COALESCED CHEROKEE COMMUNITIES IN THE EIGHTEENTH CENTURY: A SPATIAL AND ELEMENTAL ANALYSES OF THE CERAMIC ASSEMBLAGE AT MIALOQUO (40MR3), AN OVERHILL CHEROKEE TOWN IN MONROE COUNTY, TENNESSEE

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ABSTRACT

I use the ceramic assemblage from the Mialoquo site, an eighteenth-century Historic Cherokee community (A.D. 1760-1780), to study the social formation of Cherokees from different Cherokee town areas at the site. The assemblage is composed of at least two Historic Cherokee types, the Overhill and Qualla ceramic series. Three methods were used to evaluate the ceramics from the Mialoquo assemblage: morphological, spatial, and elemental. Morphological analyses (namely temper and surface treatment) of these sherds were used to examine ceramic variability of the assemblage. Spatial analyses, using ArcGIS, were used to identify patterns between ceramic series present. Finally, elemental analysis, using portable X-Ray Fluorescence (pXRF), was used to determine what if any variability in ceramic clay procurement areas occurs between ceramic series.

These analyses indicate that the site is characterized by the presence of both local shell-tempered Overhill ceramic series and non-local grit-tempered Qualla ceramic series. The presence of both ceramic series suggests Mialoquo was a coalescent community. The spatial analyses indicate that the Cherokees at Mialoquo blended their communities of practice as Overhill and Qualla ceramic series are recovered in all feature and area contexts. A density analysis of the ceramic's distribution also suggests a blending communities of practice as both series are most dense in similar areas. Lastly, the pXRF results also indicate a blending communities of practice suggesting that potters from both communities shared clay procurement resource areas. Additionally, the pXRF results suggest that Cherokee potters producing Overhill ceramic series pots transported vessels made from non-local clays to the Mialoquo site.

The results from the typological, spatial, and element compositional analyses are telling about the social practices of coalescent Cherokee communities in the mid-eighteenth century. Rather than forming ridged social boundaries between communities of practice the data presented here suggest that at least two Cherokee communities of practice blended, sharing their domestic and communal spaces, their disposal of ceramics in refuse-filled pits, and clay procurement areas surrounding the Mialoquo landscape. Such instances of coalescence have implications for understanding social and political change, understanding variation in material culture, and the life history of ceramics.

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CHAPTER ONE: COALESCENT COMMUNITIES & ARCHAEOLOGY

SECTION 1: INTRODUCTION

Seventeenth and eighteenth century southeastern Native American groups negotiated their fluctuating landscape produced by Euro-American colonialism through various forms of social, political and economic responses. The resulting change in these societies is described by Mitchell and Scheiber (2010:18) as not a simple result of contact with others; rather, it came from *within* native societies that drew on existing practices and beliefs to actively negotiate the colonial period. Under the conditions of European colonialism, southeastern communities utilized different strategies including flee and hide, fissioning, fighting, occupying inhospitable environments, adaptation or coalescence to navigate their multifaceted and shifting landscapes (Kowalewski 2006:117).

Of these social responses to colonialism one of the most prominent among indigenous communities in the Eastern Woodlands was coalescence; for the Caddo (Perttula 1992; 2002), Catawba (Beck 2009), Creek (Knight 1994), Choctaw (Galloway 1995), Cherokee (Marcoux 2010), and Iroquois communities (Birch 2012). Coalescence is described by Kowalewski (2006) as a force in cultural development which brings about transformations in the social, political, ideological, and economic fabric of societies who aggregate together. Coalescence is defined as a response to internal and external conditions such as warfare (internal and external), demographic decline, movement of refugees and abandonment of large tracts of land (Birch 2012;

Kowalewski 2006). These conditions have been experienced by communities around the world and throughout time, with some responding through coalescence and others choosing alternative responses. The decisions of how to negotiate and respond to these new external or internal conditions is situated in the individual community's built environment and practice (Bourdieu 1977). It is thus necessary to place the community at the center of sociopolitical change and cultural construction, as described by Birch (2012:649), to examine the processes of coalescence within a society.

Under the conditions of coalescence, individuals adopted and brought together different social strategies in new locations to navigate their environments (Birch 2012:648). Many of the strategies implemented in coalesced societies are difficult to observe in the archaeological record (i.e. specific religious practices, migration myths, changes in the means of production); however, others are more easily visible in the archaeological record (i.e. evidence of social integration and the construction of collective defense structures) (Birch 2012:648). Kowalewski (2006:96) notes that these new social groupings frequently form in new places as two or more groups bring their own cultural traditions together, sometimes resulting in a blending of two or more material styles and other times resulting in a continued presence of distinct material styles.

Like other communities across the Southeast, Cherokee groups responded to the external pressures of colonialism by coalescing during the late seventeenth and mid-eighteenth centuries. One such town formed during this period of social transition was Mialoquo. The Cherokees formed Mialoquo ca. A.D. 1760-61 after communities from Lower Cherokee towns, those located close to South Carolinian British colonies, were

partially or completely destroyed by Colonel James Grant in 1761. The Cherokees likely abandoned Mialoquo in ca. 1776-77 following the campaign of British Colonel Christian (Williams 1930:61). It is unknown to what extent the original inhabitants of Mialoquo continued to live in the town following the campaign. Compared to neighboring Cherokee towns in East Tennessee, the town of Mialoquo contains high proportions of non-local Cherokee pottery likely due to the movement of non-local Cherokees to East Tennessee and the subsequent formation of Mialoquo (Russ and Chapman 1983:83). Given the diversity in the ceramic assemblage at the Mialoquo site, it is an excellent archaeological community with which to study the process of coalescence.

These Cherokee communities are well suited to exploring the historical process of coalescence through the archaeological and ethnographic record. Archaeologists have documented a number of towns in various parts of the Cherokee heartland from the seventeenth and eighteenth centuries, including Tomotley (Baden 1983), Citico (Chapman 1979), Chota-Tanasee (Schroedl 1986), Townsend (Marcoux 2010), Coweeta Creek (Rodning 2002), Chauga (Anderson 1994), Tugalo (Hally and Kelly 1998) and others. Much of this work has been concerned with tracing the origins of Cherokee communities through space and time using signatures from material culture, primarily ceramic attributes. Ceramics play a large role in the archaeological identification of coalescent communities as Cherokees living in different areas across the Southeast produced vessels with various combinations of ceramic surface treatments and tempering that have been documented through archaeological investigation. In addition to the archaeological record, numerous ethnohistoric descriptions and recordings by European travelers (William 1930:84), explorers

(DeVorsey 1971), historians (Williams 1930) and government officials document the movement of Cherokee communities and their political and social structures.

In contrast to these early efforts of documenting Cherokee origins, this study seeks to study the settlement pattern of one coalesced Cherokee community in Eastern Tennessee, Mialoquo. The aim of this study is to explore the ways in which ceramic assemblages might give us a glimpse at how members of coalescent Cherokee communities managed their new relationships, identities, and other sociological or spatial tensions that might have occurred when living together in larger community formations.

SECTION 2: THE NATURE OF THE ARCHAEOLOGICAL RECORD AND THE FRAMEWORKS USED IN THIS THESIS

Social boundaries are abstractions and ideological constructs, recognized differently for different reasons by people on the basis of their perceived identity, interests, and social context (Stark 1998). The incorporation of new technological and decorative styles of late-seventeenth and early-eighteenth century native North American ceramics from East Tennessee reflect the social boundaries and social identities these communities contested and transformed in response to English colonialism. These changes occur as a result of decision of individual communities in East Tennessee, namely the Overhill Cherokee, to coalesce with other Cherokee communities from neighboring Cherokee towns.

Archaeologists have long used the study of style to identify social and cultural boundaries and discrete social or ethnic groups in the past. The concept of style itself has been a topic of debate, with the recognition that style is consciously manipulated by

people and not a passive reflection of social identity. Some styles served as a medium of communication (Wobst 1977), and “style” resides in many levels of material culture, not just in form or decoration. Recognizing the problematic relationship between “expressive” style and social groups, archaeologists have begun to search for less consciously employed styles, styles of technical choice (e.g. Chilton 1996) or isochrestic variation (Sackett 1980) that reflect unconscious norms held by members of particular societies. Since technological style or patterns of isochrestic variation are (presumably) not manipulated for individual ends but reflect the learned and ingrained behaviors behind technological behavior, it is hoped they will be more appropriate for detecting social boundaries in the archaeological record.

The focus of this thesis is on the Historic Cherokee occupation in the Little Tennessee River valley, specifically the Mialoquo site (40MR3) in the Tellico Reservoir (Figure 1). I address questions regarding the site’s communities of practice social and spatial arrangements using the ceramic assemblage from the Mialoquo site.

Pottery is an ideal medium to evaluate evidence of initial aggregation of coalescent communities because they (1) typically vary in technology and decoration by culture, (2) can be documented archaeologically and are used in the construction of culture-histories of a region under the culture-history paradigm and (3) are often the most enduring aspects of the material record at a given site.

The diversity within the ceramic assemblage from the Mialoquo site and the well-constructed culture-historical designations of East Tennessee (Egloff 1967; Kimball and Baden 1985; Koerner 2005; Lewis and Kneburg 1946; Sullivan 2007), Blue Ridge Mountains (Ward and Davis 1999), Carolina Piedmont (Ward and Davis 1999) and

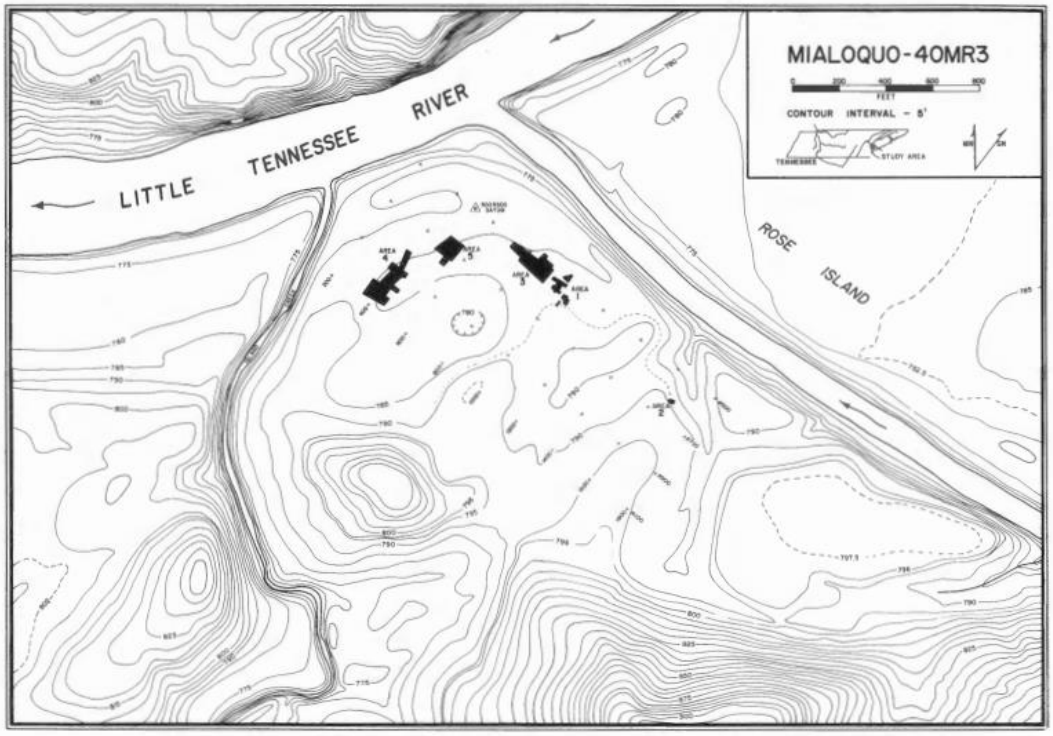

Figure 1: Contour site map of Mialoquo (40MR3). Adapted from Russ and Chapman 1983:3.

the Appalachian Summit (Keel 1976) allow for confident culture-history descriptions of the ceramic assemblage at the Mialoquo site (see Chapter 3). The culture-historical paradigm was developed in the mid-twentieth century with a goal of writing narratives that described the historical development of cultures (O'Brien 2000). This framework was the first major paradigm in American archaeology (Spencer 1997). As applied to ceramics, the culture-history paradigm uses the notion that potters are conditioned by the decisions they made by and by the norms of the culture in which the potter learns the craft of ceramic manufacture (Phillips et al. 1951).

Potters make a sequence of choices related to the process of making a ceramic vessel, including where the clay is procured, what tempering agent is used to strengthen the vessel, the final form and function of the vessel, and how the pot will be decorated on its surface. The process of making pottery consists of a series of culturally embedded techniques and processes embodied in the physical steps of ceramic production. Bourdieu's (1977) notion of *habitus* describes the manufacture of material culture as a process of unintentional choices based on conditioning and individual experience. Ethnographic and archaeological data suggest that ceramic production is not an individual activity (Crown 2007:677). Instead the practice of pottery production should be viewed as an individual working within a community of craftspeople in which we must acknowledge the possibility of collaboration by multiple persons in the cycle of ceramic production and the influence of various communities of practice that affect the individual potters' experiences (Crown 2007).

This study examines how variation in the source of clay paste, vessel decoration and tempering reflect in the spatial and social patterning of Mialoquo's inhabitants. Ethnographic records indicate that women in the Southeast made pottery and typically learned the skill from their mothers or other female relatives and passed their knowledge, referred to as "constellations of knowledge" (Sinclair 2000), down to their daughters, nieces, and granddaughters through the repetitive act of making pots and teaching others how to make pots (Harrington 2002). The theory underlying this ceramic analysis is drawn from the field of cognitive anthropology, which conceives of culture as a matrix of meanings and understandings that exist in the minds of individuals (Dressler 2005). The goal of cognitive anthropology is to understand how individuals living in a

group mentally evaluate and order their world (D'Andrade 1995). This study attempts, first, to tease out different communities of practice based on attributes of ceramic production and decoration, a notion originally suggested by Irving Rouse (1960). Distributional studies of Mialoquo are then used to better understand the social composition of the coalescent community.

SECTION 3: COMMUNITIES OF PRACTICE AND COALESCENCE IN ARCHAEOLOGY

There are several ways anthropologists conceptualize a group of individuals. Communities of practice are one way to describe social networks in which persons share a technological tradition, such as pottery making. Ethnographic descriptions of communities of practice demonstrate that older generations pass technological traditions to younger generations. Additionally, within a single group of persons who share a common identity there may be two or more communities of practice (Eckert and James 2015:2). In ceramic studies, communities of practice are often associated with technological attributes such as temper additive, exterior surface treatment and/or vessel morphology. These technological attributes are learned and thought to carry messages about social identity and experience that may not be conscious or intended by the producer (VanKeuren 2006:92). Attributes that are less visible in the final product, such as tempering additives, carry inherent messages that allow archaeologists to identify the social networks in which potters learned their technological craft.

Donald Lehmer (1954, 1971) first proposed coalescence in the North American archaeological record to describe the aggregation of the Central Plains and Middle

Missouri archaeological cultures. This study provided a foundation for subsequent studies on coalescent communities in North America, and the Southeast specifically, in relation to seventeenth- and eighteenth-century polities (Ethridge and Hudson 2002). The process of coalescence is a force in cultural development which brings about transformations in the social, political, ideological, and economic fabric of these coalescent societies (Kowalewski 2006). Coalescence was just one response among several of Southeastern Indian groups to European colonialism that occurred when an individual community or groups of communities adopted a series of similar strategies. These communities used collective or corporate institutions to enact strategies such as: the centralization of power in inclusive councils, the development of new communities in new places, and the collective defense of their societies (Kowalewski 2006:120). Coalescent societies often exhibit the incorporation of collective defenses, changes in the social means of production, the appearance of political structures like council houses, and the cultural transformations that emphasize the integration of groups through clans, rituals, and settlement layouts designed to promote community integration (Kowalewski 2003a, 2006:117).

Not all groups exhibit every attribute associated with coalesced communities. Ethridge and Hudson (1998:46-48) argue that coalescence should be viewed as a transitional process rather than a singular event. These changes can be difficult to observe archaeologically, including specific religious practices and changes in the social means of production (Birch 2012:648). Other attributes of coalesced communities, however, are readily visible in the archaeological record, such as evidence of social integration and defensive structures.

Birch (2012:647) describes archaeological studies of coalescent societies as generally divided into two categories. The first is a regional focus on documenting and explaining population movement over long periods of time. These types of studies are concerned with the processes of coalescence, changes in demography, migration, and the wholesale adoption or abandonment of cultural centers (e.g. Baird 2006; Goring-Morris and Belfer-Cohen 2010; Hegmon et al. 1997; Hill et al. 2004; Simmons 2007). The second type of coalescent society study focuses on intra-site analyses of individual settlement sites, their histories of occupation, and the social, spatial, and temporal dynamics they encapsulate (e.g., Hodder and Cessford 2004; Kintigh et al. 2004; Riggs and Rodning 2002).

In the Southeast, the coalescent model has been applied to the early historic period where cultural disruption and subsequent community reformation led to aggregated, multiethnic, and multilingual communities (Ethridge and Hudson 1998; Kowaleski 2001, 2003a, 2003b). Post-contact coalesced communities emerged in response to the economically and socially stressful effects of European contact on Native American socio-political entities, which included increased intergroup conflict, population decline, and sociopolitical disruption, all of which have been well documented (Smith 1987; Thomas 2004).

Pre-contact studies of coalescent communities often point to environmental changes and stresses that contribute directly to social pressures and often lead to threats of conflict, population decline, nutritional stress, low fertility rate, and community aggregation (Hill et al. 2004; Reginer 2014). Kowalewski (2006) assembled evidence of coalescent communities globally and demonstrated that the process of coalescence

occurred relatively often throughout human history. Additionally, the data collected determined that coalescence can occur as a result of cross-cultural adaptation to both internal and external stressors. Coalescence of groups with distinct cultural practices necessarily spurred new social mechanisms to attempt to reduce the stresses and tensions inherent in the aggregation of formerly different groups. The process of coalescence can transform everything from community settlement structure to the organization of domestic groups and political order. Kowalewski's (2006) model provides a conceptual framework within which to examine the processes of coalescence at an intra-site level of analysis. Thus, I adopt here a theoretical approach that focuses on history and practice, placing the community at the center of sociopolitical change and cultural construction.

At Mialoquo, it appears that at least two Cherokee groups each with distinctive material culture tradition, coalesced as a result of external pressures related to the changed landscape during colonization. The distribution and endurance of the specific ceramic stylistic types within coalescent communities can provide insights into the nature of social interaction between the communities. Additionally, the structure of both domestic and public spaces reflects the relationships between constituent groups and the social whole; changes in these material settings can thus signal changes in those relationships and aid archaeologists in understanding social and historical processes over time (Gerritsen 2004:151; Hodder 1986:7-8, 149; Thomas 2004:34). The occurrence of variable material culture in conjunction with the spatial nature of that material culture allow for a more holistic understanding of the social processes occurring at a given site.

The archaeological record of the Cherokees is particularly suited to understanding these processes. Archaeologists have reconstructed numerous town sequences that span centuries of occupation (Baden 1983; Harrington 1922; Lewis and Kneburg 1946; Polhemus 1985; Schroedl 1986). Most of these studies focused on distinguishing Cherokee material culture, developing Southeastern culture-history, and locating Cherokee towns and communities that were documented by early European travelers and explorers.

Mialoquo is ideal for exploring historical processes of coalescence. The site was occupied for approximately 20 years, beginning ca. A.D. 1760 and abandoned around A.D. 1776 – 1777 (Russ and Chapman 1983:19). Since the site was occupied for a short period of time it reflects the activities of a single Cherokee generation. It is the study of individual site occupational histories that will help build chronological sequences and the recognition of changes in the materiality and spatiality of communities at a variety of temporal and spatial scales (Birch 2012:650). This study does not seek to provide new explanations of the social and political factors that drove the coalescence of Cherokee communities in the post-contact era. Instead, I focus on the effect of such aggregation and the patterning of community coalescence at Mialoquo. This study aims at (a) using the material record, specifically ceramic assemblages, to detect the process of coalescence in Cherokee communities; and (b) using spatial and element compositional analyses to determine how the coalescent Cherokee community at Mialoquo organized socially.

If we are to understand the cultural change that occurred during the early-seventeenth to late-eighteenth centuries, we must shift our focus from the

reconstruction of specific historical events to understanding the processes by which societies were transformed. A historical-processual paradigm situates explanatory power in an understanding of cultural production and reproduction as ultimately centered on theories of practice (Bourdieu 1977) and structuration (Giddens 1984). By adopting such an approach here, the focus of the study switches from questions of *why* people coalesced to *how* they negotiated and responded to their new social and physical circumstances.

In this study, I have adopted an understanding of community as defined by Yaeger and Canuto (2000:5) whereby a community is an "ever-emergent social institution that generates and is generated by supra-household interactions that are structured and synchronized by a set of places within a particular span of time." This definition of community would apply to individual Cherokee towns, which are typically the largest sociopolitical unit in small-scale societies. For Cherokee societies town communities were interwoven through social organization in which seven matrilineal clans extended beyond the household and town creating ties between geographically dispersed communities (McLoughlin 1984:16; Perdue 1979:22, 1998:42-43).

SECTION 4: RESEARCH OBJECTIVES AND HYPOTHESIS

This research began with a simple question: if Mialoquo was inhabited by both local Overhill Cherokees and other non-local Cherokee populations, what would the social organization of the site look like spatially? To address this question, I evaluate five hypotheses. (1) There will be at least two identifiable ceramic types (Overhill series and Qualla series) present in the ceramic assemblage from the Mialoquo site indicating the presence of at least two communities of practice. (2) I expect that each household's

ceramic assemblage will exhibit only one predominant ceramic type. Cherokee households are matrilineal and it is likely each household residents resided in just one community of practice (e.g. women Qualla potters or women Overhill potters). (3) I expect the households at Mialoquo to be clustered by communities of practice, determined by ceramic type, such that households with the same ceramic type will be arranged in closer proximity than households that contain other ceramic types. Alternatively, if households do not exhibit spatial correlation between particular communities of practice, this may point to evidence of blending communities of practice at Mialoquo. (4) The townhouse was a place where community members gathered for ceremonial and political activities and served as a venue for socializing and entertaining guests (Mooney 1900). I expect the assemblage at the townhouse at Mialoquo to consist of both non-local Qualla ceramic series and local Overhill ceramics series in equal proportions demonstrating that both communities of practice had access to the townhouse. Alternatively, if only one ceramic type is present at the townhouse this may suggest a separation between the communities of practice that resided at Mialoquo. (5) I expect the elemental composition of the defined ceramic types present at Mialoquo will be different. If ceramic types are clustered separately this indicates that these communities of practice were not blended. Alternatively, if the elemental composition of these ceramic types is similar it suggests that the communities of practice were well blended, sharing knowledge of and access to various clay source locations on the Mialoquo landscape. Using historical background as well as ceramic analyses, I will examine the evidence for these five hypotheses in the following chapters.

I use three analyses to test the hypotheses listed above: (1) ceramic typological analysis, (2) spatial analysis, using Geographic Information Systems (GIS), and (3) element compositional analyses of ceramic sherds, by means of portable X-Ray Fluorescence Spectrometry (pXRF).

Russ and Chapman (1983) completed ceramic typological analysis for most recovered sherds in Cherokee feature contexts at Mialoquo. Archaeologists broadly utilize ceramic typologies across the Southeast to establish cultural chronology, especially in the Mississippian and Historic periods. The range of ceramic variation between Cherokee communities in vessel form, temper, and surface treatment indicates reflexive identities between Cherokee town divisions and are discussed further in Chapter 2. The spatial analysis of Mialoquo is utilized in conjunction with the results from the ceramic typological analysis to extract spatial site patterning at Mialoquo and draw conclusions on the spatial structure of the site during the Historic Cherokee occupation. Lastly, the analysis of ceramic element composition was completed by utilizing portable X-Ray Fluorescence (pXRF) to explore how the pottery assemblages of different households and ceramic type might vary by element concentrations, which may suggest distinctions in clay sources used during the manufacture of ceramic vessels.

As this study demonstrates, the communities that founded Mialoquo during the mid-eighteenth century came from two geographic areas. They created both “local” and “non-local” groups with distinctive pottery traditions, respectively the Overhill ceramic series, and the Qualla ceramic series. The distinct pottery traditions of the Overhill and Qualla Cherokees appear to have grown out of local Mississippian traditions stretching

back to the Martin Farm phase (A.D. 900) in East Tennessee and early Qualla phase (A.D. 1300) of southern Appalachia (Rodning 2008).

SECTION 5: CHAPTER OVERVIEW

Considerable attention is directed to the current understandings and trajectory of human social interactions in the region, and how these relationships correlate to significant regional transitions in lifeways and traditions. To contextualize the Historic Cherokees in the Little Tennessee River valley, it is necessary to consider occupation during the previous centuries and the development and decline of the surrounding late Pre-Contact and Contact period groups. Chapter 2 synthesizes the culture history of the Little Tennessee River valley between A.D. 900 and 1783, including ethnographic descriptions of the Cherokees by early British colonials between A.D. 1670 and 1783.

The Mialoquo site (40MR3) is discussed in detail in Chapter 3, including the excavation history of the site and surrounding area. A description of Mialoquo's spatial layout as well as the results of the laboratory analysis of the site's artifact assemblages are also described in Chapter 3. To situate the local pattern of ceramic use identified at Mialoquo within a larger temporal and geographic context, other regional patterns are considered.

Chapter 4 provides details about the dataset selected for analysis and outlines the guidelines and protocol followed for this project. This includes a review of excavation and laboratory procedures in ceramic sampling and ceramic typological analysis. Additionally, it reviews procedures followed for pXRF analysis, and the succeeding methods chosen for qualitative and quantitative analysis.

Chapter 5 reports the results and discussion of the ceramic geospatial and elemental analyses. The results of the ceramic assemblage's typological and element compositional analyses are then compared spatially to determine if any evidence of social patterning is visible at the Mialoquo site.

Lastly, Chapter 6 integrates the results of the ceramic spatial and element compositional analysis to document changing social patterning at Mialoquo and the influence of spatial organization on social and political relationships of Overhill Cherokee and non-local Cherokee communities. Additionally, suggestions are proposed for future archaeological research projects confronted with similar social and political characteristics.

CHAPTER TWO: SOCIAL AND POLITICAL CHEROKEE LANDSCAPE IN THE SEVENTEENTH AND EIGHTEENTH CENTURIES

SECTION 1: INTRODUCTION

Any discussion of cultural interaction must be preceded by an examination of the framework of the archaeological region in question. Lewis and Kneburg (1946) initially proposed and defined the cultural chronology of the Southeast and eastern Tennessee specifically. The intent here is not to rehash a detailed description of Southeastern and East Tennessee culture history, but to provide a basic framework for archaeologically defined cultures. Anderson and Sassaman (2012) provide the most recent synthesis of a complete Southeastern cultural chronology.

Table 1 provides the chronology and periods I use in this study to define the periods of Cherokee and European interactions. It should be noted that Cherokees founded Mialoquo in ca. A.D. 1760 and abandoned it ca. A.D. 1776-1777, during the English Colonial and American Revolutionary War periods (Russ and Chapman 1983:19; Schroedl 2000).

In this chapter I focus on using archaeological and ethnohistoric evidence to assess the social and political landscape of East Tennessee in the seventeenth and eighteenth centuries. In section 2, I describe the Cherokee social and political landscape in the seventeenth and eighteenth centuries. In section 3, I use archaeological evidence to describe the interactions between Cherokee communities

Table 1: Cherokee Post-European Chronology. Adapted from Schroedl (2000)

Cherokee Period	Date
Mississippian	A.D. 900 – 1600
Spanish Exploration/Historic Cherokee	A.D. 1540 – 1670
English Contact	A.D. 1671 – 1745
English Colonial	A.D. 1746 – 1775
American Revolutionary War	A.D. 1776 – 1794
American Federal	A.D. 1795 – 1818
Cherokee Removal	A.D. 1819 – 1838
Cherokee Post-Removal	A.D. 1839 – Present

and European colonists, the results of which ultimately led to the formation of the Mialoquo site. In section 4, I summarize a typical Cherokee town layout using ethnographic and archaeological evidence. In section 5, I describe the material culture, specifically ceramic attributes, that distinguish Overhill Cherokee communities from those Cherokee communities from Middle, Valley, Out, and Lower Town areas. Lastly, in section 6, I contextualize these variations in material culture by reviewing archaeological evidence of pre-Columbian Mississippian communities' material culture in East Tennessee and Southern Appalachia regions and further define the Historic Cherokee cultural phases present in the seventeenth and eighteenth centuries as they are understood archaeologically.

SECTION 2: CHEROKEE SOCIAL AND POLITICAL LANDSCAPE OF THE SEVENTEETH AND EIGHTEENTH CENTURIES

EIGHTEENTH CENTURY CHEROKEE TOWNS POLITICAL AND SOCIAL STRUCTURE

The Cherokees inhabited towns and communities in the present states of Tennessee, Georgia, and North and South Carolina (Schroedl 2000) (Figure 2). In the English Colonial Period, Cherokee people resided throughout roughly 60-65 towns, each inhabited by roughly 100-600 people and politically independent (Schroedl 1986, 2000; Smith 1979). The towns were distributed across the Appalachian landscape into five historically understood settlement clusters (Dickens 1979:10): the Lower Towns, located in the Blue Ridge and Piedmont provinces and centered on the upper Savannah River in northwest South Carolina and northeast Georgia; the Middle, Valley, and Out Towns, located along the Appalachian summit in western North Carolina and extreme northern Georgia; and the Overhill Towns, clustered along the Tennessee and Hiwassee rivers in southeastern Tennessee in the Ridge and Valley province.

Persico (1979:93) and Smith (1979:47) described a Cherokee town as consisting of all the people who use a single ceremonial center, referred to as a House or a Townhouse. James Adair described townhouses as “mountain house,” within which public councils and village leaders met to express their political views (Boulware 2011:14). The Cherokees recognized no higher political entity beyond the town, although the Cherokees collectively comprised numerous towns spread across a large region of the Southeast. Cherokee identities were heavily entrenched in village life as

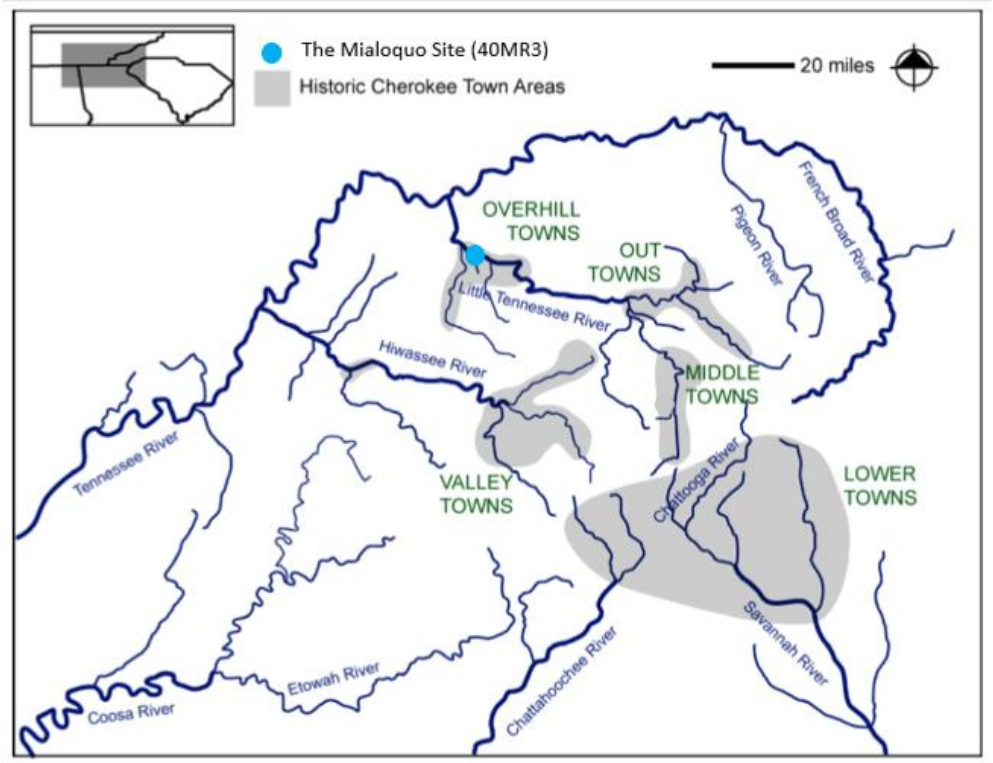

Figure 2: Historic Cherokee town areas. Modified from Rodning (2008:3).

the Cherokee town was the central feature of Cherokees social and political activities (Boulware 2011:10).

The Cherokees were unified by common cultural traditions, especially their language and oral history, shared symbols, ways of understanding their homeland and their place in the wider world (Eastman 2011:18). Although each town was politically independent, Persico (1979:95) noted that there is no written record of any towns "making war against each other". Persico attributes this peace to the presence of members from all seven Cherokee clans within each town. Cherokees divided their

leadership among male peace and war chiefs and female heads of matrilineages (Duncan and Riggs 2003; Eastman 2011:17-18). Boulware (2011:29) notes that clan affiliation extended beyond individual towns and created a broader sense of community among all Cherokees. James Adair (1775:235) describes the interaction of a Cherokee traveling to another town as, “[they] enquire for a house of their own tribe; and if there be any, they go to it, and are kindly received, though they never saw the persons before – they eat, drink, and regale themselves, with as much freedom, as at their own tables.” Cherokee communities were egalitarian and while Cherokees centered sociopolitical organization at the town level, multitown alliances were common and often functioned as units of diplomacy with other native groups or with Europeans (Corkran 1962).

Cherokees used kinship as the primary mechanism to structure their social organization (Mooney 1900). During the early eighteenth century, there were neither specific clans nor lineages that seem to have outranked others in any hereditary hierarchy or town leadership (Champagne 1983:89); towns valued egalitarianism. Cherokees formed cooperative agreements with each other between towns for various situations (Hudson 1976:202-203, 1990:94-101; Riggs, Jefferson and Crothers 1988). There were seven sacred “Mother Towns” of the Cherokee people that are ethnographically described as having some influence over neighboring towns (Mooney 1900:182, 509, 525). Everybody within a town was a member of one of seven matrilineal exogamous clans and this membership established their place within the community (Adair 1775:17; Gearing 1962; Mooney 1900). Most, if not all, people were affiliated with a town, including those living beside town centers and those in the countryside between towns in farmsteads (Rodning 2001:81).

SECTION 3: EUREOPEAN AND CHEROKEE INTERACTION – OVERHILL CHEROKEE MATERIAL CULTURE

THE SHATTER ZONE AND THE CHEROKEES: THE ENGLISH CONTACT PERIOD (A.D. 1670 - 1760)

This section seeks to provide a brief overview of the major historic events that affected Cherokee populations between A.D. 1670-1760, prior to the founding of the Overhill Cherokee town of Mialoquo. Specifically, I address some of the reasons why Cherokees from Lower, Middle, Valley and Out Towns may have immigrated to the Overhill Cherokee town area in which Cherokees established Mialoquo. There are many sources which document the historic interaction between Native communities and Europeans across the Southeast and I do not seek to re-evaluate it here (e.g. Corkran 1967; Crane 2004; Ethridge 2006; Gallay 2002; Marcoux 2010, 2012; McLoughlin 1990a, 1990b; Oatis 2004; Perdue and Green 2007; Reid 1976; Swanton 1998).

The complete extent of the impacts of European contacts with native North American communities may never be fully understood. Robbie Ethridge's (2006) "shatter zone" concept is widely used to describe the impact of the presence of European colonists on the southeastern landscape in the late seventeenth and early eighteenth centuries. This result of European colonization was "always political turmoil, cultural upheaval, dislocation, and social transformation" (Ethridge 2006:208). The shatter zone refers to the large geographic areas of instability that radiated outward in shockwaves produced from commercial trade and related colonial struggles (Ethridge 2006:208).

The shatter zone set off a chain of events for Native communities that are still felt in the present day. Marcoux (2010:9) identifies three main historical forces as causes

for the dynamic landscape of the shatter zone: epidemic disease, colonial competition, and the slave and deerskin trade. Increased participation by Native communities in the newly established European capitalist economy is often cited as the cause of social, economic and political disruptions (Ethridge 2006; Marcoux 2010; White 1991; Wolf 1990). Disease, slave raiding, destabilization and population movements were just some of the results felt by Native communities in the seventeenth and eighteenth centuries (Ethridge 2006:208; Marcoux 2008:50; Synder 2010). One example of this is the 1696 smallpox epidemic among the Cherokees that is estimated to have caused a loss in over half of the Cherokee population (Wood 1989:63). With so much uncertainty in the Cherokee social landscape, Marcoux (2008) demonstrates that many communities closest to European population centers (e.g. Lower and Middle Cherokee Towns) likely moved to Overhill Cherokee Towns or, in the case of Townsend (Marcoux 2010), created their own communities in East Tennessee.

The Cherokees sought economic and diplomatic alliance with the English by as early as 1679, aggressively acting against Spanish missions in coastal Georgia (Swanton 1922:90). The Yamasee War (A.D. 1715-17) marked the tumultuous pinnacle of the English Contact period (ca. A.D. 1670-1740), when, as Marcoux (2010:32) describes, “the chaos of the shatter zone finally ruptured.” Prior to the Yamasee War, Native American groups, including the Westos, Savannah, Yamasees, Yucho, Catawbas, Cherokees and later the Creeks, formed several alliances with the English. The Cherokees and other southeastern Indian communities harvested large numbers of deerskins in exchange for European manufactures goods. By A.D. 1711 the Yamasees

were 100,000 deerskins in debt to South Carolina for the trade goods they had received (Marcoux 2008:30).

Tensions mounted in the early eighteenth century due to a variety of factors, including Native communities' indebtedness to European colonists, the continuing Indian slave trade, and changes and conflicts that occurred as Native communities moved closer to European settlements in order to trade more easily (Braund 1993). As the South Carolina British colony grew they increased their exploitation of southeastern Indian groups in the deerskin trade and the demand for indigenous slaves rose (Hatley 1993:29). The Yamasee War, initiated by the Yamassees and supported by numerous southeastern Indian groups including the Cheorkees, began with a massive uprising in A.D. 1715 that led to the capture and killing of nearly 100 Carolinian colonists near Charlestown (Crane 2004:162; Hatley 1993:23; Swanton 1998:98). The conflict dramatically altered of the geopolitical landscape of the colonial Southeast, displacing many native communities from the areas immediately surrounding the Carolina low-country (Boulware 2011:34). As a result of the war the British sought alliance, particularly economic exchange, with more powerful southeastern Indian communities, such as the Cherokees. The Cherokees used trade to assert their town and regional interests throughout the early eighteenth century by threatening to trade with Carolinian competitors, the Virginians and the French (Boulware 2011:39).

Following the Yamasee War, the English set out to systematically exploit the Cherokee trade routes that linked Cherokee towns with colonial settlements in South Carolina (Mooney 1900). Trade for a short period flourished between the Cherokees and the English colonials as the Cherokees received more trade goods and sent more

deerskins than any other southeastern Indian groups combined (Marcoux 2010:50). The Cherokees encouraged the English to build a fort in the Overhill Towns for protection from the neighboring French. By 1756 the Governor of Virginia, Robert E. Dinwiddie ordered the English begin construction on Fort Loudoun in the Little Tennessee River valley as a means to more easily facilitate trade relationships and foster an alliance between the communities (King 1977; Schroedl 1986:11).

Once the Yamasee War commenced, the Europeans were desperate to identify a single political leader among the Cherokee population. It was during this time that Cherokee persons like Moytoy of Tellico and Ammonscossittee were viewed by the English as Kings of the Cherokees. Persico (1979:96) concluded that it is unlikely that these men's political authority functioned as a monarchy and instead they were probably merely very influential men who "rose to meet a crisis and worked through an expanded council structure." Continuing throughout the early eighteenth century, the Europeans would continually treat the Cherokees as a single political entity. "The Cherokees themselves began to recognize the need for centralization of power as the eighteenth century progressed" (Persico 1979:96). As Cherokee dependence on trade goods increased, the Cherokees became more reliant on maintaining the trade relationships between them and Europeans (Hatley 1993:165). Under this pressure, the centralization of a Cherokee tribal government began to take place in the early-mid eighteenth century. This centralization necessarily required towns to relinquish much of their independence when it came to dealing with non-Cherokee entities.

The Yamasee War led to dramatic changes in the social, political, and economic landscape of the Southeast by causing a renegotiation of diplomatic and trading

relationships between English colonials and Native American communities that lasted another quarter century (A.D. 1715-1740) (Hatley 1993:23). Following the Yamasee War, South Carolina officials sought to avoid another disastrous event with Native American groups by reducing the number of entities with which the government had trading relationships (Marcoux 2010:36). Between 1715 and 1740 officials consolidated Indian towns into larger “nations” that would have an appointed individual to speak for the entire group. The approach of applying European political structure to Native American groups was largely unsuccessful. However, as Native American communities coalesced into larger towns and town clusters, that European idea of labeling distinct “ethnic groups” led to naming of groups like Cherokees and Creeks (Chicken 1916 [1725]:126-130; Hudson 2002; Kowalewski 2006; Marcoux 2010; Rodning 2002).

Conflict for the Cherokees did not end with the Yamasee War. The Cherokee-Creek War began during the Yamasee War when a Creek delegate was murdered by Cherokees in the Lower Cherokee Town of Tugaloo (Marcoux 2010:37). This event would “initiate a decade of violence that engulfed both groups, destroyed entire towns, caused significant disruption of trade and eventually spread westward to the Choctaw and Chickasaw” (Marcoux 2010:37). By A.D. 1727, the Creeks and Cherokees brokered peace between them. However, European powers’ attempts to form alliances and influence Native communities made lasting peace between southeastern Indian groups fragile.

Rising tensions among the Cherokees and the English resulted in soured relationships. The Cherokees had initially allied with the English against the French in the French and Indian War (1754-1763); however, in 1758, white English settlers killed

several Cherokees returning home from recent battles. In 1759 and 1760, the Cherokees retaliated against the English colonists, and besieged Fort Loudoun and Fort Prince George in March 1760 (Hatley 1993:134). In June 1760 Colonel Montgomery raised the siege of Fort Prince George and marched through Rabun Gap into the Middle Cherokee Towns. Cherokees south of Echoe met Montgomery and overpowered his troops. Montgomery retired and Fort Loudoun surrendered (Egloff 1967:21). Cherokee warriors marched the surrendered colonials to the Overhill Cherokee town of Great Tellico, located in the Little Tennessee River Valley. Colonel Grant, in retaliation, formed an expedition the following year and defeated large forces of Cherokees (Mooney 1900:44). During that time, Colonel Grant destroyed fifteen of the Middle Towns including Nequassee, Joree, and Cowee (Anderson 1996; Oliphant 2001).

After the end of the French and Indian War the Royal Proclamation of 1763 established a new administrative structure for recently acquired territories in North America, including rules and protocols concerning future relationships with native North American people and colonial land claims (Hatley 1993:180; Royal Proclamation 1763). The Proclamation of 1763 additionally drew a boundary, prohibiting British settlement west of the Appalachian Mountains, an idea that was heavily favored by the Cherokees. Conflict persisted between Cherokees and British since colonists ignored the Proclamation of 1763 and illegally settled west of the Appalachian Mountains.

DSICUSSION AND SUMMARIZATION (CONTACT – A.D. 1780)

When Europeans arrived in North America, the Cherokees occupied and hunted in a large geographic area across the Southeast and their 60-65 towns functioned as politically independent communities made up of a few hundred persons each. The

political, social and economic stability of eastern native North American communities were transformed by the shatter zone. As a result the Cherokees, like other Native American groups, began to as they began to participate in slave and deerskin trade with Europeans in exchange for European goods (Marcoux 2010). The tension of these stresses on Native American communities reached a breaking point on April 15th, 1715, the beginning of the Yamasee War. The war resulted in a period of renegotiation of diplomacy and trade between southeastern Native groups and European colonists. Additionally, the war resulted in a European attempt to classify groups of Native communities into large empires, resulting in the “Cherokees”, “Creeks”, and other groups who, under the threat of the shatter zone and colonial powers, coalesced in larger towns.

Cherokee communities closest to European towns were more severely affected by disease and warfare. By 1732 Cherokee Lower Towns began coalescing with Cherokee communities in East Tennessee, like the town of Mialoquo, established around A.D. 1760. European interactions, both positive and negative, continued into the mid-eighteenth century and caused more population movement westward towards Overhill Cherokee communities.

SECTION 4: CHEROKEE STRUCTURES & TOWN LAYOUT/LANDSCAPES

Eighteenth-century Cherokee town landscapes generally included two structure classes. The first is domestic structures, including paired summer-winter and single style dwellings. The second class is public structures including townhouses, or council houses, and associated summer townhouses or pavilions. Other Cherokee architecture

includes community storage buildings such as corn cribs and single utility structures like sweat lodges, menstrual huts, shamans' huts and chicken coops (Schroedl 1986:3). While most communities were composed of both public and domestic structures, some smaller settlements, mainly farmsteads between towns, may only have consisted of domestic dwellings.

Cherokee domestic structures typically consisted of a summer house and an adjacent winter house, also referred to as a hot house. Ethnohistoric sources like Lt. Henry Timberlake (William 1927:84), William Gerard DeBrahn (DeVorsey 1971:110), James Adair (Williams 1930:449-450) and others recorded these structure styles. The ethnographic descriptions and the archaeological record demonstrate that typical Cherokee domestic structures consisted of a summer dwelling, a rectangular structure with vertical-post walls measuring between 12 to 16 feet wide and 20 to 60 feet long; and circular or semi-circular winter dwelling, measuring 30 feet in diameter and 15 feet tall (DeVorsey 1971:110; Schroedl 1986:13-19). Households within towns consisted of local community members who belonged to one of seven matrilineal clans (Hill 1997:69; Perdue 1989, 1998:42-43). Each clan had at least one household in each town. Domestic buildings and related household gardens would likely have served as landmarks for the clans and their members (Champagne 1983:755; Hill 1997:27-28).

During his travels to the Overhill Cherokee communities between 1761 and 1762, Lieutenant Henry Timberlake described Cherokee townhouses (Williams 1927:59):

> "The town-house, in which are transacted all public business and diversions, is raised with wood, and covered over with earth, and has all the appearance of a small mountain at a little distance. It is built in the form of a sugar loaf, and large enough to contain 500 persons, but extremely dark, having, besides the door, which is so narrow that but one at a time can

> pass, and that after much winding and turning, but one small aperture to let the smoak out, which is so ill contrived, that most it settles in the roof of the house. Within it has the appearance of an ancient amphitheater, the seats being raised one above another, leaving an area in the middle, in the center of which stands the fire; the seats of the head warriors are nearest it."

Ethnographic sources described communal townhouses or council houses as the most prominent buildings in Cherokee villages (Schroedl 1986). Most townhouses were often located in the center of Cherokee towns and were octagonally shaped (Figure 3). Ethnographic descriptions of Cherokee towns typically focused on these large public buildings that were roughly 40 to 80 ft diameter and served as community centers (Waselkov and Braund 1995:84). Townhouse exterior walls were around 6 ft tall and constructed of wattle and daub. A conical-shaped roof could measure between 15 and 30 ft high and was constructed of bark, cane, and soil (Schroedl 1986:12). The interior of the structure was arranged with benches around a central hearth in the interior with a central support post and between four and ten additional roof support posts. Ethnographic descriptions of townhouses describe their layout as consisting of an adjacent rectangular pavilion that served townhouse functions during the summer, and a large open village plaza (Baden 1983:129-130; Chapman 1985:110-115; Russ and Chapman 1983:51-54; Schroedl 1986:217-233). Schroedl (2000:220) also suggests this may be related to the equal representation of the seven Cherokee clans: one for each side of the octagonal townhouse and one side for the entrance.

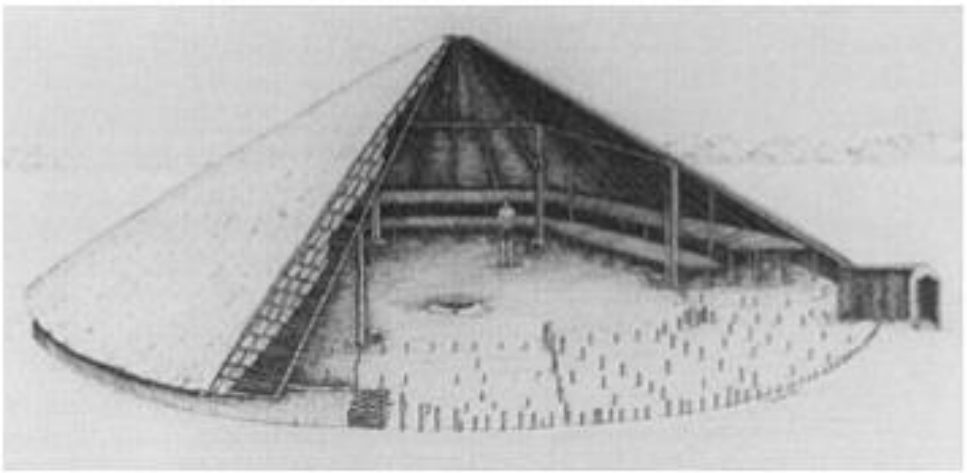

Figure 3: Artist's depiction of the Chota Townhouse ca. 1760 (Bates 1986).

Schroedl (2000:220) notes that a change from four roof-support post townhouse structures to eight posts is indicative of Cherokee townhouses in the mid-eighteenth century and are present at the Overhill Cherokee towns of Mialoquo, Chota-Tanasee and Tomotley. The additional support post allowed for larger interior spaces and were likely an architectural change that altered the spatial relationship. Townhouses and their associated summer pavilions and open plazas served as locations for much of Cherokee social life. Cherokee people used these settings for many ceremonies and political activities, such as town council meetings, as well as venues for public assembly including dances, socializing and entertaining guests (Corkran 1962; Gearing 1962; Mooney 1900).

SECTION 5: CHEROKEE ARCHAEOLOGY: AN OVERVIEW OF CULTURAL CHRONOLOGY, CHEROKEE GEOGRAPHY, AND MISSISSIPPIAN CULTURAL CONTEXT

Early archaeology of the southeastern United States focused on constructing, naming and distinguishing archaeological phases to identify the pre-contact cultures of the region in an approach known as culture-historical archaeology. For late Pre-contact and Historic periods, pottery played a central role in the typological constructs of archaeological phases.

Archaeologists determine distinctions between eastern Tennessee ceramic phases on the basis of presence or absence of established types (Kimball and Baden 1985; Reed 1987; Schroedl et al. 1985) and morphological classes (Reed 1987; Schroedl et al. 1985). The regional culture chronology and temporal context of East Tennessee were established via absolute dates obtained mostly through the extensive excavations conducted in the Little Tennessee River valley as part of the Tellico Reservoir project by University of Tennessee archaeologists and the Tennessee Valley Authority (TVA) in the 1970s (Chapman 1995; Polhemus 1987; Schroedl et al. 1985; Sullivan 2007). TVA and University of Tennessee, Knoxville archaeologists defined cultural phases that persist to this day, in part because there was an emphasis on using the culture-historical approach to establish a cultural chronology for the region. This approach is useful for delineating phases (spatially) and traditions (temporally). Oftentimes the sequence can be established through intensive radiometric dating at sites (e.g., Cobb and Butler 2002), or by a seriation of temporally sensitive ceramic types (Hally 1993, 1994; Hilgeman 2000; Holley 1989; Steponaitis 1983; Williams and Shapiro 1990).

The archaeological record of the Cherokees is diverse geographically, spanning parts of the modern states of North and South Carolina, Georgia, Alabama, Tennessee and Kentucky including the Cherokee heartlands and hunting territories. The Cherokees as a cultural entity appear archaeologically to have developed from preceding Mississippian polities in eastern Tennessee, western North Carolina, northwestern South Carolina and northeastern Georgia. Schroedl (2000) defines the Historic Cherokee period as beginning in A.D. 1540. The culture-history of the region demonstrates a deep time depth to the development of the Cherokee cultures that existed at the time of contact with Europeans.

CHEROKEE TOWN DIVISIONS

By the end of the seventeenth century, the Cherokees occupied a large expanse of the Southeast and that scholars divided into five geographically distinctive town clusters (Schroedl 2000:204). The Cherokees present several regional variations in material culture and language dialect. Mooney (1900) divided the Cherokee towns by dialect, including the Overhill and Valley Towns who spoke the western or Otali dialect, the Middle and Out Towns who spoke the middle or Kithuwa dialect, and the Lower Towns who spoke the lower or Elati dialect (Figure 4).

The Overhill Towns are associated with the Little Tennessee and Hiwassee River valleys in East Tennessee. The Middle Towns were situated on the upper reaches of the Little Tennessee River in western North Carolina. The Valley Towns were located on the Upper Hiwassee, Valley, and Cheoah rivers, while the Out Towns were located in the Tuskasegee and Ocanaluftee River valleys (Greene 1996; Rodning 2002:155). The Lower Towns occupied the upper reaches of the Savannah River drainage on the

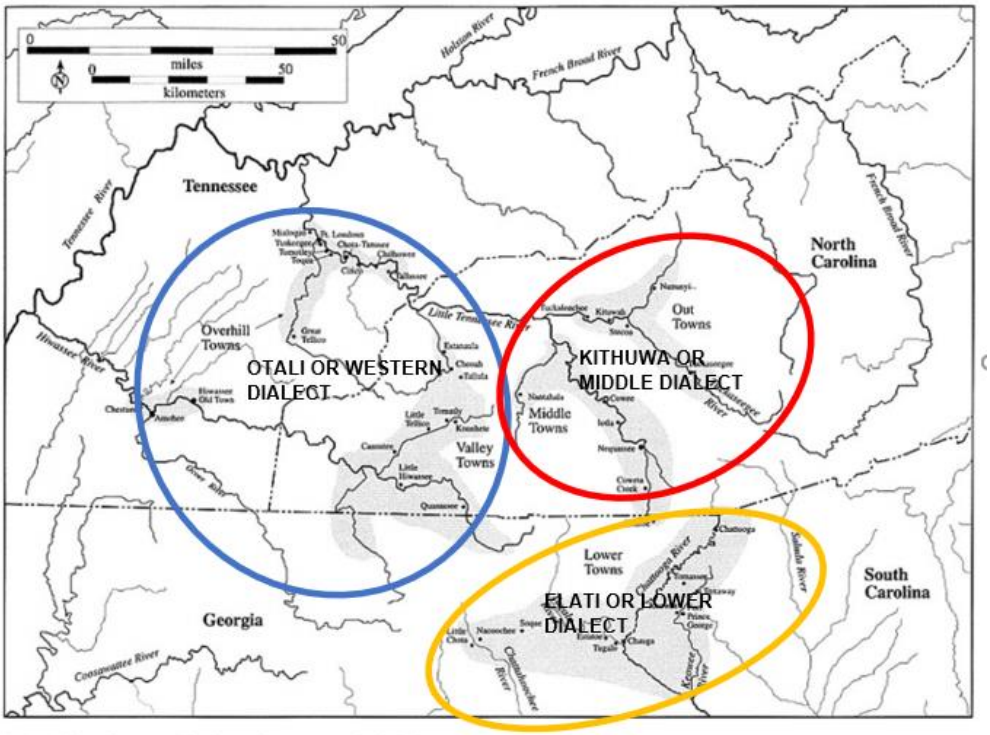

Figure 4: Cherokee language dialect variation by town cluster. Adapted from Schroedl 2000.

Tugaloo, Chattooga, Keowee, and Toxaway rivers in northwestern South Carolina and northeastern Georgia. Archaeological evidence of town variations exists in distinctive material culture (e.g. pottery series), indicating that these Cherokee settlement divisions likely persisted over a significant amount of time (Bates 1986; Egloff 1967; Marcoux 2008:49; Mooney 1900; Riggs and Rodning 2002; Schroedl 1986:5).

The cultural chronologies for Cherokees in different physiographic regions (i.e. the Overhill, Qualla, and Estatoe phases) developed as a result of independent archaeological investigations for each area. Rodning (2002:160) points to the diversity in material culture between Cherokee communities and variation in ecological settings as the reasons for the independent archaeological study of these areas. For the Overhill Cherokee towns, archaeologists built the chronology from large-scale mitigation projects in the lower Little Tennessee River valley resulting from the impending inundation by TVA of the Tellico Reservoir in East Tennessee. The result of these projects was the excavation of eight Cherokee towns along the lower Little Tennessee River valley and subsequently the culture chronological development bridges the Late Mississippian and Historic Overhill Cherokee cultures in East Tennessee (Table 2).

THE MISSISSIPPIAN PERIOD (A.D. 900 - 1600)

The Mississippian Period is recognized in the archaeological record through several unique aspects of material culture and social organization, which are linked to the wholesale adoption of maize agriculture (Anderson and Sassaman 2012; Chapman 1995; Schroedl 1986; Steponaitis 1983). Archaeologists divide the Mississippian period into regions based on identified cultural typological constructions as a result of the culture-history paradigm. Below I discuss the development of the cultural chronology in East Tennessee in detail and then briefly discuss the development of neighboring regions that comprise ancestral Cherokee homelands.

Table 2: Overhill Cherokee Towns Excavated during the Tellico Archaeological Project.

Cherokee Town	Site Number	Reference
Chota-Tanasee	40MR002/062	Schroedl 1986
Citico	40MR007	Chapman 1979
Mialoquo	40MR003	Russ and Chapman 1983
Tuskegee	40MR024/064	Guthe and Bistline 1978
Tomotley	40MR005	Baden 1983
Toqua	40MR006	Polhemus 1987
Starnes	40MR32	Milligan 1969
Wear Bend	40LD107	Chapman 1980

MISSISSIPPIAN POLITIES AND CHEROKEE COMMUNITIES

There are multiple late pre-contact cultures identified archaeologically that encompass the regions in which the Cherokees of the seventeenth and eighteenth centuries lived (King 1977:28). These late pre-contact cultures can be divided into three regions, similar to those recognized in Cherokee town divisions: East Tennessee, the area immediately west of the Appalachian mountain range in the modern state of Tennessee; Southern Appalachia including parts of western North Carolina, western South Carolina, and northern Georgia immediately east of the Appalachian mountain

range; and northeastern Georgia and northwestern South Carolina which is located south of the southern Appalachian area (Riggs and Rodning 2002:37) (Figure 5).

MISSISSIPPIAN PHASES OF EAST TENNESSEE

One of the most widespread artifacts of the Mississippian Period in East Tennessee is shell-tempered pottery (Anderson and Sassaman 2012; Chapman 1994; Steponaitis 1983), although sand and limestone were also less frequently used as tempering agents (Chapman 1994; Hally and Mainfort 2004) (Table 3). In East Tennessee, archaeologists divide the Mississippian period into three phases: the Martin Farm phase, Hiwassee Island phase, and Late Mississippian or Dallas/Mouse Creek phase.

Martin Farm (A.D. 900 – 1100) and Hiwassee Island Phase (A.D. 1100 – 1300)

The Martin Farm phase (A.D. 900-1100) bridges the Woodland and Mississippian periods. These Early Mississippian peoples lived in characteristic wall-trenched houses and had a ceramic style that blended the Woodland period limestone-tempered ceramics with shell-tempered ones. These housing and ceramic styles changed throughout the Mississippian period as Mississippian houses continued to be arranged either in large permanent settlements, often fortified, or in dispersed farmsteads (Hally and Mainfort 2004:279).

The Hiwassee Island phase (A.D. 1100-1300) is distinguished by changes in pottery, burial practices and the development of a new single-post construction architectural style. This Middle Mississippian period demonstrates a dramatic decrease in use of limestone-tempered pottery and the dominance of shell-tempered pottery, a tradition in East Tennessee that continued into the Historic period (Sullivan 2007:92). The Hiwassee Island phase continued with the tradition of wall-trench structures but

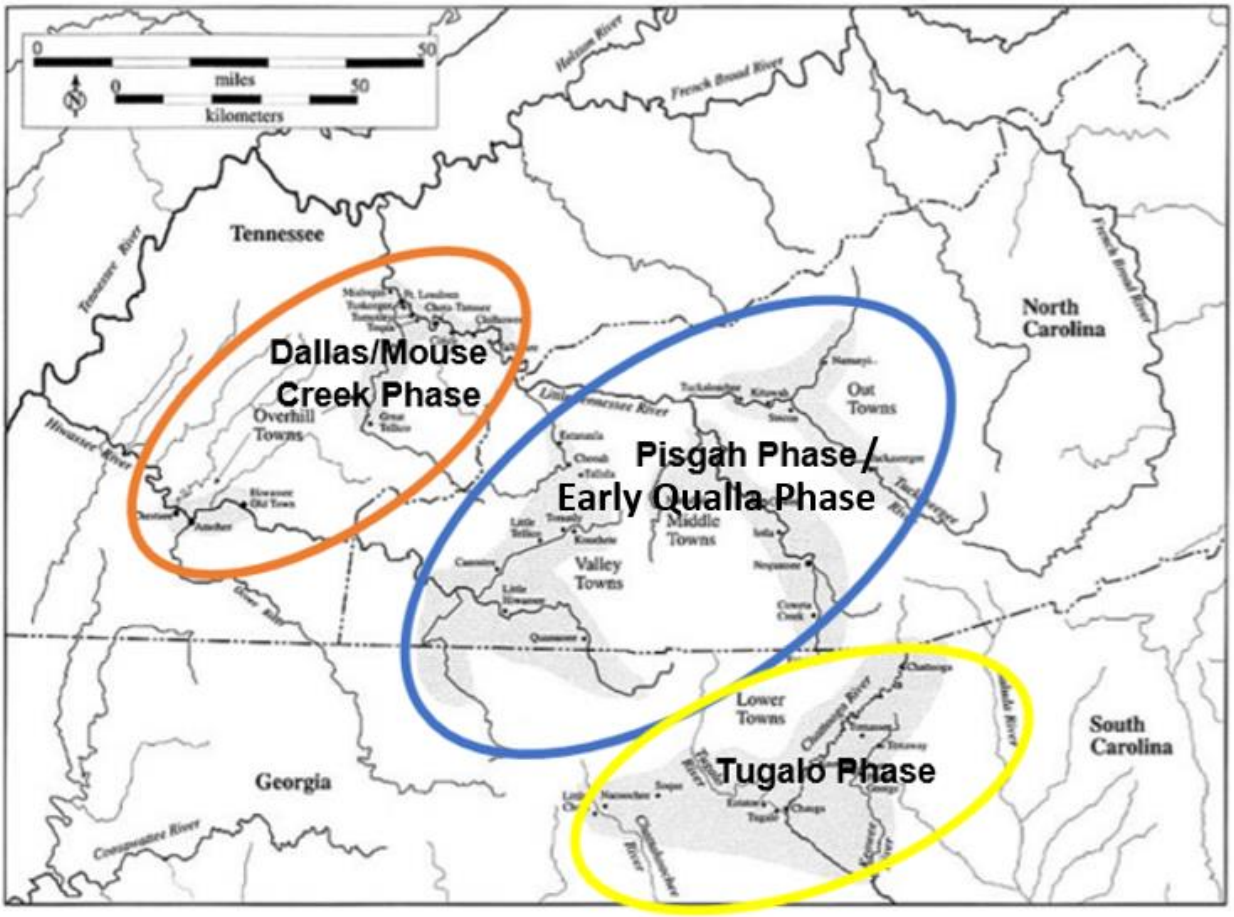

Figure 5: Mississippian cultural areas and Cherokee town clusters. ORGANGE – East Tennessee (Dallas and Mouse Creek phases), BLUE – Southern Appalachia (Pisgah and Early Qualla phases) and YELLOW – northern Georgia and northwestern South Carolina (Tugalo phase).

Table 3: East Tennessee Archaeologically Recognized Ceramic Categories.

Ceramic Category	Surface Treatments	Temper	Date	References
Historic Cherokee Overhill Series	Plain, Burnished, Simple Stamped, Complicated Stamped	Crushed Mussel Shell	A.D. 1600 - 1830	Egloff 1967:3; Marcoux 2012:105; Schroedl 1986
Historic Cherokee Qualla Series (Early, Middle and Later Variations)	Check Stamped, Complicated Stamped (Rectilinear/Curvilinear), Plain/Burnished	Grit or Coarse Sand	A.D. 1450 - 1838	Riggs and Rodning 2002:39
Mississippian	Plain, Looped Handle	Majority Crushed Mussel Shell, Some Sand, and Limestone	A.D. 900 - 1600	Anderson and Sassaman 2012; Chapman 1994; Sullivan 1995
Woodland	Plain, Conical Vessel Shape	Limestone, Sand and Fiber	1,000 B.C. – A.D. 900	Anderson and Sassaman 2012:122; Steponaitis 1986:382

includes the addition of some single-post building construction. At the end of this phase, the practice of burial mounds faded in favor of pits with individuals interred in a flexed position (Sullivan 2007:92).

Dallas and Mouse Creek (A.D. 1300 – 1600)

In East Tennessee, archaeologists refer to the Late Mississippian period as Dallas or Mouse Creek phases, dating from A.D. 1300 to 1600 (Polhemus 1987; Schroedl et al. 1986; Sullivan 2007). The Dallas phase is described by Williams and Shapiro (1990:81) as being “just outside the boundary of Lamar pottery distributions”; however, Dallas architecture and social structure appear to have direct correlations with other Lamar cultures from the same period. The Dallas and Mouse Creek phases are similar with the main difference being the way in which the groups were interred their dead in flexed and extended positions, respectively (Sullivan 2007:92). During the Dallas/Mouse Creek phases the most common ceramic type includes a plain exterior surface treatment with crushed mussel shell tempering. Additionally, strap handles on pottery became more prominent than loop handles. Housing styles changed dramatically in the Dallas phase as wall-trench architecture was nearly completely replaced with single-post structures (Sullivan 1995, 2007).

MISSISSIPPIAN PHASES OF SOUTHERN APPALACHIA AND NORTH GEORGIA AND NORTHWESTERN SOUTH CAROLINA

Pisgah (A.D. 1000 – 1450)

In the neighboring physiographic provinces, archaeologists defined a Middle and Late Mississippian culture as Pisgah phase (A.D. 1000 – 1450) throughout the Appalachian Summit of western North Carolina and southwestern South Carolina (Ward

and Davis 1999:159). Pisgah settlements in the Appalachian Summit produced numerous forms of pottery that were typically decorated with rectilinear or curvilinear patterns and tempered with fine sand and grit typically produced from crushed quartz or steatite (Maus 1997:28; Whyte 2017:158). Pisgah's grit- or crushed-quartz-tempered sherds with a high frequency of stamped exteriors is exceedingly similar to the Historic Cherokee Qualla series ceramics recovered from Middle, Valley, and Out Cherokee towns. Shell-tempered pottery was rarely used in Pisgah ceramics and contrasts sharply with local East Tennessee pottery wares of the same period.

Lamar (A.D. 1350 – 1550)

Following the Middle Mississippian period there is a general trend toward a regional similarity in archaeological types characterized as the Lamar archaeological phase which is generally dated between A.D. 1350 and 1550 (Williams and Shapiro 1990:6). The Lamar culture encompasses a wide geographic range and is generally sub-divided into what is now defined as 80+ cultural phases across the prescribed area (Williams and Shapiro 1990:23). These Late Mississippian cultures of the Lamar culture area broadly share similarities, specifically in the production of ceramic pottery types. Lamar phase cultures are considered to likely be the predecessor to many protohistoric and historic cultures of the Southeast.

Holmes first described the Lamar pottery type in 1903, and it was further defined during 1930s excavations near the Lamar Mound in Macon, Georgia (Williams and Shapiro 1990:4). As archaeologists began to further investigate regions throughout the Southeast they divided the broad characteristics of the Lamar type were into new, more specific regional types including the Pisgah and early Qualla in western North Carolina,

and the Tugalo in northeast Georgia. The ceramic characteristics of Lamar technology include a wide variety of stamped design motifs; folded applique rim strips decorated with notched, pinched or punctated designs; incised designs on the upper portions of vessels; and typically grit tempering (Williams and Shaprio 1990:6).

Tugalo (A.D. 1450 – 1600)

Further south, the Late Mississippian period occupation in the upper Savannah River valley is represented by the Tugalo phase (A.D. 1450 – 1600) (Anderson et al. 1986:42). The Tugalo phase is characterized by the presence of check stamping and high frequencies of complicated and rectilinear stamping and grit tempering. This temper and exterior surface treatment is comparable to that produced by Historic Lower Town Cherokee communities.

SECTION 6: REGIONAL VARIANCE IN CHEROKEE ARCHAEOLOGY AND CULTURAL CHRONOLOGY: OVERHILL, QUALLA, AND TUGALO-ESTATOE

OVERHILL PHASE

The archaeology of East Tennessee demonstrates continuity between the Mississippian and Cherokee cultures seen in the recurrence of shell tempering and plain exterior surface treatments on pottery (see Toqua [Polhemus 1985, 1987] and Chota-Tanasee [Schroedl 1986:Table 6.11]). However, comparison of the Late Mississippian and Historic Cherokee periods in East Tennessee period is problematic as archaeological investigations in the region have focused on the excavation of historically documented Cherokee towns dating to the mid-eighteenth century, including extensive excavations at Tomotley (Baden 1983), Toqua (Polhemus 1985, 1987), and

Chota-Tanasee (Schroedl 1986) and more limited excavations conducted at Wear Bend (Chapman 1980), Citico (Chapman and Newman 1979), Tuskegee (Guthe and Bistline 1978), and Mialoquo (Russ and Chapman 1983). There is very little ethnohistoric or archaeological evidence addressing the extent of occupation or the material culture associated with the Overhill Cherokees, or other Cherokee town areas, during the intervening seventeenth century.

Archaeologists, the Overhill Cherokee period from Late Mississippian periods based on characteristics such as the lack of platform mounds, lack of palisades around the perimeter, vertical-post constructed structures, the presence of both summer and winter domestic and public dwellings, ceramic assemblages comprised of mostly carved-paddle stamped and filleted applique strip pottery, and the presence of Euro-American trade goods (Davis 1986:136). Overhill ceramics are characterized as tempered with crushed mussel shell and having smoothed or scraped exterior surfaces with minor frequencies of paddle-stamped exterior surfaces (Baden 1983; Bates 1986; King 1970).

QUALLA PHASE

Archaeologists first described the Qualla phase through intensive research in the 1960s and 1970s from the Research Laboratories of Anthropology (RLA) at the University of North Carolina, Chapel Hill as part of the Cherokee Archaeological Project (Coe 1961; Dickens 1979; Egloff 1971; Keel 1976; Rodning 2001, 2002, 2007, 2008; Schroedl 2000; Ward and Davis 1999). This project focused on determining the regional origins and development of the Cherokee culture in western North Carolina. Qualla period archaeology is divided temporally into three phases as Early Qualla (A.D. 1300 –

1500), Middle Qualla (A.D. 1500 – 1700), and Late Qualla (A.D. 1700 – 1838); it is defined regionally as the upper Little Tennessee River valley in southwestern North Carolina (Rodning 2008). The Qualla phase material culture bears broad resemblances to Lamar ceramics in the greater Southern Appalachians (Wilson and Rodning 2002:34).

Qualla ceramics are typically tempered with grit (Marcoux 2008:194). The interior surfaces of Qualla pottery are burnished or polished and the exterior surface treatment is predominantly complicated stamped with smaller occurrences of corncob roughened, net impressed, fabric impressed, and cordmarked types (Rodning 2008:2). Qualla phase ceramics are associated with Cherokee Valley, Out, and Middle Towns in the southwestern portion of North Carolina known as the Appalachian Summit (Riggs and Rodning 2002:37). Schroedl (2000:16) notes that the distribution of Qualla ceramics into Valley Towns does not correspond to the distribution of Cherokee dialects, as Valley Town communities produced Qualla ceramics, yet share a dialect with Overhill communities, the Otali or Western dialect. Nonetheless, occupants of the same areas manufactured distinctive Qualla potter, a practice that continues to twenty-first-century Cherokee potting traditions.

TUGALO AND ESTATOE PHASES

Archaeologists have conducted relatively little archaeological research at the Lower Cherokee towns of northeastern Georgia and western South Carolina compared to other Cherokee town areas. Nonetheless, the archaeology of the Lower Towns suggests that Cherokee communities from the eighteenth century share similarities with local residents from the late pre-contact period (Hally 1986). Cherokee Lower Town

ceramics are characterized by high frequencies of complicated stamped surfaces and grit tempering and less occurrence of sand or quartz tempering (Smith 1987:59). Hally (1986) describes the major characteristics of sixteenth-century Tugalo phase ceramics from the Tugalo, Estatoe, and Chauga mounds, including complicated stamp motifs and incised designs on globular jars and near the rims of carinated bowls. These are comparable to the succeeding eighteenth-century Estatoe phase pottery from sites along the Tugalo, Keowee, and Chauga rivers.

Rodning (2002:11) notes that the Tugalo and Estatoe ceramic assemblages are also “very similar to what archaeologists call Qualla pottery in southwestern North Carolina.” The scarcity of Lower Town archaeological investigations and their close comparability to the more heavily researched Qualla ceramics in Out, Valley, and Middle Cherokee towns contribute to the underrepresentation of Lower Town ceramics in the discussion of Cherokee types. The Lower Town Tugalo-Estatoe phases are either lumped together with Qualla ceramics or completely removed from discussions of Cherokee ceramic series. “However, the incising and complicated stamp motifs on Qualla jars and carinated bowls are as much or more similar to Tugalo and Estatoe ceramics as they are to Pisgah pottery” (Rodning 2002:164). Ward and Davis (1999) suggest that once more Qualla ceramics are excavated and analyzed it will be found that the early Qualla phase is characterized by decorations and motifs attributed to the Early Lamar. Until then, the ceramic traditions of the Lower Towns are attributed to the Tugalo and Estatoe phases and the Middle, Valley and Out Towns are attributed to the Qualla phase. Based on the literature review no discernable difference in temper or

exterior surface treatments were identified. As such in this study I will refer to Qualla and Tugalo phase ceramics as a single assemblage – Qualla.

The Estatoe phase chronology faces similar challenges to the Overhill phase, in that the continuity between Late Mississippian and post-contact phases is evident, but there is a gap in the archaeological and ethnographic records corresponding to the seventeenth century. The exception is the Cherokee Middle town of Coweeta Creek which dates between the sixteenth and early eighteenth centuries (Rodning and VanDerWarker 2002).

Addressing this gap in Lower Towns Hally (1986:121) concludes “that we do not have to look outside the Tugalo River drainage for the ceramic antecedents of the eighteenth-century Lower Cherokee.” Anderson (1994:304) agrees that there is appreciable similarity in style and morphology of ceramics between Late Mississippian and eighteenth-century Lower Cherokee towns, although the gap in the seventeenth century remains to be investigated in nearly all areas of the Cherokee homelands.

Qualla ceramics vary in many ways from Overhill Cherokee ceramics from excavated eighteenth-century sites in East Tennessee including tempering agents and exterior surface treatment (Baden 1983; Chapman 1985; King 1977; Rodning 2008; Russ and Chapman 1983; Schroedl 1986a, 1986, 2000) (Table 4). Given the differences between Overhill and Qualla ceramics, archaeologists have recognized some amounts of Qualla pottery at Overhill Towns in eastern Tennessee (Schroedl 1986, 2000). Schroedl (2000:230) indicates that Qualla and Overhill ceramic traditions remained distinctive until the dispersal of Middle, Valley, Out and Lower Town inhabitants in the mid-eighteenth century, when a marked rise in Qualla ceramic motifs

Table 4: Major Ceramic Types Present in Cherokee Towns. Adapted from Marcoux 2008:118; Davis 1986:111.

	Overhill	**Qualla**	**Tugalo and Estatoe**
Temper	Crushed Mussel Shell	Grit, Crushed Quartz	Grit
Possible Exterior Surface Treatments	Plain, Burnished, Incised, Engraved design motif, some Complicated Stamping	Complicated stamped, corncob roughened, net impressed, fabric impressed, and cordmarked	Complicated Stamped, Check Stamped, and Incised
Vessel Type	Globular jars, Restricted rim bowls, and Pans	Globular jars, bowls, and pans	Globular jars and carinated bowls

and style in Overhill Towns is apparent. The presence of Qualla pottery at these sites likely represents the movement of some Cherokee households from Lower, Middle, Valley, and Out Towns to Overhill communities in the late-seventeenth and eighteenth centuries (Rodning 2008; Smith 1979).

In summary, at least two distinctive traditions of pottery making are attributed to Cherokee potters in the centuries prior to and after contact with Europeans. Archaeologists have classified the pottery from Middle, Out, and Valley Towns in western North Carolina as the Qualla series. This ceramic type is similar to pottery from

Lower Towns in South Carolina and Georgia. The Cherokees manufactured the Overhill ceramic series in the Valley and Ridge Province of eastern Tennessee.

SECTION 7: CONCLUSION

This chapter outlines the chronological ordering of cultures in the Southeast and their associated typological classifications based on broad changes that occurred in the pre-contact and historic Southeastern United States. Documenting changes through time allows for comparison and demonstrates the changes that have occurred from the Late pre-contact to the Historic Cherokee periods.

Initially, European and Native American communities interacted in the coastal areas of the Southeast. It was not until the mid-sixteenth century that a series of expeditions led Europeans into the interior Southeast. Some of the well-known explorers that include Hernando de Soto (1539-1543) and Juan Pardo (1566-1568) likely came into contact with Cherokee populations (Hudson 1990). The explorations had severe and far reaching consequences for the Native people of the interior Southeast. Disease, warfare, and slave trading were some of the major consequences of European interaction with Native communities in the sixteenth and seventeenth centuries which led to the depopulation of Native groups across the Southeast (Anderson and Sassaman 2012; Smith 1987; Synder 2010). The writings of early explorers on these communities are the only accounts of late Mississippian societies, even though these group were already undergoing change from the shatter zone, described by Ethridge (2006:208) as “political turmoil, cultural upheaval, dislocation, and social transformation.”

Following the initial European contact period, Native Americans throughout the Southeast felt the effects of sustained contact. This began with the founding of towns in British, Spanish, and French colonies in the early seventeenth century in Virginia and later South Carolina (Anderson and Sassaman 2012:184). While Native groups in previous archaeological periods dissolved or collapsed, many Native communities of the Contact Period Southeast confederated and coalesced into new entities, including Cherokee settlements in Lower, Middle, Valley, Out and Overhill Town communities (Ethridge 2006; Ethridge and Hudson 2002; Ethridge and Shuck-Hall 2009; Galloway 1994, 2005; Marcoux 2010; Wesson and Rees 2002). In summary, the significant changes experienced by the Native peoples of Eastern North America during the contact period shaped the uncertain landscape of the Southeast describe by Ethridge (2006) and contributed to the coalescence of these communities in new social entities.

CHAPTER THREE: CULTURAL BACKGROUND & EXCAVATION HISTORY

SECTION 1: TELLICO ARCHAEOLOGICAL PROJECT INTRODUCTION

Between 1967 and 1979 multiple Cherokee towns were partially excavated as part of a large-scale mitigation project known as the Tellico Archaeological Project (Chapman 1985:2). The project aimed to recover data that pertained to the pre-contact and historic occupations of the area prior to the completed construction of the hydroelectric Tellico Dam (Chapman 1985). TVA began construction of the dam in 1967, the same year the Tellico Archaeological Project began, and completed it in December of 1979. The resulting Tellico Reservoir covers 16,500 acres and inundates the last 33 miles of the lower Little Tennessee River and 22 miles of the Tellico River (Chapman 1979:iii). Fieldwork for the Tellico Archaeological Project was conducted by the University of Tennessee's Department of Anthropology through contracts with the Tennessee Valley Authority and the National Park Service. Of primary interest to the archaeological project was the characterization of the extent of Cherokee occupation in the valley (Guthe 1978). The twelve years of research resulted in the partial excavation of nine Cherokee archaeological sites in the lower Little Tennessee River valley, including Citico (40MR7), Chota (40MR2), Tanasee (40MR62), Toqua (40MR6), Tomotley (40MR5), Tuskegee (40MR24/64), Starnes (40MR32), Mialoquo (40MR3), and Wear Bend (40LD107).

In this chapter, I summarize the site selection methodology and introduce the site chosen as the case study for this project, the Mialoquo site. I then describe the

ethnohistoric evidence of Mialoquo and other Cherokee communities in the lower Little Tennessee River valley, discuss previous archaeological investigations and research conducted at Mialoquo, and summarize the report findings from the 1976-77 excavations. I emphasize the Historic Cherokee period artifact analysis and interpretation as it is currently understood, focusing on temporally diagnostic Euro-American artifacts, ceramics, and foodways.

SECTION 2: SITE AND FEATURE SELECTION METHODOLOGY

SITE SELECTION

The primary criterion for site selection was the presence of ceramic types associated with both local and non-local Cherokee populations (Overhill or Qualla ceramic series) at Overhill Cherokee sites. The Overhill and Qualla ceramic types are commonly found at Cherokee towns in the eighteenth century. Many Cherokee scholars point to the presence of both ceramic types in the eighteenth century towns of East Tennessee as an indicator of Cherokee community coalescence during the eighteenth century (Egloff 1986; Marcoux 2010; Riggs and Rodning 2002; Russ and Chapman 1983; Schroedl 2000). The Qualla ceramic type is specifically useful as an indicator of Cherokee communities from areas in the Lower, Middle, Valley and Out Cherokee Towns and provides an analytical way to identify the movement of these communities to the Overhill Cherokee area in East Tennessee. There are many eighteenth century Cherokee sites in East Tennessee that fit this selection model, though some were identified as better case study candidates than others, thanks to the archaeological investigations completed by the Tellico Archaeological Project. Potential sites from

these investigations included Tomotley (Baden 1983), Toqua (Polhemus 1987), Chota-Tanasee (Schroedl 1986), Wear Bend (Chapman 1980), Citico (Chapman 1979), Mialoquo (Russ and Chapman 1983), Tuskegee (Guthe and Bistline 1978), and others outside of the Tellico Archaeological Project including Hiwassee Old Town (Riggs, Jefferson and Crothers 1988) and Townsend (Driskell 2011).

To narrow the sites and select the archaeological site most appropriate for a single case study to address the hypotheses and answer the research questions posed in Chapter 1, I focused on four additional criteria that needed to be met. First, it was necessary to select sites with discernable household contexts to determine if social patterning between household contexts exist. Second, I focused on sites with short occupations occurring sometime between A.D. 1715 and 1830, in order to analyze a brief period of time during which the Cherokees coalesced in Overhill communities located in East Tennessee. Third, I selected a site that has received relatively little archaeological attention so as to contribute more to our current understanding of Overhill Cherokee archaeology. Lastly, I selected a site whose ceramic collection would be easy to access, including those ceramic collections that are housed at the McClung Museum of Natural History and Culture or the UT Department of Anthropology's archaeological collections. Of the sites previously listed, two Cherokee sites were most promising for selection of the proposed research question: Mialoquo (40MR3) and Hiwassee Old Town (40PK3).

Both of the sites' ceramic assemblages and relevant archaeological data are housed in the Archaeological Division collections at the McClung Museum of Natural History and Culture, date between A.D. 1760 and 1819, and had received little attention

in the archaeological literature compared to other Overhill Cherokee towns. Ultimately, Mialoquo (40MR3) was selected for further research based on recommendation from the Eastern Band of Cherokee Indian's Tribal Historic Preservation Office. Mialoquo is the only Overhill Cherokee settlement site that was inhabited for a brief period (A.D. 1760-1780) during the English Contact and American Revolutionary War periods. Its brief occupation, demonstrated ethnohistoric documentation, identified domestic and public structures, and its chronological placement in Cherokee history makes the site an excellent candidate for the study of eighteenth century coalescent communities. Coalescence is expected at the Mialoquo based on presence of both Overhill and Qualla ceramic types and the suggestion of coalescence in East Tennessee by early European travelers (Klinck and Talman 1970:62).

SECTION 3: INTRODUCTION TO MIALOQUO – SITE LOCATION AND PHYSIOGRAPHIC SETTINGS

SITE LOCATION AND NOMENCLATURE

The Overhill Cherokee town of Mialoquo (40MR3) is an open-air site located on the western bank of the Little Tennessee River between Island Creek and Rose Island in Monroe County, Tennessee, near the modern city of Vonore (Russ and Chapman 1983) (Figure 6). The site's landscape is characterized by alluvial second and third terrace sediments in hilly or mountainous terrain and is situated between 780 and 785 ft

Figure 6: Mialoquo site location (produced using Google maps).

above sea level (Delcourt and Harris 1980). The archaeological record at the site is multi-component, comprising archaeological materials from the Archaic, Woodland, Mississippian and Historic periods. The Mialoquo site's place name has been varied in ethnographic and archaeological texts with names including Mialaquo, Malaquo, Nilaque, Big Island, and Great Island (Brown 1938:9; Evans 1977:76; Mooney 1900:508; Smith 1979:46-47, 56; Van Doren 1928:576-575; Williams 1927:Map; Williams 1937:273).

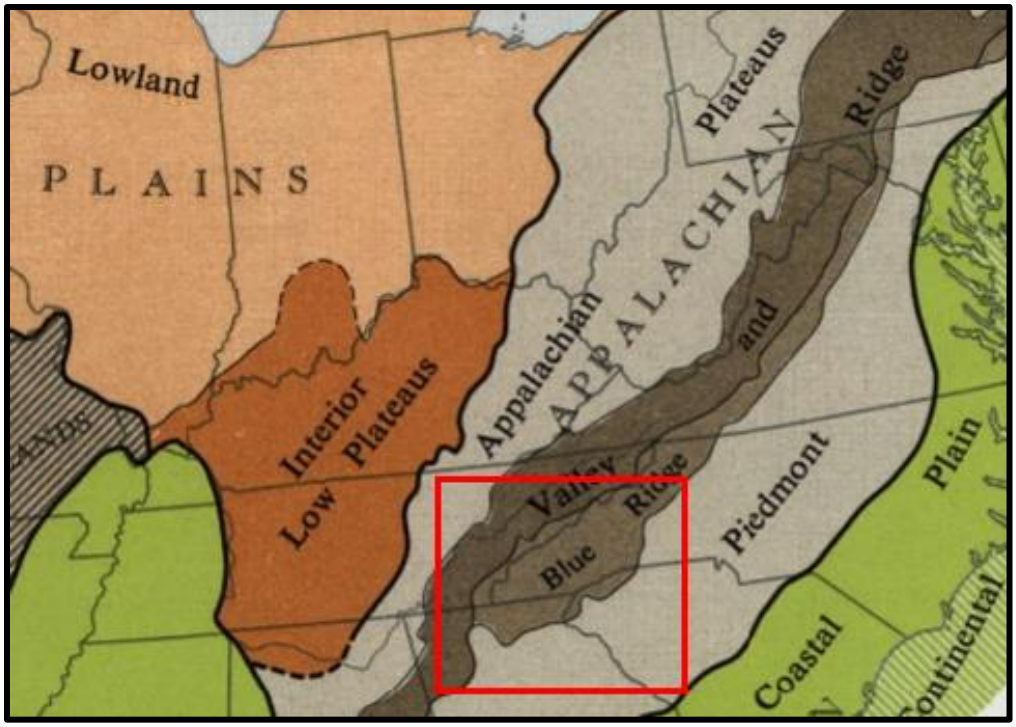

Figure 7: Physiographic map of the study region including Ridge and Valley province, Blue Ridge province, and Piedmont province. Adapted from Library of Congress: https://www.loc.gov/resource/g3701gm.gct00013/?sp=46&r=-0.372,0.372,1.395,1.033,0

Mialoquo and all other sites investigated during the Tellico Archaeological Project are located on the extreme eastern border of the Ridge and Valley physiographic province, closely neighboring the Blue Ridge province to the east (Figure 7). Known Cherokee towns span a total of three physiographic provinces which correlate to the settlement divisions recognized by early English traders (Schroedl 2000:204). Lower settlements were located in the Piedmont Province of western South Carolina and northern Georgia. The Blue Ridge Province contained Middle, Valley and Out Cherokee settlements in western North Carolina, and the Ridge and Valley Province contained Overhill Cherokee settlements in eastern Tennessee. Riggs and colleagues (1988:23)

note that the Ridge and Valley and the Blue Ridge physiographic provinces are similar in terms of the number of absolute species represented, but differ in “patterns of distribution and community composition.”

The Ridge and Valley Province is described as an assembly of valley floors surmounted by long, narrow, even-topped mountain ridges (Fenneman 1928:296-297, 1938:196). The Ridge and Valley Province is divided into three sections from central Pennsylvania to northern Georgia. In the southern section of the Ridge and Valley Province, where Mialoquo presides, the valley floors are larger in area and the ridges are described as low or largely absent compared to the Province’s northern areas (Fenneman 1938:265). The valley floors are trenched by streams eroding from the geological bedrock composed mostly of sandstone and shale throughout the region.

SECTION 4: ETHNOHISTORY OF MIALOQUO

The first ethnographic documentation of Mialoquo is from Lieutenant Henry Timberlake, who referred to the town in his 1761 published memoirs of his travels to Overhill Cherokee communities. Ethnographic documents of the Overhill Cherokees prior to 1761 do not identify the town of Mialoquo, indicating the town likely formed sometime between A.D. 1760 and 1761. In his journal, Timberlake made a detailed map which clearly shows the location of Mialoquo, or the Great Island, and its relationship with multiple other Cherokee towns located on the Little Tennessee River (Williams 1927:Map) (Figure 8).

The map shows the Cherokee community of Mialoquo as composed of eighteen domestic structures, shown on Timberlake’s map as small black triangles. Timberlake’s

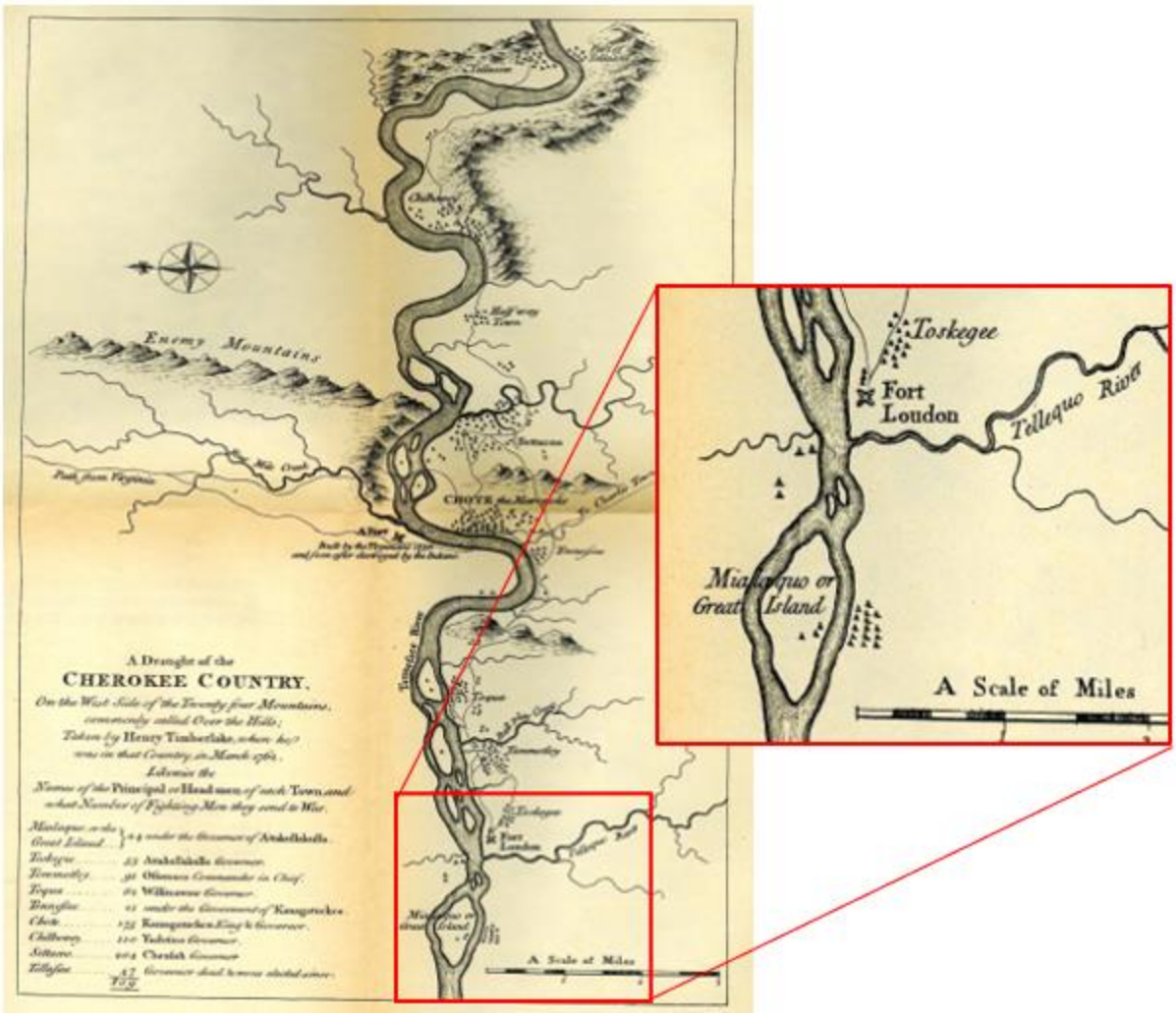

Figure 8: Henry Timberlake's Map of Overhill Cherokees, zoomed in on Mialoquo (1761-62) (Williams 1927: Map).

map makes no indication of a townhouse structure, or other public architecture, although a townhouse was identified archaeologically. Russ and Chapman (1983:16) note that if a townhouse had existed at Mialoquo at the time of Timberlake's visiting it is likely he would have recorded it. Timberlake recorded townhouses at other Cherokee towns in the Little Tennessee River valley, such as Chota-Tanasee, as larger triangles with two sides representing a roof and walls. The absence of a townhouse on Timberlake's map suggests it was constructed sometime after his visit to the Mialoquo community.

Three of the domestic structures on Timberlake's map are shown as being on the adjacent "Great Island", or Rose Island, although full scale excavations conducted between 1973-1974 recovered only Archaic and Early Woodland contexts and no Cherokee artifacts were identified (Chapman 1975). Additionally, Timberlake's map indicates that fifteen 'domestic' structures were located on the mainland south-southeast of Rose Island. Seven domestic structures have been documented archaeologically in this area (Russ and Chapman 1983). The map's legend indicates that the town of Mialoquo was made up of "twenty-four fighting men under the governor of Attakullakulla". Located close to Mialoquo on Timberlake's map is the English-built Fort Loudoun sitting at the confluence of the Little Tennessee River and the "Tellequo", or Tellico, River. Cherokee forces destroyed Fort Loudoun shortly after construction in 1760 after provocation from English militia (Hamer 1931).

While there is a large amount of ethnographic documentation of many Overhill Cherokees, the community of Mialoquo is not well documented. Of the sources discussing Mialoquo, Henry Timberlake provides the most description. In his journal

Timberlake noted individuals he met from the town, which he referred to as “the Great Island”. Additionally he described camping about seven or eight miles from the Great Island (Williams 1927:104). Timberlake, however, left no description of the town’s architecture, social structure or descriptions of any persons he met there during his visit. In total Timberlake referred to “The Great Island” approximately thirteen times. A journal written by John Norton in 1761 refers to a Cherokee place known as Big Island (Klinck and Talman 1970:62). He additionally wrote that the town formed due to the movement of “Kittowa” to East Tennessee after their town was destroyed by Colonel James Grant’s expedition in the summer of 1761 (Klinck and Talman 1970).

While Mialoquo was formed from the movement of Lower and Middle Town Cherokees due to negative interaction with European colonists, it was likely not until 1775 when a prominent Cherokee named Dragging Canoe became Mialoquo’s war Chief that the town grew in size (Bender 2012; Chavez 2008; Raymond 1977). Dragging Canoe was the son of Atakullakulla, or Little Carpenter, an Overhill Cherokee peace chief. Dragging Canoe was known for his outspoken opposition of white settler encroachment of Cherokee territory. Dragging Canoe strongly opposed and refused to sign the 1775 Treaty of Sycamore Shoals that ceded large tracts of Cherokee lands in Kentucky and central and upper Tennessee.

By 1776 numerous battles between the Cherokees and colonists, now calling themselves Americans, occurred in the Cherokee territory causing the retreat of many American colonists from the territory and the movement of many Cherokees to East Tennessee including Mialoquo. Georgian and Virginian colonial militias destroyed many Lower, Middle, Valley and some Overhill Cherokee Towns, resulting in a treaty signed

July 1777 by numerous Cherokee peace chiefs to further cede Cherokee hunting territories (Chavez 2008; Raymond 1977). Dragging Canoe, and nearly 1,000 Cherokee warriors, announced their intention to secede from the Cherokee Nation and elected to move further south down the Little Tennessee River, establishing new towns near present day Chattanooga, Tennessee (Chavez 2008; Raymond 1977). Dragging Canoe and those Cherokees who resettled in these towns continued the war with American colonists and became known as the Chickamauga (Bender 2012; Chavez 2008). Peace chiefs Attakullakulla, Oconostota, and others chose a different path pursuing peace with American colonists.

Mialoquo likely saw a population decline following the treaties of 1777 and the campaigns of Colonel Christian and Colonel Williamson between 1776-1777 (Brown 1938:163; Williams 1937). It is unknown to what extent original inhabitants of Mialoquo continued to live in the town following this initial population loss. By 1780, the expeditions of Colonels John Sevier and Arthur Campbell resulted in the complete destruction of ten principal Cherokee towns in East Tennessee as well as several small towns, including Mialoquo (Mooney 1900:58). Dragging Canoe continued warfare against the Americans, even after the end of the American Revolution in 1782, until his death in 1792 (Chavez 2008).

ETHNOHISTORY CONCLUSION

The town of Mialoquo appears first in the journal of Lt. Henry Timberlake in A.D. 1761-62. At the time of Timberlake's visit he recorded eighteen domestic structures and no public buildings. Archaeological evidence indicates that Mialoquo grew in size after Timberlake's visit, demonstrated by the construction of a townhouse. The town of

Mialoquo was also mentioned by Norton (1761), but he reported very little about the town. The town likely ceased to exist as a “principal Overhill settlement” after the winter of 1776-1777 when British Colonel William Christian likely depopulated the town and Mialoquo was almost certainly completely destroyed following the Expeditions of Colonels Sevier and Campbell in 1780.

SECTION 5: EXCAVATION HISTORY

1976-1977 INVESTIGATIONS AT MIALOQUO

Beginning in 1976, the largest and most extensive archaeological investigation of Mialoquo commenced as a part of the mitigation efforts of the Tellico Archaeological Project. With the impending inundation of the lower Little Tennessee River, by the University of Tennessee’s Department of Anthropology decided to reinvestigate the area suspected to be the location of the historic Cherokee town site of Mialoquo. The Tennessee Valley Authority scheduled completion of the Tellico Dam in January 1977. Under the direction of Dr. Gerald Schroedl, a team of archaeologists sought to discern the location of the Cherokee town recorded by Lt. Henry Timberlake. The excavation goals for Mialoquo were: (1) to locate and map Cherokee structures; and (2) to locate, record, excavate, and waterscreen as many Cherokee features as possible prior to inundation of the site.

Once Mialoquo was located, a smooth-bladed backhoe removed the plowzone and locate structural evidence and features in the initial Areas 1 and 2, exposing roughly 4,600 sq. feet. The stripped surfaces were cleaned of loose soil by shovel skimming and all features and postholes were tagged as they were exposed. Postmolds

and features were numbered consecutively. Postmolds associated with identifiable structures were soil augered for depth and their diameters were recorded. During initial testing, seventeen features were recorded within Area 1 and 2 and fifteen were excavated (Russ and Chapman 1983:8). A waterscreen sample was taken from most features. Waterscreen sizes included ½-inch, ¼-inch, and 1/16-inch mesh. Flotation was used for the partial collection of paleoethnobotanical samples from two features.

TVA delayed the completion date of the dam, allowing excavations at Mialoquo to continue into 1977, exposing an additional 26,000 sq. feet in Areas 3, 4, and 5 (Figure 1). In total, 81 features were exposed and partially or fully removed for content analysis. A total of 13 features were recorded in Area 5, 30 in Area 4, and 21 in Area 3. Eight structures were discerned from the postmold patterns at Mialoquo. These include a probable townhouse, Structure 7, in Area 5 and seven domestic structures within Areas 3 and 4. Excavations at Mialoquo concluded in April 1977. It is estimated that approximately three percent of the Overhill Cherokee occupation at Mialoquo was excavated (Russ and Chapman 1983:135). The site was inundated by the Tellico Reservoir in December 1979 and is currently estimated to be covered by approximately 25 to 30 feet of water.

SECTION 6: SUMMARY OF SITE REPORT FINDINGS 1976-1977

HISTORIC CHEROKEE OCCUPATION OF MIALOQUO

Cultural deposits at Mialoquo were assigned a temporal cultural affiliation based mainly on the presence of temporally diagnostic artifacts. The artifact classes most heavily used to assign a temporal cultural affiliation were the presence/absence of Euro-American materials, ceramic attributes including temper and exterior surface treatment

categories, and temporally diagnostic projectile points. The densest occupation of the Mialoquo site dates to the Historic Cherokee period, ca. A.D. 1760 – 1780. The Historic Cherokee occupation includes a series of 692 postholes representing eight identified structures and a total of 52 pit features. The Historic Cherokee component was only excavated in the 1976-77 investigations of Mialoquo and those datasets are summarized here. In the following section I will briefly review the recovered features, structures, Euro-American artifacts, foodways, and ceramics as presented in Russ and Chapman (1983).

FEATURE DATA

During the 1976-77 excavations, features were consecutively numbered and plotted and then bisected to record feature stratigraphy in the pit fill before removing the second half of the feature. Most features were water screened in either ½-, ¼-, or 1/16-inch mesh screens (Russ and Chapman 1983:14). Measurements for features were recorded in feet and tenths of feet to be consistent with earlier excavations in the project area (Russ and Chapman 1983:15). Five areas were excavated at Mialoquo; the number of structures and features excavated in each area is reported in Table 5.

Of the 81 features identified, 52 (64.2%) were associated with primary Cherokee contexts and eight (9.88%) were assigned Mississippian cultural contexts. Additionally, 14 (17.28%) features were assigned an indeterminant cultural affiliation based on the materials observed. Seven (8.64%) features were classified as tree roots. There is no evidence of overlapping features, which suggests a short occupation of the Mialoquo site (Russ and Chapman 1983:130). Additionally, Russ and Chapman (1983:130) note

Table 5: Number of Cherokee Features and Structures by Area.

Area Number	***Number of Cherokee Features***	***Number of Cherokee Structures***
Area 1	9	0
Area 2	6	0
Area 3	15	4
Area 4	21	3
Area 5	1	1

that the cluster of features south of the Mialoquo Townhouse (Structure 7) may be borrow facilities for clay.

The Cherokee feature types varied widely with the most predominate type being Refuse-Filled Pits (N = 35; 67.31%), followed by Cob-Filled Pits (N = 8; 15.38%), Pits with Post (N = 6; 11.54%), Fire Pits (N = 2; 3.85%), and Miscellaneous (N = 1; 1.92%). Of the 52 Cherokee features, 23 (44.23%) contained ceramic sherds and only nine (17.31%) were associated with structures at Mialoquo.

STRUCTURE TYPES AT MIALOQUO

In total, seven domestic structures and one public structure were recovered at Mialoquo. Architectural structures were identified from postmold patterns analyzed by Russ and Chapman (1983:38). Structure identifications are represented by 692 postholes recovered in Areas 3, 4, and 5. Additionally, Russ and Chapman (1983) suggest that feature clusters in both Area 1 and Area 2 indicate a structure may have existed in both areas, but no postholes were identified.

Timberlake recorded eighteen structures at Mialoquo, but made no indication as to the types of structures he observed (Williams 1927). Multiple examples of structure types utilized by Cherokee communities exist archaeologically. The most common structures identified in the archaeological record and in ethnohistoric documents are domestic Cherokee households. These structures are typically circular or rectangular in construction, likely representative of their use as either summer (open-sided rectangular structures) or winter (enclosed circular structures) dwellings. Seven domestic structures, including one “rounded-rectangular” and six rectangular, were identified at Mialoquo.

Structure 1

Structure 1 is located in the southeastern portion of Area 3. The structure contains 48 post molds arranged in a “rounded-rectuangular” pattern (Figure 10). Four interior postmolds are likely the structure’s roof supports which are approximately 0.6 feet in diameter and 0.8-1.0 feet deep. The diameter of the structure is approximately 23.5 feet and it is noted by Russ and Chapman (1983:42) as being a likely winter domestic dwelling and is the only such structure recorded archaeologically at Mialoquo. Structure 1 has three associated features (18, 19, and 20), which all occur in the

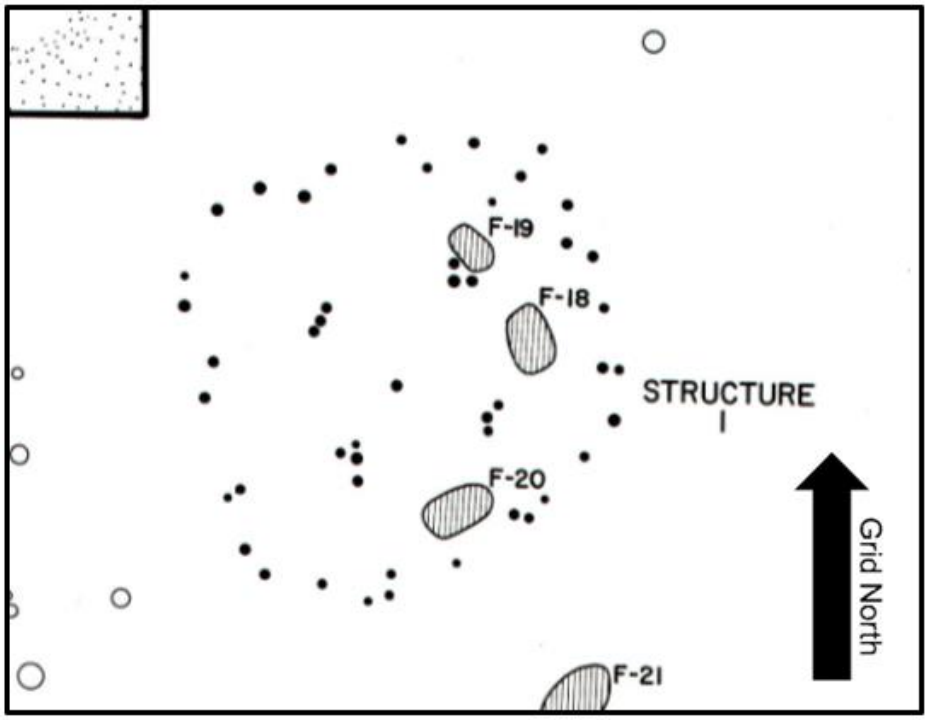

Figure 9: Structure 1 in Area 3, Cherokee winter house (Russ and Chapman 1983).

eastern portion of the structure's interior. Features 18 and 20 are fire pits and Feature 19 is a refuse-filled pit. This domestic structure is located the furthest from the townhouse (Structure 7) recorded at Mialoquo.

Structure 2

Structure 2 is located near the middle of Area 3. The structure contains 63 postmolds and likely was used as a single domestic dwelling. The structure is

rectangular in construction and is 25.0 feet in length and 14.0 feet in width. There are no features within the interior of Structure 2, but four features occur in the general vicinity (Features 33, 34, 35, and 36). Features 33, 34, and 35, all refuse filled pits, are located just east of the structure and the large Feature 36, classified as a miscellaneous feature, is located 4.5 ft south of the structure.

Structure 3

Structure 3 is additionally located in Area 3, in the northeastern portion. This structure includes 27 postmolds arranged in a rectangular pattern. The structure was approximately 25.0 feet in length and 12.0 feet in width and contains a large single feature, Feature 24, that occurs within the northern interior of the structure. Feature 24 represents a likely storage/cellar feature, but is classified as a large miscellaneous feature. Two additional features are located south of the structure. Feature 23 is a refuse-filled pit and Feature 25 is a pit with post; both contain Cherokee occupation materials.

Structure 4

Structure 4 is located in the southwestern portion of Area 4. This structure is characterized by a rectangular patterning of 33 postmolds. This structure is similar in shape to Structures 2 and 3 and likely represents a single domestic dwelling. Structure 4 is 25.0 feet in length and 14.0 feet in width and contains no features within its interior. However, Features 47, 48, 49 and 53, all refuse-filled pits, occur on the southwest or southernmost wall of Structure 4.

Structure 5

Structure 5 is located just north of Structure 4 in the southeastern portion of Area 4. This structure contains 34 postmolds in a rectangular pattern. It likely represents a single domestic dwelling with a length of 32.0 feet and width of 12.0 feet. This structure is the largest domestic dwelling at the Mialoquo site and contains three parallel rows of posts. This structure is “virtually identical” to structures observed at Tomotley and other Cherokee sites (Baden 1983). There are several features, all refused-filled or cob-filled pits, contained within (Features 44 and 45) or nearby (Features 42, 46, and 52) the structure. Additionally, Features 39, 41, 43, and 53, all refuse-filled pits, are found within the general vicinity of Structure 5.

Structure 6

Structure 6 includes a total of 26 postmolds observed in a rectangular pattern (Figure 11). This structure is located in the northeastern portion of Area 4, and is similar to Structures 2, 3, and 4. Feature 59, a cob filled pit, is the only feature located within the structure. Several additional features (57, 58, 61, 62, and 64), including refuse-filled, cob-filled, and pits with postmolds, are located in the general vicinity.

Structure 7

Structure 7 is the only structure located in Area 5 and based on postmold patterning was likely the townhouse for Mialoquo (Figure 12). Overall, the central roof supports of the townhouse form an octagonal shape similar in shape and size to eight-sided townhouses excavated at Chota-Tanasee (Schroedl 1986) and Tomotley (Baden 1983). Structure 7 ranged between 52 and 60 feet in diameter (Russ and Chapman

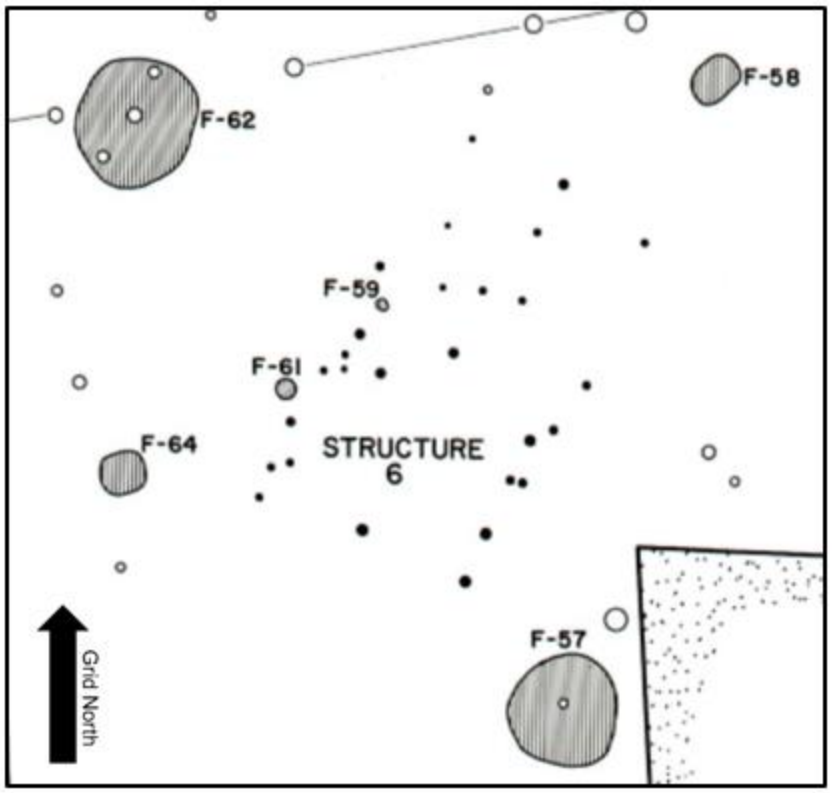

Figure 10: Structure 6 in Area 4, Cherokee summer house (Russ and Chapman 1983:50).

Figure 11: Postmold pattern of Structure 7, townhouse, at the Mialoquo site (40MR3). Photo courtesy of McClung Museum of Natural History and Culture. Taken by Gerald Schroedl, Ph.D.

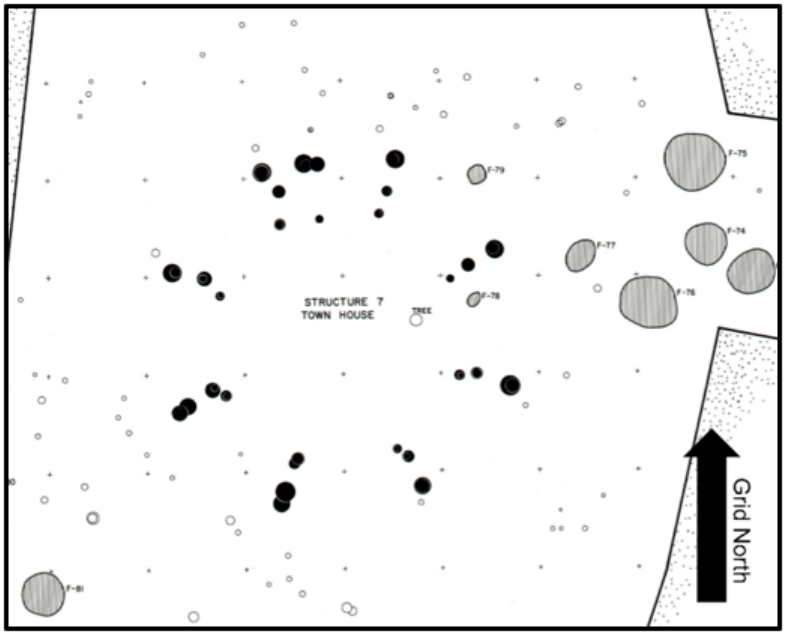

Figure 12: Structure 7 in Area 5, Cherokee townhouse (Russ and Chapman 1983:52)

1983:51). A limited number of features are located within and in the surrounding area of Structure 7. Feature 78 is the only feature located in the interior southern portion of the structure. Features 76, 77, and 81, either refuse-filled or unclassified pits, are located south of Structure 7. The areas north, east and west of Structure 7 are generally devoid of features (Figure 13).

Structure 8

Structure 8, the final structure identified at Mialoquo, is located in the southern portion of Area 3. This structure is made up of 36 post molds arranged in a rectangular pattern. Structure 8's function is undetermined due to its small size, 15.0 feet in length and 9.6 feet in width. Similar structures are described at Chota-Tanasee (Schroedl 1986). Features 30 and 31 are located within the interior of the structure and five more features (26, 27, 28, 29, and 32), all refuse filled pits or pits with posts, are located in the general vicinity surround the structure.

EURO-AMERICAN ARTIFACT GROUPS

A total of 2,648 Euro-American artifacts was recovered from the five excavation areas during the 1976-1977 Mialoquo excavations. Artifacts were assigned to eight groups based on South's (1977) classification system: Kitchen (N = 131, 4.95%), Architecture (N = 39, 1.47%), Furniture (N = 2, 0.08%), Arms (N = 61, 2.27%), Clothing (N = 2,238, 84.52%), Personal (N = 34, 1.28%), Tobacco Pipe (N = 14, 0.53%) and Activities (N = 130, 4.91%). In this section, I address only those objects that produced a diagnostic date for Mialoquo's historic occupation. For more detailed analysis of the Euro-American artifacts and native-produced artifacts recovered from Mialoquo see the

Mialoquo site report (Russ 1984; Russ and Chapman 1983:99-115). The Euro-American artifacts present at Mialoquo indicate the site was predominantly occupied between the mid- to late-eighteenth century. This assessment is in agreement with the known ethnohistoric documentation of Mialoquo occurring from ca. A.D. 1760 – 1776.

Kitchen Group

The Kitchenware group consists of items used in the preparation, storage and consumption of foods and beverages. This group includes ceramics, container glass, glassware, tableware, and other miscellaneous kitchenware (Russ 1984:44).

Ceramics Nine Euro-American ceramic sherds were recorded at Mialoquo including Delftware (South 1977), a porcelain ceramic sherd, and seven stoneware jug fragments. The combined Delftware and overglaze enameled porcelain sherd provide a median date of A.D. 1730 for the site, although Russ and Chapman (1983:100) note that the small sample size from Mialoquo does not provide an accurate or reliable date. The stoneware jug fragments date between A.D. 1840 and 1900, after the site's abandonment by the Cherokees.

Glass Bottles One-hundred seventeen glass bottle container fragments were recovered from Mialoquo. Based on the color, thickness, beveling, curvature, base, and kick, a majority of the glass bottles were identified as dating between A.D. 1776-1781 (Russ and Chapman 1983:102).

Iron Table Knives Three iron table knives were recovered from Mialoquo and date from the first three quarters of the eighteenth century (Russ and Chapman 1983:102).

Architecture Group

This group of artifacts is represented by window glass (N = 19, 48.71%), nails (N = 18, 46.15%), spikes (N = 2, 5.13%), and daub (reported as weight in grams). A total of 39 artifacts are identified. Russ and Chapman (1983:103) note that a lack of diversity in this group likely indicates a restricted availability of structure-related hardware for the Cherokees as well as a limited demand for these items. Of the Architecture Group the only diagnostic artifacts were hand-wrought nails, which Russ and Chapman (1983:104) submit have little dating potential as they were common from the seventeenth through the early nineteenth centuries.

Furniture Group

Two artifacts were recovered from the Furniture Group including one brass furniture tack and one brass furniture hinge (Russ and Chapman 1983:104). Neither artifact was diagnostic.

Arms Group

This group of artifacts includes firearm supplies and equipment such as gun parts, ammunition, and gun flints. Artifacts recovered in the Arms Groups include ammunition (N = 25, 41.6%), gunflints (N = 19, 31.6%), gun parts (N = 13, 21.6%), and triangular sheet metal cut projectile points and projectile point fragments (N = 3, 5%) for a total of 61 artifacts.

Ammunition Sixteen lead balls, two lead shots, one piece of sheet lead and six lead spruce fragments were recovered from Mialoquo. This artifact class indicates a date of between A.D. 1750 – 1800.

Gunflint Nineteen gunflints comprise the Gunflint group. Seventeen spalls and two French Blades were determined using Stone's (1974:247) gunflint typology. The Gunflint artifact class indicates a date between A.D. 1776 and the late nineteenth century.

Clothing Group

This artifact group is composed of materials associated with the "manufacture, repair, and use of clothing articles" (Russ and Chapman 1983:111). The artifacts in this group include buttons (N = 4, 0.17%), sleeve links (N = 1, <0.1%), scissors (N = 1, <0.1%), straight pins (N = 1, <0.1%), clothing eye (N = 1, <0.1%), and beads (N = 2,228, 99.64%).

Buttons A total of three metal buttons and one glass button were recovered at Mialoquo. The buttons date from A.D. 1726 to the early-nineteenth century, but most are reported to be common in the second half of the eighteenth century.

Scissors A single scissor handle was recovered from the site and is thought to date from the eighteenth century (Russ and Chapman 1983:112).

Glass Bead A total of 2,228 beads were recovered from Mialoquo. Of those only three were shell beads and all others were glass trade beads. The beads were classified using the Kidd and Kidd (1970) typology and presented in Russ and Chapman (1983:113-114 Table 30). Of the glass beads, 94.7% were tube drawn, 5.2% were wire wound, and 0.1% were manufactured through grinding (Russ and Chapman 1983:113). Additionally, 94% of the beads are attributed to the Type IIa seed variety with a

predominantly white and black color. This bead type is typically found in glass bead assemblages from the mid – late eighteenth centuries (Marcoux 2010:160).

Personal Group

A total of 34 artifacts were recovered at Mialoquo that are included in the personal group including brooches, earrings, finger ring, tinklers, mirrors, and hair pluckers. Russ and Chapman (1983:110) describe these artifacts as “not useful for dating purposes”; however, the presence of trade silver is noted as indicative of trade occurring post-A.D. 1750.

Tobacco Pipe Group

Fourteen tobacco pipe stems, stem-bowl junctures and bowls were recorded from Mialoquo excavations. A majority (N = 13) were fragments produced from kaolin, while the remaining fragment was produced from a lead-glazed earthenware pipe (Russ and Chapman 1983:122). Using different formulas described in Russ and Chapman (1983:122), the kaolin pipes produce a date between A.D. 1766 and 1785, although the authors suggest to view the dates with caution as the small sample size and problems with the formulas may yield an earlier than expected date. The lead-glazed pipe is dated between the mid-eighteenth century through A.D. 1900 (Russ and Chapman 1983:122).

Activities Group

This group of artifacts may include items that cannot be placed into the other groups, including stable and barn tools, miscellaneous hardware, construction-related tools, musical instruments, toys, and wire. In total, the activities group is composed of

130 artifacts. Of the artifact classes represented in this group none are useful for dating purposes and many are considered common trade items between the English and the Cherokees.

FOODWAYS: PLANT AND FAUNAL REMAINS

Plant Remains

Paleoethnobotanical samples were collected mainly through water-screening although flotation methods were used for a portion of two features (Features 14 and 26). A total of 58 samples were derived from the water screens in either 1/16-in (N = 49) or ¼-in (N = 9) screens. The samples obtained from Mialoquo are skewed toward the recovery of more robust plant parts and species due to the overall lack of flotation sampling that would recover smaller and more delicate plant remains. In total, 1,391.70 grams of carbonized plant remains were identified and quantified including wood charcoal (892.53 g) and plant foods (499.17 g). The results are presented in Russ and Chapman (1983:91) and analyzed by Andrea Brewer Shea, but are briefly synopsized here.

Wood Charcoal Twenty-one genera of wood charcoal were identified from 1,940 fragments identified at Mialoquo totaling 892.53 grams. The samples were dominated by oak and hickory species which is consistent with the mixed mesophytic forest composition of the region during the contact period (Shelford 1963). Other major concentrations of wood species present include ash (*Fraxinus* sp.), pine (*Pinus* sp.), and cherry (*Prunus* sp.).

Plant Foods A total of 499.17 grams represent plant food remains recovered from Mialoquo. Corn (*Zea mays*) is the most abundant plant food material, comprising 80.9% (403.88 g) of the plant foods recovered. Other plant foods including nut species (68.99 g; 14%), peaches (*Prunus persica*) (13.42 g; 2.7%), tubers (unidentified) (2.4%), squash and gourd (Cucurbitaceae) (<1%), sunflower (*Helianthus annuus*) (1%), beans (*Phaseolus vulgaris*) (1%), and wild rice (*Zizania aquatica*) (<1%) make up the rest of the plant food remains recovered from Mialoquo.

Faunal Remains

The faunal remains recovered from Mialoquo total 2,987 specimens as reported by Russ and Chapman (1983:83). Each fragment was identified to the lowest possible taxonomic order. During analysis the element, siding, and taphonomic classifications were identified, if possible. Of the specimens 2,801 were vertebrate remains and 186 are freshwater molluscan remains. White-tailed deer (*Odocoileus virginianus*) (N = 98) likely provided a majority of the meat for the Overhill Cherokees at Mialoquo, followed by black bear (*Ursus americanus*) (N= 46) and occasionally supplemented by domestic pig (*Sus scrofa*) (N = 3).

At least four avian species, dominated by chicken (*Gallus gallus*) (N = 5) specimens, were represented in the faunal assemblage as well as a variety of fish species (N = 11) from various habitats. Reptiles were represented mostly by turtle species (Testudines) (N = 4). Most mollusca were categorized as indeterminate bivalve (N = 147, 79.03%).

Foodways Conclusion

In summary, the Overhill Cherokees at Mialoquo relied heavily on native plant and animal species including white-tailed deer, black bear, and corn. Their diet was supplemented with smaller vertebrates and plant foods like sunflower, beans, squash and nuts species. European-introduced domesticates like chicken, pig, cow, and peach were present but the low frequency of the remains suggests they did not comprise a large portion of the Cherokee diet. However, VanDerWerker, Marcoux and Hollenbach (2013:83) study of Colonial-period Cherokee plant subsistence demonstrates the Cherokees navigated their landscape by continuing to practice foraging and farming while also making strategic decisions to add certain European derived foods. The foodways data collected from Mialoquo is undoubtedly skewed towards the preservation of more robust plant and faunal specimens and this bias should be taken into account when considering the archaeological record of Mialoquo. The plant and faunal sample from Mialoquo is comparable to similar Cherokee sites during the Colonial period such as Chota (Bogan 1976), Citico (Bogan 1983), Tomotley (Robinson 1981), and Toqua (Bogan 1980).

MIALOQUO CERAMICS 1976-77 FIELD EXCAVATIONS

The ceramic assemblage from Mialoquo was categorized based on three attributes: tempering agent, surface treatment, and vessel form. The total ceramic assemblage consists of 6,677 artifacts (Russ and Chapman 1983:71). The assemblage was analyzed with the goal of characterizing the ceramic variability at the site and to allow for comparison with neighboring archaeological sites. Most of the sample belongs

to the Historic Cherokee occupation. A list of features from Areas 3, 4, and 5 and their ceramic contents are recorded in Appendix 1.

The following are the typological categories created by Russ and Chapman (1983) in their analysis of Mialoquo's ceramic assemblage. They are arranged in five temper categories: (1) shell tempered, (2) grit/very coarse sand tempered, (3) sand/small crushed quartz tempered, (4) limestone tempered, and (5) mixed tempered. Between each of the temper categories, there are a total of 31 different surface treatments (Russ and Chapman 1983:69). These surface treatments fall into one of seven general categories including: (1) residual, (2) plain, (3) cordmarked, (4) simple stamped, (5) complicated stamped, (6) cob marked, and (7) plaited cane impressed. Of the total assemblage, the Overhill series comprises 56.58% (N = 3,778), the Qualla series 13.55% (N = 905), and mixed tempered varieties 0.33% (N = 22). Shell-tempered Mississippian sherds make up 0.33% (N = 22) of the assemblage. The Woodland period is represented by limestone-tempered (28.25%; N = 1886) and crushed-quartz-sand tempered (1.08%; N = 72) ceramic sherds.

Shell Temper

Shell tempering refers to paste that contains particles of crushed freshwater mussel shell. Sherds in this temper category are associated with both the Late Mississippian Dallas and Mouse Creek phases as well as the eighteenth century Overhill phase described by Sullivan (2007:93) and Bates (1986:26). Temper consists of crushed shell that is typically less than 1 mm in size; however, particle sizes vary.

Plain

Sample: 2,240 sherds; 33.5% percent

Comments: The majority of the sherds in this category conform to the historic Overhill Plain ceramic type (Bates 1986:19; King 1970:61). Some body sherds may be from Mississippian vessels and would conform to the general type for Mississippi Plain described by Phillips (1970:130); however, assemblage data suggest that the principal component at the site is Overhill Cherokee. Plain shell-tempered vessels and sherds occur in varying percentages in assemblages from all East Tennessee Mississippian periods, from Martin Farm (AD 900-1100) to Dallas/Mouse Creek (AD 1350 - 1550). The shell-temper plain pottery vessel forms include medium jars, shouldered bowls, and open bowls. All rim and vessel fragments conform to styles observed in other Overhill Plain ceramic assemblages.

Residual Plain

Sample: 510 sherds; 7.6%

Comments: These sherds have eroded or exfoliated surfaces. See crushed mussel shell plain sherds.

Cord Marked

Sample: 3 sherds; <0.01% percent

Comments: These sherds are probably associated with the Mississippian component at the site. This surface treatment is typical within Mississippian period assemblages in East Tennessee (Lewis and Kneburg 1946:94). Russ and Chapman (1983:75) note that the loosely twisted cordage impressions on vessels are indicative of the McKee Island Cordmarked type (Heimlich 1952:27-28). The McKee Island Cordmarked type is thought to be abundant in Dallas phase assemblages in eastern Tennessee (Polhemus 1987) and occurs in smaller quantities in the preceding Hiwassee Island phase (Lewis and Kneburg 1946:94; Polhemus 1987).

Check Stamped

Sample: 729 sherds; 10.9% percent

Comments: This category conforms to the type Overhill check stamped (Bates 1986:31; Lewis and Kneberg 1946:105). Vessel forms include medium size jars and a shallow shouldered bowl or pan. Overhill check stamped sherds comprise the second most numerous Overhill ceramic type at Mialoquo. The exterior surface treatment consists of a series of stamped square, rectangular, or diamond shaped impressions in

a grid pattern. The size of individual checks are variable from 2 – 6 mm on a side. Recovered sherds indicate that check stamped vessels were covered entirely by check stamping.

Simple Stamped

Sample: 40 sherds; 0.6% percent

Comments: This ceramic type is less numerous than other shell-tempered stamped varieties. Sherds in this category have an exterior surface treatment of vertical stamped lines applied to the exterior vessel wall. Impressions are roughly parallel, but overlapping and smearing do occur. The interior of these sherds are typically smooth. This ceramic type is also referable to Overhill Simple Stamped (Bates 1986:43; King 1977).

Rectilinear

Sample: 89 sherds; 1.3% percent

Comment: The tempers of these sherds are comparable to those described in the plain category. Rectilinear complicated stamped sherds display roughly parallel impressions in concentric square, concentric diamond, or line-block motifs. Sherds in this category are referable to the type Qualla Complicated Stamped (Duncan et al. 2007:11).

Curvilinear

Sample: 166 sherds; 2.5% percent

Comment: The exterior surfaces of these sherds are decorated with concentric circles and wavy line patterns. Sherds of this category are referable to the Qualla Complicated Stamped type (Duncan et al. 2007:11).

Roughened Cob Marked

Sample: 10 sherds; 0.1% percent

Comment: The exterior surface treatment of this sherd consists of irregular rows of striations formed by rolling a corncob across a wet clay surface. The rows of striations are oriented roughly vertically to the vessel wall and are typically restricted to the lower body of the vessel. These sherds are referable to the type Corncob Impressed or Qualla Corncob Impressed (Rodning 2008:2).

Grit/Very Coarse Sand Tempered

Grit refers to temper that includes various types of igneous and metaigneous rock particles typically quartz (Marcoux 2008:194). All sherds in this temper category are associated with the eighteenth century Qualla ceramic series described by Bates (1986), Davis (1986) and Egloff (1967). Temper consists of fine to medium-sized grains of crushed quartz and fine-grained river sand. Quartz grains are rarely larger than 1-2 mm in size and mica flecks are commonly observed in the ceramic paste. Temper particles are usually water-rounded.

Plain

Sample: 287 sherds; 4.2% percent

Comments: The exterior and interior surface treatment is smoothed. Some sherds exhibit instances of burnishing on the interior of the vessel. Sherds in this category are also referred to as Qualla Plain (Reed 1987:638).

Residual Plain

Sample: 331 sherds; 5.0% percent

Comments: Sherds in this category have eroded or exfoliated exterior surfaces and likely comprise sherds from the grit-tempered plain category.

Simple Stamped

Sample: 8 sherds; 0.1% percent

Comments: The exterior surface treatments of these sherds are similar to those described in the shell-tempered simple stamped category, as consisting of sherds stamped with roughly vertical parallel impressions, sometimes overlapping, with generally smoothed interiors. These sherds are referable to the type Qualla Simple Stamped (Duncan et al. 2007:11).

Check Stamped

Sample: 162 sherds; 2.4% percent

Comments: The exterior surface treatments of these sherds are similar to those in the shell-tempered check stamped category, consisting of sherds stamped with square, rectangular, or diamond-shaped check impressions in a grid pattern. These sherds are referable to the type Qualla Check Stamped (Duncan et al. 2007:11).

Rectilinear Complicated Stamped

Sample: 106 sherds; 1.6% percent

Comments: See Shell-Tempered Rectilinear Stamped description above.

Curvilinear Complicated Stamped:

Sample: 10 sherds; 0.1% percent

Comments: See Shell-Tempered Curvilinear Stamped description above.

Roughened/Cob Marked

Sample: 1 sherd; <0.1% percent

Comments: See Shell-Tempered Roughened/Cob Marked description above.

Sand/Small Crushed Quartz Tempered

The cultural affiliation of sand/small crushed quartz tempered sherds is likely Early Woodland, representing one of the earliest ceramic technology types to enter the Tennessee River valley around 3,000 BP, although (Earnest 1971:26) suggests that some may be historic. Sherds in this category are closely related to the Connestee ceramic series (Davis 1986:128; Holden 1966:71-72; Keel 1976:254; Russ and Chapman 1983:69). Temper in this category consists of very fine crushed sand measuring <1 mm in diameter. The temper particles are typically consistent in size and

the temper also, in small quantities, includes mica flecks and angular or rounded quartz fragments that can be up to 5 mm in diameter.

Plain

Sample: 37 sherds; 0.6% percent

Comments: The exterior and interior surface treatment of the sherds is smoothed, but typically not burnished. Surfaces feel sandy to the touch. Plain sherds are common in Middle Woodland assemblages in the Tellico Reservoir (Reed 1987:603) and are attributable to the type Middle Woodland Connestee Plain (Holden 1966:71-72) or possible the Early Woodland Watts Bar series.

Residual Plain

Sample: 15 sherds; 8.2% percent

Comments: Sherds of this category have eroded or exfoliated exterior surfaces and are likely comprised from the plain category.

Cord Marked

Sample: 1 sherd; <0.1% percent

Comments: This sherd type exhibits crossed-over cord impressions on the exterior surface and is likely associated with the Middle Woodland Connestee series, known as the Connestee Cord Marked type. However, this type may also be attributable to Early Woodland Watts Bar Cord Marked (Reed 1987:596).

Simple Stamped/Brushed

Sample: 14 sherds; 0.2% percent

Comments: This sherd type is also referred to as Connestee Brushed and Connestee Simple Stamped. The brushed surfaces are produced by dragging a grooved paddle, also used for simple stamping, across the surface of the vessel producing roughly horizontal parallel line impressions. The interior portions of the vessel are well smoothed.

Check-Stamped

Sample: 2 sherds; <0.1% percent

Comments: These sherds are characterized by square checks impressed into the exterior surface. This type is attributable to Woodland period occupations and is probably related to Connestee Check Stamped wares (Keel 1976:252-254).

Complicated Stamped

Sample: 3 sherds; <0.1% percent

Comments: These sherds are characterized by impressed decorations on the exterior surface of the vessel and a well smoothed interior surface. A carved wooden paddle pressed into the clay is a common application technique. The exterior surfaces exhibit a curvilinear pattern of concentric circles or spirals. Cultural affiliation is Middle Woodland and the sherds are referable to Swift Creek Complicated Stamped (see Jennings and Fairbanks 1939:1) and Early Swift Creek Stamped (Wauchope 1966:54-57).

Limestone Tempered

Limestone temper refers to crushed limestone particles used as a tempering agent. Limestone particles are typically angular and are often leached out (or dissolved) from pottery by acidic groundwater (Baden 1978:117). This process leaves angular holes that range from 0.5-2.5 mm in diameter (Davis 1986:128). Sherds in this temper category conform to the limestone-tempered types described by Salo (1969:123-129) and are associated with the Woodland Period.

Plain

Sample: 1,707 sherds; 25.6% percent

Comments: The sherds of this group are likely attributed to the Hamilton Plain type established in the Chickamauga Basin (Lewis and Kneburg 1946:83) or the Mulberry Creek Plain type described by Haag (1939:9) and Heimlich (1952:15). Sherds of this category are thought to originate from the Late Woodland period. The exterior and interior sherd surfaces are scraped and roughly smoothed.

Residual Plain

Sample: 157 sherds; 2.4% percent

Comments: These sherds have eroded or exfoliated surfaces in which all temper has been leached out of the sherd. These sherds are likely comprised from sherds in the limestone-tempered plain category.

Cordmarked

Sample: 19 sherds; 0.2% percent

Comments: This group of sherds is attributable to two designated types within the upper Tennessee Valley. The type Hamilton Cord Marked, a Late Woodland type (Lewis and Kneburg 1946:103), and the type Candy Creek Cord *Marked*, a Middle Woodland type, are both present throughout the upper Tennessee Valley (Lewis and Kneburg 1946:102-103). The exterior surface treatment of these sherds show twisted cordage impressions and smoothed interior surfaces.

Simple-Stamped

Sample: 1 sherd; <0.1% percent

Comments: This sherd is attributed to the type Bluff Creek Simple Stamped and is primarily found in eastern Tennessee during the Middle Woodland (Haag 1939:12; Heimlich 1952:18). Stamped lines occur below and parallel to the rim.

Check-Stamped

Sample: 2 sherds; <0.1% percent

Comments: This group is attributed to the Wright Check Stamped type (Haag 1939:12) and is associated with the Middle Woodland period in the Little Tennessee River valley of upper Tennessee Valley (Haag 1939:18; Heimlich 1952:18). The exterior surface treatment of these Check-stamped sherds are mostly stamped with square check grid patterns, but some exhibit a diamond checked pattern. The interior surfaces are typically smoothed.

Mixed Tempered

Twenty-two sherds were classified as having a mixture of shell and limestone, quartz and limestone, or quartz and shell tempers. The small sample size may indicate that these ceramics are anomalies, and are viewed as such by Russ and Chapman (1983:82) noting however that these sherds are probably Cherokee. Surface treatments in this category include: residual plain (N = 3), plain (N = 8), simple stamped (N = 2), rectilinear complicated stamped (N = 7), and check stamped (N = 2). All mixed-tempered sherds are concentrated in two features in the southern portion of Area 3. Feature 34 (N = 10), a refuse filled pit associated with Structure 2 and Feature 37 (N = 11), a refuse filled pit, unassociated with any Cherokee structure at the site.

Ceramics Conclusions

The Mialoquo ceramic analysis included 6,677 ceramic artifacts recovered from the 1976-77 excavation season. Ceramics from Russ and Chapman's (1984) analysis indicate that the site was occupied from the Early Woodland to the historic Cherokee periods. The site was most intensively occupied in the historic Overhill Cherokee period of the eighteenth century. The earliest ceramics are Early Woodland period Watts Bar Cord Marked. A wide variety of Middle Woodland Connestee and Candy Creek types are present in limestone- and sand-tempered categories. The Mississippian period occupation is represented by only a few sherds. The Mississippian Period in eastern Tennessee is dominated by plain shell-tempered sherds and the associated category assigned to the historic Overhill Cherokee category may include some Mississippian sherds.

Most of the ceramics from the site are from the historic Cherokee occupation, accounting for 70.47% (N = 4,705) of the total ceramic assemblage. Historic Cherokee ceramics are represented by the Overhill and Qualla series. Overhill series ceramics are characterized as shell-tempered and include a variety of exterior surface treatment types such as: plain, check stamped, simple stamped, and complicated stamped surfaces. The Qualla series ceramics are characterized as grit/coarse-sand-tempered sherds and include the following exterior surface treatment types: plain, check stamped, simple stamped, complicated stamped, and corncob impressed types.

The assemblage depicts both typical and atypical features of historic Overhill Cherokee town sites in eastern Tennessee including the dominance of shell-tempered sherds, but atypically high proportions of shell-tempered stamped exterior to plain exterior sherds. Additionally, while the Mialoquo assemblage is dominated by shell-tempered sherds, there is a relatively high abundance of grit-tempered sherds represented in features at the site compared to other neighboring Cherokee sites such as Tomotley (Baden 1983) and Chota-Tanasee (Bates 1986) (Table 6). Qualla ceramics were a late addition to the ceramic assemblages at Overhill Cherokee sites, likely beginning in the latter half of the eighteenth century. This is evident by the small quantities of Qualla Series ceramics recovered from sites occupied prior to ca. A.D. 1760 (e.g. Chota-Tanasee and Toqua) and an increased and higher prevalence of the Qualla series post A.D. 1760 (e.g. Mialoquo [Russ and Chapman 1983] and Hiwassee Old Town [Riggs et al. 1988; Schroedl 1986:544-545).

Table 6: Historic East Tennessee Cherokee Sites and Comparison of Overhill to Qulla Ceramic Series

Site	Site Number	Time Range	% Overhill	% Qualla	% Stamped	Total Number of Ceramics	Source
Toqua-Dallas	40MR6	A.D 1300-1600	100	0	-	162,252	Polhemus 1987
Toqua-Cherokee	40MR6	A.D. 1600-1819	95.92	4.08	-	2,403	Polhemus 1987
Townsend*	40BT89-91	A.D. 1650-1720	67.93	32.07	21.04	764	Marcoux 2010:79
Tomotley	40MR5	A.D. 1750-1775	98	2	-	17,743	Guthe and Bistline 1978:120
Chota-Tanasee	40MR2/62	A.D. 1700-1820	98.26	1.75	1.87	154,444	Schroedl 1985:693 Table 6.11
Mialoquo	40MR3	A.D. 1760-1780	80.56	18.98	28.79	4,584	Russ and Chapman 1983
Hiwassee Old Town	40PK3	A.D. 1794-1819	43.08	55.42	0.04	3,542	Riggs, Jefferson and Crothers 1988:74-77

* Townsend recorded 3,579 gravel-tempered sherds (Marcoux 2010)

The ceramic assemblage at Mialoquo indicates a high frequency of stamped ceramics, a phenomenon that is observed at Townsend, but that contrasts with many other Cherokee sites like Chota-Tanasee and Toqua. The Townsend ceramic assemblage is comprised of three potting tradition, including a local Overhill series tradition, a non-local grit-tempered Qualla potting tradition, and possibly a newly derived gravel-tempered tradition. Not included in Table 6 were the gravel-tempered ceramics from Townsend which comprised 82.41% (N = 3,579) of the total ceramic assemblage from Cherokee contexts (Marcoux 2010:78).

The incidence of the high stamped frequency is a hallmark of Lower, Middle, Valley and Out Cherokee towns and may suggest, as Russ and Chapman (1983:83) indicate, that Mialoquo may have been founded by, or at least received immigrants from, the Lower and Middle Towns of the Cherokees in A.D. 1761. Ceramics in these areas show a high frequency of stamped surface treatments and their occurrence at Mialoquo may well reflect the presence of new people. This is supported by the presence of non-local Qualla series potting tradition at Mialoquo that increased at the site until the end of the Revolutionary War period (A.D. 1776 – 1794).

CHAPTER FOUR: METHODOLOGY

SECTION 1: INTRODUCTION TO METHODOLOGIES USED

Due to the relatively brief, yet intense, occupation and the site's large ceramic assemblage the Mialoquo site offers an excellent opportunity for detailed study of social and spatial patterning. I used three analytical techniques to address the social and spatial patterns at Mialoquo, including ceramic typological analysis, spatial analysis, and element pXRF analysis. The ceramic typological analysis focused on several pottery characteristics including surface treatment, temper, and ceramic sherd size and thickness. The spatial analysis of Historic Cherokee ceramic distributions was used in conjunction with the results of the typological analysis to assess the spatial patterning present at the Mialoquo site. Lastly, the elemental analysis was conducted using pXRF to determine if any patterning could be determined for clay procurement locations among pottery types or households.

The results of the ceramic typological, spatial, and elemental analyses are used to explore the social variation within the community at Mialoquo. The study of small communities that come together and form larger communities uses a variety of methodologies (Birch 2012; Ethridge and Hudson 2002; Gerritsen 2004; Kowalewski 2006). Here I examine the formation and maintenance of an Overhill Cherokee town by analyzing the spatial distribution of types and clay sources of the Historic Cherokee ceramic assemblage recovered from the Mialoquo site. The resulting data are observed for evidence of social cohesion or strong independence. Communities that reflect strong social cohesion and integration should reflect: (1) Incorporation of "new" ceramic types

information on manufacturing methods as dictated by surface treatment, temper, and/or vessel shape into manufacturing methods; (2) a strong interspatial overlap between ceramic types attributed to each community; and (3) little variation in the source location of clay used in the manufacturing processes. Conversely, communities that are not well socially integrated may reflect the following evidence: (1) little incorporation of ceramic attributes from other communities of practice, (2) little or no overlap in the spatial distribution of ceramics from different communities, indicating a lack of shared spaces; and (3) little or no overlap in clay source procurement locations, indicating clay sources were not shared amongst community members.

This section describes the methodological analyses utilized for the typological, spatial, and geochemical studies of Mialoquo's ceramic assemblage to answer the hypothesis outlined in Chapter 1. Section 2 discusses the feature selection methodology, section 3 describes the method of ceramic typological analysis, section 4, describes the spatial methods used in the evaluation of the Mialoquo ceramic assemblage and section 5 outlines the methods used for the pXRF analysis beginning with an introduction to XRF theory and then the methodology used in the elemental characterization of ceramics from Mialoquo.

SECTION 2: FEATURE SELECTION

Features from the Mialoquo site were chosen for ceramic analysis based on two criteria: first, whether the feature was characterized as a Cherokee context by Russ and Chapman (1983); and second, whether the feature contained Cherokee ceramic types (i.e. shell- or grit-tempered ceramics). Based on these criteria, 23 features were used in

the ceramic typological analysis. Features selected for element compositional analysis were selected based on the same factors for the ceramic analysis, but also required an association with a Cherokee structure from the site. Of the 81 features excavated at the site, nine features were deemed suitable for element compositional analysis using PXRF.

SECTION 3: CERAMIC TYPOLOGICAL ANALYSIS METHODS

CERAMIC ANALYSIS INTRODUCTION

A suite of ceramic attributes was selected for analysis including tempering material and exterior surface treatment, when possible. Ceramic seriation of late-Mississippian ceramic wares and Historic Cherokee potting traditions has been documented elsewhere (see Baden 1983; Bates 1986; Egloff 1967; King 1977; Koerner 2005; Lewis and Kneberg 1946; Marcoux 2008; Russ and Chapman 1983; Sullivan 1995). Here I focus on those attributes that vary between historically produced ceramic types of Cherokee communities (e.g. Overhill and Qualla ceramic series). Based on the original ceramic tabulation sheets compiled from the 1976-77 excavations, 6,677 ceramic sherds were recovered. The pottery collected during excavations was documented on sherd tabulation sheets along with descriptive information limited to temper, morphology, surface treatment, and an excavation feature number for provenience (Figure 14).

Table 11 (continued)

Ceramic Category	Feature Number									PM						Surface	PM & Surface Total	Total	%
	52	55	57	58	60	62	68	81	Total	197	494	586	592	593	608				
Temper Indeterminate																			
Residual Plain									2									2	
Sand/Small Crushed Quartz																			
Residual Plain			2	6					12		3						3	15	8.2
Plain			1	8	1			15	33		4						4	37	0.6
Cordmarked									1									1	–
Simple Stamped/Brushed			2						3		11						11	14	0.2
Check Stamped									1							1	1	2	–
Complicated Stamped									2							1	1	3	–
																		(72)	(1.1)
Grit/Very Coarse Sand																			
Residual Plain	1		56			7		2	330							1	1	331	5.0
Plain			34		1	25			285							2	2	287	4.2
Simple Stamped								2	8									8	0.1
Check Stamped	2		5			2		1	162									162	2.4
Rectilinear Complicated Stamped			7			1		1	105							1	1	106	1.6
Curvilinear Complicated Stamped			3						10									10	0.1
Roughened/Cob Marked									1									1	–
																		(905)	(13.5)
Crushed Limestone																			
Residual Plain			1						157									157	2.4
Plain	1	1	4				5	3	1,684	7					1	15	23	1,707	25.6
Cord Marked S Twist									10									10	0.1
Cord Marked Z Twist							1	1	9									9	0.1
Simple Stamped									1									1	–
Check Stamped									1							1	1	2	–
																		(1,886)	(28.2)
Crushed Shell																			
Residual Plain	4	3	9	11	16	111		22	503							7	7	510	7.6
Plain	14	72	24	32	25	562	2	25	2,192			1	2	2		43	48	2,240	33.5
Cord Marked S Twist									2									2	–
Cord Marked Z Twist									1									1	–
Simple Stamped	4		1					1	40									40	0.6
Check Stamped	15	2	7	16	4	97		34	707				2			20	22	729	10.9
Rectilinear Complicated Stamped	1		1		1	29			88						1		1	89	1.3
Curvilinear Complicated Stamped				1	5	21			163							3	3	166	2.5
Roughened/Cob Marked								1	10									10	0.1
Plaited Cane Impressed		1							3									3	–
																		(3,790)	(56.8)
Mixed Temper																			
Residual Plain									3									3	–
Plain									8									8	0.1
Simple Stamped									2									2	–
Rectilinear Complicated Stamped									7									7	0.1
Check Stamped									2									2	–
																		(22)	(0.3)
Totals	42	79	157	74	53	855	8	108	6,548	7	18	1	4	2	2	95	129	6,677	

73

Figure 13: An example of Mialoquo ceramic tabular legacy data (Russ and Chapman 1983:73).

Ceramic Identification and Quantification Procedures

All ceramic sherds were recovered and analyzed by The University of Tennessee, Knoxville Department of Anthropology archaeologists. I reanalyzed (N = 4,559) to ensure data accuracy and to assess ceramic typology including surface treatment, temper, ceramic portion (body or rim) and ceramic counts (Appendix 1). The ceramic assemblage is housed at the McClung Museum of Natural History and Culture

and was loaned to the University of Tennessee's Department of Anthropology for completion of this thesis research. The Mialoquo ceramics had already been separately bagged and catalogued by ceramic temper and surface treatment by previous investigators during lab processing (Russ and Chapman 1983). As a result, a single feature may have more than one catalogued bag containing ceramics from different temper or exterior surface treatment categories. Great care was taken during analysis to maintain the integrity of catalogued bag contents to avoid the comingling of feature contexts.

I compared the Mialoquo ceramics to recorded types presented by Lewis and Kneburg (1946), Egloff (1967), Riggs and Rodning (2002), Rodning (2008), and Schroedl (1986). I examined all ceramic sherds from selected feature context on a macroscopic scale to assess and discriminate ceramic temper and exterior surface treatment. I counted and weighed (g) in groups based on provenience, temper, surface treatment, and ceramic portion (rim, body or base). The Mialoquo site ceramic assemblage can be placed into five types according to the tempering material (crushed mussel shell, grit/quartz, sand/small quartz, limestone, and mixed temper). Temper type categories can then be further subdivided into a ceramic type according to surface treatment. Of the 6,677 sherds recovered during the 1976-77 field excavations, 5,116 were categorized by Russ and Chapman (1983:22) as recovered from Cherokee feature contexts representing a total of 23 features from Areas 3, 4, and 5 (Appendix 1). Only 12 Cherokee features, containing 2,022 sherds, were associated with Cherokee structures at Mialoquo and subsequently selected for used in the XRF analysis. All data were logged into the "Master Spreadsheet for Mialoquo Ceramic Assemblage" with any

Table 7: Cherokee Features with Recovered Ceramics Screened and Percent of Fill screened in ½ inch or ¼ inch mesh and fine screened in 1/16 inch mesh.

Feature Number	% of fill screened in ½ or ¼ inch screen	% of fill screened in 1/16 inch screen
18	100	100
20	100	100
21	100	-
23	100	-
24	100	-
25	100	50
26	100	100
27	100	50
28	100	50
30	100	100
32	100	100
34	100	100
35	100	-
39	100	-
40	100	-
41	100	-
43	100	-
46	100	-
52	100	-
57	100	30
58	100	100
62	100	40
81	100	100

known provenience or contextual information (Appendix 1) (File1,MialoquoCeramicData_ Allen2018.xls).

Excavation and Evaluation Biases

As outlined in Table 7, the majority of the excavated sediment was water screened on site using ¼- or ½- inch mesh and a fine screen 1/16-inch mesh was used for some features. Flotation collection methods were used for a portion of two features (14 and 26). For the purpose of this study, the original sherd tabulation for any feature that was not re-analyzed is considered accurate.

SECTION 4: SPATIAL ANALYSIS METHODS AT MIALOQUO

OVERVIEW OF GIS

To answer the spatial questions outlined in Chapter 1, I employ a geographic information system, or GIS. A Geographic Information System allows researchers to easily display geographically referenced data for analyzing and interpreting relationships, patterns, and trends in geospatial data (ESRI 2011). Spatial analysis of artifact distribution has been widely used to define and examine activity areas in archaeological contexts (Harrower 2010; Reid 2008; Scianna and Villa 2011). In this thesis, I build on this foundation by using ArcGIS, a spatial analysis software, to record ceramic distribution throughout Mialoquo. I use ESRI's (Environmental Systems Research Institute) ArcGIS suite 10.4 to answer questions about social and spatial relationships of Mialoquo residents using a geographical approach. This program allowed me to utilize Mialoquo site area files to display the ceramic typological and

geochemical data spatially and to produce meaningful maps that visually represent patterns and data relationships.

GIS has become a major part of archaeological research because it offers archaeologists a tool to better understand site-level and artifact-level spatial distributions (Conolly and Lake 2006). GIS software additionally provides a database management system to organize archaeological data. GIS was initially used by archaeologists to study regional-level variation of sites, but it has since been used for intra-site variation analyses (Kvamme 1999). The scale of GIS is widely flexible and has only recently, in the past 10 – 20 years, become an important addition to most research projects and has been adopted by universities, cultural research management companies, and preservation offices nationwide. From a ceramic analysis perspective, GIS can serve as a tool to identify the spatial distribution of ceramic sherd assemblages across an archaeological site.

Similar to other computer-based systems used in archaeology (e.g. Microsoft Access), GIS creates digital databases to store archaeological data. GIS differs from other databases because it additionally records the geospatial properties of a given datum (Scianna and Villa 2011:340). The inclusion of geospatial information with archaeological artifacts allows for an expansion of the level of inquiry and related research questions archaeologists can ask of archaeological datasets. This geospatial information is collected during excavations and laboratory processing in the form of concentration and locational data of artifacts, features and sites within the given dataset. This dataset is then interpreted through advanced spatial statistics to produce meaningful data on intra- or inter-site human behavior.

Geospatial data can be displayed in one of two formats: vector data and raster data. Each format has unique attributes which allow for different queries of the datasets. Vector data are well suited to represent discrete data with clear boundaries. Vector data are stored in the form of x,y-coordinate pairs for points, or several connecting x,y-coordinate pairs for lines or polygons. An archaeological example of points may be the x,y-coordinate pair for a single artifact; lines might be exemplified by linear plow scars; and polygons may represent archaeological features, like pit features or postmolds, or archaeological site boundaries.

Raster data are best used with features that have boundaries that are not clearly defined, also known as continuous features. An example of a continuous feature is elevation, which is continual and changes in value across the surface of the Earth. These data are recorded in a two-dimensional grid with rows and columns of individualized cells. Each of these cells would be given a unique value based on the attribute being investigated, such as elevation. Cells are uniform in size and are defined by the researcher; for example 30m x 30m or 1m x 1m, etc. When displayed graphically, variation amongst groups of cells can be observed. Color ramps are typically used to categorize high and low values.

At present there are multiple limitations to modeling archaeological sites in GIS databases. During excavation, multiple portions of archaeological geospatial information become categorized as subjects (e.g. stratigraphic profiles, cultural components, and site borders). Additionally, typological constraints and misidentification of material properties, caused by variations in recording methods or the subjective nature of

archaeological description, make the task of defining archaeological units and their characteristics even more complex.

Data from archaeological investigations can occur in a wide variety of data formats, sources, and in varying degrees of accuracy. GIS allows for a single cohesive structure to improve the quality of the data and allow for more accurate visualization of data. I chose ESRI's ArcGIS as the unifying software platform for several key reasons: (a) it is an industrial standard, (b) it incorporates a functional 3D viewing environment (ArcScene ©) presenting abilities for customization, (c) it has a spatial database system with object-oriented characteristics, and (d) it supports communication with external programs.

The data collected for this project were originally in a tabular format (Russ and Chapman 1983:71-73). I cleaned and prepared this dataset to establish the spatial relationship between the Mialoquo ceramic assemblage and feature contexts before I imported it into ArcMap 10.5. To complete this, I organized all tabular data that were previously collected from research on the Mialoquo ceramic collection into a Microsoft Excel spreadsheet including site id, feature id, area id, culture id, and any other provenance information. New data collected on the ceramic assemblage, through observational analysis or geochemical analysis, were added to the Excel spreadsheet as reanalysis_id and geochemical_id. The geodatabase containing spatial information and typological classification is listed in Appendix 2.

A PSEUDO-GIS APPROACH TO GEOREFERENCING SOURCE DATA

Most archaeological studies using GIS are dependent on georeferenced data. The archaeological data collected at Mialoquo, however, are not georeferenced, meaning that the data are not tied to a known real-world coordinate system during excavation. Instead, the excavators used an arbitrary grid system to document the data collection at the site. The Mialoquo data are considered ‘legacy data’ which is defined as data from obsolete information systems, but is used archaeologically to mean data that are not already digitized and geo-referenced (Allison 2008:7). Archaeological legacy data are more challenging to work with and must be prepared, and often manipulated, before they can be used in a digital geographical format.

Detailed drawings of the five areas excavated at Mialoquo were obtained from the McClung Museum of Natural History and Culture’s Archaeological Collections in PDF format (Figures 15-17). Even though these drawings of site areas lack the

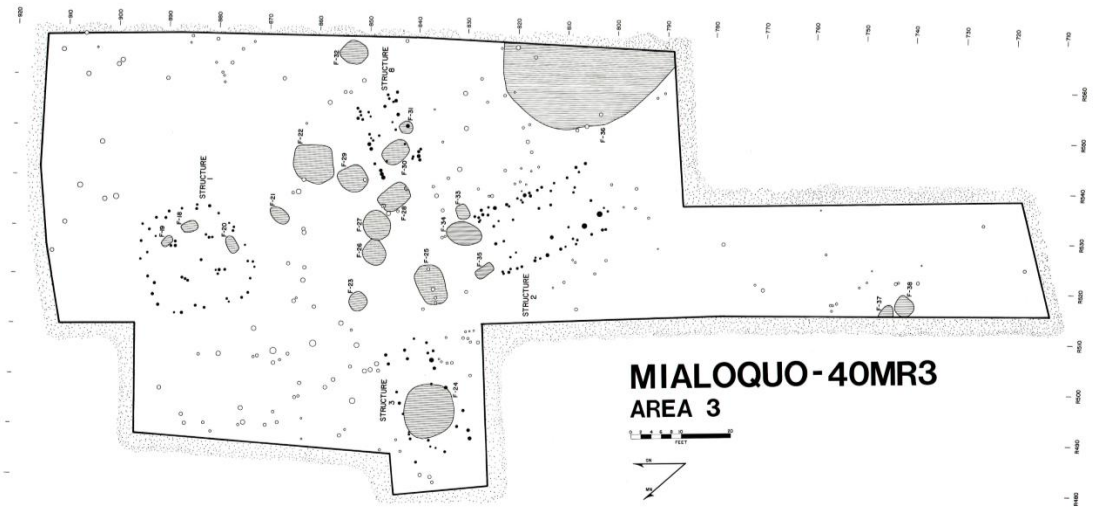

Figure 14: Mialoquo Area 3 drawing (Russ and Chapman 1983:12).

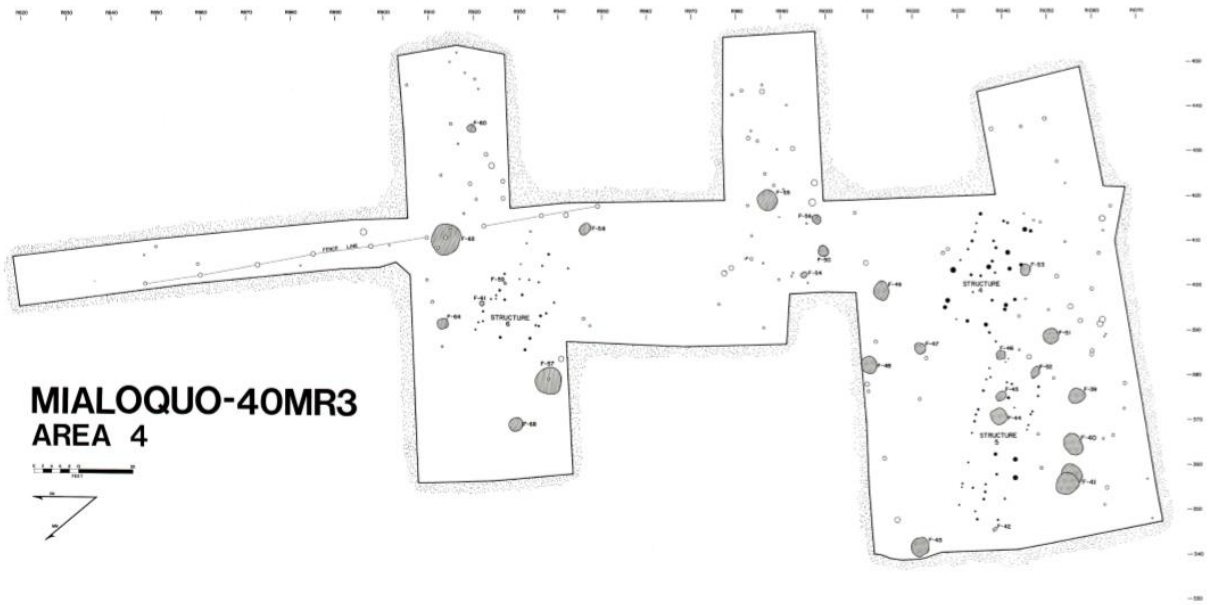

Figure 15: Mialoquo Area 4 drawing (Russ and Chapman 1983:13).

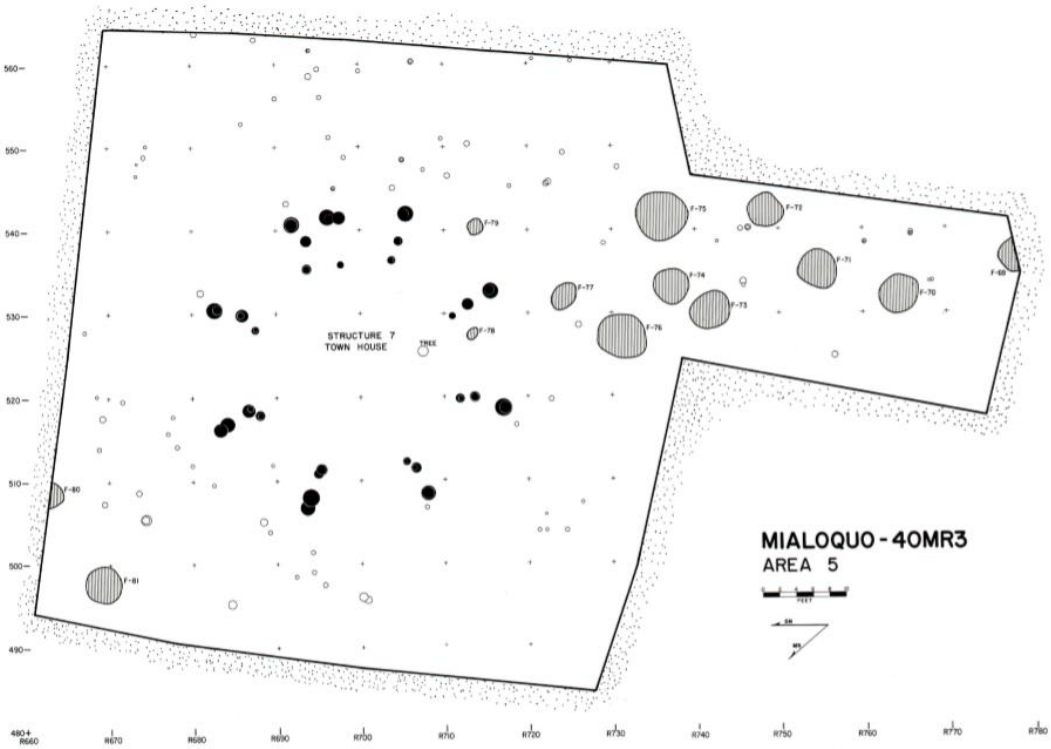

Figure 16: Mialoquo Area 5 drawing (Russ and Chapman 1983:14).

necessary information for proper real-world georeferencing, there are GIS applications of these archaeological datasets that do not require them to be tied to a global coordinate system. These include small archaeological sites where intra-site or small-scale inter-site analyses are completed, but where the 'true' geographical relationship between sites, or site components, are not relevant to the analyses. This approach is termed pseudo-GIS (Allison 2008). Pseudo-GIS analysis using archaeological legacy data allows for an arbitrary coordinate system to be established for each site and produces meaningful digital maps of the spatial relationships of the relevant data.

EQUIPMENT AND SOFTWARE USED

ArcGIS (10.5) and MS Office 2014 were used in developing the geodatabase. All datasets used in this project are the property of the University of Tennessee, and vary in data quality. The legacy data used have no alternative sources and date to the original field excavations that took place between 1976-77. The tabular legacy data were formatted to a new Excel workbook with all relevant columns and headers from the multiple MS Excel spreadsheets (tabular legacy data, ceramic analysis, and geochemical analysis). The sample_id was the single unique identifier given to each ceramic sherd that could be used to tie back to, and associate with, all other tables used. The sample ID was created using the following template (**f**[insert feature number].[insert bag number]_[insert sherd number]). For example, Feature 18, bag 1, sherd 3 is represented as sample ID f18.1_3.

GIS METHODOLOGY

I critically examined the legacy ceramic data for the Mialoquo site assemblage to establish the necessary range of attributes and relationships to be considered for inclusion in this database as well as determine potential problems that may be encountered. To asses spatial variability of Mialoquo ceramics it was necessary to establish a site database which could be streamlined to asses known archaeological information and which could be accessed by future researchers. Due to the nature of this research project, this database needed to also contain spatial information for inquiry into the spatial relationship between artifacts, units, and households. Databases that contain spatial information are known as geodatabases and the resulting geodatabase

for this research will be curated at the McClung Museum of Natural History and Culture at the University of Tennessee in Knoxville.

I scanned PDF images of Mialoquo site area maps and used the ArcGIS ‘PDF to TIFF’ function to convert the area files into TIFF format, allowing for geospatial information to be attached to the file. Once the files were all converted to TIFF format I created an artificial grid in ArcGIS using the artificial coordinate system established at Mialoquo during the 1976-77 site excavations (Russ and Chapman 1983). Establishing the arbitrary grid allowed me to reference the intra-site spatial data like features and postmolds.

Once georeferenced, I used ArcGIS 10.4 heads-up digitizing function to vectorize the area site maps and create polygon shapefiles for both features and postmolds present on the original scanned site area maps. The arbitrary coordinate system established by excavators at Mialoquo was used to georeference all feature and postmold datasets by importing the TIFFs as a data layer into ArcGIS and using the Georeferencing tool in ArcMap 10.4. ArcGIS allows for the combination of spatial information with tabular or attribute data (such as ceramic typology and geochemical source grouping) through the construction of a geodatabase. The resulting geodatabase is connected to polygon shapefiles for features used in this analysis. Tabular data collected from the ceramic typological analysis and geochemical XRF data analysis were edited in Microsoft Excel version 2010 to include spatial references and additional attribute fields in the geodatabase as necessary. The resulting georeferenced map was then arranged in GIS software and queried to illustrate potential patterning of archaeological contexts.

STATISTICAL MODELS USED IN MIALOQUO GIS QUERY

Clustering, or cluster analysis, is a complex of data multivariate analysis techniques, aiming at selecting and grouping homogeneous elements. All clustering techniques are based on the concept of distance between two elements. The quality of the analysis obtained through clustering algorithms depends on how significant the geometry is, and therefore on how the distance has been defined (Scianna and Villa 2011:348). The most widely used GIS models in archaeology are density models including the Naive Estimator (Fotheringam et al. 2000) and the KDE, or Kernel Density Estimation (Scianna and Willa 2011:349). Density mapping is a way to show where points or lines may be concentrated in a given area. These density models are spatial analysis techniques carried out from sources of point vector data, generating images classified according to associated numerical attributes.

Kernel Density Estimation

KDE considers a 3D surface weighing events depending on their distance from the point where density is estimated (Conolly and Lake 2006). KDE was created to produce a smooth distribution map by extrapolating the distribution of observed data points. In this study, each data point is a single sherd which has been assigned a typological class or a geochemical source group, both determined in the previous ceramic typological analysis. The two-dimensional probability density function, the kernel, is placed over these observed points (Bailey and Gatrell 1995:84; Baxter 2003:29; Conolly and Lake 2006:175). The relationship between the data points can then be determined and clustered, random, or regular spacing noted.

Kernel Density Estimation is calculated as:

$$\hat{f}(x) = \frac{1}{nh} \sum_{i=1}^{n} K\left(\frac{(x - x_i)}{h} \right)$$

where *x* is the location of the event, *K* is the kernel function, *h* is the bandwidth and *n* is the sample size (Baxter et al. 1997; Baxter 2003:30). *K* is defined as the quartic kernel and is written as:

$$K(x) = 3\pi^{-1}\left(1 - x^{\mathrm{T}}x\right)^2 \ \ if\ x^{\mathrm{T}}x < 1$$

where T relates to the area around the point used to calculate the distance (Silverman 1986:77).

The results of KDE analysis depend on the size of the kernel used in the interpretation of the distribution. By manipulating the shape and radius of the kernel, also referred to as the bandwidth, the ideal fit can be determined (Baxter et al. 1997:340; Conolly and Lake 2006:175). Using a bandwidth that is too narrow can produce a rough map distribution while using a bandwidth that is too wide can create a distribution that is too smooth. Too wide or narrow may result in a distribution of archaeological remains that does not reflect reality. It is important to experiment with the bandwidth value in order to see the different degrees of smoothing in the distribution and production of a final KDE graphic for interpretation (Conolly and Lake 2006:175).

SECTION 5: pXRF ELEMENT COMPOSITIONAL METHODS

THE METHODOLOGY OF ANALYZING MINEROLOGICAL AND ELEMENT CHARACTERISTICS OF SOUTHEASTERN POTTERY USING pXRF

In order to test the hypotheses outlined in Chapter 1, I employ X-ray Fluorescence (XRF) analysis to characterize the elemental composition of selected ceramic sherds from the Mialoquo assemblage. Ceramics are one of the most diverse archaeomaterials in terms of widespread use and technological adaptability. Ceramics have a deep history in most parts of the world and have been used to create both utilitarian vessels and non-utilitarian objects. In addition, ceramics preserve remarkably well in the archaeological record when compared to other archaeomaterials. Previous XRF analysis have shown that the matrix of clay, or the paste in which temper is suspended, is elementally variable based on the area in which the clay was collected or sourced for the manufacturing of the ceramic vessel (Cecil et al. 2007; Goren et al. 2011). The identification of the elemental composition of ceramic paste can aid in determining whether the sources of clay for pot manufacture is consistent or variable within a community.

X-ray florescence spectrometry (XRF) was developed in the 1960s (Hall 1960). Recent advancements in XRF technology has led to the availability of portable XRF instruments and a wide use in archaeological research for the elemental characterization of archeomaterials such as lithics (e.g., Craig et al. 2007, 2010; Drake et al. 2009; Nazaroff et al. 2010; Phillips and Speakman 2009) and ceramics (Arnold et al. 1991; Burley and Dickinson 2010; Cecil et al. 2007; Forster et al. 2011; Frankel and Webb 2012; Goren et al. 2011; Morgenstein 2005; Neff 1992, 1998; Parish 2009).

Archaeological studies in ceramics have long used stylistic traits (such as surface treatment and temper) to determine relative chronological placement and cultural affiliation. Little attention, however, has been paid to element compositional analysis, largely based on the inaccessibility of the technology due to high cost and necessary specialized training. As the cost of XRF technology continues to decrease it has become more accessible to the field of archaeology.

Ceramics are composed mainly of two components: (1) clay(s) or clayey materials that make up most of the ceramic matrix, and (2) a temper, which are small particle size grains (0.06 - 2 mm) of various materials which can be added to the ceramic paste by individual potters in order to control the physical and mechanical properties or other desired characteristics of the pot (Hunt 2017:90). Clay deposits are found on the Earth's surface in most parts of the world which has ultimately led to the widespread cultural use of some form of ceramic production across the world. Typically, clay deposits are formed by the weathering of bedrocks characterized by high-alumina minerals such as feldspars. Other clays form through alluvial deposition of clay materials and clay-sized particles (<0.06 mm). Clays are most typically composed of heterogeneous mineral mixtures that can be divided into either clay or non-clay materials including poor crystalline inorganics, kaolinite deposits, coarse crystal minerals, carbonate, iron oxides, hydroxides, and a variety of bedrock fragments. Clay minerals that belong to the phyllosilicates family are distinguishable by a composite layered structure that leads to a silicon:oxygen (Si:O) ratio of 2:5, giving the clay a flaked appearance. Clay materials consist of structured tetrahedral and octahedral layers, which are kept together by cations, respectively coordinated by silicon (Si) or

aluminum (Al) (tetrahedral layer) and by aluminum (Al}, magnesium (Mg), and iron (Fe^{2}+, Fe^{3}+) (octahedral layers).

The operating assumption is the provenance postulate, or that “there exist differences in chemical composition between different natural sources that exceed in some recognizable way, the differences observed within a given source” (Weigland, Harbottle and Sayre 1977:24). The provenance postulate assumes that the raw material source can be successfully determined analytically as long as between source differences are greater than within source differences (Bishop 1980). Therefore, significant differences in elemental composition among pottery pastes indicate varying geographic locales for the parent material, clay, while homogenous paste compositions indicate a narrow, localized clay resource (Glascock and Neff 2003; Weigand, Harbottle and Sayre 1977). The concentration of elements detected in sherds will be greater between sources than sherds from the same clay source. Significant variation between a sherd’s paste elemental composition reflects different sources even if those sources cannot be precisely located on the landscape (Bow 2012:69; Rice 1987:419). The characterization of selected sherds from Mialoquo will determine the variability in clay procurement locations represented in the Mialoquo ceramic assemblage.

XRF Advantages

X-ray fluorescence spectrometry utilizes an X-ray emission tube aimed at a target to induce the fluorescent emission of secondary X-rays in the sample. XRF can be used to determine the elemental composition of a wide variety of materials. This technology is commonly used in many fields of study including chemical and material engineering, mining, and material science, but has recently become more broadly used

in other disciplines (Chauhan et al. 2013; Palmer et al. 2009). There are several advantages that XRF offers for archaeologists: (1) XRF allows for a non-destruction of samples; (2) little to no pre-treatment is necessary for analysis, depending on source material; (3) it is fast and enables complete analysis in seconds; (4) it is easy to use for non-professionally trained analysts; (5) it can be transportable; and (6) it is a cost-effective method per sample over more traditional methods.

XRF Limitations

There are some limitations of this technique that must be taken into consideration. First, if the size of the sample analyzed is too small it may result in inaccurate XRF readings. The size of a sample is limited by the size of the instrument's aperture and the strength of the emitting x-rays. These specifications depend on the instrumentation and vary widely. In this analysis samples were considered if they were larger than the instruments aperture (3 mm X 4 mm). Second, XRF is currently limited in its ability to detect elements that have low atomic numbers or have very low concentrations within the sample. A vacuum attachment was used to remove air in the instrument and limit the attenuation of low atomic elements, typically below Sodium (Na) (Atomic Number 11). Lastly, one of the main limitations of XRF is that it is a mass spectrometer and analyzes total concentration of an element, and does not distinguish certain states or compounds of elements. This distinction is important as some elements exist in multiple states within ceramics (Holliday and Gartner 2007).

These limitations can have serious implications for the analysis and interpretation of archaeomaterials and must be accounted for. XRF is not the only technique used to determine the elemental composition of archaeomaterials. There are

several techniques that allow for more precise analyses of chemical composition of ceramics and other artifacts [e.g. neutron activation analysis (NAA), inductively coupled plasma mass spectrometry (ICP-MS), and x-ray diffraction (XRD) (Cochrane and Neff 2006; Glascock and Stryker 1994). These techniques, however, require the destruction of some or all of the sample for analysis and are typically much more costly than the XRF technique. For this reason XRF is used here to discern the elemental composition of selected ceramic samples.

Theory and Derivation of XRF

X-rays are a form of electromagnetic radiation with a short wavelength correlating to high energy-high frequency output. The lengths of X-rays lie between gamma rays and ultraviolet rays (Figure 18). XRF relies on a basic principle of interaction between electrons within atoms and radiation. When electrons are excited with high-energy, short wavelength radiation (e.g. X-rays), they become ionized. Ionizing radiation is radiation that has enough energy to remove tightly bound electrons from the orbit of an atom. It is this process that is necessary for the pXRF to then record and identify atomic elements and their relative amounts in each sample.

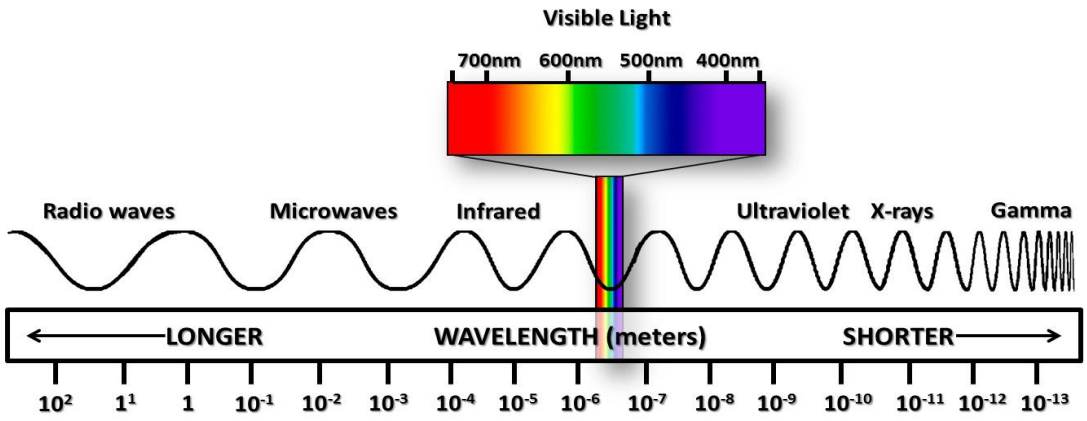

Figure 17: Wavelength Spectra. Obtained from: http://data.allenai.org/tqa/the_electromagnetic_spectrum_L_0753/

When the XRF emits a primary radiation beam it causes electrons within atoms of the sample to become excited and move between inner and outer electron shells surrounding the atom. If the energy of the primary radiation is sufficient to dislodge an inner shell electron, creating a vacancy, then these vacancies de-excite and an outer shell electron quickly replaces the missing inner electron. This replacement produces energy in the form of radiation because the inner shell electron is more strongly bound compared with an outer one. The emitted radiation is of lower energy than the X-rays that were primarily fired into the atoms to excite them. This process is termed fluorescent radiation, or fluorescence. Every element has a characteristic electron structure produced from fluorescence called a K-line (Bishop et al. 1982; Jenkins 1974, 1999; Jenkins and DeVries 1967). The relationship between the emission of fluorescent

radiation wavelength, or K-line, and atomic number is known and allows for the isolation of individual characteristic K-lines and the unique identification of an element. Thus, the resulting fluorescent X-rays can be used to detect and record the abundance of elements that are present in a given sample.

XRF works by sending a primary X-ray (from an X-ray tube) towards a sample. The contact of the primary X-ray to a sample causes both absorption and scattering of the primary X-ray electrons to occur (Figure 19). Scattering can be inelastic (incoherent or Compton scattering) or elastic (coherent or Rayleigh scattering). With coherent scattering, the secondary X-rays produced from the sample are the same wavelength and energy as the primary beam. With incoherent scattering a secondary X-ray is produced that has a longer wavelength and lower energy than the primary X-ray. Both inelastic and elastic scatterings are recorded and measured by the XRF and can be used to identify the elemental composition of a given sample.

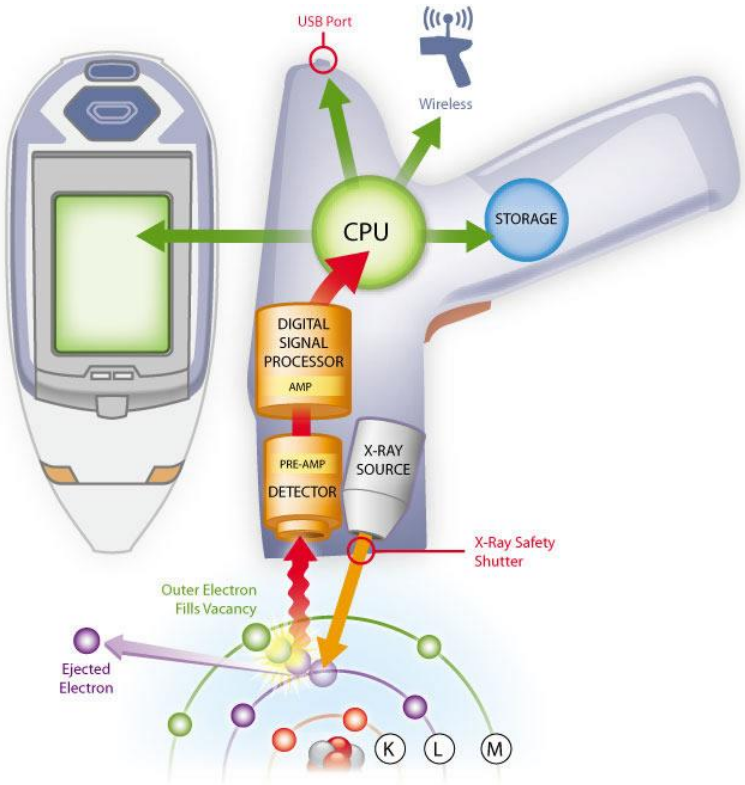

Figure 18: Diagram of portable X-ray Fluorescence demonstrating primary X-ray emission and subsequent inner electron vacancy and fluorescence radiation detected by the pXRF sensor. Obtained from: https://www.thermofisher.com/blog/mining/technology-focus-x-ray

PXRF METHODS

Instrumentation Used

A portable TRACeR III-V+ (Bruker AXS Company) with a stand and lead shield was used for this analysis (Figure 20). This XRF is a handheld analyzer with a silicon-based detector and is energy dispersive, allowing for the analysis of multiple elements simultaneously. The TRACeR III-V+ pXRF has an x-ray tube with a Rhodium (Rh) target

and a 10mm² silicone drift detector (SDD), providing a typical resolution of 142 eV at 100,000 cps (counts per second). The XRF was operated with a voltage of 40 kV, a current of 11 µm, and a spot diameter of 20 mm, at a distance of about 1 – 3 mm from the object surface depending on the sherd's shape. Light elements are easily attenuated by interreference from small atoms that make up our atmosphere. Elements that are light cannot be detected without optimization of laboratory conditions; therefore all samples were measured using a vacuum attachment to remove as much atmosphere as possible from the device chamber during analysis.

Sherd and Feature Selection

Sherds were selected for X-ray fluorescence (XRF) analysis based on three criteria: (1) they derived from features with Cherokee contexts associated with known structures, (2) they possessed a distinguishable surface treatment and temper additive, and (3) they were large enough to cover the instrument's aperture (at least a 3 mm x 4 mm size). To avoid detecting sherds from a feature that might be from the same vessel, and thus containing the same or similar element compositions, I selected sherds that exhibited variations in size, shape, thickness, exterior and interior surface treatments and color when possible.

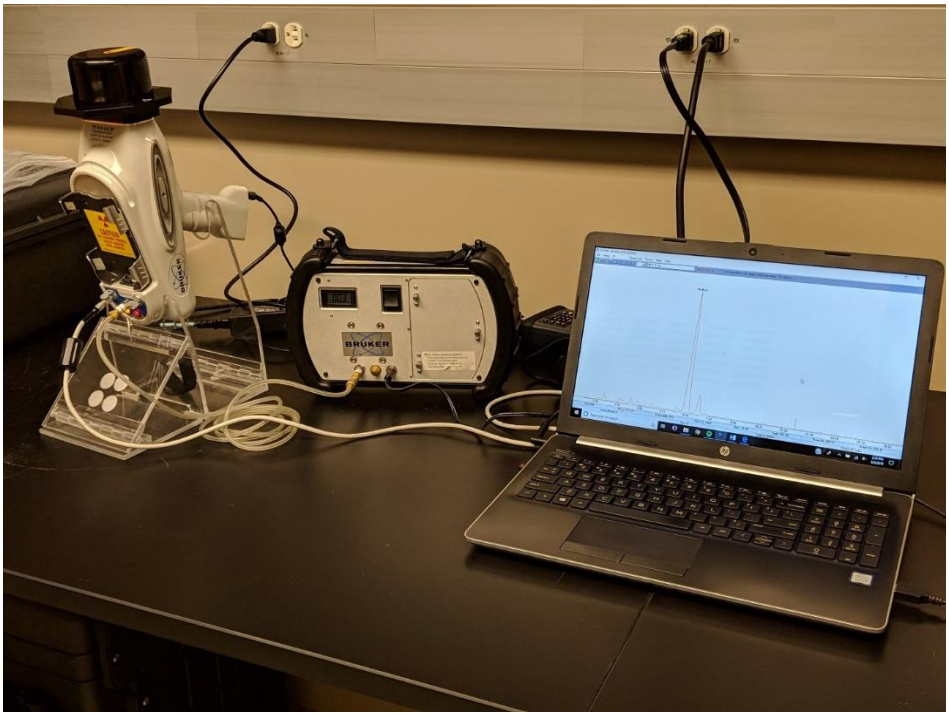

Figure 19: PXRF, vacuum pump, and S1PXRF software laboratory setup

Laboratory Methods

Pottery sherds were first gently cleaned with a brush if needed to remove any surface buildup. For each sample, three independent assays were taken in different locations on the sherd (two assays on the sherd's exterior surface in two different spots and one assay on the sherd's interior surface), each for a duration of 180 seconds. The assays were later averaged to derive the mean elemental composition of the artifact. The Bruker S1PXRF software was used for capturing individual sherd assays. PXRF

assays were taken on the flattest surfaces on an artifact to minimize the air gap between the artifact and the detector window, and to reduce the interference from the surface morphology. Additionally, any visible inclusions in the ceramic matrix were avoided when possible. In cases where an inclusion from temper was inadvertently placed on the detector, a comparison to the other two assays from the artifact helped identify the anomalous reading and the reading was rejected. Once the assay was completed for each point, an individual spectrum was displayed where peaks represent concentrations of each constituent element (Figure 21).

The elements Rubidium (Rb), Strontium (Sr), Yttrium (Y), Zirconium (Zr) and Niobium (Nb) were the primary elements of interest for statistical analysis (Figure 22). These trace elements are of particular interest because clays sourced from the same procurement zone tend to be similar in these trace elements, also known as geochemical heterogeneity (Bishop 1980; Bishop and Rands 1980) and they do not seem to reflect significant weathering or elemental substitution (Bishop 1982). Other major elements found within clays, such as iron (Fe) and calcium (Ca) can vary significantly within a procurement zone. Significant variation in these selected trace elements comprising the paste of pottery indicate differences in their procurement source areas (Rice 1978:418-420).

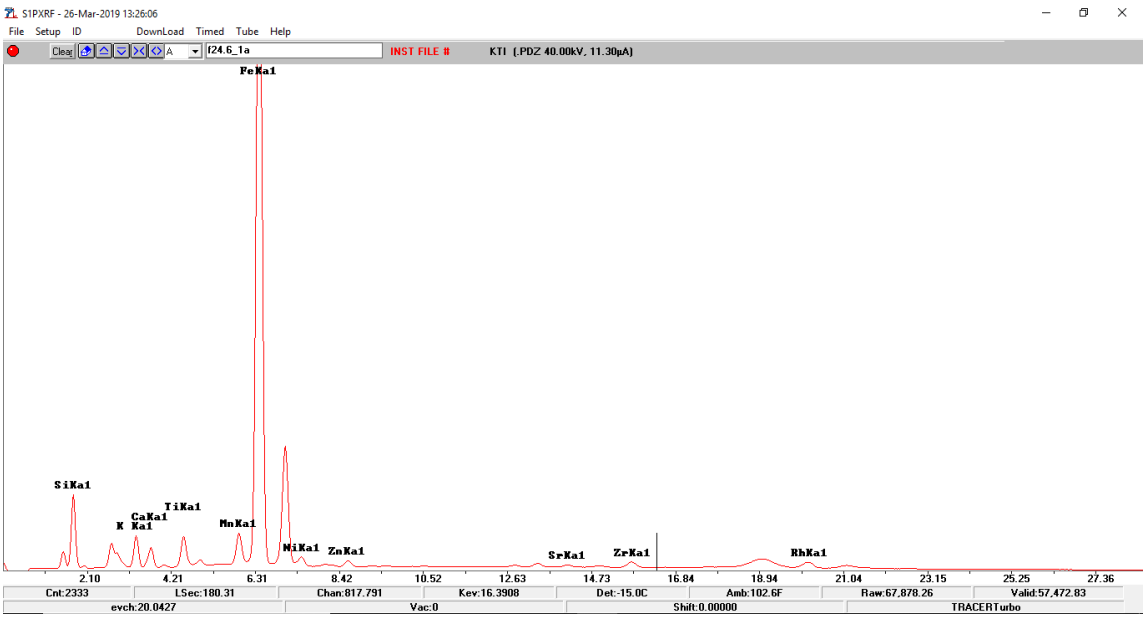

Figure 20: Spectral Assay from Sample f24.6_1 with vacuum attachment.

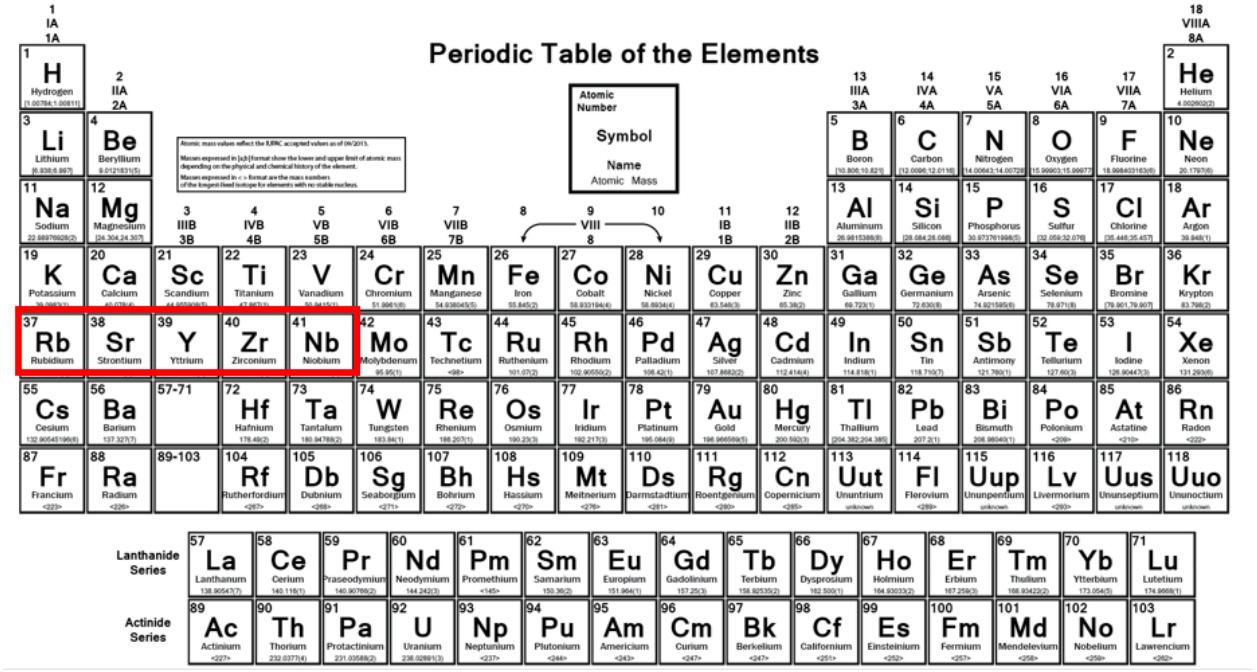

Figure 21: Periodic table of elements and highlighted elements used in pXRF analysis.

PXRF Statistical analysis

Once all sherds were analyzed by pXRF instrumentation, spectra were processed using Bayesian deconvolution and converted to raw data using Spectra ARTAX software 7.2.0.0 to obtain the net count rates from each element in the data collected. Bayesian deconvolution is necessary as the S1PXRF software can retrieve and record element counts for individual elements, but these initial values do not account for inter-elemental effects that occur when spectral peaks of different elements overlap. The Bayesian deconvolution results in the net intensities which are the counts of photons for each element's spectral peak, minus background and effects of inter-elemental overlap.

The X-ray intensity represented by the spectra peaks is directly proportional to the concentration of the elements in the sample. Therefore, the net areas of the respective peaks are used to assess the variability of elemental composition within the sherd assemblage. All spectra demonstrated broad characteristic X-ray emissions around 18.5 KeV to 19.5 KeV, corresponding to Rh Compton peaks, resulting from inelastic scattering due to particles in the surrounding ambient air. Resulting data from ARTAX deconvolution for each element were therefore normalized to the Rh signal to eliminate errors from the geometry and distance of the surface analyzed and the detector and to observe if there were any groupings based on relative elements abundances. The resulting calibrated data on trace elements (Nb, Rb, Sr, Y, Zr) from pXRF assays are listed in Appendix 3.

Since three assays were obtained per sherd the numerical elemental data for each sherd was averaged for each element prior to performing statistical analysis. A

standard error percentage was calculated to see if significant error was present between the assays. This was accomplished by first taking the standard deviation of the three assays and dividing the average net intensity of each represented element. These numbers were then multiplied by 100 to acquire percentages. Once this was done for each of the five element readings per sherd, an overall average error percentage was obtained. Error percentages were considered to see if significant error was introduced by any reading at the three different spots where an assay was recorded on the pottery sherd. An error percent rate of 25% was established as a threshold; any sherd with error higher than this was rejected from use in further statistical analysis.

PCA Analysis Introduction

PCA, or principal components analysis, is a technique used to help visualize and explore patterns in large datasets with multiple variables by transforming them into smaller datasets, known as dimension reduction, while also attempting to retain the variation present in the data as much as possible. Reducing the number of variables within a dataset inherently causes the loss of accuracy within the data. This reduction in variables is however necessary to more easily visualize and explore the data.

PCAs produce principal components, or PCs, which are the combination of multiple variables into one variable which can then be plotted. The first principal component created by a PCA will account for the largest possible variance in the dataset and the second principal component with the second most possible variance in the dataset, and so on. PCAs are typically displayed on two-dimensional plots as PC 1 (x-axis) and PC 2 (y-axis); however, more PCs can be displayed by using multi-dimensional plots.

Eigenvectors and Eigenvalues are terms used to describe the amount of transformation in the linear data that occur in a PCA during dimensionality reduction. Dimensionality reduction during PCA scaling and ascending (stretching or compressing) the two-dimensional plane on which the data is presented. The stretching directions are known as eigenvectors and the value of these directions are called eigenvalues. Eigenvectors and eigenvalues are used to understand the transformation of a resulting PCA plot.

Mialoquo Ceramic Data PCA

All elements present in the samples were analyzed further using a bivariate scatter plot of element ratios and a principal components analysis (PCA) in an effort to determine whether sherds separated into meaningful groupings based on temper, surface treatment or household categories. I used SYSTAT version 13 software to produce the PCA bivariate plots using a PCA analysis. This method was used with the pXRF data to detect differences in the relative proportions of elements described above. Once the PCA was complete, principal components 1 and 2 were plotted on a two-dimensional bivariate plot. To help interpret the resulting PCA plot three grouping variables were used to produce three individual plots that help explore the PCA data. The three grouping variables used were temper treatments, exterior surface treatment, and associated household structure. Additionally, I used SYSTAT's software to produce a 68.27% probability confidence ellipse around the mean of each grouping variable used.

CHAPTER FIVE: RESULTS AND DISCUSSION

Ceramic distributions are useful in understanding community patterns, especially in coalescent communities where strong ceramic traditions exist (e.g. Overhill and Qualla ceramic series). The aim of this analysis was to answer two questions: 1) was there variation present in the ceramic assemblage from Mialoquo, and 2) could any meaning be inferred from this variation? My interpretations presented here are based on comparing and contrasting the ceramic types present at Mialoquo in both features and structures. Section 1 compares the ceramic types across Mialoquo areas, features and households. This was done to ensure accurate comparisons between analyses, as well as to document the Woodland, Mississippian and Cherokee components of the ceramic assemblage. Section 2 presents the results of the spatial analysis conducted using ArcGIS to produce ceramic distribution maps and Kernel Density Estimation maps to demonstrate any evidence of spatial patterning within the ceramic assemblage at Mialoquo. Lastly, Section 3 presents the results of the principal components analysis (PCA) from the pXRF instrument assays to identify patterning in clay sources used to manufacture ceramic vessels within the Mialoquo community.

SECTION 1: THE MIALOQUO SITE CERAMIC ASSEMBLAGE

CERAMIC TYPOLOGICAL ANALYSIS RESULTS

Using macroscopic analysis to identify temper and exterior surface treatment, I reanalyzed ceramics from a total of 23 features. Table 8 shows the results of the ceramic reanalysis compared to the original results tabulated by Russ and Chapman (1983:72-74). The results indicate that most features had at least one discrepancy

between the original sherd tabulation and the re-analyzed counts. Most features, 86.96% (N = 20), had a discrepancy count of fewer than 30 sherds and the average difference between analyses was 10 sherds. The average sherd discrepancy of 10 sherds may be accounted for by sherds being moved to a comparative collection at the McClung Museum or a possible miscount during original tabulation or the misplacement or breakage of sherds after initial counts were conducted.

Two features standout in the amount of variation contained in their ceramic counts between analyses. Features 26 and 46 have sherd count discrepancies of over 100 sherds. The analyses resulted in nearly identical total sherd counts for these features; however, sherds I analyzed were placed into different temper categories, causing the large error in counts between analyses. This error indicates mis-categorization during original sherd tabulation. If the difference in error from these two features is removed, the average sherd count difference between the original tabulation and reanalysis is lowered to three sherds per feature. The results of the table indicate both ceramic typological analyses yielded similar results. Thus, sherd counts tabulated in the original site report that I did not reanalyze are considered accurate when used in subsequent analyses in this thesis.

Table 8: Error Difference between Reanalysis and Original Analysis in Areas 3, 4, and 5 (Russ and Chapman 1983:72-74).

AREA	FEATURE	TEMPER	REANALYSIS SHERD COUNT	RUSS AND CHAPMAN (1983:72-74) SHERD COUNT	DIFFERENCE IN SHERD COUNT
3	18	Shell	11	11	0
3	18	Limestone	11	11	0
3	18	Sand	2	0	+2
3	20	Shell	1	6	-5
3	20	Grit	2	2	0
3	20	Limestone	6	1	+5
3	21	Shell	1	1	0
3	21	Limestone	29	29	0
3	23	Shell	4	4	0
3	23	Limestone	71	95	-24
3	23	Sand	1	0	+1
3	24	Shell	9	5	+4
3	24	Grit	4	5	-1
3	24	Limestone	187	200	-13
3	24	Sand	0	2	-2
3	25	Shell	92	92	0
3	25	Grit	14	13	+1
3	25	Limestone	120	119	+1
3	26	Shell	125	232	-107
3	26	Grit	283	172	+111
3	26	Limestone	337	336	+1
3	27	Shell	589	602	-13
3	27	Grit	50	48	+2
3	27	Limestone	233	227	+6
3	28	Shell	75	71	+4

Table 8 Continued

AREA	FEATURE	TEMPER	REANALYSIS SHERD COUNT	RUSS AND CHAPMAN (1983:72-74) SHERD COUNT	DIFFERENCE IN SHERD COUNT
3	28	Grit	13	13	0
3	28	Limestone	199	205	-6
3	30	Shell	106	107	-1
3	30	Grit	110	109	+1
3	30	Limestone	73	73	0
3	32	Shell	273	266	+7
3	32	Grit	16	16	0
3	32	Limestone	47	48	-1
3	34	Shell	277	277	0
3	34	Grit	132	131	+1
3	34	Mixed	10	10	0
3	34	Limestone	189	189	0
3	35	Shell	2	2	0
3	35	Limestone	4	4	0
3	35	Grit	0	35	-35
3	39	Grit	3	2	+1
4	39	Limestone	1	1	0
4	39	Shell	0	1	-1
4	40	Shell	8	8	0
4	40	Grit	3	2	+1
4	40	Limestone	2	3	1
4	41	Shell	2	2	0
4	41	Grit	9	9	0
4	41	Limestone	17	17	0
4	41	Sand	1	1	0
4	43	Shell	7	5	+2
4	43	Grit	4	4	0
4	43	Limestone	6	6	0

Table 8 Continued

AREA	FEATURE	TEMPER	REANALYSIS SHERD COUNT	RUSS AND CHAPMAN (1983:72-74) SHERD COUNT	DIFFERENCE IN SHERD COUNT
4	46	Shell	3	164	-161
4	46	Sand	153	3	+150
4	52	Shell	27	38	-11
4	52	Grit	3	3	0
4	52	Limestone	1	1	0
4	57	Shell	42	42	0
4	57	Grit	106	105	+1
4	57	Limestone	6	5	+1
4	57	Sand	5	5	0
4	58	Shell	61	60	+1
4	58	Grit	1	0	+1
4	58	Sand	11	14	-3
4	62	Shell	804	820	-16
4	62	Grit	40	35	+5
4	62	Sand	13	0	+13
5	81	Shell	94	83	+11
5	81	Grit	6	6	0
5	81	Limestone	4	4	0
5	81	Sand	15	15	0
AVERAGE ERROR IN COUNT					**-10**
TOTAL			**5,166**	**5,233**	

Viewed by feature, it is evident that sherds are most prevalent in the Area 3 portion of the site (Features 26, 27, and 34), each containing over 600 individual sherds. Additionally, Feature 62 from Area 4 has a high concentration of ceramics (N = 857). Features 26, 27 and 34 are located in an area between three rectangular Cherokee domestic structures (Structures 2, 3, and 8) and Feature 62 in Area 4 is located close to Structure 6. This pattern of spatial organization suggests some areas of more specific pottery use, but are also related to the location of Cherokee domestic and public structures at the site.

The pottery assemblage from feature contexts in all areas (including those features I did not reanalyze) total 6,479 sherds (Appendix 1). Mialoquo is dominated by shell-, limestone-, and grit-tempered wares, representing 52.88% (N = 3,426), 28.18% (N = 1,826), and 15.31% (N = 992) of the assemblage respectively. Minor contributions to total ceramic counts come from sand-tempered [3.26% (N = 211)], mixed-tempered [0.34% (N = 22)], and indeterminate-tempered sherds [0.03% (N = 2)]. Within the temper groups the following surface treatments are represented; plain, check stamped, simple stamped, complicated stamped (rectilinear and curvilinear), cob marked, and cord marked. The total ceramic sherds and their percentages by area are reported in Table 9.

Table 9: Total Ceramic Count by Area and Temper

	Shell	*Grit*	*Limestone*	*Sand*	*Mixed*	*Indeterminant*	*Total*	*% of Total*
Area 1	133	42	151	4	0	2	332	5.12%
Area 2	236	0	2	0	0	0	238	3.67%
Area 3	1,646	728	1,627	3	21	0	4,025	62.12%
Area 4	1,317	216	42	189	1	0	1,765	27.24%
Area 5	94	6	4	15	0	0	119	1.84%
Total	3,426	992	1,826	211	22	2	**6,479**	

Woodland period ceramics at the site are concentrated in Area 3 (Features 26, 27, 28, and 34) where limestone- or sand-tempered sherds constitute 37.52% (N = 1,630) of the total ceramic count. No features were identified as Woodland on the basis of ceramics. In Area 4 and Area 5, Woodland period ceramics occur less frequently, constituting 12.18% (N = 231) and 15.97% (N = 19) of the total ceramic count respectively.

Mississippian ceramics occur in Areas 3, 4, and 5 in seven features (Features 19, 22, 31, 33, 36, 48, and 68), representing less than 2.11% of the total ceramic assemblage. These seven features were attributed to a Mississippian, or probable Mississippian, occupation by Russ and Chapman (1983:22), constituting a total of 141 sherds. Of these sherds, 103 were limestone tempered, 31 grit/quartz tempered, and seven crushed mussel-shell tempered.

The Historic Cherokee component of the site in Areas 3, 4, and 5 accounts for approximately 69.11% (N = 4,084) of the total ceramic assemblage from these areas (N = 5,909). The Overhill series comprises 55.31% (N = 3,268) of the total ceramic assemblage from these areas and the Qualla series 13.80% (N = 816). Overhill plain represents approximately 39.77% (N = 2,350) of the total ceramic assemblage from Areas 3, 4, and 5 (Figure 23). The Overhill series sherd assemblages constitute 42.26% (N = 1,646) from Area 3, 83.96% (N = 1539) from Area 4, and 76.85% (N = 83) from Area 5.

When looking solely at the distribution of only Overhill sherds recovered from Areas 3, 4 and 5 (N = 3,268) the Overhill plain 71.91%, Overhill complicated stamped 13.86%, and Overhill Check stamped 13.04% are the first, second, and third most numerous Overhill types (Table 10). However, no one area has a particularly large concentration of these ceramic types (Figure 24). The Overhill stamped types total 26% of all Overhill ceramic types and the remaining Overhill types of Cob Marked and Plaited Cane Impressed, comprise 0.17% of the ceramic assemblage from Areas 3, 4, and 5. It is evident from the distribution and quantity of Overhill series pottery that the historic Overhill Cherokees intensively occupied most of the Mialoquo site.

Figure 22: Feature 30, shell tempered, plain exterior, rim sherds.

Table 10: Overhill and Qualla Sherd Counts from Areas 3, 4, and 5

Overhill Categories	Number	Percent (%)	Qualla Categories	Number	Percent (%)
Overhill Total	3268	100	Qualla Total	816	100
Overhill Plain	2350	71.91	Qualla Plain	522	63.97
Overhill Check Stamped	426	13.04	Qualla Check Stamped	130	15.93
Overhill Complicated Stamped	453	13.86	Qualla Complicated Stamped	151	18.50
Overhill Cob Marked	9	0.28	Qualla Cob Marked	0	-
Overhill Plaited Cane Impressed	1	0.03	Qualla Cane Impressed	0	-
Overhill Simple Stamped	14	0.43	Qualla Simple Stamped	4	0.49

Figure 23: Feature 81, shell tempered, check stamped exterior surface treatment.

Figure 24: Feature 30, grit tempered, plain exterior surface treatment, rim sherds.

Qualla series ceramics comprise approximately 15.31% of the total site assemblage and 13.98% in Areas 3, 4, and 5. The Qualla series from these areas at Mialoquo comprise 63.97% Qualla Plain, 18.50% Qualla Complicated Stamped, 0.49% Qualla Simple Stamped, and 15.93% Qualla Check Stamped sherds (Figure 25). Qualla series ceramics were concentrated in Areas 3 and 4 at 15.33% (N = 597) and 11.62% (N = 213) of the site areas respectively. In Area 5, the townhouse, Qualla series sherds make up 5.55% (N = 6) of the assemblage. Two features contained high proportions of

grit-tempered ceramics: Feature 26 with 35.56% (N = 223) and Feature 34 with 21.05% (N = 132).

Mixed-tempered sherds were recovered from three Cherokee features, Features 34 and 37, and 49. Mixed-tempered sherds represent a small proportion, 0.05% (N = 22), of the total Mialoquo Cherokee ceramic assemblage. Russ and Chapman (1983:82) note that the quantity of recovered mixed-tempered sherds does not allow for meaningful interpretations to be extracted from them. Nonetheless, it is possible a mixed tempering between grit and crushed mussel shell indicates a blending of communities of practice at Mialoquo. Seven mixed-tempered sherds were analyzed in the pXRF analysis below.

CHEROKEE CERAMIC DISCUSSION

The ceramic assemblage from Mialoquo indicates that Woodland, Mississippian, and Cherokee components are present, but that the most intense occupation at the site occurred during the eighteenth century by Historic Cherokees. Area 3 contained nearly equal proportions of Overhill series and limestone-tempered ceramics, while Areas 4 and 5 were dominated by the Overhill Cherokee series ceramic type. Qualla series (grit-tempered) ceramics were present in all areas of the site although most prevalent in Area 3, representing 30.4% (N = 728) of Cherokee assemblage, and Area 4 at 14.08% (N = 216) of the Cherokee ceramic assemblage. Area 5, containing Mialoquo's townhouse, had only 5.04% Qualla series ceramics compared to the Overhill series (76.99%). This lack of Qualla ceramics present in Area 5 may indicate a lack of access for Qualla potters to the townhouse. However, this should be viewed with caution as only a single Cherokee feature out of 13 features from Area 5 contained ceramics.

Overall, Qualla series ceramics comprise a significant portion of Mialoquo's Historic Cherokee ceramic assemblage at approximately 22.34%. The distribution of Qualla series ceramics between domestic Areas 3 and 4 and its presence in the public Area 5 indicate a non-random patterning of the ceramic assemblage and may reflect a blending of communities of practice present at the Mialoquo site. The high quantity of Qualla series ceramics present at Mialoquo is unlike most other historic Cherokee sites located in East Tennessee (Schroedl 1986:544-545) (Table 11). The high proportion of Qualla series ceramics at the Mialoquo site indicates that Mialoquo not only received Cherokee immigrants from Lower, Middle, Valley and Out Cherokee Towns, but was likely also co-founded by these communities along with the local Overhill Cherokees.

Qualla Ceramics at Mialoquo

Lewis and Kneburg (1946:98) first recognized the addition of grit-tempered pottery to Overhill Cherokee sites at Fort Loudoun, which was occupied by Cherokees from 1760-61. They characterized the grit-tempered type as "Lamar-like", demonstrating its connections to the late pre-contact Lamar culture area which included the areas in which Lower, Middle, Valley, and Out Cherokee Towns existed, but did not include the Overhill Cherokee town areas (see Chapter 2 discussion) (Lewis and Kneburg 1946). Further evidence supporting the late addition of Qualla series to Overhill sites is Qualla pottery only occurring in areas at Chota-Tanasee that contain Federal period (A.D. 1795 – 1818) materials (Schroedl 1986). Furthermore, known historical movements of Cherokees from Lower, Middle, Valley, and Out Towns into the Overhill Cherokee area likely contributed to the marked rise in Qualla series ceramics at Overhill sites beginning ca. A.D. 1760 (Baden 1983).

Table 11: Intersite Comparison of Overhill and Qualla Ceramic Frequencies. Modified from Russ and Chapman (1983:82)

	MIALOQUO (RUSS AND CHAPMAN 1983)	TOMOTLEY (BADEN 1983)	CHOTA/TANASEE (SCHROEDL 1986)
TOTAL CERAMICS FROM SITE	6,479	14,051	154,406
OVERHILL PLAIN %	40.6%	64.7%	89.3%
OVERHILL CHECKSTAMPED %	7.7%	4.3%	00.5%
OTHER OVERHILL STAMPED %	7.78%	5.0%	00.5%
QUALLA PLAIN %	8.5%	00.1%	00.7%
QUALLA CHECK STAMPED %	2.18%	<00.1%	00.1%
OTHER QUALLA STAMPED %	2.56%	00.1%	00.5%

Stamped Ceramics Discussion

The Qualla Series is the most common type recovered from historic Cherokee contexts in Lower, Middle, Valley, and Out Towns (Egloff 1967; Rodning 2008:9). Egloff (1967) notes that at these sites the Qualla series is dominated by complicated stamped varieties (75%) of all Qualla sherds sampled. Qualla Plain makes up just 5% of the sherds sampled across multiple sites, and check stamped made up 3%. These data do not match the results of the ceramic typological analysis from Mialoquo, or other Overhill Cherokee sites like Chota-Tanasee, where Qualla plain types occur much more

frequently, and in Mialoquo's case, vastly outnumber the stamped variety Qualla sherds. Mialoquo's Qualla ceramics contain a higher proportion of Qualla plain (9.48%; N = 633), twice the amount of Qualla stamped varieties (4.49%; N = 300). When evaluated further it is evident that within the Qualla stamped types, check stamped sherds (N = 141) are nearly equal in proportion to the complicated stamped varieties (N = 152). The high frequency of stamped surfaces is commonly observed and associated with assemblages from Lower, Middle, Valley, and Out Cherokee Towns, but Overhill Cherokee town assemblages are typically dominated by shell tempered and plain surface treatment types (Table 11). Russ and Chapman (1983:83) suggest that this may also be an indicator that the Mialoquo community received or was founded by immigrant Cherokee populations from these non-Overhill Cherokee towns.

Ceramic Typological Analysis Conclusions

The ceramic typological analysis was successful in answering the two questions posed. There was significant variation found in the ceramic assemblage at Mialoquo, as expected based on the analysis by Russ and Chapman (1983). The Cherokees at Mialoquo produced at least two ceramic types, the Overhill and Qualla series. Additionally, preceding inhabitants of the site area created Woodland and Mississippian period ceramic types. The Historic Cherokee ceramic types were present in the three areas focused on in this analysis and demonstrate that while all areas were dominated by Overhill series pottery they were utilized by both communities of practice, indicating blending.

The adoption of exterior surface treatments, a highly visible and culturally transmitted practice, also indicates blended communities of practice at Mialoquo. Unlike surface treatment which is a highly visible aspect of pottery, temper is often considered one of the most conservative aspects of pottery. The knowledge of where to source clay and what material to temper the clay with is a learned process and is less observable in the final product than other aspects of pottery like vessel form and exterior surface treatment. The aspects of pottery that are most easily influenced by blending communities of practice within coalesced communities are those that are highly visible and we should expect to see these aspects of pottery blend between communities of practice before a less visible aspect of pottery, like temper, is influenced.

SECTION 2: GIS ANALYSIS RESULTS

PATTERN RECOGNITION AND CERAMIC DISTRIBUTION

To better understand the spatial patterning of ceramic deposition at Mialoquo, I employed a Geographic Information Systems (GIS) to create visual graphics to aid in the interpretation of social patterning present at the site. Specifically, a Kernel Density Estimation (KDE) is used to determine what, if any, clustering of ceramic types occurs within Mialoquo site areas. The ceramic sample selected for study totaled 3,412 sherds recovered from 23 features in Areas 3 through 5 at Mialoquo. This analysis assumes the distribution of Overhill and Qualla series ceramics are indicated by shell-tempered and grit-tempered pottery counts respectively (see discussion in Chapter 2). This analysis had three objectives: (1) construct a ceramic geodatabase for each area, (2) establish a pattern of occurrence among the ceramic series, and (3) examine if recognizable spatial patterning among features or structures exists at Mialoquo.

To complete these objective I employed a Geographic Information System to display geographically referenced data to analyze and interpret spatial relationships between features and structures at Mialoquo. Table 12 shows the distribution of ceramic types by area location. Two patterns are immediately apparent. First, a great majority of deposited ceramics from the Mialoquo site occur in Area 3 (64.45%; N = 2,212) and most of the remainder in Area 4 (32.63%; N = 1,120). The remaining 2.92% (N = 100) of ceramics occur in Area 5. Area 5 is distinguishable from Areas 3 and 4 as containing the only public structure, the townhouse. The relative lack of ceramics in Area 5 may be attributed to the absence of household structures in the area. Area 3 contains the greatest number of domestic structures (N = 4) and Area 4 contained the second most (N = 3). Second, the proportion of Qualla series to Overhill series ceramics varies widely between 28.60% of Area 3's assemblage to just 6.00% of Area 5's ceramic assemblage. From this table it is clear that Overhill ceramic series dominate the Historic Cherokee record across all site areas at Mialoquo while the Qualla series are most represented in domestic Areas 3 and 4. The small sample size from Area 5, containing only 100 ceramic sherds from just a single feature, makes interpretation difficult.

After adding ceramic typological attribute data into a geodatabase I produced ceramic distribution charts for each area (Figures 26 – 28). These simple pie charts have ceramic attribute data associated with spatial information that compare both the Overhill series (green) and Qualla series (red) ceramics for each feature. Individual pie charts of these figures represent the ceramic counts for the 23 Cherokee features used in the ceramic typological and spatial analyses. The pie charts are spatially located in the center of each analyzed feature and demonstrate the relative proportion of Overhill

Table 12: Distribution of Ceramics by Site Area.

	Overhill Count	Overhill Proportion	Qualla Count	Qualla Proportion
Area 3	1565	71.39%	627	28.60%
Area 4	954	85.17%	166	14.82%
Area 5	94	94.00%	6	6.00%

and Qualla series ceramics within and between areas, structures, and features. The sample size present in Area 5, containing the Mialoquo townhouse, does not allow for any meaningful interpretation of the area due to its small sample size (N = 100).

These figures produce a few easily recognizable patterns. First, similar to the results from the ceramic typological analysis, these spatial distribution of Historic Cherokee ceramics demonstrates that Areas 3 through 5 at Mialoquo contained a higher proportion of the Overhill ceramic series to the Qualla ceramic series. However, a few features (Features 26, 33, 38, 41 51, and 57) in Areas 3 and 4 contained higher proportions of Qualla ceramic series to Overhill series. The second pattern that is more

easily recognized using the spatial analysis is the evenness with which these ceramic types are distributed across features in Areas 3 and 4. While each area is dominated by the Overhill ceramic series the Qualla series is not restricted to a particular household or portion of the site. These results indicate that Mialoquo residents cohabitated the space equally and demonstrate a blending of communities of practice at Mialoquo.

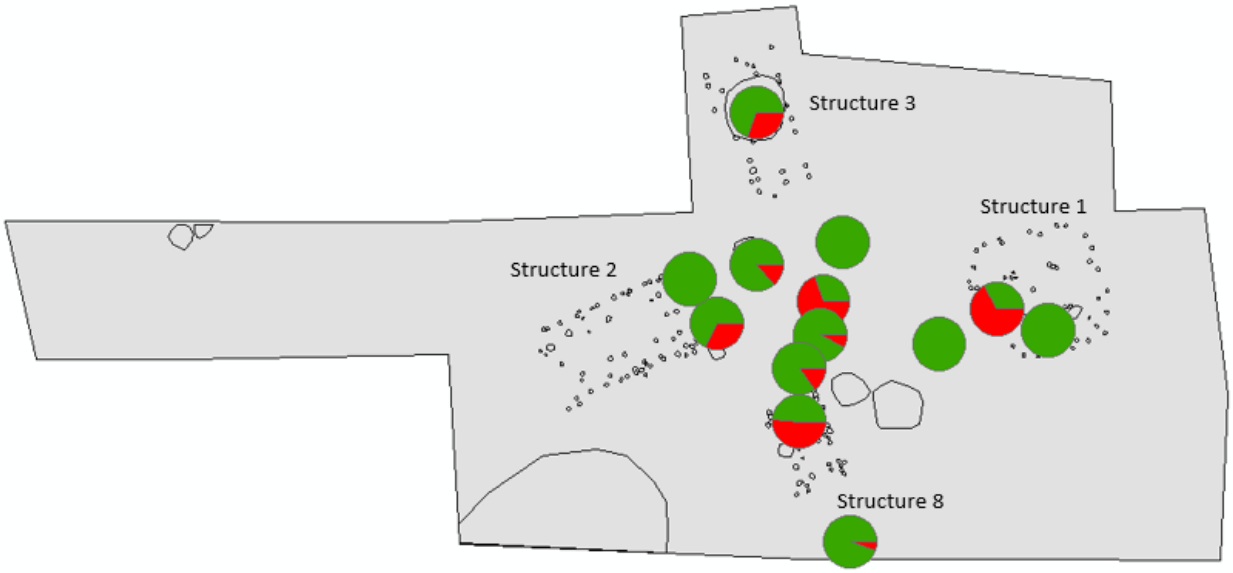

Figure 25: Cherokee ceramic distribution of Overhill series (green) and Qualla series (red) in Area 3 at the Mialoquo Site.

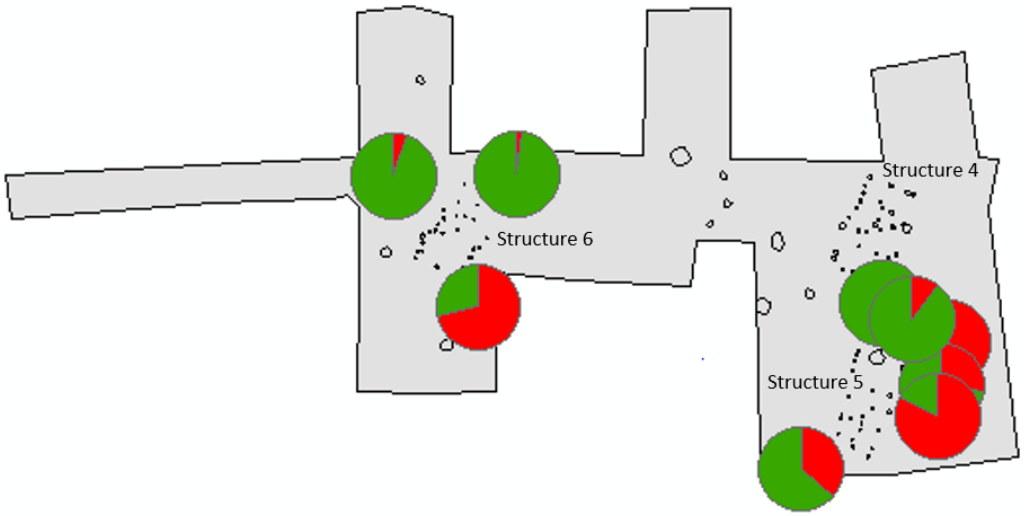

Figure 26: Cherokee ceramic distribution of Overhill series (green) and Qualla series (red) in Area 4 at the Mialoquo Site.

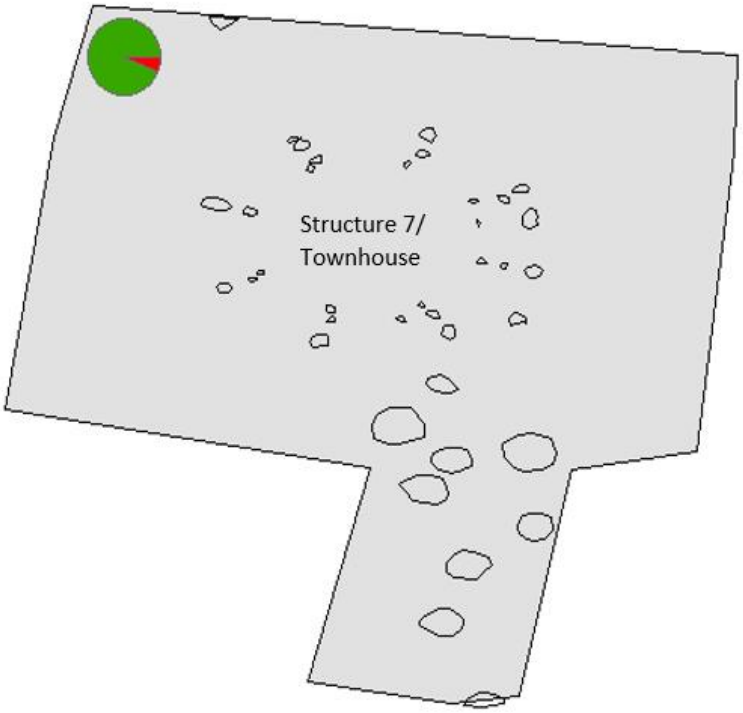

Figure 27: Cherokee ceramic distribution of Overhill series (green) and Qualla series (red) in Area 5 at the Mialoquo Site.

KERNEL DESNITY ESTIMATION RESULTS

To investigate further the distribution of Overhill and Qualla series ceramics across Areas 3 and 4, I used ArcGIS to create visual representations of ceramic density by site area (Figures 29 and 30). This spatial analyses were conducted using Kernel Density Estimates (KDE) to determine what, if any, clustering of ceramic types occur within the Mialoquo site areas and which areas contained the highest density of Overhill and Qualla ceramic series. Area 5 contained only one feature and thus the interpolation and spatial analysis methods are not appropriate for this data set.

Figure 28: Kernel Density Estimation (KDE) model produced for Area 3 of Mialoquo with Overhill series ceramics (left) and Qualla series ceramics (right).

Area 3 KDE Results and Discussion

Area 3's Kernel Density Estimate for both the Overhill and Qualla series ceramics show a few easily recognized patterns (Figure 29). First, the relative areas of intensity for both Overhill series and Qualla series ceramics are concentrated in similar locations. This location is an area centered between all four domestic structures in Area 3, likely a

shared community space. The abundance of both ceramic series in this area suggests that this area was shared by users of both Qualla and Overhill ceramics. Second, multiple features share concentrations of both Overhill and Qualla series types indicating a degree of blending communities of practice in events related to discard of ceramics. These results indicate that Area 3 was equally shared by both communities of practice at Mialoquo.

Area 4 KDE Results and Discussion

Area 4's Kernel Density Estimate for both the Overhill and Qualla series ceramics also demonstrates three patterns (Figure 30). First, similar to Area 3, the relative locations of intensity for both Overhill and Qualla ceramics are concentrated in similar places. There are two primary locations of ceramic concentrations of both series types and both areas are concentrated in proximity to domestic structures at Mialoquo. The presence of both ceramic series in these areas suggests that the space was shared by producers of both Qualla and Overhill series ceramics. Second, multiple features share concentrations of both Overhill and Qualla types, indicating a high degree of cooperation in events related to discarding ceramics. Third, unlike Area 3, some features in Area 4 contain relatively higher proportions of Qualla ceramics (Features 40 and 41 [Structure 5] and 57 [Structure 6]) compared to Overhill series or higher proportions of Overhill ceramics (Features 52 [Structure 5] and 62 [Structure 6]). While these individual features may exhibit high proportions of Qualla or Overhill ceramic series, these features occur within the same two structures, structures 5 and 6. The occurrence of features within a single structure containing both Qualla and Overhill

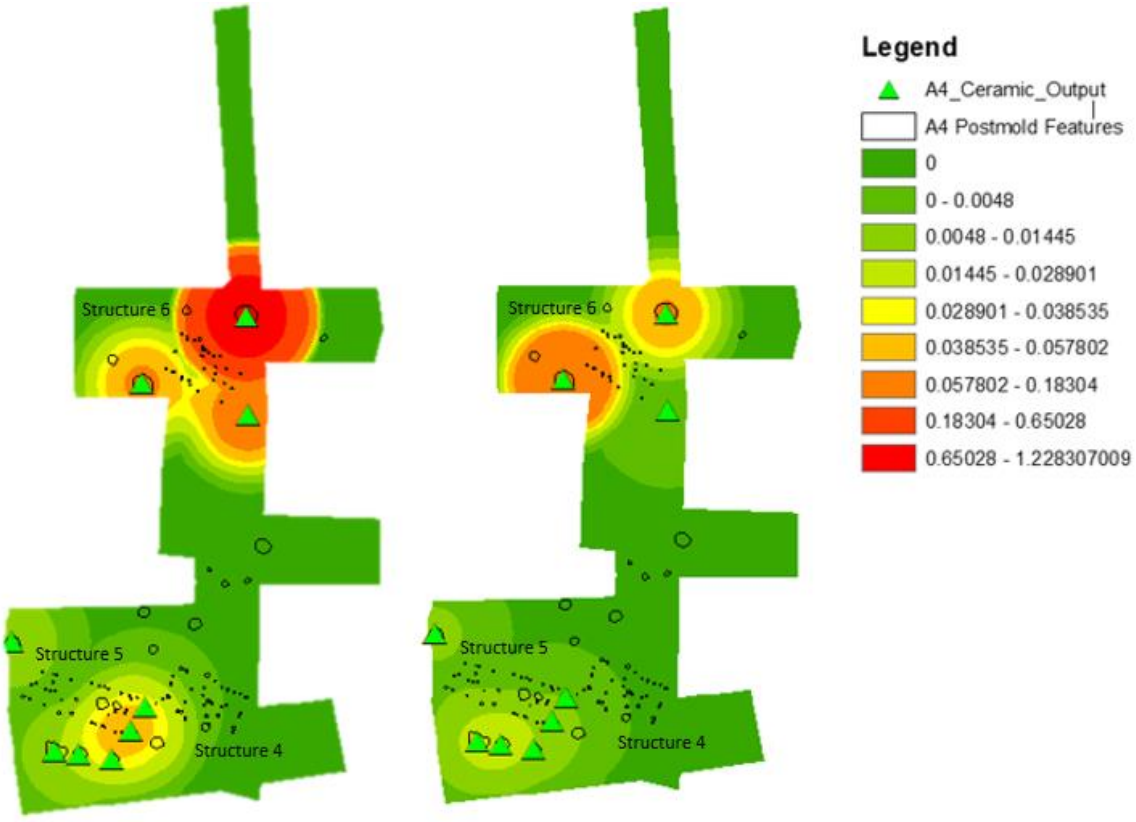

Figure 29: Kernel Density Estimation (KDE) model produced for Area 4 of Mialoquo with Overhill series ceramics (left) and Qualla series ceramics (rights).

series ceramics indicates a possible cohabitation of households and a blending of communities of practice at Mialoquo.

SECTION 3: XRF ANALYSIS RESULTS

The primary objective of this XRF study is to determine if the ceramic types present at Mialoquo are statistically different in their elemental composition of clay

matrix based on the underlying “provenience postulate”, which assumes that the elemental or chemical composition within a natural source has less variation than between other sources (Weigland et al. 1977:24). Both the typological and spatial analyses from feature contexts indicate a blending of communities of practice. The elemental characterization of selected ceramic matrices provide further information about the blending of communities of practice at Mialoquo by determining if these communities shared clay procurement locations. In this analysis, I examined a total of 143 ceramic sherds from the Mialoquo site representing a total of nine Cherokee features. A list of the area, features and the number of samples analyzed is presented in Table 13.

The pXRF data collected from the ceramic sherds (listed in Appendix 3) were used to construct bivariate scatterplots of element ratios using a principal component analysis (PCA) in an effort to identify any meaningful groups of samples. Elements used in this analysis include Niobium (Nb), Rubidium (Rb), Strontium (Sr), Yttrium (Y), and Zirconium (Zr). PCA scatterplots were then created using different grouping variables including: temper, exterior surface treatment, and household structure. Only crushed mussel shell, grit/crushed quartz, and mixed tempered sherds were included in this analysis since other temper types (e.g. limestone and sand) originate from non-Historic Cherokee cultural contexts. A total of nine pottery types were defined and used in PCA analysis (Table 14).

Due to inconsistencies between the measured quantities of certain elements between assays creating an error percentage for a given element above 25%, I rejected 27 individual sherd assays (Table 15). Remaining sherd assays were then averaged for

Table 13: Ceramic Sherds Analyzed by Area, Feature, and Structure

Area	Feature	Structure	Sherds Analyzed	Total Number of Sherds	% of Total Sherds Analyzed
3	18	1	7	31	4.79%
3	20	1	3	22	2.05%
3	24	4	9	200	6.16%
3	30	8	25	289	17.12%
3	34	2	44	608	30.14%
3	35	2	2	6	1.37%
4	46	5	18	167	12.33%
4	52	5	5	159	3.42%
5	81	7	30	108	20.55%

Table 14: Pottery Types Included in PCA Analysis from the Mialoquo Site.

Type Number	Ceramic Type (Temper/Exterior Surface Treatment)	Number of Sherds Analyzed
1	Shell, Plain	57
2	Shell, Check Stamped	22
3	Shell, Corn Cob Marked	4
4	Shell, Complicated Stamped	3
5	Grit, Plain	30
6	Grit, Complicated Stamped	16
7	Grit, Check Stamped	5
8	Grit, Simple Stamped	3
9	Mixed, Plain	7

Table 15: Assays and Sherds Rejected from Statistical Analysis Due to High Error Percentage Reading from Given Elemental Variable.

Sample/Sherd Number	Element Effecting High Error Percentage	Assay Location or Sherd Rejected
f24.2_1	Nb	Assay a
f24.6_2	Y	Assay a
f30.11_4	Nb	Assay c
f30.5_3	Nb	Assay a
f30.7_1	Sr, Y	Assay a
f30.9_3	Nb	Assay c
f34.1.3_2	Sr, Y	Assay c
f34.1.3_5	Zr	Assay b
f34.1.3_6	Sr	Assay c
f34.1.3_7	Sr	Assay c
f34.1.4_1	Zr	Assay b
f34.1.4_3	Zr	Assay b
f34.1.5_2	Sr, Zr	Assay c
f34.1.5_4	Nb	Assay a
f34.1.6_2	Sr, Y	Assay c
f34.1.6_3	Nb, Sr, Y	Assay c
f34.2.3_1	Zr	Assay a
f34.3.1_1	Nb	Assay c
f34.4.2_1	Y	Assay c
f34.4.2_2	Y	Assay c
f34.6.2_1	Y	Assay a
f34.6.4_1	Y	Assay c
f46.1.1_1	Nb	Assay b
f46.1.3_3	Y	Assay c
f46.1.3_8	Y	Assay c
f46.2.2_1	Y	Assay c
f81.3.1_5	Nb, Sr	Assay b

each individual sherd to produce the final raw count data utilized in the PCA analysis (Appendix 3).

The principal component analysis was applied to the deconvoluted net counts for each element. Table 16 provides a summary of the principal components with corresponding eigenvalues and individual proportions of variance explained. The first two principal components account for 70.9 percent of the overall variance in the data. The eigenvectors for each principal component are provided in Table 17. Rubidium (Rb) and Zirconium (Zr) are separated from Strontium (Sr) and Yttrium (Y) on the first component, and Yttrium (Y) and Niobium (Nb) are separated from the others on the second component (Figure 31). These data were used to construct bivariate scatter plot of trace element ratios. In an effort to identify any meaningful patterns I used three grouping variables in the data, including: temper, exterior surface treatment, and associated structure (Figures 32 – 35).

Table 16: Eigenvalues of the Correlation Matrix.

Principal Component	Eigenvalue	Proportion of variance explained
1	1.855	37.109
2	1.693	33.869

Table 17: Egienvectors of the Principal Components (Loadings Matrix).

Variable	Principal Component 1	Principal Component 2
Rubidium (Rb)	0.801	0.239
Zirconium (Zr)	0.743	0.167
Strontium (Sr)	-0.595	0.450
Yttrium (Y)	-0.380	-0.863
Niobium (Nb)	0.431	-0.812

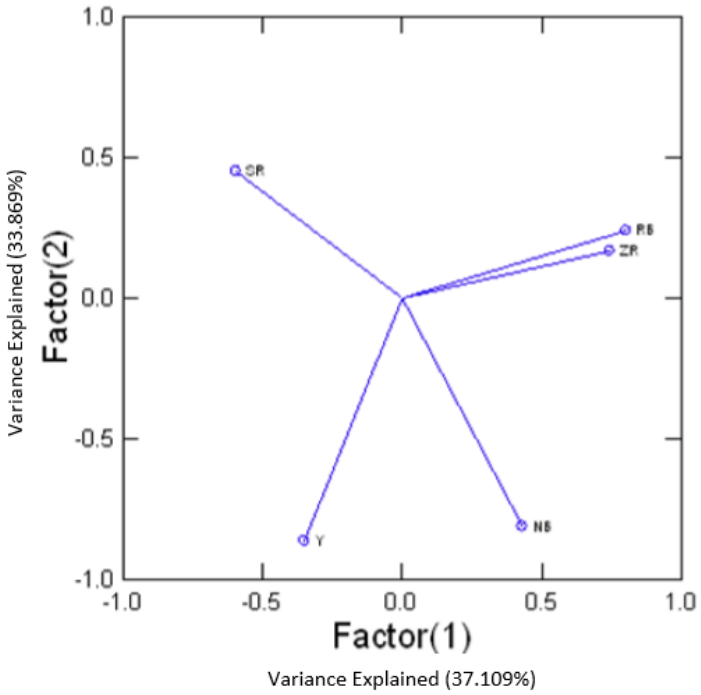

Figure 30: Factor loadings plot for PCA analysis using trace elements (Nb, Sr, Rb, Y, Zr)

Figure 32 is a scatterplot X-Y graph of the individual samples from the Mialoquo site grouped by ceramic temper treatment. A confidence ellipse with a p-value of 0.6827 was used to create a confidence interval at the first sigma for each dataset. This graph indicates that the shell-tempered sherds, correlated with the Overhill series, formed a broad cluster suggesting these vessels were manufactured from the most geographically dispersed number of clay procurement locations of the tempers analyzed. Grit-tempered sherds, correlated with the Qualla series, are more tightly clustered, indicating these ceramics were manufactured from fewer clay source locations than the shell-tempered ceramics. Grit-tempered sherds are highly overlapped

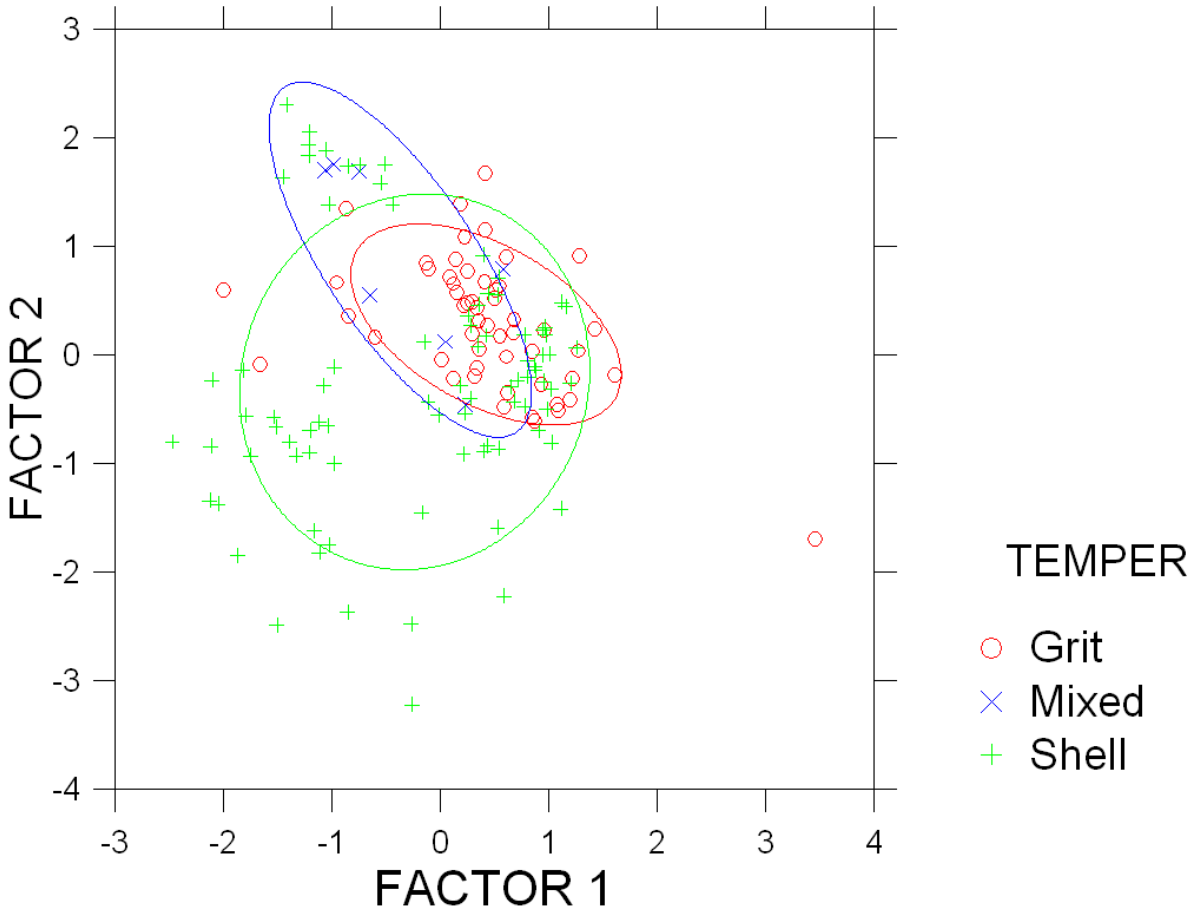

Figure 31: Scatterplot displaying element ratios by temper treatments

with some of the clay procurement sources used by shell-tempered sherds, indicating that these communities of practice were using the same clay resources at Mialoquo. This figure also indicates that mixed-tempered sherds, containing both shell and grit temper, were produced from those same clay source locations as both grit- and shell-tempered ceramics, although mixed-tempered sherds appear to have more clay procurement locations than grit-tempered sherds and fewer than shell-tempered sherds.

I propose two interpretations for the results of the temper PCA. First, the wide variability in clay procurement locations of shell-tempered sherds compared to grit-tempered sherds may indicate Overhill potters' familiarity with the East Tennessee landscape and knowledge of procurement locations that were unknown or inaccessible to Qualla potters. This interpretation suggests the communities of practice were sharing some clay source procurement locations, but did not share others, indicating some degree of non-blending between Mialoquo communities of practice. The second interpretation I propose is that the wide variability in Overhill ceramics clay procurement locations is likely explained by the transportation of Overhill shell-tempered vessels from other neighboring Overhill towns to Mialoquo. The transportation of ceramics from other Overhill areas would explain why there is such diversity in procurement areas of Overhill ceramics at Mialoquo. Qualla ceramics, produced by Cherokees from Lower, Valley, Middle, and Out Towns, used fewer clay procurement locations suggesting that rather than transporting ceramics from these town areas, these Cherokee communities produced their pottery after arriving at Mialoquo and using local clay resources. The clay procurement locations of grit-tempered pottery at Mialoquo likely represent those clay sources immediately surrounding the town that were easily accessible for both communities of practice at Mialoquo. It is interesting to note that one sample, a grit-tempered plain sherd from Structure 1, is an outlier on the graph located in the lower right corner of Figure 32. This sherds' elemental variation suggests it was produced from a different clay procurement area than any of the other sherd tested.

When grouped by ceramic exterior surface treatment, we see a similar pattern in the data to the temper PCA grouping. Ceramics produced with a plain exterior surface

treatment, associated with the Overhill ceramic series, formed a broad cluster (Figure 33). This indicates that plain vessels had the widest range of ceramic procurement locations compared to other exterior surface treatment types. This wide range of plain exterior surface treatment is expected as the plain surface treatment is the most common exterior surface treatment of both shell-tempered sherds (N = 2,350; 71.91%) and grit-tempered sherds (N = 522; 52.62%). Check-stamped sherds were the second most numerous exterior surface treatment type of shell-tempered sherds (N = 426; 13.04%) and the third most common surface treatment of grit-tempered sherd (N = 130; 13.1%). Check-stamped sherds also demonstrates a broad range in clay source locations. The check-stamped clay source locations are nested within the range of plain exterior surface treatment sherds, suggesting that the plain surface treatment type included slightly more clay source procurement locations than the check-stamped type.

The other exterior surface treatment types (complicated stamped, simple stamped, and cobmarked stamped) are associated with the Qualla ceramic series and are all more tightly clustered, yet also nested within the range of both plain and check stamped exterior surface treatments (Figure 33). This indicates that there is an overlap in the utilization of a few clay resource procurement locations for the production of all ceramic exterior surface treatment types, while plain and check stamped types were produced from more numerous additional clay source locations. Similar to the discussion of the PCA by temper above (Figure 32), the narrow selection of clay source locations for complicated stamped, simple stamped, and cob stamped types may

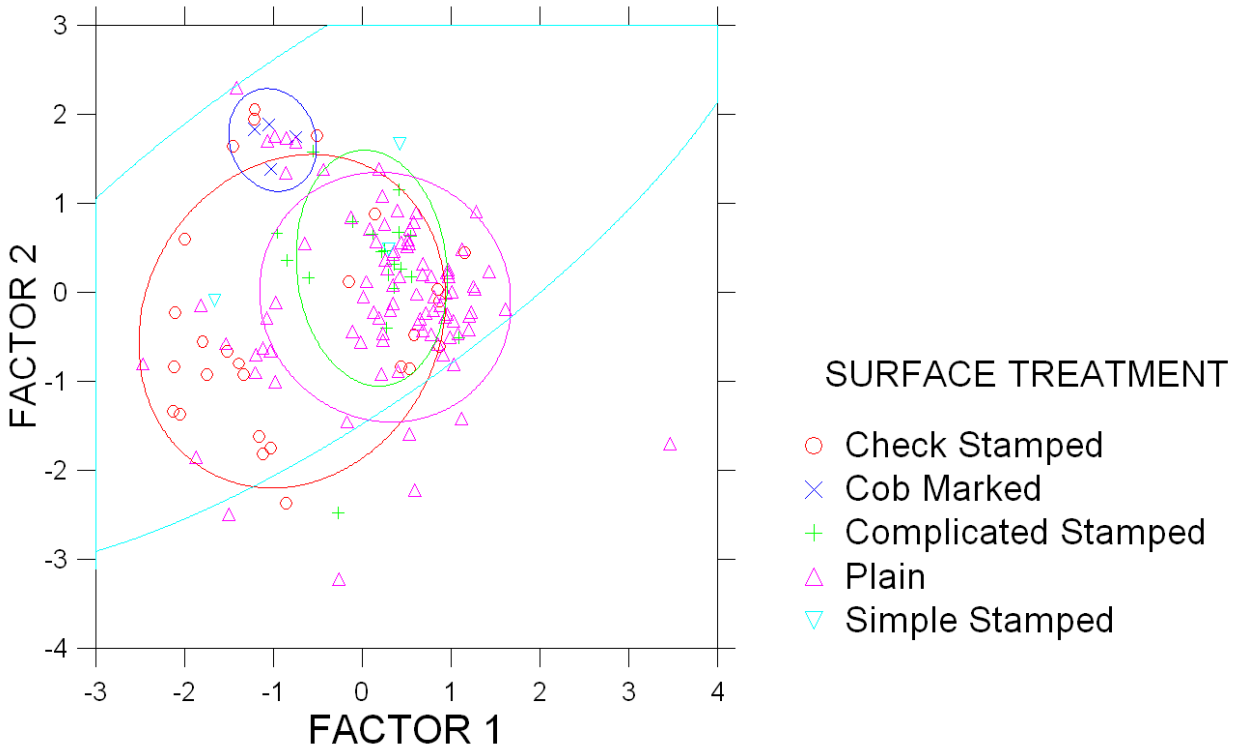

Figure 32: Scatterplot displaying element ratios by surface treatments (check stamped, cobmarked stamped, complicated stamped, plain, and simple stamped)

indicate Qualla potters were unfamiliar with the East Tennessee landscape and thus had less access to the variety of clay resource procurement locations than Overhill potters. Alternatively, these results may indicate that plain and check stamped ceramics were produced by Overhill Cherokees in other Overhill towns and subsequently transported to Mialoquo while Qualla complicated stamped and cob marked ceramics were produced from those clay resource procurement locations surrounding Mialoquo that were easily accessed by both communities of practice.

The third scatterplot grouped the results by household structure (Figure 34). These results indicate that there are identifiable elemental differences in ceramics between structures, although most structures overlap on the PCA scatterplot. This suggests that the ceramic vessels were produced from similar, and likely geographically clustered, clay resource procurement locations. All structures appear to share at least one and possibly multiple clay source locations in the production of their ceramic assemblage. This intersection between all structures indicates that the clay resource procurement location(s) were accessible to all Mialoquo community residents, perhaps due a centralized location in a communal area, utilization for community related events, or socialization practices.

Most structures, with the exception of Structure 7 (the Cherokee townhouse), form somewhat narrow clusters indicating that while some of the ceramics from each household were produced from the same procurement location(s) as their neighboring households, other ceramic vessels were produced from clay resource procurement locations utilized by only that household. This relatively narrow clustering within a household indicates that nearly every household at Mialoquo contained ceramic vessels produced from clay resource procurement locations of non-local clays, likely from neighboring Overhill Cherokee towns.

XRF CONCLUSION

The PCA of the pXRF data shows that ceramics from the Mialoquo site have measurable compositional differences, indicating that the potters used different clay material procurement sources during pottery manufacture. Despite the variety in clay resource procurement locations utilized in the manufacture of various ceramic styles,

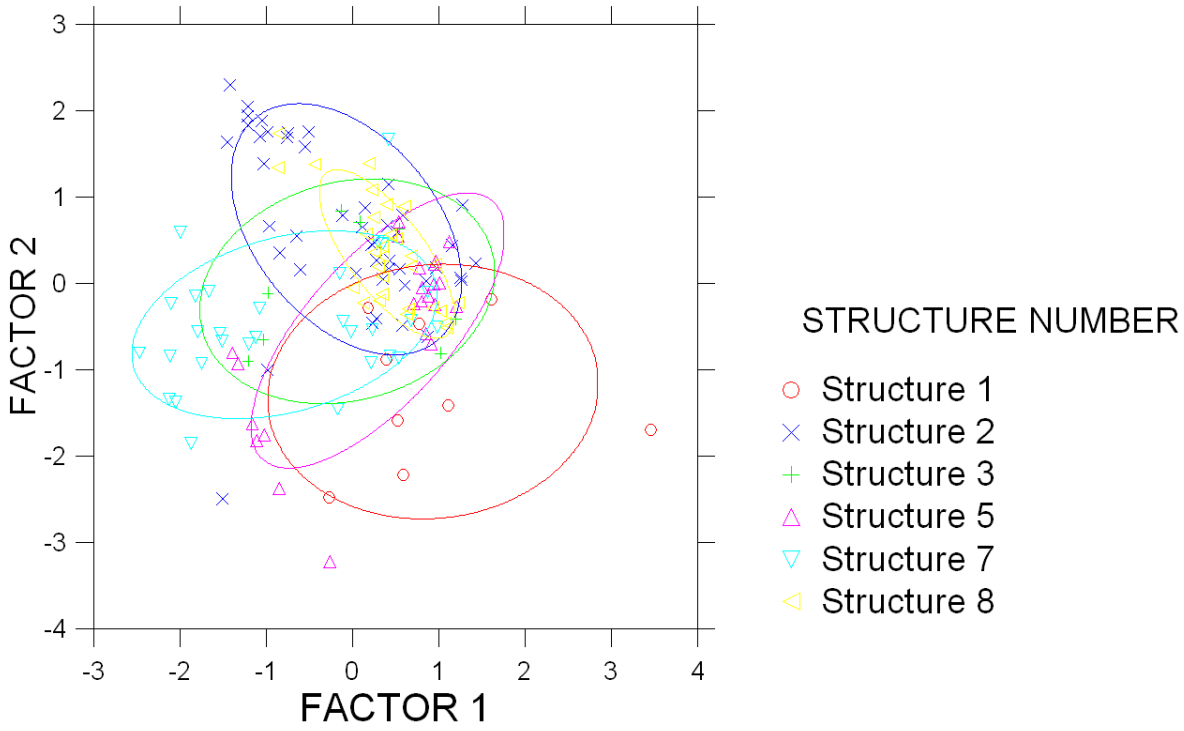

Figure 33: Scatterplot displaying element ratios by Cherokee structure

the results of the pXRF analysis indicate that the multiple communities of practice at Mialoquo were sharing local clay resource procurement locations. The results also indicate that Overhill Cherokee potters from multiple households may have transported their vessels made from non-local clay resources to Mialoquo, likely from other Overhill towns.

The results from the X-Y scatterplot graphs individually indicate a correlation between clay source locations and the type of tempering or exterior surface treatment used. The resulting groups indicate that ceramic vessels with attributes associated with

the Qualla ceramic series, such as grit- or mixed-tempering and complicated stamped, simple stamped, or cob stamped types, were produced from fewer clay source locations than ceramic vessels with attributes associated with the Overhill ceramic series, including shell-tempered and plain- or check-stamped ceramic sherds. The nested clustering formed by these two groups indicate that those potters producing the Overhill ceramic tradition used a wider variety of clay source locations. This indicates that Overhill potters transported ceramic vessels from other Overhill Cherokee towns to Mialoquo. Those potters producing the Qualla ceramic tradition utilized fewer clay source locations, in general, that were elementally similar and thus likely geographically clustered around the Mialoquo landscape. These clay procurement locations were shared by both communities of practice at Mialoquo and demonstrate a blending of communities of practice. There were some Qualla series pottery sherds that appear to be elemental outliers in the PCA and may indicate these vessels were transported to Mialoquo by the Qualla community of practice from other areas, possibly Lower, Middle, Valley or Out Cherokee Towns.

The graph of structure groupings (Figure 34) indicates that while households tended to use a few select clay source locations, there was a general trend to share at least one clay procurement location evident by the intersection of ceramics from all structure contexts in one area of the scatterplot. The results from the Mialoquo samples indicate that there was a high prevalence of blending of communities of practice between Qualla and Overhill series pottery producers, based on the observed compositional variation and intersection between the site’s domestic and public structures.

SECTION 4: SUMMARY OF RESULTS

The goal of this thesis was to address the coalescence of Cherokee communities into the Overhill Cherokee town of Mialoquo. The site had previously been investigated and determined to be a settlement of Cherokee communities from non-local Qualla-producing and local Overhill-producing Cherokees. To investigate how the social community formed at Mialoquo I utilized three quantitative or semi-quantitative approaches.

The first approach used was a ceramic typological analysis. The original sherd tabulations by Russ and Chapman (1983:74) were compared to the results of my re-analysis to determine the accuracy of the original data. The results of this approach suggested that the most intense occupation of the Mialoquo site occurs during the eighteenth-century Cherokee occupation. Additionally, the results of this analysis gave preliminary evidence of the spatial nature with which local Overhill Cherokees and non-local Qualla-producing Cherokees occupied the Mialoquo landscape. These data indicate that both Overhill series and Qualla series sherds are found in all areas investigated and most often in comingled contexts. The communities of practice at Mialoquo were not only sharing public and private spaces at Mialoquo, but the town was likely co-founded by both communities ca. A.D. 1760, an idea first suggested by Russ and Chapman (1983:83).

To further address the distribution of Overhill and Qualla series ceramics at Mialoquo, I used ArcGIS to create visual representations of the two domestic household areas (Areas 3 and 4) at Mialoquo. For this approach I utilized a spatial analysis tool, Kernel Density Estimation (KDE), which produced visually interpretable maps of the site

areas. Three patterns were recognized in the resulting data. First, the relative areas of density between Overhill series and Qualla series ceramic were similar, confirming the ceramic typological analysis suggesting comingling of feature contexts with both ceramic types. Second, areas in the structures' interiors and outside of communal areas were generally devoid of any ceramic concentrations. Third, while most features contained both ceramic types there were some features in concentrated areas, such as Structures 5 and 6, which contained abundantly higher proportions of a single ceramic type. The occurrence of these features in close proximity to each other suggests a possible rapid depositional episode of each ceramic type, possibly following the clearing/cleaning of a household structure.

The third approach utilized in this study was a pXRF and PCA analysis of select ceramics from household structures at the Mialoquo site. In total, 146 ceramic sherds were selected for pXRF analysis in which five trace elements were targeted including: Niobium (Nb), Rubidium (Rb), Strontium (Sr), Yttrium (Y), and Zirconium (Zr). The resulting PCA data demonstrated that the ceramics at Mialoquo contained measurable compositional differences, indicating that potters at Mialoquo utilized a variety of clay resource procurement locations. The produced PCA X-Y scatterplot graph was grouped using three variables: temper, surface treatment, and associated structure contexts. The resulting scatterplots indicated two main results. First, potters producing Overhill ceramic vessels utilized the greatest number of clay resource procurement locations while potters producing Qualla series vessels utilized fewer clay procurement locations. Second, the wider variability in Overhill clay suggests that these ceramic vessels were possibly produced from non-local clays, likely transported to Mialoquo from neighboring

Overhill Cherokee towns. Third, the results indicate that Qualla and Overhill series potters utilized some of the same clay procurement locations, likely surrounding the immediate Mialoquo landscape, indicating a sharing of clay procurement locations and supporting a blending of communities of practice at Mialoquo.

In sum, all of the approaches utilized in this analysis indicate that the communities of practice at Mialoquo blended together. This pattern is evident first in the comingling of ceramic types in feature context throughout the Mialoquo site. Again, this pattern is visible in the GIS produced maps indicating that these communities of practice shared depositional contexts in all areas of the Mialoquo site. Finally, the blending of communities of practice at Mialoquo is supported by the XRF data results which demonstrate the social connection between individual community members who shared clay resource procurement locations likely surrounding the immediate Mialoquo landscape among households and across ceramic types.

CHAPTER SIX: CONCLUSIONS

SECTION 1: REVISITING HYPOTHESES & EVALUATING WESTERN BIASES

My goal in this thesis was to address a site's social composition in the realm of typological, spatial, and elemental studies in archaeology through the use of ceramic analysis. I focused on the Mialoquo site on the upper Little Tennessee River that dates to the Historic Cherokee Period for this endeavor. The site had previously been described as an Overhill Cherokee community that was inhabited and possibly formed by both local Overhill members and non-local Qualla (Lower, Middle, Valley, and Out Town) Cherokee communities displaced from their towns by colonial disruption in the mid-eighteenth century.

The hypotheses outlined below amounted to the single proposition that the ceramic assemblage of Mialoquo would demonstrate that ceramic styles identified at the site would produce spatially and elementally distinct patterns. If true, this would indicate that the communities of practice at Mialoquo were not blended, displaying rigid social patterning indicative of separation between communities of practice at the site. This hypothesis was an attempt to explain the social landscape I expected to find in the Mialoquo ceramic assemblage. To test these hypotheses I used a variety of methods. First, I investigated the original ceramic tabulations and re-analyzed the site's assemblage to ensure data accuracy and determine ceramic type variability across area and feature contexts. Second, I used a spatial analysis of the ceramic data collected to create area maps that visually represent concentrations of Overhill and Qualla ceramic series across the site. Finally, I analyzed selected sherds from Cherokee structure

contexts using pXRF to characterize the ceramic matrix elemental compositions and discriminate clay variability in procurement locations used in the manufacture of Mialoquo's ceramic assemblage.

First, I hypothesized that there would be at least two identifiable ceramic types (Overhill series and Qualla series) present in the ceramic assemblage from the Mialoquo site and that these two communities of practice would keep their ceramic productions separate. The results of this study, however, indicate that there is considerable evidence that the communities of practice at Mialoquo blended their ceramic productions. This is demonstrated by the crossing of ceramic attributes from these communities such high proportions of complicated stamped shell-tempered pottery.

Second, I hypothesized that households at Mialoquo would consist of one community of practice and exhibit only one ceramic type, therefore demonstrating a separation between households and different communities of practice. The evidence from this study suggests that all households at Mialoquo contained both ceramic types and thus indicates a blending of communities of practice within individual households at Mialoquo.

Third, I expected households at Mialoquo to exhibit spatial clustering based on communities of practice such that households producing local Overhill ceramic series would be clustered in a given area(s) and households producing non-local Qualla ceramic series would be clustered in another area(s). This type of spatial patterning would suggest a separation between communities of practice. The results suggest that

there is no spatial clustering of households at Mialoquo based on ceramic types and all shared communal spaces such as open areas between households contain a mixture of both ceramic types, again indicating a blending of communities of practice.

Fourth, I hypothesized that the townhouse, a place where community members gather for political, ceremonial, and social events, would exhibit evidence of both communities of practice at Mialoquo. The results suggest that the townhouse was predominantly utilized by the local Overhill community. This may suggest a separation between communities of practice at Mialoquo; however, this should be viewed with caution as a small sample size for the entire townhouse area was available for study.

Fifth, I expected the elemental composition of the local Overhill ceramic series and the non-local Qualla ceramic series to be distinct. If true, this would suggest a separation between communities of practice in regards to their sharing of clay procurement locations on the Mialoquo landscape. The results of the principal component analysis, however, suggest that these communities of practice were highly blended in the sharing of clay procurement locations. The results additionally indicate that Overhill series potters likely transported ceramic vessels from other Overhill towns to Mialoquo while Qualla series potters mostly manufactured their vessels from locally sourced Mialoquo procurement areas after arriving to the site, although at least one Qualla series sherd indicates vessels may have been produced from non-local clay procurement areas.

The patterns that I identified using these various ceramic analyses reject all of my initial hypotheses. These analyses indicate a high degree of blending of

communities of practice between Mialoquo residents as demonstrated through both the spatial distribution of ceramic types and their elemental composition.

Spatially, a high concentration of Overhill and Qualla series ceramics were deposited in the same features and associated with shared common areas between domestic structures, which a primary indicator that these communities were not separated and shared common areas of the community. Additionally, a high proportion of check-stamped types across the site assemblage and its adoption by shell-temper-producing potters was indicative of blending communities of practices. Check-stamping and other stamped exterior surfaces are highly associated with the Lower, Middle, Valley and Out Town Cherokee populations. The Overhill potters at Mialoquo who adopted these stamping techniques demonstrated a highly visible form of communities of practice blending.

The rejection of almost all of my initial hypotheses should not go ignored. The formulation of my initial hypotheses were biased on my Western understanding of households, neighborhoods, and communities. My initial hypotheses expected the communities of practice at Mialoquo to not interact much, which I expected to be reflected spatially in the distribution of ceramic at the site. My understanding of community is founded in “traditional” Euro-American, nuclear, two-parent family household units and a highly defined extended family. My results from this study indicate the broader Mialoquo community did not function the way I expected; not only did Overhill and Qualla Cherokees build houses side by side at Mialoquo, but these individuals also worked side by side in communal areas, in procuring clay for the manufacture of their pottery and discarding pottery.

Additionally, the results suggest individuals from different communities of practice may have lived in the same households, perhaps taking in clan relatives from various immigrant town communities. Ethnographic evidence, discussed further in Chapter 2, describes how Cherokee clan systems would integrate persons from multiple communities into one household: “[the Cherokee traveling to another town would] enquire for a house of their own tribe; and if there be any, they go to it, and are kindly received, though they never saw the persons before – they eat, drink, and regale themselves, with as much freedom, as at their own tables (Adair 1775:235).” The rejection of my initial hypotheses reveals my own implicit biases I bring to the archaeological past and something I will be cognizant of in the future.

Finally, the results of my analyses demonstrate the gendered production of pottery in Cherokee communities, something not initially expected in my hypotheses. The manufacture of ceramic vessels in Cherokee culture is a learned skill typically taught by grandmothers, mothers, and aunties to granddaughters, daughters and nieces. My results indicate that it is likely that women from different communities of practice at Mialoquo were probably living in shared domestic spaces as households integrated of individuals from the same matrilineal clans. Cherokee women potters from these various communities of practice, with their different ceramic production practices, likely interacted broadly with Mialoquo Cherokee granddaughters, daughters, and nieces, teaching them their ceramic production processes, either intentionally or passively. The result is a blending of Overhill and Qualla ‘styles’ in Cherokee children’s constellations of knowledge regarding ceramic production practices. The resulting

assemblage suggests a blending of communities of practice and an integration of coalescing communities along matrilineal clan lines.

SECTION 2: REGIONAL CERAMIC CONTEXT

In order to better understand the nature of the ceramic assemblage of Mialoquo, it is important to take other surrounding sites and regions into consideration. Many of the neighboring Overhill Cherokee sites' ceramic assemblages are well documented. Those available for comparison and located nearby include: Chota-Tanasee (40MR2/62), Toqua (40MR6), Tomotley (40MR5), Hiwassee Old Town (40PK3), and others (see Table 6). All of these sites were occupied by eighteenth-century Historic Cherokees.

These sites reflect similar patterns as those seen in the Mialoquo ceramic assemblage. Occupations of these sites appear to be relatively brief of up to 100 years. The overall trend in the ceramic assemblage is a large predominance of shell-tempered and plain exterior surface pottery highly associated with both the Overhill Cherokee ceramic series as well as Late Mississippian Dallas phase ceramics. The sites that occur latest (Hiwassee Old Town and Mialoquo) contain the highest amounts of non-local grit-tempered and stamped pottery types, associated with the Qualla Cherokee ceramic series from Middle, Valley, Out and Lower Cherokee Towns (see Table 6). The increase of non-local Qualla series through time suggests the East Tennessee region saw an influx of Cherokee populations from these areas beginning around A.D. 1750-60. In sum, the ceramic assemblage at Mialoquo reflects a regional trend seen in other Historic Cherokee assemblages towards an increase in non-local Cherokee ceramics.

SECTION 3: GIS AND pXRF IN ARCHAEOLOGY

GIS capabilities allow data to be analyzed and displayed quickly in new and innovative ways. While GIS mapping and analysis continues to be a common aspect of modern archaeological research, this thesis project shows that even legacy excavation data can be used to reconstruct past archaeological excavations digitally, and in many cases provide previously unknown information about sites.

The use of pXRF in ceramic studies continues to increase, yet in general there are few published papers on the elemental compositional analysis of pottery in the Southeast. Research like that presented in this study demonstrates that pXRF can produce meaningful elemental composition differences in the analysis of ceramic matrixes. As this technology continues to decrease in cost and becomes more user-friendly, it will become increasingly utilized in the non-destructive study of ceramics. The use of pXRF is limited to appropriate research questions, and it is not the “be all, end all” of element compositional analyses; however, this analytical method provides a valuable resource for the examination of archaeomaterials that may be unavailable for other destructive analytical techniques.

SECTION 4: FINAL THOUGHTS

In conclusion, the goals of this thesis have been met. Patterning is reflected in the ceramic assemblage of Mialoquo, although not in the way I initially hypothesized. Based on the presence of both Overhill and Qualla ceramic series at Mialoquo, I initially expected that while both communities resided at Mialoquo, the site’s general patterning between domestic structures would reflect a separation between ceramic series and

therefore between pottery producing groups. The typological, spatial, and element compositional analyses established for study of the ceramic assemblage did not support these hypotheses. Instead, these analyses suggests a blending of communities of practice at Mialoquo. The site areas were occupied by both Overhill- and Qualla-series-producing community members who blended some of their pottery producing practices.

The Overhill and Qualla series ceramic assemblages demonstrate a blending of cultural practices in all factors analyzed: typological, spatial, and elemental composition. The Overhill series incorporated a higher frequency of stamped exterior surface treatments, particularly the increase in check-stamping, and the Qualla series reflected higher proportions of plain exterior surface treatments. Both ceramic series significantly overlapped in much of the site's features and associated households, particularly in shared areas between domestic structures in Areas 3 and 4. Finally, the elemental characterization of both ceramic series reflects that the communities of practice at Mialoquo utilized the same clay source locations in the manufacture of their pottery. The communities members that composed the town of Mialoquo constructed the town in a co-equal style. The townsfolk of Mialoquo built their domestic houses next to members of different communities of practice, maybe even taking clan relatives into their homes, and shared their communal spaces where community social and political events would have occurred. These community members additionally shared resources like trash disposal middens and clay procurement locations.

The results of the data presented here are insightful into the social landscape of the Historic Cherokees between A.D. 1760 – 1780. The town of Mialoquo was a community founded by both local Overhill groups and refugee populations from other

Cherokee towns in the years leading to the American Revolutionary War. The Cherokees at Mialoquo, like many other Southeastern Native American communities, chose a strategy of coalescence to negotiate the socio-political pressures of the shatter zone.

There are, however, still more questions to be answered. These analyses were limited to a single Historic Cherokee site and a small range of the total assemblage. By utilizing additional analytical techniques, such as ceramic petrography or analyzing local clay sources, additional information regarding the role of temper and natural inclusions in the production of ceramics and understanding their variability may be obtained. Lastly, data collected and analyzed from other sites in East Tennessee, such as Townsend (Marcoux 2010), must be included to better understand ceramic variability and accurately define ceramic composition profiles from across the region. Many sites in eastern Tennessee have not been studied or remain understudied, particularly farmsteads and other non-principal town sites. These data, as well as data on household and feature patterns, will ensure an expansion to our understanding of the East Tennessee and southeast Cherokees' social landscape.

The Mialoquo site does not represent all of the variation that may be found in East Tennessee Historic Cherokee sites. Areas in the lower Tennessee River valley and Hiwassee River valley offer more opportunities to look for variation in Cherokee culture. Many of the site materials are readily available for study, like the data collected for this thesis. The reanalysis of Cherokee sites in East Tennessee will likely reveal more temporal and spatial variations that could benefit Cherokee research in the region.

SECTION 5: CONCLUSIONS AND FUTURE WORK

In general, there is ample opportunity for the reanalysis of material excavated from sites in the Tellico Reservoir and other historic Cherokee sites in East Tennessee. These excavations and their related collections, although dated, can be a meaningful source for addressing contemporary issues in southeastern archaeology. The Tellico Archaeological Project excavations are the only large-scale excavations and significant archaeological resources in eastern Tennessee. The Mialoquo site is a significant archaeological resource and desperately needs incorporation into our understanding of the history of the region.

This results of my analyses encourages future research to characterize the variability in elemental composition of clay procurement areas surrounding the Mialoquo site and other areas throughout East Tennessee and the broader Cherokee heartlands. The pXRF outliers in my data may be locally sourced or produced in other areas. Such analyses in the future would assist in the interpretation of eighteenth century Cherokee movement and social organization. Additionally, future work further analyzing ceramics from other Overhill Cherokee town areas would benefit Cherokee archaeology in general and specifically better understanding the elemental variability in different Overhill Cherokee communities. The incorporation of ceramic pXRF analysis at Mialoquo and other sites in East Tennessee region will aid anthropologists in better understanding how the Cherokees negotiated the “shatter zone” through the process of coalescence.

Similarly, future work would benefit greatly from conducting archaeological research at under-researched Overhill Cherokee areas. Many sites in eastern Tennessee have not been studied to any degree and others have been given only a brief notice. Areas to the south on the Hiwassee River offer more opportunities in the future to look for variations in Historic Overhill Cherokee culture and have received relatively little archaeological attention. Reanalysis of sites in this area likely would uncover more temporal and spatial variations that could benefit Cherokee research in the region. Additionally, Cherokee farmsteads located between town centers are largely missing from our understanding of Cherokee social and political structure. Locating and investigating these sites will be integral to developing an anthropological understanding of the interactions between Cherokee communities during and after the “shatter zone” in the East Tennessee region.

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APPENDICES

APPENDIX 1: CERAMIC SHERD COUNT BY FEATURE AND TEMPER TYPE

Feature	# of Sherds	Temper	Associated Area	Associated Structure
1	3	Grit	1	-
1	2	Indeterminate	1	-
1	5	Limestone	1	-
1	6	Shell	1	-
2	1	Grit	1	-
2	1	Limestone	1	-
2	24	Limestone	1	-
2	1	Sand	1	-
2	4	Shell	1	-
3	19	Limestone	1	-
3	3	Sand	1	-
3	1	Shell	1	-
4	2	Grit	1	-
4	1	Grit	1	-
4	5	Limestone	1	-
4	32	Shell	1	-
5	3	Grit	1	-
5	15	Limestone	1	-

5	8	Shell	1	-
6	2	Grit	1	-
6	6	Limestone	1	-
6	2	Shell	1	-
7	3	Grit	1	-
7	18	Shell	1	-
8	23	Grit	1	-
8	14	Limestone	1	-
8	36	Shell	1	-
9	1	Grit	1	-
9	1	Limestone	1	-
9	20	Shell	1	-
10	3	Grit	1	-
10	61	Limestone	1	-
10	6	Shell	1	-
11	39	Shell	2	-
12	110	Shell	2	-
13	4	Shell	2	-
15	8	Shell	2	-
17	2	Limestone	2	-
17	75	Shell	2	-
18	11	Limestone	3	-

18	2	Sand	3	-
18	11	Shell	3	-
19	2	Limestone	3	-
19	2	Shell	3	-
20	2	Grit	3	S1
20	6	Limestone	3	S1
20	1	Shell	3	S1
21	29	Limestone	3	-
21	1	Shell	3	-
22	2	Grit	3	-
22	2	Limestone	3	-
23	71	Limestone	3	-
23	1	Sand	3	-
23	4	Shell	3	-
24	4	Grit	3	S3
24	187	Limestone	3	S3
24	9	Shell	3	S3
25	14	Grit	3	-
25	120	Limestone	3	-
25	92	Shell	3	-
26	283	Grit	3	-
26	337	Limestone	3	-

26	125	Shell	3	-
27	50	Grit	3	-
27	233	Limestone	3	-
27	589	Shell	3	-
28	13	Grit	3	S8
28	199	Limestone	3	S8
28	75	Shell	3	S8
30	110	Grit	3	S8
30	73	Limestone	3	S8
30	106	Shell	3	S8
31	1	Grit	3	-
31	38	Limestone	3	-
31	1	Shell	3	-
32	16	Grit	3	-
32	47	Limestone	3	-
32	273	Shell	3	-
33	28	Grit	3	-
33	10	Limestone	3	-
33	1	Shell	3	-
34	132	Grit	3	S2
34	189	Limestone	3	S2
34	10	Mixed	3	S2
34	277	Shell	3	S2

35	4	Limestone	3	S2
35	2	Shell	3	S2
36	45	Limestone	3	-
36	1	Shell	3	-
37	31	Grit	3	-
37	9	Limestone	3	-
37	11	Mixed	3	-
37	76	Shell	3	-
38	42	Grit	3	-
38	15	Limestone	3	-
39	3	Grit	4	-
39	1	Limestone	4	-
40	3	Grit	4	-
40	2	Limestone	4	-
40	8	Shell	4	-
41	9	Grit	4	-
41	17	Limestone	4	-
41	1	Sand	4	-
41	2	Shell	4	-
43	4	Grit	4	-
43	6	Limestone	4	-
43	7	Shell	4	-

46	153	Sand	4	S5
46	3	Shell	4	S5
49	12	Grit	4	-
49	2	Limestone	4	-
49	1	Mixed	4	-
49	4	Sand	4	-
49	230	Shell	4	-
51	34	Grit	4	-
51	1	Sand	4	-
51	2	Shell	4	-
52	3	Grit	4	S5
52	1	Limestone	4	S5
52	27	Shell	4	S5
55	1	Limestone	4	-
55	78	Shell	4	-
57	106	Grit	4	S6
57	6	Limestone	4	S6
57	5	Sand	4	S6
57	42	Shell	4	S6
58	1	Grit	4	S6
58	11	Sand	4	S6
58	61	Shell	4	S6

60	1	Grit	4	-
60	1	Sand	4	-
60	51	Shell	4	-
62	40	Grit	4	-
62	13	Sand	4	-
62	804	Shell	4	-
68	6	Limestone	4	-
68	2	Shell	4	-
81	6	Grit	5	S7
81	4	Limestone	5	S7
81	15	Sand	5	S7
81	94	Shell	5	S7

APPENDIX 2: FEATURE SPATIAL DATA AND CERAMIC TYPOLOGICAL COUNT

Feature Number	X	Y	Overhill Count	Qualla Count
18	885.9	-534.7	11	0
20	877.5	-531.2	1	2
21	868	-537	1	0
23	852.2	-520.3	4	0
24	838	-499	9	4
25	838	-524	92	14
26	849	-530	125	283
27	848.5	-535.5	589	50
28	845	-541	75	13
30	845	-549.7	106	110
32	853.4	-569.5	273	16
34	831.5	-533.6	277	132
35	827	-526.3	2	0
39	368	-1055	0	3
40	357.3	-1053.6	8	3
41	349.6	-1052.5	2	9
43	336.1	-1018	7	4
46	378.3	-1038.4	3	0
52	374	-1046	27	3
57	377.3	-936	42	106
58	411	-945.8	61	1
62	410.5	-914.5	804	40
81	476.5	-697.7	94	6

APPENDIX 3: CALIBRATED ELEMENTAL DATA FROM CERAMIC SAMPLES ANALYZED WITH PXRF

Data Source	*Structure*	*Temper*	*Surface Treatment*	*Niobium (Nb)*	*Rubidium (Rb)*	*Strontium (Sr)*	*Yittrium (Y)*	*Zirconium (Zr)*
f18.1_1	1	SH	PL	2722.928879	26943.89573	10857.97609	8191.4785	18785.68447
f18.1_2	1	SH	PL	3073.250644	24778.97511	9658.540076	8902.782558	34155.63345
f18.2_1	1	SH	PL	2907.692242	28803.55876	10304.17323	10368.70605	19478.24272
f18.2_2	1	SH	PL	2534.742143	16979.6042	15543.17796	6736.541339	34875.78304
f18.2_3	1	SH	PL	3339.21046	27164.27433	15523.65591	11138.54589	22419.29451
f18.7_1	1	SH	COMPST	2926.109851	14358.80761	8003.889641	12705.5853	31330.88244
f20.1_1	1	SH	PL	2852.820928	19477.32371	9051.915268	5338.798008	32307.04741
f20.3_1	1	GR	PL	2820.005213	26378.87552	10056.66242	5577.026804	39414.47048
f20.3_2	1	GR	PL	3951.940201	31133.08238	21114.45927	8773.700835	68260.37032
f24.2_1	3	GR	COMPST	2331.222023	25210.87499	12382.84566	4077.029675	23483.78362
f24.3_1	3	GR	PL	2865.880435	23676.73303	15187.73597	6444.328332	39420.2413
f24.3_2	3	GR	PL	2055.886792	19900.24019	15629.1206	4449.688488	24890.37602

f24.3_3	3	GR	PL	2312.116393	20713.23264	15145.81299	3547.461795	22585.21547
f24.4_1	3	SH	PL	2533.890473	13084.161	23304.46675	7992.90338	22354.39981
f24.4_2	3	SH	PL	2672.101393	12844.33145	25667.32166	8329.201704	19263.69425
f24.4_3	3	SH	PL	2366.133616	16564.36214	25652.31601	7114.431145	19304.46547
f24.6_1	3	SH	PL	2987.796279	25830.0253	16783.91987	7561.74392	33155.38395
f30.1_1	8	GR	PL	2956.015928	24030.22485	22977.53003	6053.85967	41957.66478
f30.11_1	8	GR	PL	2771.533298	22737.08888	20088.00758	6766.724375	33379.76922
f30.11_2	8	GR	PL	2257.65285	25313.96939	19027.84668	5957.459674	30900.58745
f30.11_3	8	GR	PL	2342.607116	25370.38912	12593.62153	6418.538155	36718.96186
f30.11_4	8	GR	PL	2643.909349	26191.12623	17439.26187	7373.907115	35140.75151
f30.11_5	8	GR	PL	2794.843483	23940.5176	13955.93623	6819.797839	37195.93514
f30.2_1	8	SH	PL	2387.03261	23988.78682	23738.87317	6129.544612	29292.99334
f30.2_2	8	SH	PL	2539.344766	21802.36764	12848.57177	7079.22693	35130.14684
f30.2_3	8	SH	PL	1893.171031	20729.19049	29383.5864	4583.227341	27289.34043
f30.5_1	8	GR	PL	2282.963551	20973.6657	23505.77876	4824.926031	33467.51266
f30.5_2	8	GR	PL	2545.119044	21519.97257	23224.91302	4723.344093	30560.5389

f30.5_3	8	GR	PL	1593.328828	20628.5545	11539.04958	4843.538539	35079.8602
f30.5_4	8	GR	PL	2642.206684	22962.94594	11324.47889	5263.456493	15842.66527
f30.5_5	8	GR	PL	2314.87745	26578.58685	22088.7552	4395.913828	28920.23786
f30.5_6	8	GR	PL	2152.398364	19834.3058	16428.63843	5490.312909	32324.59302
f30.5_7	8	GR	PL	2065.739764	24787.44729	20418.31557	4464.670552	26412.93211
f30.6_1	8	GR	COMPST	2908.007157	21221.11327	12783.71829	6080.102551	38811.74594
f30.6_2	8	GR	COMPST	2391.14726	22428.37433	21408.69698	6567.675394	32398.7107
f30.6_3	8	GR	COMPST	2340.089261	19853.46444	11536.98223	5000.907905	30308.42219
f30.6_4	8	GR	PL	2471.31584	20364.02254	11267.61982	6423.383902	29225.50876
f30.6_5	8	GR	PL	2456.509701	20313.39626	16995.44216	5332.309509	38846.34176
f30.7_1	8	GR	PL	2411.622133	25616.49155	14193.02606	5955.746769	29192.36039
f30.7_2	8	GR	PL	2402.325033	22395.57999	16181.81438	7336.492756	31721.20751
f30.7_3	8	GR	PL	1802.588369	18267.7131	31940.87927	5162.20893	26377.54586
f30.7_4	8	GR	PL	2552.486493	20397.98524	36181.09019	8244.888065	39661.7354
f30.9_1	8	SH	PL	2506.022473	22727.65166	20219.81756	6228.237149	30031.41951
f30.9_2	8	SH	PL	2487.973571	25290.9897	26775.61632	5176.201017	29523.71532

f30.9_3	8	SH	PL	2025.447993	27092.82077	20382.67931	5799.585385	28985.17222
f30.9_4	8	SH	PL	2654.014464	25156.96071	13931.89722	7091.15615	36238.92648
f30.9_5	8	SH	PL	1795.904427	18584.04757	38015.8091	4205.999124	27816.99727
f34.1.3_1	2	GR	COMPST	2555.588446	20829.35782	24207.05912	5631.628728	36017.48045
f34.1.3_2	2	GR	COMPST	2272.867102	22272.8756	42635.32924	6626.18208	19700.65408
f34.1.3_3	2	GR	COMPST	2190.944243	24074.62684	33001.40729	6305.657273	29695.05952
f34.1.3_4	2	GR	COMPST	2292.8515	22331.01945	12348.50403	4699.79389	23376.75439
f34.1.3_5	2	GR	COMPST	2238.850656	22989.56952	17572.78088	4746.954628	23843.37388
f34.1.3_6	2	GR	COMPST	1834.628422	28589.03455	15335.02727	5383.530641	25545.88457
f34.1.3_7	2	GR	COMPST	2491.509231	25476.82126	19832.20327	6178.325288	29374.31433
f34.1.4_1	2	GR	PL	2512.044776	22774.63356	17785.8215	6406.891067	52345.70262
f34.1.4_2	2	GR	PL	2681.260475	23892.16269	15033.61368	5659.891006	41502.47139
f34.1.4_3	2	GR	PL	2186.748497	23804.21877	18047.5661	5324.41235	49808.38063
f34.1.5_1	2	MIX	PL	1770.350434	21266.38797	40922.07601	4634.748168	22994.01622
f34.1.5_2	2	MIX	PL	2123.799595	23414.20171	16398.18897	5283.575204	35009.52036
f34.1.5_3	2	MIX	PL	2462.08584	20286.7573	36474.09479	5353.204322	21390.42443

f34.1.5_4	2	MIX	PL	2486.636798	22659.84099	26871.45562	6733.556923	28763.53938
f34.1.5_5	2	MIX	PL	2686.467019	20991.43774	30425.21353	8738.640715	39064.6079
f34.1.6_1	2	GR	COMPST	2517.585847	25217.51164	32977.51243	5286.655623	32500.66821
f34.1.6_2	2	GR	COMPST	2503.146058	23405.24194	48217.61515	8624.147459	29371.62901
f34.1.6_3	2	GR	COMPST	2292.053853	22517.42935	48145.97276	8826.57989	28917.81698
f34.1.7_1	2	MIX	PL	1969.124002	22047.78815	46544.06759	4664.426165	27334.51935
f34.1.7_2	2	MIX	PL	1966.447436	19367.16334	50748.3978	4730.134181	27996.92656
f34.2.1_1	2	SH	PL	2601.673538	26661.59554	21374.94745	6974.376843	43412.01712
f34.2.1_2	2	SH	PL	2581.720306	25143.299	21469.63365	6207.419233	38908.62151
f34.2.2_1	2	GR	CHST	2219.840494	25185.64161	33557.59478	6135.846899	32876.67438
f34.2.2_2	2	GR	CHST	2801.594465	22724.44557	17620.82442	7745.020276	38877.02878
f34.2.3_1	2	GR	COMPST	2455.726585	23727.94231	26360.0993	5513.081104	29156.01834
f34.2.3_2	2	GR	COMPST	2837.309193	23710.56933	34099.15007	6090.802572	31952.85429
f34.2.4_1	2	SH	COMPST	2183.605038	19365.97073	44858.3559	3646.733934	30745.29375
f34.2.4_2	2	SH	COMPST	2820.406281	21437.25959	34967.51968	8268.89677	39181.97077
f34.3.1_1	2	SH	CHST	1761.871311	22322.73127	53860.73183	6518.410619	22283.75349

f34.3.1_2	2	SH	CHST	2020.976491	26050.20097	42865.77885	3906.295516	20963.67711
f34.3.2_1	2	SH	CHST	1809.383812	18988.63758	46963.32468	4008.071666	24003.14032
f34.3.2_2	2	SH	CHST	1745.463756	20763.95395	46914.15113	3973.073431	21693.72271
f34.4.1_1	2	GR	CHST	2644.022546	22766.17825	18507.0645	5898.886598	37508.03272
f34.4.1_2	2	GR	CHST	2753.161028	20676.87811	19656.71562	7340.165402	37456.13528
f34.4.2_1	2	SH	PL	2418.442988	23259.41717	16719.54591	5393.774011	25156.18465
f34.4.2_2	2	SH	PL	2566.20252	22985.67846	16128.77771	4921.522087	25501.04397
f34.5.1_1	2	SH	COBST	2062.715022	20545.2282	48648.36463	4006.309543	28967.23093
f34.5.1_2	2	SH	COBST	1909.112466	20239.52303	55235.33378	4930.207805	30541.78484
f34.5.1_3	2	SH	COBST	1944.462178	20060.02321	54760.74776	4680.316166	26118.64063
f34.5.1_4	2	SH	COBST	2125.564529	20556.94607	53464.4454	5614.764	27787.82015
f34.5.2_1	2	GR	PL	2609.169776	24127.64048	21886.44933	6582.635345	33481.06765
f34.5.2_2	2	GR	PL	2310.576472	21956.62269	18173.59054	5034.444179	34281.93853
f34.6.2_1	2	SH	CHST	2553.634632	26014.05744	17609.63769	4901.158424	36991.44485
f34.6.4_1	2	SH	PL	1326.323557	22957.69759	41336.48274	4685.571505	16902.31365
f35.1_1	2	SH	PL	2687.216534	11034.95103	12597.26681	13455.53913	17872.38191

f35.1_2	2	SH	PL	2402.028644	14152.15643	15834.27523	9584.812294	22053.94845
f46.1.1_1	5	SH	PL	3005.229032	27658.92548	14781.18855	6542.929525	23870.75913
f46.1.1_2	5	SH	PL	2605.844917	29142.71041	13086.82565	6643.385617	23473.18164
f46.1.1_3	5	SH	PL	2794.957016	29178.01668	9047.3508	5540.569537	25040.97803
f46.1.1_4	5	SH	PL	2573.176322	27624.99469	10988.74006	5812.08972	23956.40911
f46.1.1_5	5	SH	PL	2044.76967	29577.50819	13466.4119	6646.127134	24508.11544
f46.1.3_10	5	SH	PL	2590.548493	28648.73355	10930.49053	5645.77632	24489.91936
f46.1.3_1	5	SH	PL	2221.611754	28929.45782	16628.70472	5137.937926	22534.48125
f46.1.3_2	5	SH	PL	2845.188506	28923.40399	16705.16836	5881.464369	24615.987
f46.1.3_3	5	SH	PL	2385.010879	29611.11306	7047.128473	4483.276915	24847.40407
f46.1.3_4	5	SH	PL	2679.65355	27894.4668	15227.10283	6433.763092	23643.76269
f46.1.3_5	5	SH	PL	2437.192349	29238.83812	13914.12691	6052.794503	24348.5
f46.1.3_6	5	SH	PL	2393.045593	30856.25305	10859.41118	5992.281256	23822.91468
f46.1.3_7	5	SH	PL	2668.789536	29593.85316	14069.24266	6157.724064	23055.91574
f46.1.3_8	5	SH	PL	2660.301907	30560.43165	15367.6213	4676.505255	21296.09028
f46.1.3_9	5	SH	PL	2623.092819	28589.89213	10750.66668	5447.446681	25025.57789

f46.2.2_1	5	SH	CHST	2727.690424	12492.59407	15535.95329	9963.175692	17221.7112
f46.2.2_2	5	SH	CHST	2616.169494	12238.19988	22045.32163	8195.018581	16056.99177
f46.2.2_3	5	SH	CHST	2578.203646	12039.98573	22279.62996	7811.998423	15010.6638
f52.1_1	5	SH	CHST	2974.626362	13382.58064	9750.598206	11398.30349	18273.98334
f52.1_2	5	SH	CHST	2640.614794	13093.26762	9616.724267	10543.86417	17881.96058
f52.1_3	5	SH	CHST	2592.926761	13352.59994	10652.04028	11234.10743	18073.78397
f52.2_1	5	GR	PL	2611.385885	30272.97222	9316.544185	7945.768706	22611.151
f52.5_1	5	SH	PL	3452.980306	20335.11205	13446.86836	13541.1448	18158.77832
f81.1_10	7	SH	PL	2973.258922	23458.81889	23638.20018	7007.593071	39728.07016
f81.1_11	7	SH	PL	2617.757845	16545.94678	30725.74863	8556.658313	16778.5956
f81.1_1	7	SH	PL	2314.043884	22520.09334	24027.28621	6263.290007	35514.22097
f81.1_2	7	SH	PL	2842.027548	28963.40001	27580.31891	11734.43054	17675.04326
f81.1_3	7	SH	PL	2678.51912	22942.9707	23558.9491	8073.310225	24870.72477
f81.1_4	7	SH	PL	2362.089947	16286.41334	50755.38703	12043.06408	11572.67198
f81.1_5	7	SH	PL	2352.089377	13157.2484	26704.15652	8742.213286	17289.74419
f81.1_6	7	SH	PL	2130.488786	11596.99843	26875.7046	7866.143025	15375.2117

f81.1_7	7	SH	PL	3044.504997	22970.72267	25458.05093	7803.574905	25495.00078
f81.1_8	7	SH	PL	2474.206046	20008.11281	14667.45945	7489.836245	24600.84128
f81.1_9	7	SH	PL	2754.051177	24954.68092	12658.62326	6363.636354	25624.90402
f81.2_1	7	SH	PL	2679.340978	25575.24562	21829.95832	8118.538856	24491.417
f81.2_2	7	SH	PL	2419.167852	13192.4999	23086.71576	6967.790349	20778.03959
f81.2_3	7	SH	PL	2613.921186	13181.00487	26363.45239	7621.533364	20390.14623
f81.2_4	7	SH	PL	2728.150852	11332.94035	26173.25941	11626.557	13336.21236
f81.3.1_10	7	SH	CHST	2255.627598	16879.49344	29205.72892	10299.48372	16711.16013
f81.3.1_11	7	SH	CHST	2314.457869	13475.06359	39531.04645	8513.127286	11975.44788
f81.3.1_1	7	SH	CHST	2323.512662	13442.7484	35897.84692	10785.52432	13842.32197
f81.3.1_2	7	SH	CHST	2539.109056	13690.31947	36053.90179	8420.686248	13047.4793
f81.3.1_3	7	SH	CHST	2926.620578	25947.25101	28026.48557	6024.793713	34081.47813
f81.3.1_4	7	SH	CHST	2569.39474	13962.26414	35048.15225	11572.32257	11921.24739
f81.3.1_5	7	SH	CHST	2697.095701	13159.73897	34073.05605	8833.857277	12451.45022
f81.3.1_6	7	SH	CHST	2496.432899	11874.93321	33726.18989	11582.50605	14372.98253
f81.3.1_7	7	SH	CHST	2808.784155	26168.10146	20110.66647	8671.259714	26151.31244

f81.3.1_8	7	SH	CHST	2945.365748	25896.24007	20864.15716	8097.844324	26402.00329
f81.3.1_9	7	SH	CHST	2494.906267	26534.57362	29079.25438	6897.411494	19028.52387
f81.5_1	7	GR	SIMPST	1807.346377	23467.12396	11180.79668	2408.835761	27172.36052
f81.5_2	7	GR	SIMPST	2283.475479	21296.64384	15899.3579	5175.773069	30031.07762
f81.5_3	7	GR	SIMPST	2363.496735	12789.27699	34433.62043	7297.130844	16833.63077
f81.5_4	7	GR	CHST	1672.918756	10147.98672	23646.84905	6852.29021	16614.96694

VITA

Christian David Allen was born in Joplin, Missouri, on June 27, 1994. Most of his life was spent in various areas of Missouri, Kansas and Broken Arrow, Oklahoma, where he attended middle school and high school. He graduated from Broken Arrow High School in May of 2012. The following fall he attended the University of Oklahoma with a major in anthropology and a minor in international studies. He graduated with a Bachelor of Arts degree in May 2016. He began attending the University of Tennessee in Knoxville the following fall semester and graduated with a Master of Arts degree in Anthropology, in December 2019. He is currently employed with the National Park Service.