 5. Allen Jolly home, 40RH218. Photo taken prior to house being razed. (Photo on file, National Archives, Southeast Region, East Point, Georgia.

board and batten with an addition on the south end that covered a cellar (see Figure 4 and 5). The cellar appeared to have an entrance on the western side of the house. At the northern end of the house remains was a pile of machine made brick which probably represents the dwelling's chimney. Several bricks found in the pile are yellow fire brick that are used to line chimneys for fireplaces that burned coal. These bricks were labeled "DFBC F." While the presence of a woodshed on the site suggests that wood was used to cook and heat the house, the presence of firebrick also suggests the use of coal. No cinders, however, were found in any of the STPs across the site.

The cistern is located to the south of the house. At present the cistern is a large hole in the ground with no evidence of a curb or lining. The photograph of the house (Figure 5) shows the cistern protruding above the ground with a concrete curb that probably lined a portion of it. The large depression at its location probably represents the hole dug around it to remove the concrete curb and lining. Depressions similar to this one were found on other sites in the reservoir and probably represent the same salvage technique.

The outbuildings on the site were difficult to locate in the field because of the lack of foundation material visible on the ground surface. The location of one chicken house was identified in the field. It had been of box construction with a board roof and had stone piers. The other chicken house was not identified in the field, but according to the inventory it also was box with a board roof. The woodshed had been a box structure with an asphalt shingle roof and stone piers. The privy was identified by a squarish depression

in the location shown on the TVA Land Acquisition Map (LAM). No foundation material was identified. The building was listed as box with a wood roof.

The barn location was represented by a flattened area in the location of the barn shown on the LAM. No foundation material was identified. It is listed as box construction with a board roof. During archaeological investigations asphalt shingle fragments were noted on the ground surface in this location. These may have been from the woodshed, which was listed as having a shingle roof, and were redeposited at this location during salvage of the farm.

The front of the house was less than ten meters from a road. This road connected to the main road into the Iron Hill community, to Allen Jolly's father's farm to the south, and to his brother's farm to the north. It was an unimproved dirt road that was probably not very friendly to travelers during wet weather.

STP transects started on the northeast portion of the site near the road (Figure 4) and ran east-west across the site. STPs were placed on each side of the chicken house and woodshed and around the area that was identified as the barn area. STPs were also placed around the house with the first one located off the northeast corner. The transect first ran to the west along the house and continued around it.

A total of 61 STPs was excavated across the site. Eighteen of these STPs were positive with a total of 44 artifacts recovered (Table 18). This is an average of 2.44 artifacts per positive STP. Two artifacts were noted on the ground surface but not collected. One was a bicycle seat that was located on the southern side of the woodshed. The other was a large piece of stoneware drain tile with an Albany slip like glaze found

Table 18. Artifact inventory for 40RH218.

Description	Number
Foodways	25
Curved glass	15
Ceramics	9
Milk glass lid liner	1
Household/Structural	19
Wire nail	10
Cut nail	1
Roofing nail	1
Flat glass	1
Tin	4
Screw	1
Cast iron stove leg	1

between the house and the woodshed. It was 21 cm in diameter and about 50 cm long. On one end of the pipe was an impressed mark that read: "CHATTANOOGA/TENN/ SEWER PIPE/AND/FIRE BRICK CO."

Foodways group artifacts made up the bulk of the artifacts in the assemblage (n=25). Curved glass is the most frequent item overall with 15 sherds being recovered. There were nine whiteware ceramic sherds found. One milk glass lid liner fragment was also recovered.

Household/structural items are the second most frequent item recovered (n=19). Wire nails were the most frequently occurring item in this group with ten being recovered. One cut nail, a roofing nail, and a piece of flat glass were also found. This total also includes four small tin strips, one large screw, and a cast iron stove leg fragment from the woodshed area.

The majority of the artifacts date to the late 19th and early 20th centuries suggesting that the site was first occupied sometime in the late 19th century, probably between 1870 and 1880. The board and batten improvements made to the log portion of the house and the concrete curb of the cistern represent improvements that were probably made early in the 20th century.

40RE212

This site is located on Half Moon Island just across the Roane/Rhea County line. At the time the relocation study was made the family who lived here had just moved from the Chickamauga Basin. On this site they were sharecroppers who did not own their own tools but used those provided by their landlord (tenure class 7). The residents prior to this

family probably did the same thing since the landlord, Mrs. Bessie Smith, rented out all her land to tenants and provided them with the necessary farming tools. She also owned a tractor that she rented out to her tenants.

The buildings on this site include a dwelling, barn, smokehouse, chicken house, outhouse, cellar, hog house, and well (Figure 6). The dwelling was a one story, four-room structure. It was of box construction with a metal roof and stone piers. A pile of bricks was located in the center and scattered to the north, indicating where the chimney was located.

The cellar was located just east of the house. This feature was not noted in the farmstead inventory. It is a depression that measures 5 x 3 m and is ca. 1 to 1.5 m in depth. On the southern side of the depression were five large sherds of a five gallon stoneware churn. The lower portion of the churn was Bristol slip glazed and the upper portion was Albany slip glazed. Near the rim was an impressed number five. The vessel had one handle.

The smokehouse, chicken house, and outhouse were located southwest of the house just outside of a fence line (Figure 6). The smokehouse was a boxed structure with a composite roof and stone piers. The chicken house was located further west down the fence line. It was box with a board roof. Stone piers were found on the southern side of the building but not on the northern side. The outhouse was also located along the fence line. It was a box structure with board roof. No foundation material was identified for

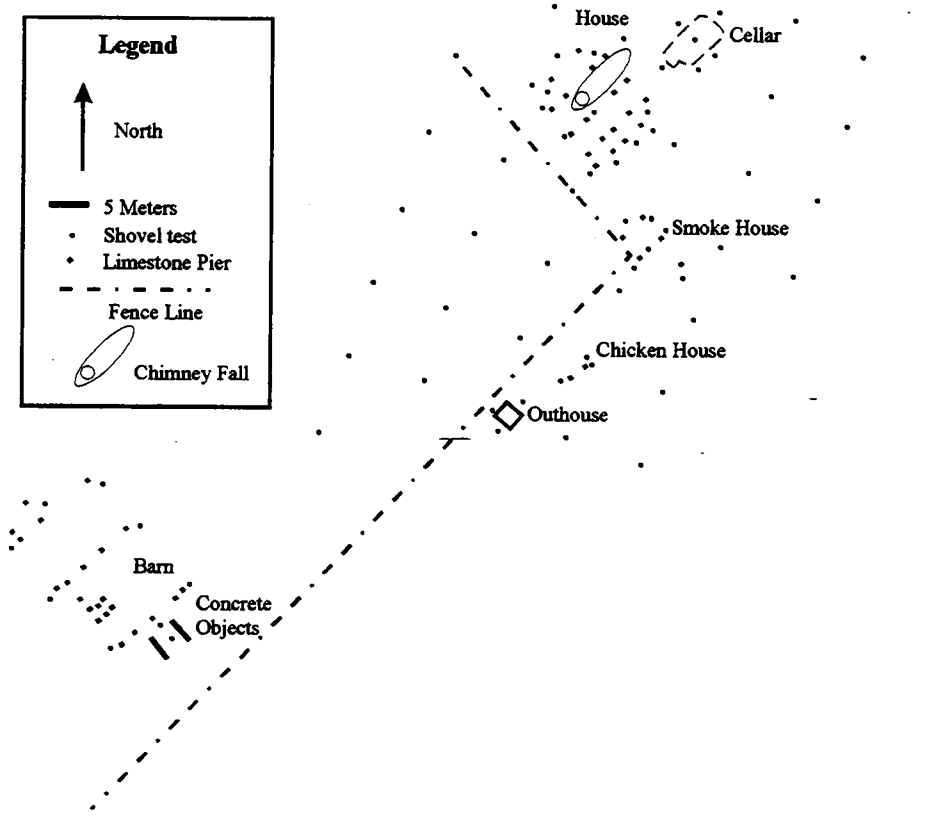


Figure 6. Layout of 40RE212.

this structure. The hog house was located east away from the dwelling. No remains of this building were identified. It was of slat construction with a composite roof.

The well was located some distance away from the house down in a small hollow. It was lined with ceramic tile and is 81 cm in diameter. A concrete curb is in place around the ceramic tile. A large amount of broken up tile and brick was strewn across the hollow to the south of the well. To the southwest of the well are two depressions cut into the slope of the hollow. These depressions are both 2 m wide and 3 m long. A single STP dug into one of them revealed that the depression had been disturbed and no artifacts were recovered. The soil was turned over in a couple other places within the depressions and revealed the same disturbance. The function of these depressions is unknown. They may have been dairies or cellars that were abandoned prior to the 1939 TVA farm inventories.

The barn was located away from the house. It was a large boxed structure with a metal roof and stone foundation piers. To the south of the barn are two parallel concrete items whose function was not identified (see Figure 6). They are located away from the barn next to a long shallow depression. They are both 3.34 m long and 4 m apart. They are shaped like railroad tracks (Figure 7) with the base 36 cm wide and the upper portion 16 cm wide. The total height is 33 cm.

The old road to the site appears to have been an unimproved dirt road. It ran to the site from the south and was the only road into the area. It probably was not a great road to be on in wet weather.

STPs across the site were started on the northwest side of the site near the old road. The transects ran at an angle 200^0 off north. Six transects were placed across the

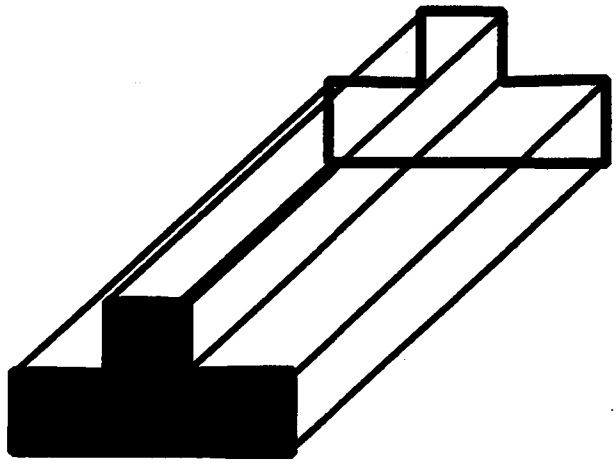


Figure 7. Concrete object located near 40RE212 barn.

dwelling portion of the site. One transect was placed in the valley where the well is located along with a single intuitive STP in the location of one of the depressions. STP transects were located around the barn, smokehouse, chicken house, outhouse, house, cellar, and outhouse. One STP was also excavated between the mysterious concrete objects near the barn site. A single roofing nail was recovered from this STP.

A total of 99 STPs was excavated across the site. Forty seven of these STPs were positive. One hundred sixty-seven artifacts were recovered from STPs and three were recovered from surface collection (Table 19). The stoneware crock mentioned above was not collected. An average of 3.55 artifacts was recovered from the positive STPs.

The most frequent artifact group in the assemblage is household/structural (n=107). There were 55 wire nails recovered from STPs. Cut nails are the second most recovered item of this group (n=9). Eight sherds of flat glass were also found. Four roofing nails with lead washers were also recovered. These were all found near the house. One roofing nail without a lead washer was found near the barn. This group also includes 27 pieces of tin that are probably metal roofing fragments and two brick fragments. The final artifact in this group is an amethyst tinted lamp chimney glass sherd.

Foodways artifacts were the next most frequent items recovered. These include 28 curved glass sherds (includes two almost complete fruit jars), 11 ceramic sherds, two milk glass lid liners and one zinc lid fragment.

Table 19. Artifact inventory of 40RE212.

Description	Number
Household/Structural	107
Wire nail	55
Cut nail	9
Flat glass	8
Roofing nail with lead washer	5
Brick fragments	2
Tin	27
Lamp chimney glass	1
Foodways	32
Curved glass	28
Ceramics	11
Milk glass lid liner	2
Zinc lid	1
Labor	17
Wire	15
Leather	1
Iron	1
Clothing	1
Buckle	1
Personal	1
Ceramic marble	1

The labor group artifacts consist of 15 pieces of wire, one piece of leather, and one unidentified iron fragment. The piece of leather was found near the barn area and is probably from horse or mule tack rather than from a shoe.

One clothing and one personal group item was recovered. The clothing item is a buckle. The personal item is a ceramic marble. The marble and buckle were found near the house.

The majority of the artifacts date to the late 19th and early 20th centuries suggesting the site was probably first occupied late in the 19th century, probably after 1880. This date is based on the low number of artifacts dating prior to that period, except the cut nails. There were improvements made across the farm, as seen by the mysterious concrete objects by the barn and the well with a ceramic tile liner and concrete curb.

40RH208

This site is located on the same island about .5 mile from 40RH218. It was operated by the J.W. Boles family in 1940 when TVA made their relocation studies and farm inventories. This farmstead is one of the oldest recorded by the WBR survey. It probably was first established sometime around 1820 when George Gillespie bought the property from Mary Ann Elizabeth Armstrong. She was given the property as part of her husband's Revolutionary War pension in 1796 from the state of North Carolina (TVA 1939).

The Gillespies were prominent citizens and farmers in Rhea County. Many of George Gillespie's sons had distinguished military careers, and George Gillespie was active in many Rhea County governmental decisions (Campbell 1940:130-133). George

died in 1840 leaving his farm and 15 slaves to his family. The farm remained with the Gillespie heirs until 1940 when it was sold to the government. In the 1930s it was owned by Annie Hampton Shepherd, who as mentioned above rented out the farm to operators and share croppers (TVA 1939).

The Boles family were operators (tenure class 2), whose sons who lived near them and worked with and for them in sharecropping agreements. They owned their own farm tools and a tractor. Mr. Boles also employed laborers and sharecroppers to work for him.

The Gillespie/Boles site was a very large farmstead with a dwelling and 15 outbuildings associated with it. These outbuildings included two barns, two cisterns, two chicken houses, two garages and one each of a crib, smokehouse, tool house, potato house, dairy, outhouse, and cellar. These outbuildings (Figure 8) were spread out across the farm. Their arrangement is different than most of the sites in the valley where the outbuildings are clustered to one side of the dwelling.

The dwelling appears to have been an early structure and was probably the original permanent Gillespie dwelling (Figure 9). It is a one story five or six room house. The relocation file had the number of rooms as five in one area and six in another and the farm inventory had the number of rooms listed as six. The foundation for the house is dressed limestone and is 61 cm (2 ft) wide. The walls are of hand made brick laid in an American common bond with five stretchers and one header row. The walls were 35 cm thick (1 ft). The roofing material for the house was hexagonal asbestos shingles. As listed above, this roofing material is the cheaper of the asbestos shingles.

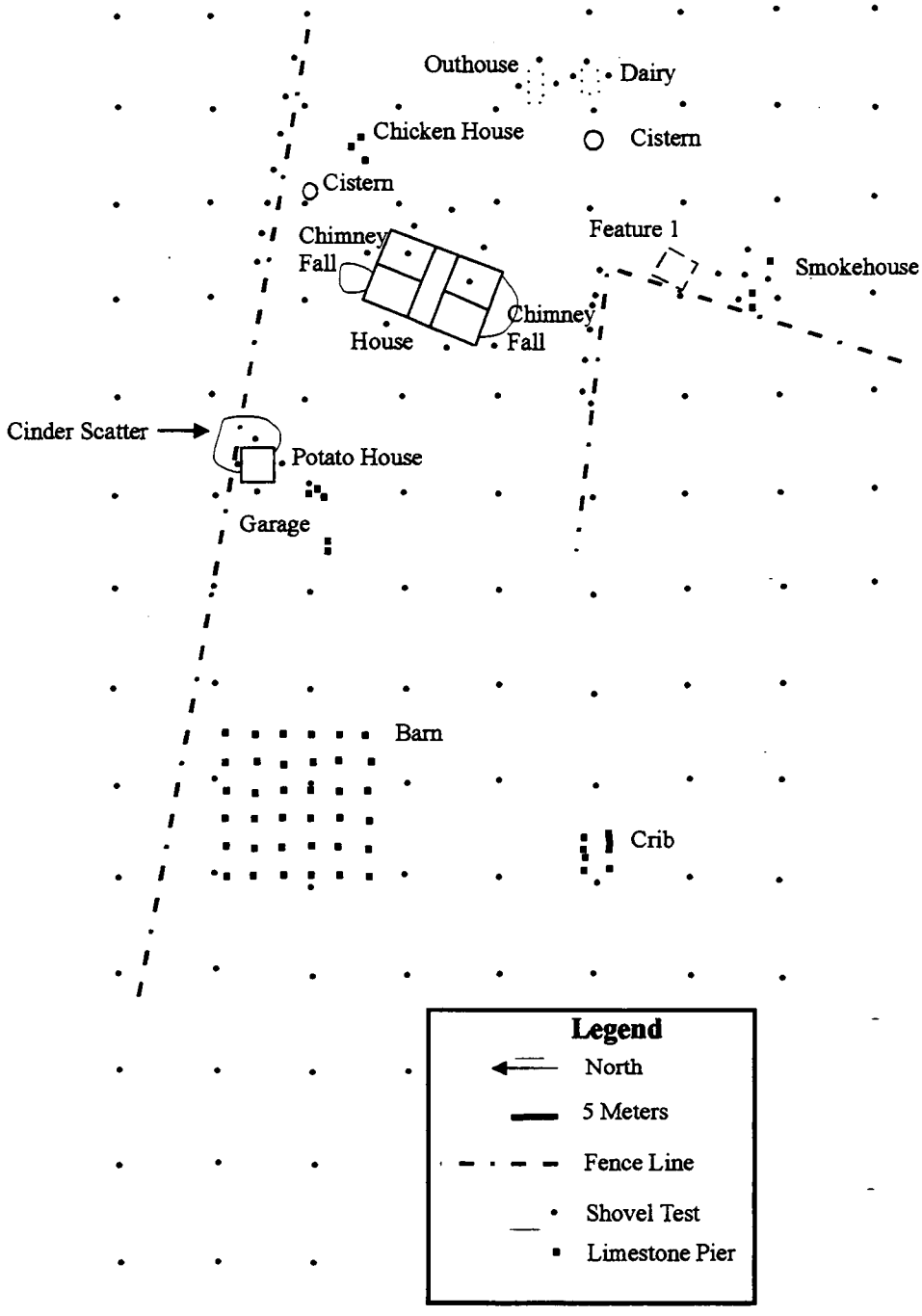


Figure 8. Layout of Gillespie/Boles farmstead, 40RH208.

The foundation layout is quite unique. From outward appearances (Figure 9) the house would appear to have been a standard hall and parlor but the foundation suggests otherwise. The divided side rooms and offset chimneys seen in the foundation are unusual (Figure 10). The closest possible style is a hall and parlor variant known as a catslide (Noble 1984:50, 58). This type of structure has its roots on the East Coast where the Gillespies were located before coming to Tennessee. The catslide house has an offset chimney much like the Gillespie/Boles house.

There are also some fire brick located in the southern chimney. This fire brick is impressed "V&FB Co./St. LOUIS." This suggests that the fireplace may have been converted from a wood burner to a coal burner. Cinders found near the potato house add credence to this inference.

Only one of the two barns recorded on the LAM was located during survey. The barn across the road leading into the site, which was a box structure with a metal roof, was not located. The larger barn, located during the survey, lies closer to the other buildings and was a box structure with limestone piers and a board roof.

One of the two garages shown on the LAM was identified during the archaeological survey. The one located near the road, which was listed as being box with a wood roof, was not found during the survey. The identified garage, which was box with a metal roof and limestone piers, was located west of the house in a slight depression that appeared to have been cut.



Figure 9. Gillespie/Boles home, 40RH208. Photo of house taken prior to razing. (Photo on file, National Archives, Southeast Region, East Point, Georgia.)

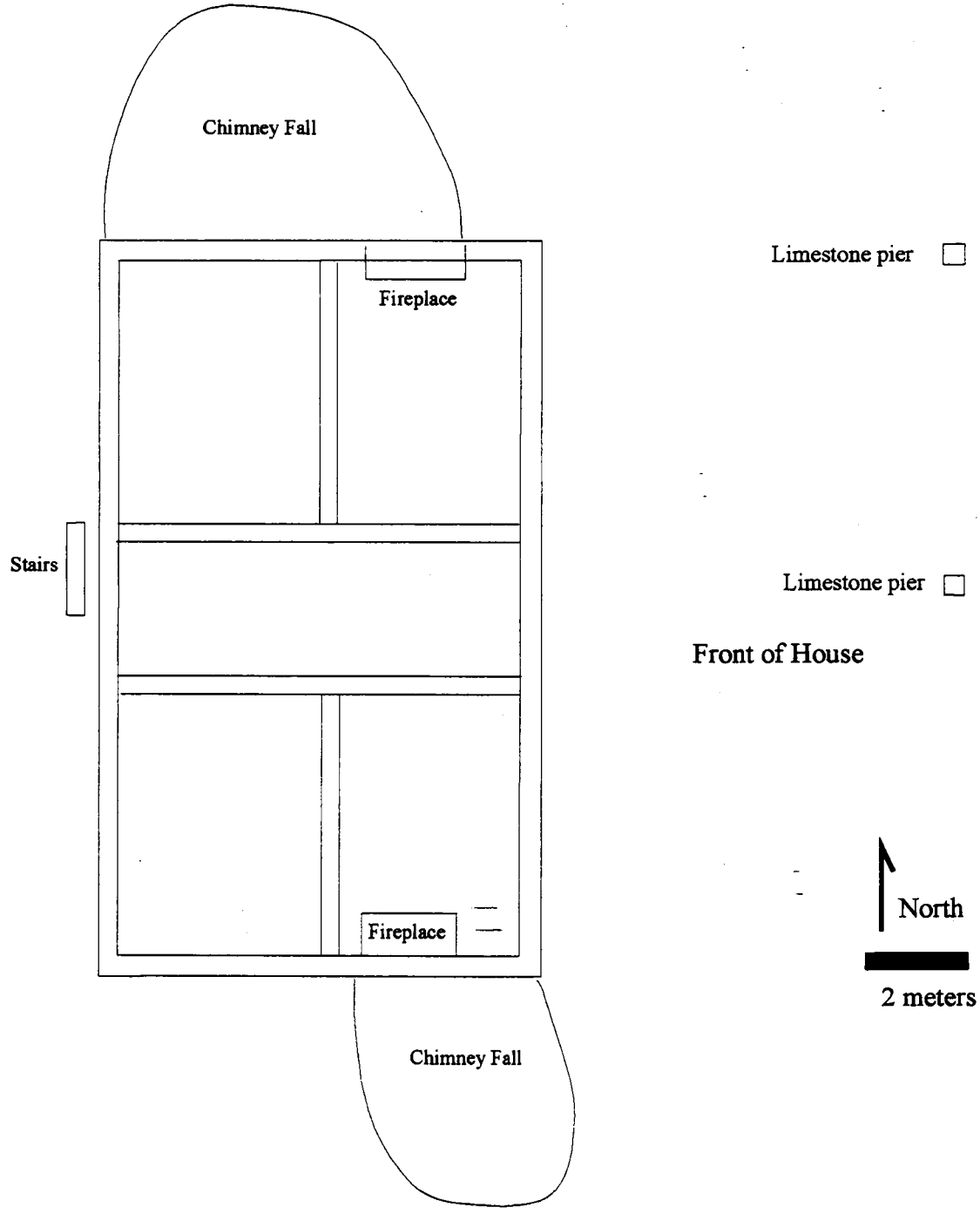


Figure 10. Foundation layout of Gillespie/Boles House (40RH208).

One of the two listed chicken houses was also identified during the archaeological survey. This building was located near the dwelling. It had stone piers and was box with a wood roof. The other unlocated chicken house was box with a composite roof.

The two cisterns were both identified during the survey. The southern cistern is the larger of the two. Both cisterns are brick lined with a large depression at the top. This depression is similar to that seen on 40RH218 and probably represents the hole left from the removal of the curb. A metal pipe, slightly buried beneath the surface, was protruding over the southern cistern. This pipe appears to have run toward the house and may have been the conduit pipe from the eaves.

The crib was a log structure with board roofing and stone piers. It was located away from the dwelling near the road. It is the only log structure recorded on the site. No remains of the tool house were identified during the survey. The building was listed as being box with a board and composite roof. The smokehouse was a box structure with a metal roof and stone piers.

The outhouse and dairy are located east of the house on the slope above the floodplain. The out house, which was cut into the slope, had been a box building with composite roofing. No foundation material was identified for this building. The dairy was also cut into the slope and had been an earthen structure with a composite roof.

The potato house was located west of the house near the identified garage. It was a box structure with a composite roof. The foundation was concrete with a concrete slab floor.

During shovel testing a feature was encountered to the south of the house near the smokehouse (Figure 8). Feature 1 consisted of a brick scatter and with intact deposits below it. Probing indicated that this scatter is roughly 5 m x 5 m. The brick appeared to have been hand made. Several small test units (50 cm x 50 cm and 80 cm x 50 cm) were excavated at the edge and in the approximate middle of the feature. The unit at the edge of the feature was dug to subsoil. It revealed that below the brick there are intact deposits of ante-bellum ceramics (pearlware and transfer printed whitewares) and faunal materials. At the edge of this unit a possible cellar was detected. The unit in the approximate middle of the feature was dug to just below the brick layer and intact deposits were noted in this unit as well. This feature may be the remains of slave cabins. The Gillespies were known to have owned slaves and the location of the feature, slightly away from the house and behind it, and the antebellum dating of the ceramics, support this inference.

Shovel testing of this farmstead started in the northeast corner of the site near the slope (see Figure 8). The transects ran on a line in a east-west manner. Twelve transect lines ran across the site and STP lines were placed around the crib, house, smokehouse, potato house, barn, and along the two fence lines.

A total of 142 STPs was excavated across the site. Eighty-four of these STPs were positive with a total of 368 artifacts recovered from these STPs. Three small test units were excavated in the area of Feature 1, but these artifacts are not included in this analysis since they are early and did not come from the systematic shovel testing. An average of 5.44 artifacts was recovered per STP. This is the highest average from all the sites tested. This higher average is probably due to the fact that the site had been

occupied for 50 to 60 years longer than the other sites and the fact that it is an operators site. Previous research has shown that sites occupied longer and of a higher tenure class will have a denser sheet midden than sites with a short occupational period and of a tenant/sharecropper tenure class (Moir and Jurney 1987; Cabak and Inkrot 1996).

The most frequent artifact group recovered is the foodways group with 183 artifacts recovered (Table 20). The most common artifacts of this group are curved glass (n=90). Ceramic sherds are the next most frequent of this group with a total of 82 sherds. There are also 10 milk glass lid liner fragments in the assemblage. In addition, one lead shot was recovered.

Household/structural items are the second most frequent group. In actuality this group is the most frequent since there are $\overline{93}$ pieces of tin roofing in the collection. It was decided to count all of these as one, however, since they probably represent a single piece of metal roofing. One hundred sixty architecturally related items were found in shovel testing. Cut nails are the most frequent in this group with 83 artifacts recovered. Wire nails are the next most frequent with a total of 35. Four other nail types were also found which includes two unidentifiable nail fragments, two roofing nails found near the house, one wire nail with a pewter head, and one wire finishing nail. Eleven brick fragments were also recovered from across the site. The five hammer dressed limestone flakes were from below a red clay layer next to the southern cistern. None of four flat glass sherds were found near the house where such architectural artifacts would be expected. Besides the 93 tin fragments, which are considered one artifact, there were nine small metal fragments recovered across the site. Two other household/structural items are a washer and blunt

Table 20. Artifact inventory for 40RH208.

Description	Number
Foodways	183
Curved glass	90
Ceramics	82
Milk glass lid liner	10
Lead shot	1
Household/Structural	160
Cut nail	83
Wire nail	35
Unidentified nail	2
Roofing nail	1
Wire nail with pewter head	1
Finishing nail	1
Brick fragments	11
Limestone flakes	5
Flat glass	4
Tin	10
Washer	1
Screw	1
Ceramic drain tile fragment	1
Labor	22
Wire	7
Iron	12
Chain	1
Carbon battery rod	1
Iron file	1

Table 20. Continued

Description	Number
Clothing	2
Buckle	1
Pewter button	1
Personal	1
Pipe bowl fragment	1

end screw. The screw dates to before 1845. The final architectural item is a ceramic drain tile fragment.

There were 22 labor related items recovered from across the site. This includes seven wire fragments, one iron bar, an iron ring, five iron strips, and five unidentifiable iron objects that were probably related to agricultural activities. The remaining labor related objects are one piece of chain belt links, a carbon battery rod and an iron file.

Two clothing and one personal artifact were recovered. The clothing items are a metal buckle and a pewter button. The personal group item is a stoneware pipe bowl fragment.

These artifacts signify an intense and lengthy occupation of this site. The presence of pearlware suggests a pre-1830 occupation. This site was probably occupied from around 1820 when the Gillespies bought the property to 1940. An occupation prior to the Gillespies is unknown at this time.

Intersite Comparisons

Intersite comparisons of archaeological material from farmsteads has commonly been used to examine differences in farmstead tenure, income, and artifact patterning (Orser 1988; Groover 1993; Inkrot and Cabak 1995; Cabak and Inkrot 1996). This study will use the relative frequencies of the five artifact classes to determine how modernization was affecting the frequency and distribution of artifacts on the four WBR farmsteads. For example, modernization might have a homogenizing affect on these farmsteads since more commercially produced kitchen items would be entering the archaeological record.

Watts Bar Intersite Comparisons

Limited testing on each site does not allow for determination of artifact frequency through time. However, an overall view of artifact use and disposal on individual sites can be seen in the existing assemblages. The relatively high proportion of household /structural artifacts is probably representative of the importance of building construction and repair at each site (Table 21). One might expect that the site with the most outbuildings would have the highest percentage of structural materials; however, 40RH208 which has 16 buildings including the dwelling has almost the same percentage of household/structural artifacts as does 40RH218 which only had seven buildings. The other site with only seven buildings is 40RE212, which has a higher percentage of household artifacts than both 40RH208 and 40RH218.

The difference in foodways artifact percentages (Table 21) could be a signature for three things: length of occupation, tenure class differences, and modernization. The length of occupation may explain the difference between sites 40MG224 and 40RE212 compared to 40RH218. Previous research has shown that sites with a longer occupational period accumulate denser deposits (Jurney and Moir 1987). The occupational history of 40RH208 is approximately 110-120 years, whereas for 40MG224 and 40RE212 it is 60-70 years. Tenure class differences can also explain why there are different foodways artifact frequencies for 40MG224 and 40RE212 compared to 40RH218. The occupants of 40RH208 were tenure class 2 (operators), although in the past there were tenure class 1 (owners) occupants of the site, while the occupants of 40MG224 were tenure class 3 and the occupants of 40RE212 were tenure class 7.

Table 21. Artifact frequencies for the different functional categories.

Site	Foodways	Clothing	Household	Personal	Labor
40MG224	25 (29.07%)	0 (0.0%)	58 (67.44%)	0 (0.0%)	3 (3.49%)
40RE212	42 (25.55%)	1 (0.6%)	107 (63.69%)	1 (.6%)	17 (10.11%)
40RH218	25 (56.82%)	0 (0.0%)	19 (43.18%)	0 (0.0%)	0 (0.0%)
40RH208	183 (49.75%)	2 (0.6%)	160 (43.48%)	1 (0.2%)	22 (5.98%)

Length of occupation and tenure, however, does not explain the difference between 40RH218 compared to sites 40MG224 and 40RE212. The length of occupation of these sites is probably about the same, 60-70 years, so this should not contribute to occupational differences. Tenure class between 40RE212 and 40MG224 are the same, tenure class 3.

Modernization may explain the differences on these sites. Research has shown that consumption of commercially made products increases through time as a reliance on home produced food diminishes due to better communication, transportation, and acceptance of these convenient products (Moir and Jurney 1987; Cabak and Inkrot 1996). This can readily be seen in the increase of curved or container glass on archaeological sites as commercially produced products were packaged in these containers. For all the sites curved glass is the most frequent item in the foodways category. For 40RH208 and 40RH218 curved glass is the most frequent item from the entire site. About 25% of the assemblage from 40RH208 and about 34% of the assemblage from 40RH218 is curved glass compared to 16% and 21% for 40RE212 and 40MG224, respectively. The high percentage for 40RH218 is probably representative of increased purchasing of commercially produced products.

Labor items associated with agricultural activity are very important on postbellum farms (Orser 1988:235). The farm with the most labor related artifacts, 40RE212, is the only site whose occupants did not own their own tools at the time of reservoir construction. This higher frequency is a little misleading because the bulk of the labor related artifacts from this site are wire fragments. If these are removed then there is little

difference between the sites. The absence of labor artifacts at 40RH218 may indicate that many of the tools used on this farm were being stored elsewhere, probably Allen Jolly's father's place.

Intersite artifact patterns are also compared using the Robinson's Index of Agreement. Recent uses of the Robinson's Index of Agreement in historical archaeology include Orser's (1988) comparisons of artifact patterns between tenure classes at the Millwood Plantation in South Carolina and Groover's (1993) analysis of several Upland South farmsteads. The Robinson's Index of Agreement allows for the testing of the similarity between two groups of artifacts. The index is computed by subtracting the percentage of one artifact class of one site from the percentage of the same class from another site. This procedure is done for all the artifact classes. The resultant differences are added up and subtracted from 200, the total percentage from both sites. The closer the resultant value is to 200 the more similar the two sites are. A low value suggests that there is a dissimilarity between the two sites. To compare multiple sites a matrix of the resultant matrix is generated.

The generated index from the four shovel tested sites indicates there is a similarity between two different sets (Table 22). When 40MG224 and 40RE212 are compared they have a high index of agreement, 40RH208 and 40RH218 also have a high index of agreement. When 40RE212 is compared to 40RH208 and 40RH218 they have low index values. The same is true when 40MG224 is compared to 40RH208 and 40RH218. The differences found in this analysis do not match differences in tenure class.

Table 22. Similarity matrix based on artifact samples of four WBR sites.

Site	40MG224	40RE212	40RH218	40RH208
40MG224	200.00			
40RE212	184.36	200.00		
40RH218	144.51	136.36	200.00	
40RH208	152.08	150.52	185.84	200.00

The similarity between 40RE212 and 40MG224 is difficult to explain. The residents on these two sites are of different tenure classes and the farms do not have similar layouts. The same is true for 40RH208 and 40RH218, which are similar based on their index values, but their occupants are in different tenure classes (tenure class 1 and tenure class 3, respectively). The difference between 40MG224 and 40RH218 is also problematical since residents of both sites are in the same tenure class. The difference between the paired 40RE212 and 40MG224 sites compared to site 40RH208 can probably be explained by length of occupation and tenure class.

The similarities between sites 40RH208 and 40RH218 might be due to the fact that they are in the same community and are located on the same farm. Community values and mores may have an impact on use and disposal patterns and this is possibly seen in the similarities in the artifact patterns of these two sites.

Upland South Intersite Comparisons

Groover's (1993) analysis showed that there is not a distinctive artifact pattern for Upland South farmsteads defined as traditional. He concluded that an Upland South artifact pattern tradition may not be defined at the "artifactual level." This is due to the "pervasive quality of North American consumer culture during the 18th, 19th, and 20th centuries" (Groover 1993:13). If this is the case then there may be temporal similarities rather than regional similarities in artifactual patterning. Sites that were in existence during the same time periods may have similar artifact signatures. This would indicate similar traditions and consumer choices. Sites that are going through the same cultural changes technologically and economically should have similar artifact patterns.

To test this hypothesis, the Robinson's Index of Agreement test was applied to the same sites that Groover used in his analysis. These seven sites include six that were classified as Upland South and one that was classified as a Yankee Tradition farmstead. These sites include four southern Illinois farmsteads, a northern Illinois farm, an East Tennessee farmstead and a South Carolina piedmont plantation. The southern Illinois sites are the Robert Huggins site (McCorvie 1987), the James Wright site (Garrow et al. 1989), the Robert Watts site (Phillipe and Esary 1983), and the William Corbert site (McCorvie et al. 1989). The northern Illinois site, the Drake site (Martin and Phillippe 1986; Phillppe 1990), was included in Groover's comparisons as a Yankee Tradition farm to determine if there was a difference between this site and the Upland South sites. The East Tennessee site is the James White site (Faulkner 1984). The South Carolina plantation is the Thomas Howell site (Groover 1992, 1993).

The Upland South farmsteads can be broken down into two different time periods. The occupation period of three of these sites started and ended before the Civil War, the Howell, White, and Watts sites, while the other three, the Huggins, Colbert, and Wright sites, started prior to the Civil War but were in existence into the 20th century. The Drake farmstead was occupied up to 1900.

Groover's analysis indicated that the closest relationship between the sites was between White and Drake and the next closest was between Huggins and Drake. These results led to his conclusion that an Upland South artifact pattern is probably not discernable. The resultant matrix from Groover's analysis and it indicates that correlations do necessarily exist between contemporaneous sites, the James Wright and William

Colbert sites for instance. Table 23 lists the occupationalperiods of these sites and Table 24 contains the idex of agreement matrix. The fact that the Huggins site, occupied into the 20th century, compares well to the Drake site, which was occupied to 1900, the Wright site, and the Colbert site, both occupied to 1935, suggests that there may be a correlation between time period and artifact patterning.

When these sites are compared to the four Watts Bar sites a similarity across time periods is seen. Table 25 illustrates the resultant matrix from this analysis. 40RE212 and 40MG224, which are later sites, are very dissimilar from the earlier sites, Howell, White and Watts. 40RH208 and 40RH218 have some similarity to the earlier White and Howell sites but not to the Watts site. The closest similarity is between 40MG224 and the Colbert site and the next is between 40RE212 and the Colbert site, which are all late sites. There are also some similarities between these two sites and the Huggins site. The other site that was occupied into the 20th century, the Wright site, is not very similar to these.

The similarity between the later sites is probably a product of similar consumer behavior and disposal. Increasing communication and commercialization brought mass-produced products to the public, whether in an urban or rural context. Disposal patterns also became similar as people were starting to dump away from the house in ravines or ditches. Also by the 20th century, maintained grass yards were beginning to become popular and started to represent a social ranking position (Jurney and Moir 1987). Ethnicity became less of a factor and homogenization of American material culture was occurring.

Table 23. Occupational period and location of sites included in intersite analysis (from Groover 1993)

Site	Location	Occupation Period
Thomas Howell	South Carolina	1740-1820
James White	East Tennessee	1785-1852
Robert Watts	Southern Illinois	1795-1815
Robert Huggins	Southern Illinois	1828-1965
Roxanna Drake	Northern Illinois	1838-1900
James Wright	Southern Illinois	1850-1935
William Colbert	Southern Illinois	1853-1935

Table 24. Similarity matrix of sites included in study (from Groover 1993).

Sites	Howell	White	Watts	Huggins	Drake	Wright	Colbert
Howell	200.00						
White	143.82	200.00					
Watts	167.78	129.06	200.00				
Huggins	135.02	181.37	111.11	200.00			
Drake	139.76	190.66	119.98	184.08	200.00		
Wright	168.00	160.72	152.68	151.50	156.40	200.00	
Colbert	111.52	158.70	88.26	175.88	163.16	131.62	200.00

Table 25. Similarity matrix of the Watts Bar sites and those sites used by Groover.

Site	Howell	White	Watts	Huggins	Drake	Wright	Colbert
40RH208	150.08	180.74	126.82	168.96	181.04	171.42	151.42
40RH218	161.74	174.14	137.40	166.06	169.82	183.35	145.32
40RE212	101.43	149.07	78.14	165.76	158.16	122.28	183.73
40MG224	107.14	154.82	83.88	175.08	161.86	128.48	195.62

An additional reason for differences between the Watts Bar sites and the Groover sample sites is that the archaeological material from the WBR sites comes from testing the entire site, as it was defined by above ground features and subsurface artifact material. Except for the Huggins site, the artifacts from the other sites were mainly recovered around the house. Different disposal patterns may be evident across the site, e.g., barncompared to dwelling, and this is reflected in the artifact patterning across the entire site.

CHAPTER SEVEN

CONCLUSIONS

The Tennessee Valley witnessed considerable change in the early 20th century. The advent of the Tennessee Valley Authority brought great transformations to the valley by bringing in electricity and jobs. This modernization has tended to overshadow other changes that were already taking place within the valley. The so-called backwards farmers were modernizing their farms through a slow process.

This modernization can be seen in the improvements made on the farm dwelling and outbuildings. These improvements include concrete foundations, frame construction or asbestos or asphalt shingles. These important improvements were virtually unnoticed by those looking at the lifestyles of the residents of the valley in the 1930s.

This thesis has shown that many farmsteads in the Watts Bar Reservoir area of the Tennessee Valley represent a transitional period between a traditional and modern farm prior to construction of the reservoir. Many farmsteads had frame buildings with modern roofing materials. Also some farms had buildings with concrete foundations signifying new construction using modern techniques. These new techniques were also used alongside traditional techniques as seen by the use of metal or board roofing on buildings

with concrete foundations. This integration of traditional and modern is representative of a transitional farm.

Farm modernization was not necessarily determined by tenure class as shown in other areas of the Southeast (Orser 1988; Cabak and Inkrot 1996). Transitional farms were recorded for all the tenure classes defined even though significant differences were found between the mean income, farm acreage, and livestock for each tenure class. This indicates that farmers in the Watts Bar area were modernizing regardless of these social and economic differences.

Archaeological remains on these WBR farms indicate that differences occur between Upland South farmsteads supporting Groover's previous findings that there is no defining artifact pattern for all Upland South farmsteads . The archaeological findings of the WBR farmsteads do reveal, when compared to other Upland South farmsteads, that a correlation between temporal period and artifact use and disposal patterns may be evident in the archaeological record.

When used in conjunction with the archival and architectural data, the archaeological data additionally supports the hypothesis that tenure was not necessarily a factor in determining modernization. The four transitional farmsteads that were tested represent three separate tenure classes and comparisons between them revealed no connection between tenure and disposal patterns.

The archaeological, archival, and architectural data support the theory that modernization is not a unidirectional model. Each farmstead modernized at a different rate as seen by these data. To conclude that a single farmstead was modernizing based on

only archaeological, archival, or architectural data is ignoring the complete picture. To understand the process of modernization one must include as many sources as possible and study a broad area such as a community, county or subregion. This allows the investigator to see a broad spectrum of development rather than a single case.

The process of modernization, and even the ideal of modern, is a continually evolving concept. The evolutionary process of farmsteads from traditional to modern, as seen in the WBR farms, is not unidirectional in nature. Rather, the evolutionary process is highly variable with each farmstead taking its own path toward modernization. In addition, not all farmsteads begin to modernize at the same time or at the same rate due to constraints like income.

The archaeological record is probably the final word in modernization, however. Through the archaeological record we can view the entire range of architectural elements and the material culture of the residents at the site and of the study area. The material remains indicate whether people were purchasing the commercial products and abandoning the traditional ways like canning fruits and vegetables and smoking meat. They can also reveal changes in disposal patterns, construction methods of buildings, and changes in the landscape through time.

The limited archaeological data presented in this thesis, however, do not allow for the building of an evolutionary model of 20th century farmsteads. More extensive archaeological data can provide information concerning consumer choices and disposal patterns that can indicate the changes that occurred through time as farmsteads began to modernize. These data can also be used to compare those farmsteads that are classified as

traditional and transitional to determine if consumer choices and disposal patterns differ between sites. Excavations of numerous farmsteads within a limited region, an area similar to the Watts Bar Reservoir, would provide the necessary data to develop this evolutionary model. Future excavations of 20th century farmsteads within other areas of the eastern Tennessee Valley should be undertaken to further address the theory of an evolutionary model of farmstead development. These excavations should also provide important information on how consumer choices and artifact disposal patterns and how building construction methods changed through the dynamic period of modernizing farms in the late 19th-early 20th century.

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VITA

Todd Michael Ahlman was born in September 1969 in Valentine, Nebraska. After a three year gypsy period in which he and his family lived in at least five different house in three different towns, in two states, the Ahlman family settled for a period in Wausa, Nebraska. It was here where Todd went through grade school, junior high, and high school. He was active in about everything, it was a small town and you had to do about everything. After graduating from Wausa Public High School in 1987, he enrolled at the University of Nebraska-Lincoln (UNL) with a major in Anthropology. During this period Todd expanded his interest in archaeology by working for the National Park Service in Arizona and in Lincoln. After four exciting years, he graduated from UNL and continued working for the Park Service in Lincoln. With this job travel and experience abounded. Trips to such exciting places like Springfield, Illinois and Michigan City, Indiana were common place. It was not all bad, he also traveled to Texas, St. Louis, and Michigan to do archaeology. Even though the Park Service was a wonderful place to work, Todd saw that graduate school was the next logical step, so it was off to Tennessee to attend the University of Tennessee to study historical archaeology. While there, he worked for the Department of Anthropology's contract archaeology program doing various small projects and the never ending Watts Bar Reservoir survey. If you are reading this then it appears that he succeeded in finishing his thesis and is probably still working on his dissertation.