UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

A CERAMIC ANALYSIS OF A MULTI-MOUND CENTER IN SOUTHEASTERN OKLAHOMA: STYLISTIC VARIATION AT THE CLEMENT SITE (34MC8)

A THESIS

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

MASTER OF ARTS

By

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Norman, Oklahoma

2026

A CERAMIC ANALYSIS OF A MULTI-MOUND CENTER IN SOUTHEASTERN OKLAHOMA: STYLISTIC VARIATION AT THE CLEMENT SITE (34MC8)

A THESIS APPROVED FOR THE

DEPARTMENT OF ANTHROPOLOGY

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Acknowledgements

First and foremost, I would like to thank my parents, my sister, and my entire extended family in Florida and Arkansas. You all have been with me every step of the way supporting and encouraging me not only during this MA program but also through my whole life. I would not be where I am today without your love and support, and I can't thank you enough.

I also want to thank my friends Cody Triplett, James Ives, Parker Joyce, Bo Crawford, Harris Hussain, and Joseph Grieco for their encouragement and for the countless gaming sessions and video calls where we could crack jokes and get away from the stress of school and work. I wouldn't have made it very far without you guys.

I am thankful for my friends in the OU anthropology department: Grace Stanford, Emily Gehling, Ethan Mofidi, Delaney Horton, Maddie Hale, Jaylyn Gustafson, Eric Godwin, Ashley Moelling, Aubrey Coffman, Michael Dillinger, and Noah Powell. Thank you all for being there to chat during class and at conferences, and for hanging out when we are lucky enough to find some free time. I also want to thank Delaney Horton for taking so much of her time to show me the Clement collections and discuss the archaeology of this fascinating site in southeastern Oklahoma. Your guidance has been invaluable, and I am incredibly grateful for all your help.

Thank you to my girlfriend Sarah Mann for all her support and for always being there to chat throughout the day. You've helped make every day brighter just by being you.

Thank you to my undergraduate professors Dr. Paul Thacker, Dr. Carla Hernández, and Dr. Eric Jones for introducing me to the field of archaeology, for their support and guidance during my four years at Wake Forest, and for continuing to help me with my studies even though

I graduated over four years ago. The way you support and care for your students is inspiring, and I am incredibly lucky to have had all of you as my professors.

Thank you to my committee, Dr. Scott Hammerstedt, Dr. Amanda Regnier, Dr. Patrick Livingood, and Dr. Asa Randall, along with everyone at the Oklahoma Archeological Survey for their encouragement and for teaching me so much about southeastern archaeology and cultural resource legislation. Working with you all for the last 2 years has been incredibly rewarding.

Finally, I want to thank the Caddo Nation of Oklahoma for their continued support of archaeology in Oklahoma and the wider Caddo Area. I am honored to have contributed to the understanding of one small aspect of your history.

Table of Contents

List of Figures

List of Tables

Abstract

The Clement site (34MC8) is a multiple mound ancestral Caddo site located in McCurtain County in southeastern Oklahoma. The site contains two mounds, at least four structures, multiple middens, and is accompanied by two additional sites (34MC9, 10), though the exact location of the latter two is currently unknown. Clement was first excavated in 1941 by the WPA, and the decorated ceramics collected during this period of field work are the focus of this study.

I analyzed a total of 1,120 decorated sherds recording several attributes for each including provenience, weight, thickness, main decorative type, and temper type. Additional attributes were recorded for the 271 rim sherds in this sample such as rim profile, rim form, lip shape, estimated orifice diameter, and overall vessel form. Since focus of this study is decorative variation, I also analyzed a subsample of 716 sherds using a modified descriptive system to record as much detail as possible for each main decorative type. Ceramics were then divided into fine wares and utilitarian wares, and their distributions and attribute correlations were analyzed.

The results of this analysis were used to answer the following questions: 1.) Does the frequency and distribution of chronologically sensitive attributes support current interpretations of the Clement site? 2.) Do the distributions of fine wares versus utilitarian wares at Clement align with those seen at other Caddo sites in the region such as the Woods (34MC104) site? Three additional points of interest regarding the ceramics themselves were also considered during the analysis: A.) What is the overall decorative and temper variation of Clement? B.) Is there a significant correlation between decorative type and temper in the Clement collections? C.) Does a finer grained analysis of ceramic decorative variation reveal patterns that are otherwise obscured by a simple attribute analysis? While these are simple questions with no

direct implications for studying past behavior and culture, they were able to help with answering the primary research questions of this study

This research was approached with a "communities of practice" theoretical framework to better understand the behaviors, social networks, and identities of the Caddo people at Clement through the study of their ceramic material culture.

Chapter 1: Introduction

Decorated ceramics have played a major role in archaeological studies of the Caddo since the first excavations in the Caddo Area were conducted by Clarence B. Moore in 1911 and 1912 (Moore 1912). Mark R. Harrington and Winslow Walker utilized decorative ceramics in the 1920s and 30s to explicitly link archaeological traits along the Red River in southwest Arkansas and northwest Louisiana to the historic Caddo (Story 1978:58; Walker 1932). Additionally, the National Research Council used a generalized "Caddo ceramic style" to set the parameters on what qualifies as Caddo archaeological material, and to delineate the geographic range that constitutes the Caddo Area (Girard et al. 2014:7; National Research Council 1932).

Archaeological research into the ancestral Caddo steadily increased through the 20th and into the 21st centuries and the majority of this work focused on larger ceremonial centers with earthen mounds. In particular, many studies were concentrated on the multi-mound Spiro site and its wealth of mortuary features and artifacts; all of which displayed a high level of craftsmanship and were considered to be part of the Southeastern Ceremonial Complex (Brown 1996; Perttula 2012:4). This overemphasis on the Spiro site unfortunately resulted in an archaeological understanding of the Caddo which was based primarily on a specific ritual aspect from a single site in the entire Caddo Area (Perttula 2012:4). More recent studies have sought to address this imbalance by examining the highly diverse material expressions of the Caddo across the entire archaeological region. The majority of these studies have focused on, or at least included, some form of ceramic analysis as Caddo vessel forms and decoration, while part of a common Caddo "theme" exhibit a high level of stylistic variability within and between different regions (McKinnon et al. 2021). The morphology, style, composition, and distribution of Caddo pottery have been studied with the hopes of better understanding Caddo religious and political structure, social networks, regional interaction, identity, and how these aspects have developed and changed over time.

Ceramic studies in the Caddo area have recently begun utilizing a communities of practice framework to help interpret the results of their analyses (Horton 2025; Lambert 2017, 2021a; Lambert and Ford 2023). This approach has consistently aided in the identification of smaller communities within the archaeological record when examining decorative and compositional attributes of Caddo ceramics. Since this study primarily focuses on decorative and temper variations of ceramics and their distributions across the Clement site, there is the potential for identifying distinct communities of practice within the archaeological record. A description of this theoretical approach is provided below.

Communities of Practice

Before the post-processual critique in anthropological theory, a community was described as a small social group that was distinct, generally homogenous, slow to change, and had a clearly defined boundary (Redfield 1967). Eventually anthropologists recognized that this definition was far too deterministic, and did not account for the change, fluidity, and variation seen within these social groups. Communities of practice is a theoretical framework which seeks to explain the nuances and complexities of the development and maintenance of communities and is largely based on practice theory, and theories of knowledge and learning (Bourdieu 1977; Lave and Wenger 1991; Wenger 1998). This framework is then applied to archaeology through technology studies and the concept of *chaîne opératoire* (Bar-Yosef and Van Peer 2009; Dietler and Herbich 1998; Joyce 2012). Before discussing communities of practice, it is necessary to define practice theory.

Practice theory was initially developed by Pierre Bourdieu in *Outline of a Theory of Practice* (1977). He argued that culture is actively constructed by individual social actors whose motivations, behaviors, and actions are shaped by rules and dispositions that are passed down from generation to generation (Bourdieu 1977). These dispositions, referred to as "habitus," shape what an individual believes to be possible or sensible (Bourdieu 1977). So, while individuals have agency, their actions occur within the confines of the social structure passed down to them by the previous generation. Thus, people maintain and reproduce the cultures which they are born into while still retaining autonomy and freewill (Bourdieu 1977). Since the various habitus of a culture must be passed through generations, practice theory is largely dependent on learning and the sharing of knowledge, concepts which are fundamental to the communities of practice framework.

Communities of practice theory was initially developed by Lave and Wenger in *Situated Learning: Legitimate Peripheral Learning* (1991) and elaborated by Wenger in *Communities of Practice: Learning, Meaning, and Identity* (1998). Wenger defines a community of practice as a community that is developed over time through the sustained pursuit of a shared enterprise or goal (Wenger 1998:45). The three key components to this community are 1.) Mutual engagement, in which members are actively involved in maintaining personal relationships, 2.) A shared enterprise that members must contribute to in a collaborative effort, and 3.) A shared repertoire: concepts, symbols, ways of doing things, routines, and tools which the community has either produced or adopted over time and have become part of its practice (Wenger 1998:71-83). The shared repertoire is sustained through a model of situated learning; novices and beginners in the community are given tasks that make a legitimate contribution while still being appropriate for their level of skill (Joyce 2012:149; Lave and Wenger 1991:49). Thus, the shared repertoire is learned and reproduced through members' active participation in a joint enterprise (Lave and Wenger 1991; Wenger 1998).

The shared repertoire is vital to archaeologists, as these culturally accepted rules and practices influence the production of material objects found in the archaeological record and can be extrapolated through subsequent analysis (Van Keuren 2006:86). Studies involving a communities of practice framework are often tied to *chaîne opératoire* (operational chain) which examines the process of transforming a raw material into an object which is used for some purpose and then ultimately discarded (Bar-Yosef and Van Peer 2009:105; Geneste 1989:76-77). There is a myriad of technical choices to be made during the ceramic production process which includes the selection and processing of raw materials, shaping technique, selection of fuels, methods of firing, and methods of surface decoration (Rice 2015; Stark 2006:24). Technical choices that produced clearly visible features such as vessel form and decorative styles were often made for the explicit purpose of asserting a particular social identity (Sackett 1990). However, all decisions made by potters at each step of the production process leave visible traces in ceramic artifacts. This means techniques that are not intentionally visible can be observed and then used to identify the less obvious social boundaries of past communities of practice (Dietler and Herbich 1998; Stark 2006).

Studies of archaeological ceramics using a communities of practice framework often examine decorative techniques and styles, as well as the chemical composition of pastes, slips, and paints. Eckert et al. (2015) found that Santa Fe black-on-white pottery in the northern Rio Grande region was produced using several clay sources and varying temper. While it is clear that there were at least three communities of practice using different methods of production, the decorative styles were highly similar across a wide region, pointing towards a single community of identity (Eckert et al 2015:10). In a similar fashion, Van Keuren found that Fourmile Polychrome ceramics in eastern Arizona were decorated using specific techniques that would have been shaped in the learning contexts of a single community of practice (Van Keuren 2006:93). However, Fourmile Polychrome ceramics in a neighboring region produced with different techniques were interpreted as imitations made by groups of potters working on the outside of the original community of practice and that this could indicate the emergence of restrictions on access to crafting knowledge (Van Keuren 2006:102). Other studies highlight the less visible indicators of communities of practice, exemplified in Minar's (2001a) work on cord marked pottery of the Alachua in northeast Florida. Careful analysis revealed that pottery in her area of study could be distinguished based on the upward (Z-type) or downward (S-type) slant of the final twist in the cordage impressed in the clay surface of ceramic vessels (Minar 2001a). Suggesting that these could be indicators of separate communities of practice (Minar 2001a:108) Minar conducted an ethnographic study of hand spinners as well as a literature review of cordage production among the Kogi (Minar 2001b). Her findings indicated that present day spinners were often unaware of alternate methods of making the final twist, claiming that the method they used was simply the way they had been taught (Minar 2001b:388). Other studies of the Kogi found that men and women twist their cordage in different directions (Minar 2001b:392). Minar argues that this technical decision is the product of a shared cultural practice and not deliberately produced (Minar 2001b:392). This can then be translated to the archaeological record, and the cordage twist seen in cord marked pottery can be interpreted as a methodological choice learned from engaging with a specific community of practice (Minar 2001a, 2001b:394).

Communities of Practice in the Caddo Area

Much of the work in the Caddo Area using a communities of practice framework has been spearheaded by Shawn Lambert and Paige Ford, who have examined the chemical composition and decorative techniques of Early Caddo fine wares found in the northern and southern Caddo regions and at Cahokia (Lambert 2017, 2021a, 2021b; Lambert and Ford 2023). Lambert analyzed fine ware production and distribution between the northern and southern Caddo regions and found that the southern Caddo deposited fine wares in domestic, civic, and mortuary contexts while the northern Caddo exclusively buried their fine wares in mortuary contexts (Lambert 2017, 2021a). A closer analysis of the order of operations in producing Caddo ceramic designs (design stratigraphy) supplemented with Instrumental Neutron Activation Analysis (INAA) of the vessels revealed that Caddo fine wares were made by potters with specialized knowledge that lived exclusively in the southern Caddo region (Lambert 2017; 2021a). Additionally, Lambert's narrowly focused study of Iwi (Spiro) Engraved ceramics found that decorative variations within the ceramic type were distributed differently across domestic and mortuary contexts at Caddo ceremonial sites (Lambert 2021b). These analyses have demonstrated not only that the Caddo had distinct communities of practice for pottery production, but that there were communities separated by their use of the pottery as well. Finally, Lambert and Ford's study found that the decorative techniques used at Cahokia followed the same order of operations on fine wares in the Caddo Area (Lambert and Ford 2023). However, INAA showed that the clay in the ceramic pastes of these vessels was local to the Cahokia area (Lambert and Ford 2023). Interpreted though a communities of practice framework, this likely indicates that there were Caddo potters living at Cahokia that learned decorative techniques from communities in the Caddo Area (Lambert and Ford 2023:377-378).

Archaeological studies involving communities of practice theory offer a much more nuanced view of social organizations and interactions, as well as highlight learning processes and their role in cultural reproduction and continuity. Since this body of research focuses on ceramic decorative variation and distribution, it will utilize a communities of practice framework to better understand the relationship between Caddo ceramic production, social and ritual practices, and identity.

Goals and Research Questions

The general goals of this thesis are to contribute to archaeologists' understanding of ancestral Caddo ceramic practices, and to refine our interpretations of the Clement site (34MC8), a multiple-mound center in southeastern Oklahoma.

The Clement site is of great interest to archaeologists working in the Caddo Area as it has been subject to wide scale excavation, has a large artifact assemblage, and is a small portion of what was likely a massive continuous Caddo settlement spanning several miles of the Glover River which encompass multiple archaeological sites. Since Clement is a multiple mound center situated within this much wider occupation, it has clear potential for providing information related to the ceremonial and ritual practices of the Caddo living in this region. There is additional interest in Clement as previous research indicates that the mound center does not fully align with domestic and ceremonial site "types" which have been previously described in southeastern Oklahoma (Dowd 2012; Regnier and Dowd 2013). Ceramic analysis at Clement can help illuminate site chronology and function which in turn can be used to extrapolate ancestral Caddo social networks and ritual practices of the people living along the Glover River. These can then be compared to sites across the Caddo Area to improve our overall interpretations of this vast and complex archaeological region.

To better understand the function and history of the Clement site, this thesis uses ceramic analysis to answer the following questions: 1.) Does the frequency and distribution of temporally sensitive ceramic attributes support current chronological interpretations of the Clement site? 2.) Do the distributions of Caddo fine wares and utilitarian wares at Clement align with those seen at other Caddo sites in the region such as the Woods Mound Group (34MC104)?

There are also three minor points of interest that will be examined over the course of this study. These are additional, basic questions relating to the ceramic attributes which were recorded for this analysis. A.) What is the overall decorative and temper variation of the Clement site? B.) Is there a significant correlation between decorative types, vessel forms, and tempers in the Clement ceramics? C.) Does a finer grained analysis of ceramic decorative variation reveal patterns that are otherwise obscured by a simple attribute analysis? These supplemental questions serve to improve our understanding of chronological attributes, methods of ceramic production, and vessel function at Clement. This information can then be used to help answer the primary research questions and support subsequent interpretations of past social and cultural behaviors.

Outline of Thesis

Chapter 2 provides background on the present-day Caddo Nation, their recent history, and discusses modern Caddo potters and their collaborations with archaeologists. I then discuss the ancestral Caddo, the Caddo Area concept, differences between the northern and southern Caddo regions, and the chronology of the Caddo in the Red River region. This begins with the pre-Caddo Woodland or Fourche Maline period and ends with the McCurtain phase.

Chapter 3 discusses the area of study including local geology, vegetation and wildlife, and climate. This is followed by an overview of the Clement site, starting with an explanation of the Great Depression and relief-era archaeology to give context for the 1941 WPA excavations at the site. The WPA and 2008 University of Oklahoma field school excavations and their findings are discussed, along with a review of previous analyses conducted on the Clement collections. The chapter concludes with descriptions of the A.W. Davis (34MC6), McDonald (34MC11, 12) and Grobin Davis (34MC253) sites due to their proximity and direct or indirect relationships with the Clement site.

Chapter 4 describes the methods used in the analysis of decorated ceramic sherds from the Clement site. This includes descriptions of the attributes recorded along with explanations of tempers, decorative techniques, and ceramic typologies. This is followed by a background of the descriptive system and a detailed explanation of the modified descriptive system used in this study.

Chapter 5 presents the results of the ceramic analysis. It begins with the examination of general trends in attribute data to address the minor points of interest and includes basic counts and percentages of attributes along with their distributions across the site. This is followed by the results of the modified descriptive analysis and ends with the results of the fine ware and utilitarian ware comparative analysis.

Chapter 6 includes a discussion of the results along with possible explanations for trends in the data related to decorative and temper variation, correlations between various ceramic attributes, and the spatial distribution of ceramics at the site. I also explore the effectiveness of the modified descriptive system in comparison to the basic attribute analysis. The chapter ends with a discussion regarding the comparison of Clement to the Woods site, and addresses the role of the Clement site as a ceremonial complex in the Glover River drainage.

Chapter 7 concludes the thesis with a review of the findings of this study. This body of research contributes to our understanding of variations in the production and distribution of Caddo ceramics within the Glover and Little River region It also provides more information regarding the practices and behaviors of the people who occupied this specific multi-mound ceremonial center in southeastern Oklahoma.

Chapter 2: Background

In this chapter I provide a review of literature related to the archaeology of the ancestral Caddo and to the present-day Caddo Nation. This begins with a brief history of the Caddo Nation and its formation and explores efforts of cultural revitalization and decolonization led by Caddo ceramicists working with archaeologists. This is followed by a broad overview of the Caddo Area archaeological region and then discusses the regional chronological sequence of southeastern Oklahoma starting with Woodland period ancestors of the Caddo all the way to the mid-1500s. This includes an examination of ceramic and lithic material culture along with architecture, subsistence, and settlement patterns, and how these have changed over time.

The Caddo Nation

At the time of European contact in the 16th century, the Caddo consisted of approximately 20 matrilineal bands that resided in the Caddo Area, which as mentioned earlier includes parts of modern-day Texas, Oklahoma, Arkansas, and Louisiana (Lee 1998; Rogers and Sabo 2004). Over the next several centuries, these bands would gradually consolidate into a few larger groups, that would ultimately come together to form the modern-day Caddo Nation (Rogers and Sabo 2004). By the 17th century, the Caddo consisted of three main clusters, often referred to by researchers as "confederacies" though this itself is not a Caddo concept. These confederacies were the Hasinai, located along the Neches and Angelina drainages in East Texas, the Kadohadacho, living in the Great Bend area of the Red River, and the Natchitoches in northwestern Louisiana (Early 2000, Girard et al. 2014). While all three groups were collectively Caddo, they were all distinguishable by dialect, architecture, ritual practices, and material culture (Girard et al. 2014). European diseases and conflict with neighboring tribes spurred on by Spanish, French, and English colonial interventions led to significant population losses in the late

18th century, with estimated numbers plummeting from around 8,000 in the 1680s to just 540 in the 1780s. This led to the further consolidation of the three confederacies in the late 18th and early 19th centuries (Rogers and Sabo 2004:622; Sabo 2005). Following this, from 1836 - 1839 the Caddo were forcibly removed from their lands in East Texas and relocated to the upper Trinity and Brazos rivers (Girard et al. 2014; Sabo 2005). However, this relocation was short lived, and due to repeated attacks from white settlers in Texas, the Caddo were once again forced off their lands in 1859 and removed to "Indian Territory" (Sabo 2005). The final consolidation of the Caddo occurred with the passage of the Indian Reorganization Act of 1934 and the Indian Welfare Act of 1936, which resulted in the creation of the Caddo Nation of Oklahoma (Sabo 2005).The current day Caddo Nation of Oklahoma is based out of Binger, Oklahoma and has a population of approximately 7,000 enrolled members with about 5,000 living in Oklahoma (Caddo Nation 2023). The Caddo have placed a strong emphasis on cultural preservation and revitalization which can be seen in their social dances led by the Caddo Culture Club (Rogers and Sabo 2004:622). These dances, including the turkey dance and the drum dance, retell Caddo histories and stories about their resilience during colonization (Newkumet and Meredith 1988). The Caddo have also played a direct role in recovering and documenting their own history. Two major works, *Caddo Indians: Where We Come* From (Carter 1995) and *Hasinai: A Traditional History of the Caddo Confederacy*, (Newkumet and Meredith 1988) were written by Caddo scholars, and they "reflect a continuing effort to build a future rooted in a proud and distinctive past" (Rogers and Sabo 2004:622).

Cultural Revitalization Through Ceramics and Archaeology

In close relation to this thesis, Caddo cultural revitalization can be seen in the work of Jeri Redcorn and Chase Kahwinhut Earles: two Caddo ceramic artists who have spent years learning about and recreating ancestral Caddo methods of ceramic production, while also incorporating Caddo ceramic designs and styles into contemporaneous works of art (Earles 2021; Redcorn 2021). Both Redcorn and Earles have made a tremendous effort in revitalizing Caddo ceramic production including learning to recreate Caddo designs, ceramic pastes, and vessel forms through research and experimentation (Earles 2021; Redcorn 2021). Throughout this work, both artists have emphasized that ceramics are woven into the culture and lifeways of the Caddo people, and that revitalizing this knowledge holds deep significance for the people of the Caddo Nation (Earles 2021; Redcorn 2021). Alongside her work in revitalization, Jeri Redcorn has made significant contributions to the decolonization of the study of Caddo ceramics. She began the process of reviving Caddo ceramic traditions by working with archaeologists at the Oklahoma Archeological Survey and the Sam Noble Museum of Natural History (Redcorn 2021). Her research at these institutions involved learning various ceramic typologies, and as part of her work, she renamed several of these types to reflect their Caddo origins and to help decolonize the archaeological study of the ancestral Caddo (Redcorn 2021). These pottery types include Avery Engraved which Redcorn renamed “Sah-cooh” (Sun) to reflect the type’s sunburst motif, and Friendship Engraved which she renamed “Tay-shas” (Friend) (Redcorn 2021:287). The famous Spiro Engraved pottery type has also been renamed “Iwi” (Eagle) Engraved by a group of Caddo artists working with archaeologists (Lambert et al. 2022). Iwi was chosen because the Caddo relate the concentric circles and spiral motifs to the Birdman, a prominent figure in Caddo cultural narratives who is depicted on a wide range of artifacts found within the Caddo Area (Lambert et al. 2022:8). The wide distribution of Caddo ceramics across several different academic institutions, museums, and private collections, as well as the long history of typologies being used within the archaeological literature, has posed several challenges to the renaming of these ceramic types (Lambert et al. 2022; Redcorn 2021). Despite this there has been considerable progress, and this paper will use the Indigenous names for these ceramics alongside their typological equivalent in an effort to continue this process of decolonization within the field of archaeology.

Lastly, the Caddo Nation is actively involved in the archaeological study of their people. This is best exemplified by the annual Caddo Conference, where Caddo Nation members and archaeologists meet to discuss recent research in ancestral Caddo archaeology. This conference provides an opportunity for the Caddo to be directly involved in the study of their own people, and to remind archaeologists that the contributions of the Caddo teach us to better understand our shared "deep and abiding interest in the native history and cultural traditions of the Caddo people" (Perttula 2012:2).

The Caddo Area

The Caddo Area is a continuous geographic region that is the result of past archaeological work and research perspectives. While it does not have tangible, real-world boundaries, and would not have been recognized by past peoples, it has been useful in the study of the ancestral Caddo (Girard et al. 2014). It should also be noted that the Caddo Area should be viewed as an *area of interaction* with fluid boundaries defined by relationships between groups of people, rather than a static territory or nation (Girard et al. 2014:3).

The first iteration of the Caddo Area was defined by John Swanton, who created an archaeological cultural areas map for the National Research Council in 1932 (Girard et al. 2014:9; National Research Council 1932). While the boundaries of the Caddo Area have been refined since then, large portions of Swanton's map are still considered to be within the Caddo

Area today (Girard et al. 2014). Currently, the Caddo Area encompasses portions of northeastern Texas, southeastern Oklahoma, northwestern Louisiana, and southwestern Arkansas (Girard et al. 2014; Perttula 2012; Rogers and Sabo 2004) (Figure 2.1). This falls within the Gulf Coastal Plain, and Ouachita Mountain physiographic regions. The Gulf Coastal Plain is an area of low elevation dominated by mixed woodlands, while the Ouachita Mountain region consists of east-west ridges of moderate elevation primarily hosting oak-pine forests (Rogers and Sabo 2004:616). These regions and the Caddo Area itself tie into the wider "Trans-Mississippi South" (TMS) as defined by Frank Schambach (Schambach 1982:133). The TMS includes the aforementioned physiographic regions along with the westernmost tall-grass prairies and Cross Timbers, the Ozarks, and the riparian floodplain forests of the Red, Ouachita, Sabine, Arkansas, and Little Rivers (Perttula 1996:296).

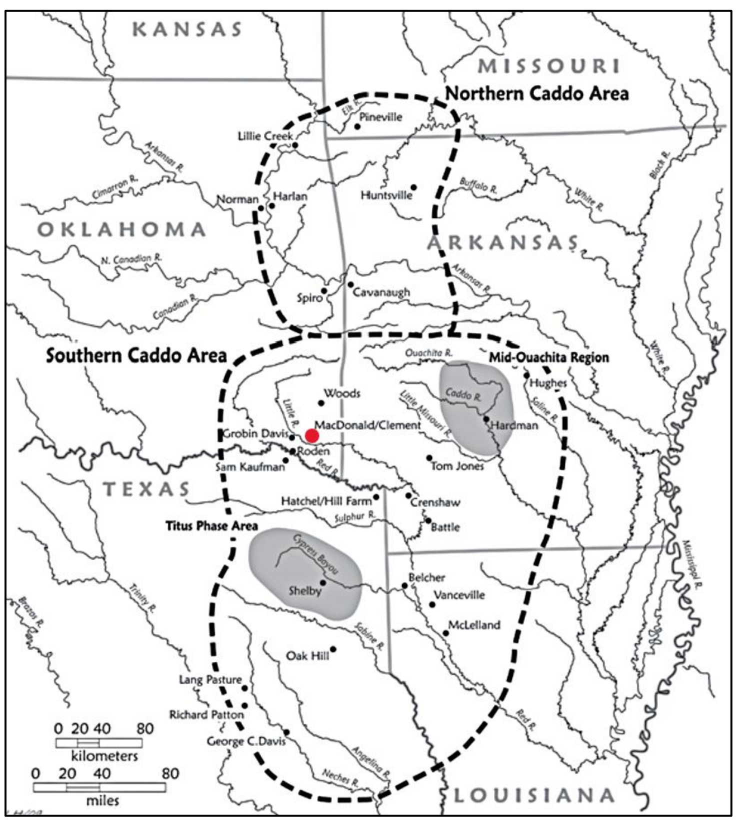


Figure 2.1: Map of the Caddo Area with Clement (34MC8) highlighted: *modified from Perttula 2012*

The boundaries of the Caddo Area have been primarily defined by the distribution of a particular style of ceramics (Girard et al. 2014:28), but they are reinforced by a set of general characteristics that are viewed as “Caddo,” including highly dispersed, small residential settlements, the construction of mounds, civic ceremonial centers where most ritual and mortuary practices occurred, and subsistence based on squash, cucurbits, starchy and oily seeds, maize, and beans, though the latter two were not widely adopted until much later (~AD 1300) (Early 2000:126; Perttula 2008). While these traits are generally shared across the entire Caddo Area, there are several regional variations, most noticeably between the Northern and Southern Caddo Areas.

<u>Northern and Southern Caddo</u>

The Caddo Area can broadly be divided into the Northern Caddo Area, covering the Arkansas drainage and the Ozark Plateau of eastern Oklahoma, and the Southern Caddo Area, encompassing the West Gulf Coastal Plain of east Texas, southwest Arkansas, and northwest Louisiana (Lambert 2017:13). Numerous ceremonial mound centers were built by the Caddo in both of these regions, including Brackett, Norman, Harlan, Hughes, Reed, and Spiro in the north, and Crenshaw, Mounds Plantation, George C. Davis, and Boxed Springs in the south (Lambert 2017:13). While mound construction practices were shared across both regions, there are significant differences in architectural and material practices which can be seen between the northern and southern Caddo mound sites.

While not directly related to this study, it is worth briefly mentioning the Spiro site, as it is one of the most significant mound sites in the Caddo Area, and perhaps in North America. Spiro is a civic ceremonial mound complex on the Arkansas River near the Oklahoma-Arkansas border. The site consists of 2 platform mounds (Brown and Copple), 10 house mounds, multiple unexcavated house structures, and Craig Mound, the 4 lobed burial mound for which Spiro is famous (Brown 1996:15-16). In the 1930s, looters dug into the center of Craig Mound and uncovered a large, sealed chamber built with cedar posts (Brown et al. 2020:93). This “Spirit Lodge” was filled with incredibly preserved exotic artifacts placed concentrically around the floor of the chamber, including woven cane baskets, hundreds of engraved shell cups, pendants, and beads, human effigy pipes, copper bladed axes, and piles of woven, decorated textiles (Brown et al. 2020:97-104). All these artifacts were spiritually charged, and their placement around the space represents “a stage featuring all the participants and instruments required for human interaction with the spirit world” (Brown et al. 2020:99). The quantity, quality, and context of these artifacts suggest that Spiro had substantial ritual, religious, and political significance within the wider Caddo world, and it is likely that it influenced the people living in southeastern Oklahoma in the region surrounding the Clement site.

One of the primary differences between the northern and southern regions is the production and distribution of Formative and Early Caddo fine wares (Lambert 2017). In his analysis of fine ware decorative variation within the Caddo Area, Lambert found that in northern Caddo sites, fine ware ceramics were deposited exclusively in mortuary contexts, while the same fine wares at southern Caddo sites were found in mortuary, ceremonial, and domestic contexts (Lambert 2017:273). Further compositional analysis through INAA determined that fine wares in the Northern Caddo Area were being produced in the Southern Caddo Area (Lambert 2017:277-278). This demonstrated that the Caddo engaged in ritually and culturally structured long-distance trading, and that the southern Caddo were potentially engaged in craft specialization (Lambert 2017). The other regional marker of the Caddo regions is the construction of rectangular structures with extended entryways in earthen mounds. These are usually identified as Harlan style charnel houses (Kay and Sabo 2006). While these are primarily found throughout the Arkansas River drainage in the Northern Caddo Area, a very similar structure is present at the Clement site, though it is not buried in a mound (Baerreis 1941b; Kay and Sabo 2006:42-43). The existence of a Harlan style house this far south of the Arkansas drainage suggests that the Caddo in the north and south had other regional interactions and exchanges of ideas beyond the long-distance trade of fine ware ceramics. Since it is one of the primary features of 34MC8, Harlan style charnel houses will be discussed in further detail later in chapter 3.

This thesis will focus on the Southern Caddo Area, specifically along the Middle Red River and its tributaries, where the Clement site is located. For this reason, the distribution of fine ware ceramics across different contexts at Clement, along with the site's relation to McDonald (34MC11, 12), A.W. Davis (34MC6), and Grobin Davis (34MC523) will play an important role in the overall analysis and interpretation of the Clement ceramic collections.

Chronology

It is vital to understand there is no single, all-encompassing chronology for the whole Caddo Area (Perttula 1996:301). There are several reasons for this, including 1.) The existence of several distinct local variants of Caddo artifacts, features, and cultural practices, 2.) Varying times of occupation and abandonment of localities and regions within the Caddo Area, and 3.) Different tempos of ceramic stylistic changes across different regions (Perttula 1996: 301). These factors combined have made it exceedingly difficult to establish a cohesive sequence of changes in material culture over time, leading to several debates regarding the accuracy of chronologies proposed by different archaeologists (Girard et al. 2014:38-41).

Table 2.1: Caddo Area chronological framework*

Period	Dates
Formative Caddo	**A.D. 800 – A.D. 1000**
Early Caddo	**A.D. 1000 – A.D. 1200**
Middle Caddo	**A.D. 1200 – A.D. 1400**
Late Caddo	**A.D. 1400 – A.D. 1680**
Historic Caddo	**A.D. 1680 – A.D. 1860+**

**Modified from Perttula 1996:300, Table I*

Despite these issues, an oversimplified but useful chronological framework has been developed and largely accepted by Caddo archaeologists. This chronology is divided into 5 periods of relatively equal length: Formative, Early, Middle, Late, and Historic Caddo (Perttula 2012:12; Story 1990) (Table 2.1). The primary benefit of following this framework is that it allows for a consistent comparison of contemporaneous sites across different regions within the Caddo Area (Perttula 2012:12). Additionally, more specific cultural sequences have been created within this larger framework based on archaeological evidence from several different localities across the Caddo Area including the Middle Red, Little River, Ouachita River, Southern Ouachita Mountains, Arkansas Basin, Western Ozark Highlands, Great Bend, Northwest Louisiana, Big Cypress Creek, Upper Sabine River, and Neches River Basin regions (Perttula 1996, 2012:13) (Table 2.2). Because this research focuses on the Clement site, I will only provide details on the Middle Red regional chronology which includes the pre-Caddo Fourche Maline period, the Formative and Early Caddo periods, and the Sanders and McCurtain phases (Girard et al. 2014; Perttula 1996, 2012; Regnier 2017; Regnier et al. 2021). Because the last occupation of Clement occurred during the McCurtain phase, I will not include further information on the Historic Caddo period which was briefly discussed earlier in this paper.

Table 2.2: Regional cultural sequences in the Caddo Area*

Time (A.D.)	Arkansas Basin	Great Bend	Little River	Northwest Louisiana	Middle Red	Ouachita River	Cypress Creek	Neches River
1800								
		Chakanina		Little River/				Allen
1700				Lawton			Hunt	
					Late	Deceiper		
1600		Belcher/		Belcher	McCurtain			
	Fort	Texarkanna				Social	Titus	
1500	Coffee		Saratoga		Early	Hill		Frankston
				Bossier	McCurtain			
1400		Belcher/				Mid-	Whelan	
		Texarkanna	Mineral			Ouachita		
1300			Springs					
	Spiro	Haley		Haley	Sanders	East	Period II	
1200			Graves					
			Chapel					
1100								
					Formative			Alto
1000	Harlan		Miller's				Period I	
		Lost	Crossing	Alto				
900		Prairie						

**Modified from Perttula 1996:303, Table II*

Woodland/ Fourche Maline Period

To facilitate easier comparison of the Caddo Area to the broader southeastern region, "Fourche Maline" is often framed as a cultural or regional manifestation of the Woodland archaeological period (1000 BC – AD 1000) (Anderson & Mainfort 2002:1; Schambach 1982, 2002; Leith 2011). While the use of the term is highly varied, having been considered a "focus (Bell and Baerreis 1951), "period" (Girard et al. 2014), "phase" (Galm 1984), "culture" (Schambach 1982) and an "archaeological manifestation" (Bell 1980), Fourche Maline generally refers to a series of archaeological traits found in the Caddo Area within a particular span of time. While earlier definitions included part of Fourche Maline in the Late Archaic, it is now generally accepted that it was confined to the Woodland period (Leith 2011). Archaeologists have proposed several time frames for Fourche Maline, ranging from AD 200 – 900 (Girard et al.

2014), AD 200 – 800 (Regnier et al. 2021), 300 BC – AD 800 (Schambach 1982), and even 300 BC – AD 1000 (Leith 2011).

One of the primary ways in which Fourche Maline sites are recognized is through the presence of distinctive thick walled, flat based, flowerpot or beaker shaped ceramics (Leith 2011; Regnier et al. 2021; Schambach 2002). These ceramics are often plain and tempered with grog and bone (Williams Plain/Williams Boneware), though burnished vessels tempered with grog, grit, and shale (Le Flore Plain) are found in later Fourche Maline contexts (Leith 2011;181-184; Regnier et al. 2021). While the majority of Fourche Maline ceramic assemblages consist of these plain vessels, it is important to note that there are occurrences of decorated sherds with untyped incising beginning around AD 600 (Leith 2011:184). Some of these ceramics share design traits with Lower Mississippi Valley (LMV) ceramic types such as early Coles Creek Incised (Bruseth 1998, Leith 2011; Regnier et al. 2021). These shared designs are executed on different ceramic pastes between the Caddo Area and LMV, implying that the ceramics were locally produced in each region (Bruseth 1998, Regnier et al. 2021).

Aside from ceramics, Fourche Maline archeological traits also include contracting stem Gary points (Gary Le Flore type), double bitted axes or farming implements (hoes), stone pendants, gorgets, beads, celts, platform pipes, and ground stone tools (Bruseth 1998, Leith 2011; Schambach 2002). While there is little archaeological evidence of house structures, Fourche Maline sites often include deep middens which sometimes contain flexed and extended burials. These internments are occasionally associated with whole Williams Plain and Coles Creek style vessels (Bruseth 1998, Leith 2011).

Formative/ Early Caddo Period

While "Formative" generally refers to the period between AD 900 – 1050, the term is primarily a matter of convenience, and the Formative "period" is more a transition between Fourche Maline (Woodland) and Early Caddo with much more hazy boundaries than the name implies (Girard et al. 2014:41; Regnier 2017:178). The importance in studying this transitional period is defining the emergence of a *distinct* Caddo culture, not just an imitation of Mississippian practices and material culture (Regnier 2017). Sites classified as Formative usually have a combination of Woodland ceramics, Caddo utility wares, and some incised and engraved fine ware sherds (Regnier 2017). Because this is a transitional period, the types of ceramics representative of Formative Caddo are not fully agreed upon, with some authors emphasizing the presence of Coles Creek and Plum Bayou style ceramics (Girard et al. 2014), while others describe the assemblages as consisting of more Early Caddo style ceramics such as Davis incised, Pennington Punctated, Holly Fine Engraved, Iwi (Spiro) Engraved, and others (Bruseth 1998).

While these ceramic types are not always a definitive indicator of Formative occupations, there are several additional markers that can be more broadly interpreted as Formative. These include middens capped by earthen platforms, groups of burials in low pits or low earth platforms, and the most widely distributed Caddo marker, the "house mound." (Girard et al. 2014:42; Regnier 2017:191). House mounds are earth works that were built to cover a structure that was often dismantled or burned down beforehand (Regnier 2017:191; Trubitt 2009). It is generally thought that these structures served some special purpose prior to burial, and that burning them was related to the axis mundi symbolized by the rising smoke from the structure (Kay and Sabo 2006; Regnier 2017). At a wider scale, the Formative period is often separated from Fourche Maline by the presence of large village sites with distinct ritual areas (Girard et al. 2014:42). This is usually paired with the emergence of mass burials which developed alongside the practice of interring whole vessels with human remains. Examples of Formative period mass burials are found at the Crenshaw (Durham and Davis 1975), George C. Davis (Story 1998:17-26), and Bentsen-Clark sites (Banks and Winters 1965; Regnier 2017:193). Archaeologists have hypothesized that these mass burials are precursors to Early Caddo shaft tombs: well defined, deep pits which were dug into existing mounds in a single episode and often extended into the sterile subsoil below (Regnier 2017:193). These burials contained a limited number of individuals who were buried with exotic grave goods as well as whole Early Caddo fine ware vessels (Girard et al. 2014:49-53; Regnier 2017:193). The idea that Formative period burials are a transitional stage stems from the fact that Formative mass graves are much more carefully constructed than Fourche Maline mass graves, and each burial is neatly arranged with various grave goods (Regnier 2017:193). Bentsen-Clark features the most elaborate of these burials with individuals laid out on a twilled cane mat with shell cups and beads, Red-River style pipes, stone earspools, and bear and mountain lion canines which were carved into pendants (Banks and Winters 1975). While these burials do not exhibit the exact same structural and material characteristics as Early Caddo shaft tombs, they are carefully planned and organized and appear to be a transitionary stage between the disorganized Fourche Maline mass graves and the elaborate exclusive burials of the Early Caddo.

Sanders Phase

The Sanders phase (AD 1100 – 1300) occurred in the middle Red River in southeastern Oklahoma and northeastern Texas and covers parts of the Early and Middle Caddo periods used to describe the wider Caddo Area (Bruseth 1998:58; Girard et al. 2014). This phase is based on the Sanders site (41LR2) in Lamar County, Texas (Suhm & Krieger 1954). Bell and Baerreis initially defined this phase in Oklahoma as the "Nelson focus" based on the WPA excavations of the Nelson and Cook sites (Bell & Baerreis 1951:48-53). However, due to the infrequent use of this terminology and the clear overlap in artifacts from Sanders phase sites, the Nelson focus has been subsumed under the Sanders phase (Bruseth 1998). The ceramics of this phase consist primarily of Sanders Plain, Sanders Engraved, Canton Incised, Maxey Noded Redware, and Monkstown Fingernail Punctated (Suhm & Krieger 1954). It is important to note that because Sanders Plain (and its red-slipped equivalent, Sanders Slipped) is not consistently identified by archaeologists, it is not always the most reliable temporal indicator (Bruseth 1998). Common ceramic forms include carinated bowls, bottles with tall, tapered necks, cylindrical jars, and grog tempered rims with concentric lines below the lip of the vessel (Hammerstedt et al. 2010, Regnier et al. 2021).

Other markers of the Sanders phase include Alba, Bonham, Morris and Scallorn points, as well as rectangular or square houses with interior support posts and occasional extended entryways (Bruseth 1998:58). Additionally, there are two types of mound sites associated with this phase: centers with multiple mounds such as Clement and Grobin Davis, and centers with single mounds associated with residential populations (Bruseth 1998:60). As evidenced by excavations throughout the middle Red River region, Sanders phase mounds were constructed in multiple stages, and often built over burned structures (Bruseth 1998:59).

McCurtain Phase

The McCurtain phase (AD 1300 – 1700) was established by Bell and Baerreis based on the WPA excavations at the McDonald and Clement sites in McCurtain County, OK (Bell & Baerreis 1951:53-61). The upper end of this date range was later estimated by archaeological work done in northeastern Texas (Bruseth 1998). Since then, the phase has been divided into Early (AD 1300 – 1500) and Late (AD 1500 – 1700) McCurtain (Bruseth 1998). The McCurtain phase saw significant expansion in styles, motifs, vessel forms, and ceramic pastes across the middle Red River area. McCurtain ceramic types include Sah-cooh (Avery) Engraved, Emory Punctated-Incised, Nash Neck-banded, and Simms Engraved. Keno Trailed and Hudson Engraved are also found in McCurtain assemblages, though these are less common and do not appear in the archaeological record until after AD 1550 (Bruseth 1998, Regnier et al. 2021). McCurtain phase fine-ware ceramics host a range of intricate designs including scrolls, scrolls with ticked lines, scrolls with circles, pendant triangles, diagonal lines and ladders, negative ovals and circles, spirals, and S-shaped pendants (Regnier et al. 2021). These designs were executed on a wide range of forms: compound bowls with wide rims, deep cylindrical bowls, squat bowls and jars with flared rims, and bottles (Bruseth 1998). Additionally, there were significant changes in many of these forms between the Early and Late McCurtain subphases which can be seen in utilitarian jars, tall bowls, bottles, fine-ware jars, and carinated bowls (Regnier et al. 2021). McCurtain assemblages occasionally include reptile and amphibian effigy vessels as well (Dowd 2011). Aside from the expansion of forms and decorative designs, one of the key points in the development of a new Caddo ceramic tradition was the use of crushed and burned shell as a temper. This became a common practice among the Caddo living along the middle Red River after AD 1300 – 1400, primarily in the Kiamichi-Red River confluence area, and shell temper almost completely replaced the use of grog (Perttula et al. 2011). Despite this wide adoption of shell as a primary tempering agent, ceramics excavated at sites in the Southern Ouachita Mountains on the Mountain Fork, Little, and Glover Rivers still have highly variable pastes. Ceramics from A.W. Davis, McDonald, and Clement were tempered with grog, shell, bone, grit, kaolin, and various mixtures of these materials with shell comprising only a small percentage of the McCurtain phase wares (Regnier et al. 2021).

Beyond assemblages of highly variable ceramics, the McCurtain phase demonstrated a continuation of rectangular and square structures into the Early subphase, but the Caddo shifted to constructing circular buildings during the Late McCurtain (Bruseth 1998). The Caddo continued using mound ceremonial centers well into the McCurtain phase, although there is debate over whether mound construction was still practiced at this time (Bruseth 1998). While timing of construction is still unclear in many cases, there is clear indication that shaft tombs were dug into pre-existing mounds during the McCurtain phase. A prime example of this is at the Clement site (34MC8), where a shaft tomb containing 10 individuals was dug from the top of Mound A all the way down into sterile subsoil (Bruseth 1998, Hammerstedt et al. 2010, Regnier et al. 2013).

Caddo settlement patterns during the McCurtain phase are much better defined by archaeologists than those of earlier periods, and Bruseth argues that they are best described by the Terán Soule model (Bruseth 1998). This model is based on the Terán map which was produced by Domingo Terán de los Ríos during a Spanish expedition into east Texas. The map depicts a Kadohadacho settlement along the Great Bend of the Red River that Terán and his companions stayed in during a reconnaissance trip in November and December (Sabo 2012; Wedel 1979). This Kadohadacho settlement consisted of several clusters of one or two structures along the north and south banks of the Red River, presumably farm steads. These widely spaced clusters are then centered around a single mound and nearby compound belonging to the leader of the community (caddi) (Sabo 2012). This settlement pattern appears to be a close fit to those seen in sites along the Red River, however it is important to note that this model is not representative of all Late Caddo settlements. The Hasinai model, which represents much more aggregated settlements, is a better candidate for communities found farther away from large river valleys (Bruseth 1998:62; Dowd 2012:40).

The end of the Early McCurtain phase after AD 1450 saw the expansion of Caddo ritual along the Red River. This spread of cultural and ritual practices appears to have triggered the establishment of the A.W. Davis Mounds on the Glover River, and ultimately the abandonment of the Clement site located just a few kilometers east (Regnier 2013:64; Regnier et al. 2021:62).

The approximately 500-year span of time between the Formative period and the McCurtain phase saw the genesis and development of a distinctive Caddo culture. During this time, the Clement site was continuously occupied by multiple successive generations of ancestral Caddo people living along the Glover River. Further analysis of the Clement archaeological collections will not only improve our understanding of site itself but will also provide a regional perspective for each period and phase described in this chapter, contributing to the wider body of knowledge related to ancestral Caddo chronology. This chapter has provided crucial information for understanding the ancestral Caddo, their material culture, and their descendants, and it will serve as a foundation for discussing the history of the Clement site in the following chapter.

Chapter 3: Area of Study

In this chapter I discuss the background of the Clement site and the surrounding area. I start by providing information on the local and regional geology, climate, and environment. This is followed by background on the Great Depression and federal work relief programs such as the Works Progress Administration (WPA) and their role in archaeology in the 1930s and 1940s. I then describe the 1941 WPA excavations and 2008 University of Oklahoma (OU) field school at Clement along with the primary features of the site including the mounds and structures. I also review the previous research and analyses conducted on the Clement collections which include studies of red-slip ceramics and basic analysis of decorative sherds. The chapter ends with a discussion of nearby Caddo sites including Clement II and III (34MC9, 10), A.W. Davis (34MC6), McDonald (34MC11, 12), and Grobin Davis (34MC253).

Environment

The Clement site (34MC8, 9, 10) is a multi-mound ancestral Caddo site in southeastern Oklahoma. The site was named after the Clement Mortgage Company who owned the land at the time of the WPA excavations. It was assigned three site numbers, McCl-I, II, and III, each corresponding to the major features or "units" located across the property (Baerreis 1941a). These were later given Smithsonian trinomials, 34MC8, 9, and 10 respectively (Regnier et al. 2013:116). Unfortunately, the locations of 34MC9 and 34MC10 are now unknown due to poor field notes taken by the WPA. It has also been suggested that information on site locations was intentionally altered for security purposes (Prewitt n.d.). If so, WPA archaeologists have successfully stumped past looters and present-day archaeologists alike. Since the bulk of the WPA excavations took place at 34MC8, and since MC9, 10 have still not been relocated, the focus of this study is 34MC8, and any mentions of "Clement" in this paper refer to this site specifically.

Figure 3.1: 1938 aerial photo of the Clement site (34MC8); *Oklahoma Historical Aerial Digitization Project, georeferenced photo No. BQJ-6-731*


Figure 3.2: 2026 aerial photo of the Clement site (34MC8); *Google Earth Pro: 2026*

Clement is located on the western terrace of the Glover River a few miles west of Glover, Oklahoma (Hammerstedt et al. 2010) (Figure 3.1, 3.2). The Glover originates in the southern Ouachita Mountains and is a tributary of the Little River, which flows southeast into Arkansas where it joins the Red River west of the Great Bend Region. The site falls within the Mississippi biotic district, which is one of seven such districts in Oklahoma defined by Albert & Wyckoff (1984). The Mississippi district encompasses the southeasternmost portion of the state, and includes the Dissected Coastal Plain geomorphic province, and the Cypress Bottoms and Oak Pine Forest habitat types (Albert & Wyckoff 1984).

Geology and Soils

The Dissected Coastal Plain's northernmost extension lies just north of the Red River and is comprised of flat to rolling lands cut by the lower drainages of the Mountain Fork, Glover, and

Little Rivers (Albert & Wyckoff 1984:19). This geomorphic province is made up mostly of unlithified, south-dipping Cretaceous gravels, fine sands mixed with clay, and limestones, along with loosely cemented conglomerates of shale, chert, and sandstone (Albert & Wyckoff 1984:19; Johnson & Luza 2008:8). Elevation above sea level here and in the wider Mississippi district ranges from 107m along the Red River to 215m in the uplands (Albert & Wyckoff 1984:19). This area includes the lowest elevation in the state which is found at the point where the Little River flows into Arkansas (Johnson & Luza 2008:2).

In general, the Mississippi district is made up of quaternary alluvial deposits: fertile soils favorable for growing crops (Albert & Wyckoff 1984:19; Duck & Fletcher 1943:25). At the Clement site, soils are primarily part of the Frizzell series (85%) which are deep, somewhat poorly drained, slowly permeable soils that formed in silty alluvium, and are occasionally flooded (NRCS 2003; Soilweb 2026). The Frizzell series is in the soil order of Alfisols, great group of Hapludalfs, and family of coarse-silty, siliceous, active, thermic Glossaquic Hapludalfs (Soilweb 2026). A typical Frizzell profile has an A horizon consisting of a friable, brown silt loam with a fine granular structure. This horizon contains many fine roots and reaches a depth of approximately 2 inches (NRCS 2003). This transitions into a yellowish-brown silt loam B/E horizon extending to 35 inches (NRCS 2003). The Bt1 horizon runs from 35 to 43 inches deep and is a mottled yellowish brown (55%) and gray (45%) silt loam with few fine roots (NRCS 2003). The Bt2 horizon is a mottled yellowish brown and gray silty clay loam with common fine pores and extends to 56 inches (NRCS 2003). The Bt3 horizon has the same composition as Bt2 with the addition of distinct pale brown mottles and few fine pores. Bt3 reaches a depth of 76 inches and rests on top of the C horizon which extends to 85 inches (NRCS 2003). All horizons in the Frizzel series are very strongly acidic, and the B/E through Bt3 horizons have a medium subangular blocky structure (NRCS 2003).

The remaining soils at Clement are part of the Rexor, Sallisaw, and Guyton series (Soilweb 2026). Rexor soils (5%) are deep, moderately well drained, moderately permeable and were formed in loamy alluvium (Soilweb 2026). The Sallisaw series (5%) consist of deep, well drained, moderately permeable soils formed in loamy and gravelly alluvium or valley fill (Soilweb 2026). Lastly, Guyton soils (5%) are very deep, well drained, moderately permeable soils formed in thick loamy sediments and are found on local stream floodplains (Soilweb 2026).

Vegetation and Wildlife

The local vegetation surrounding Clement is Cypress Bottom, which is limited to the Little River drainage (Johnson & Luza 2008:17). Common woody plants and tree growths for this type include bald cypress, American snowbell, American holly, water elm, water hickory, water oak, white oak, willow oak, wards willow, button brush, hazel alder, sweetgum, sour gum and mulberry (Duck & Fletcher 1943:24; Johnson & Luza 2008:17). The area also includes various wetland plants such as duckweed, sponge weed, pennywort, water crowfoot, and pond weed (Johnson & Luza 2008:17). There is also a wide range of fauna in this region, the most common species consisting of bobwhite quail, squirrel, cottontail, pheasants, raccoon, opossum, skunk, mink, muskrat, and beaver (Duck & Fletcher 1943:26).

It is also worth mentioning the adjacent Oak Pine Forest vegetation type, which is distinguished from the Oak Hickory Forest type based on the presence of shortleaf pine (Johnson & Luza 2008:17). The shortleaf pine is often found in a mixture of oaks and hickories although there are some instances of pure stands of pine (Duck & Fletcher 1943:26). Vegetation includes flowering dogwood, high and lowbush blueberries, redbud, sugar maple, and herbaceous plants such as dutchman's breeches, Solomon's seal, troutlillies, Virginia waterleaf, and wild ginger (Johnson & Luza 2008:17). The Oak Pine Forest shares all the common wildlife found in the Cypress Bottoms but includes deer and wild turkey (Duck & Fletcher 1943:28).

<u>Climate</u>

Temperatures and precipitation in southeastern Oklahoma are largely influenced by moist air moving north out of the Gulf of Mexico (Arndt 2003). Average temperatures range from 80°F in the summer months (June, July, August) to 44°F in the winter (December, January, February) and in the Mississippi district specifically, annual temperatures are the highest on average in Oklahoma at 63°F (Albert & Wyckoff 1984:19; Johnson & Luza 2008:18). Additionally, temperatures of 90°F or greater occur approximately 85 days per year in the wider southeastern region (Arndt 2003). Average annual precipitation in this area is 56 inches with the minimum monthly precipitation occurring in August (Arndt 2003). However, due to the high water table in southeast Oklahoma, maturing crops have sufficient moisture for growth (Albert & Wyckoff 1984:19). The maximum length of the growing season in the region ranges from 225 – 230 days with the last freeze of spring occurring on March 15th and the first freeze of autumn occurring on November 10th (Arndt 2003).

The environmental characteristics described above made the Clement site a favorable place to live. The regional climate and local fertile soils were well suited for growing crops needed to sustain the ancestral Caddo living at or near the site, and high-quality clay sources along the Glover and Little Rivers provided ample material for producing the abundance of ceramics found at the site.

Previous Fieldwork – Clement Background

The earliest known excavations at Clement were conducted by Vice-President of the Kiomitia Mercantile Company, and amateur archaeologist George T. Wright from Paris, Texas (Baerreis 1941a; Perttula 2017:83). Wright was an avid artifact collector and excavated or looted several sites along the Red River and the surrounding area (Perttula 2017:83). Sometime in the early 20th century, Wright dug approximately 4 feet into the east central portion of the “large domiciliary mound” (Mound A) at McCl-I (Baerreis 1941a). His excavations left a shallow pit about 30 feet in diameter which was observed by WPA archaeologists at the start of their excavations. According to the September quarterly report, Wright uncovered the outline of a house structure, at an estimated depth of 3 to 4 feet since he did not dig through to the base of the mound (Baerreis 1941a). It is unclear if this information was obtained through discussions with Wright, secondhand sources, or direct observation of exposed features in the mound profile (Regnier et al. 2013:118). Several ceramic vessels uncovered by commercial diggers and amateur archaeologists working in the Caddo region, including pottery from Wright’s work at Clement, ended up in the George T. Wright Collection, which was purchased by the Stovall Museum of the University of Oklahoma (Wilson 1962:103), which is now the Sam Noble Oklahoma Museum of Natural History (SNOMNH). Vessels from Wright’s excavation are currently at Southern Methodist University (SMU) and are in the process of being repatriated to the Caddo.

The next and most extensive excavations at Clement were conducted by the Works Progress Administration (WPA) in 1941. This was just one of many archaeological projects carried out by several “New Deal” federal agencies created to help alleviate the economic effects of the Great Depression. An overview of the Depression era work relief programs, federal archaeology of the 1930s and 40s, and WPA archaeological field methods is provided below, followed by a synopsis of the WPA's work at Clement.

The Great Depression and Federal Work Relief

The Great Depression refers to the decade following the Wall Street Stock Market Crash of 1929 and the subsequent failures of thousands of banks and businesses that left millions of Americans jobless and destitute (Watkins 1993:40). While the market crash is often framed as the genesis of the Depression, several factors have been noted as root causes for the major economic downturn in the United States. Instability of the global economy following World War I, overproduction of American agricultural and industrial products, a dearth of domestic and foreign markets able to purchase American goods, and an increasing wealth gap which damaged working- and middle-class purchasing power all contributed to the economic collapse which devastated millions across the country (Watkins 1993:40-45). In the five months following the market crash unemployment grew from 1.5 to 3.2 million and by 1932 12 million were out of work (Watkins 1993:51-55). To make matters worse, banks began failing by the thousands, leaving Americans without any savings to keep them afloat after losing their jobs (Watkins 1993:55). By the time Franklin Delano Roosevelt (FDR) was inaugurated in March of 1933, between 13 and 14 million people were unemployed (Watkins 1993:115). Elected on the promise of reform, FDR, his cabinet, and a more than willing Congress began passing legislation and creating programs to provide much needed relief to as many Americans as possible (Lyon 1996:28; Watkins 1993).

This massive relief effort started with the creation of the Federal Emergency Relief Administration (FERA) in 1933. Congress funded the agency with $500 million, and under the direction of Harry L. Hopkins, began distributing aid in the form of outright and matching grants given to states for relief distribution (Lyon 1996:28; Watkins 1993:124). FERA also provided relief in the form of vouchers for food, rent, and fuel. The agency also purchased surplus livestock and produce from farms which were then shipped across the U.S. to get much needed food to citizens in need (Watkins 1993:124-125). While this provided temporary aid, it was clear that a long-term solution was needed. Roosevelt created the Civil Works Administration (CWA) via executive order, with the purpose of offering work relief rather than straight welfare. The CWA was given a budget of $400 million by Congress, followed by an additional $950 million to employ over 4 million people to construct roads, highways, bridges, schools, parks, hospitals and other public works (Lyon 1996:28; Watkins 1993:126-127). While it was only designed to last through the winter of 1933-1934, the CWA was a huge success, and soon, more permanent work relief agencies were created. One of the better-known organizations, the Civilian Conservation Corp (CCC), hired young men to work on various projects in regional and national forests and national parks between 1933 and 1942 (Watkins 1993:130-131). Much of the infrastructure built by the CCC in U.S. national parks is still in use today. Alongside the CCC, Congress also created the CCC Indian Division, (CCCID) to ensure than Native Americans were folded into the work relief effort in a way that directly benefitted the tribes, often by assigning these men to projects on their own reservations (Watkins 1993:134). It is worth noting that the CCCID is considered part of the "Indian New Deal," which was fully realized under the Indian Reorganization Act of 1934. This law repealed the Dawes Act, reversed the U.S. policy of assimilation and organized reservation tribes into self-governing bodies (Watkins 1993:134-136). This legislation, along with the Oklahoma Indian Welfare Act, led to the creation of several tribal nations, including the Caddo Nation of Oklahoma (Sabo 2005:167). Wanting to expand FERA's work programs beyond national parks and forests, FDR successfully appealed to Congress for additional funds and the

Emergency Relief Appropriations Act was passed in 1935, authorizing the creation of the Works Progress Administration (Watkins 1993:248-249). The WPA was the most massive and comprehensive work relief program in the nation's history and employed over 8.5 million people, primarily men, to build roads, highways, bridges, public buildings, parks, and airports from 1935 to 1943 (Watkins 1993:249). While far from equitable and only a small percentage of the total workforce, the WPA also hired women for projects involving work such as sewing, bookbinding, elderly care, and school lunch programs (Watkins 1993:250).

Federal Programs and Archaeology

In addition to funding infrastructure projects across the country, all the agencies described above hired workers to conduct archaeological excavations throughout the Southeast, Midwest, and in California (Lyon 1996; Means 2013:7). While limited in scope, some groups in the CCCID were also hired for archaeological projects on reservations, providing Native Americans some of the first opportunities to excavate their own ancestral material culture (Milon 2022). Relief work programs began to take an interest in archaeology primarily because of pressures from the Committee on State Archaeological Surveys (CSAS). The CSAS was founded in 1920 by the National Research Council (NRC) with the purpose of correlating archaeological research in North America by fostering dialogue between archaeologists in different regions, assisting states in surveying their archaeological resources, and by encouraging the use of standard field methods and record keeping (Lyon 1996:17; Means 2013:7). The organization made its first foray into federal archaeology by pressuring the Tennessee Valley Authority (TVA) into conducting salvage archaeology in the Southeast where sites would be flooded by the construction of dams (Means 2013:7). The first federal archaeological excavations were planned and organized by the Smithsonian. These were conducted by the CWA and TVA in

Georgia, Florida, North Carolina, Tennessee, and California, with the first large scale excavation taking place at the Marksville site in Louisiana in 1933 (Lyon 1996:28-30). The success of the excavations at Marksville proved that archaeological fieldwork was well suited for New Deal work relief projects as agencies could hire large numbers of unskilled workers for long periods of time using inexpensive equipment (Lyon 1996:63; Means 2013:8). After the CWA was decommissioned in 1934, FERA, the TVA, the CCC and the WPA continued to direct large scale excavations throughout the United States (Lyon 1996:63). For the WPA, archaeological supervisors were non-relief employees drawn from universities and museums, while the foremen that led day to day operations, and field crews that physically excavated the sites primarily consisted of men with no experience in archaeology (Means 2013:9). However, there are some notable exceptions such as the Irene Mound in Georgia, whose field crew consisted entirely of African American women (Means 2013:9).

Aside from employing thousands of Americans during the Great Depression, federal archaeology has also done a great deal to improve our understanding of pre-contact history in North America and helped popularize archaeology in the United States (Means 2013; Regnier et al. 2019). Additionally, these Depression-era excavations produced a wealth of materials which have enabled countless collections-based studies, including this body of research.

<u>Federal Archaeology in Oklahoma</u>

The first federal agencies to conduct archaeology in Oklahoma were the CWA and FERA at the Norman site in 1933. In 1935, the WPA took over as the sole agency excavating sites in the state until the cessation of fieldwork in 1942 (Rogers 1978). All WPA excavations in Oklahoma were under the direction of the University of Oklahoma Anthropology Department, chaired by Dr. Forrest Clements (Regnier et al. 2019:8; Rogers 1978). The WPA ran excavations in 14 of

Oklahoma's 77 counties and there are notes and reports for 134 sites currently housed at the SNOMNH (Regnier et al. 2019:8). However, there is speculation that this is just a small fraction of the actual number of sites that were excavated, as some reports allude to over 100 sites in Delaware county alone (Rogers 1978).

WPA Field Methods

An initial report on WPA archaeology in Oklahoma was written by "Forrest E. Clements & Associates" in 1937, which included almost 30 pages of detailed instructions on establishing an excavation grid, measuring elevation with a transit, and recording artifacts, features, and burials found in excavation units (Clements et al. 1937). It is presumed that a copy of these instructions was given to each of the field supervisors in Oklahoma as a reference for conducting standardized fieldwork (Regnier et al. 2019:99). Clements' methods were based on those developed by Fay Cooper Cole and Thorne Deuel in the 1920s and 30s for Illinois archaeological surveys and field schools conducted by the University of Chicago in the 1920s and 30s (Lyon 1996:61-62; Regnier et al. 2019:100).

Site Selection

Since Clements was often kept in Norman due to various departmental responsibilities, field supervisors (along with survey crews employed in Le Flore, Muskogee, and Delaware Counties) were responsible for locating new sites for archaeological investigations (Regnier et al. 2019:26,100-101; Rogers 1978). Supervisors spent a great deal of time chasing down leads provided by locals who reported artifact scatters or mounds seen on properties across the state (Regnier et al. 2019:100-101; Rogers 1978). Once these potential sites were located, crews dug test pits to determine if a site was suitable for full excavations. Unfortunately, these test pits were not incorporated into the wider grid system, and their locations were not recorded, so any artifacts collected during these initial surveys have no provenience (Regnier et al. 2013:112; Regnier et al. 2019:101; Rogers 1978). Once a site was formally established, it was given a catalog/ site number, including symbols for county and site name, along with Roman numerals indicating the site unit. While county abbreviations were standardized, the abbreviations for site names and unit numbers were arbitrary (Clements et al. 1937). Unit numbers were assigned to different parts of the site based on primary feature types or site activities such as mounds or villages, and were each excavated on a separate grid (Rogers 1978). In his instructions, Clements stressed the importance of assigning these catalog numbers before work began and ensuring that they were maintained throughout the excavation (Clements et al. 1937).

Grid System

After a site was selected for excavation, a coordinate grid was staked out in either 5- or 10-foot squares and oriented to magnetic north (Clements et al. 1937; Prewitt n.d.:15; Rogers 1978). Stakes were labeled according to the "row" (east-west) and "alley" (north-south) grid line on which they were placed (Clements et al. 1937; Rogers 1978). The labeling format listed the row followed by the alley so that row 51 alley 37 would be listed as 51:37 (Clements et al. 1937; Prewitt n.d.:49). Each square or unit in the grid was labeled based on the stake number in the southwest corner (Prewitt n.d.:15; Rogers 1978).

Excavation

By the late 1930s, archaeologists had recognized the importance of stratigraphy in archaeological work, and digging in arbitrary levels was standard practice during the Depression (Lyon 1996:55). Even with the use of these arbitrary levels, archaeologists still paid close attention to natural stratigraphy while digging (Lyon 1996:55). Arbitrary levels were only used in non-mound contexts, whereas mounds were excavated based on construction layers (Rogers 1978) Mounds were "sliced through" row by row and a stratigraphic profile was recorded for each row (Rogers 1978). While Clements provided ample information on measuring elevation using a transit, there is no information regarding the actual mechanics of excavation (Clements et al. 1937; Regnier et al. 2019:99). As such levels were excavated in varying increments, primarily based on the types of features present. For example, house structures would be excavated until post holes were defined, and the margins of the structure had been reached (Rogers 1978).

Recording Data

Field supervisors and foremen were responsible for filling out survey forms, burial data forms, and profile data sheets. Additionally, archaeological data sheets were used to record information about features such as houses (H), cache pits (C), burials (B), and clusters of artifacts not associated with a particular feature (A) (Clements et al. 1937; Regnier et al. 2019:102; Rogers 1978). If an excavation unit did not contain any features, it was not recorded on an archaeological data sheet (Regnier et al. 2019:102). Foremen were also tasked with recording artifact proveniences and keep daily field notes, though these were not standardized (Regnier et al. 2019:40). Many of these forms and field notes are housed in the SNOMNH and include various measurements, maps, and other details which have been invaluable for reconstructing WPA excavation grids (Prewitt n.d.:42).

<u>WPA Excavations at the Clement Site</u>

Excavations at Clement began in May 1941 under the direction of David Baerreis, one of the seven WPA field supervisors in eastern Oklahoma (Baerreis 1941a; Prewitt n.d.:15; Regnier et al. 2013:110). The site, located in McCurtain County, included three major units, and was assigned the catalog designation McCl-I, II, and III according to WPA catalog protocols (Baerreis 1941a). Excavations were initiated at McCl-I (34MC8) or the "domiciliary mound" unit using a grid with 5-foot squares as described previously (Baerreis 1941a; Prewitt n.d.:15). Clement-I includes the larger mound, 2 overlapping house structures to the northeast of the mound, several middens north of the mound, and multiple burials (Baerreis 1941a,b; Prewitt n.d.). Excavations at Clement discontinued in December 1941 due to trouble receiving permissions from landowners and because Baerreis felt that they had collected a good sample of artifact types from the site, and that it would be more profitable to move on to other sites in the region (Baerreis 1941b). However, Baerreis noted that the second, flat topped mound at McCl-I had not been excavated, and that the "island" (McCl-II) had not been as thoroughly excavated as hoped (Baerreis 1941b). After finishing at Clement, the field crew moved upriver to the McDonald site (McMd-I and II/ 34MC11-12) (Regnier et al. 2013:121).

Towards the end of 1941, with the threat of war imminent, New Deal programs began redirecting efforts and funds towards preparing America for participation in World War II, leaving agencies with far fewer resources for archaeological excavations (Means 2013:10). This led to smaller field crews, rushed excavations, and a noticeable decline in quality of documentation during the later work at McCl-II and III, and for the full duration of work at McDonald (Regnier 2013:125). As the United States was drawn into World War II at the beginning of 1942, the WPA was dissolved, and archaeological work in Oklahoma ceased shortly after the move to the McDonald site (Regnier et al. 2013:110). Despite these issues, the WPA excavations at Clement and McDonald were vital to addressing gaps in the archaeology of precontact Oklahoma, enabled the documentation of ancestral Caddos living in southeastern

Oklahoma between AD 1000 and 1600, and led archaeologists to define the McCurtain phase in Oklahoma (Bell and Baerreis 1951; Regnier 2013:110-111).

2008 OU Fieldwork

Starting in 2007, the University of Oklahoma Department of Anthropology, the Oklahoma Archeological Survey, and the Sam Noble Oklahoma Museum of Natural History began a coordinated research program to revisit the prehistory of the Caddo through analysis of existing collections and new excavations in Oklahoma (Hammerstedt et al. 2010:279). The beginning phase of this project involved conducting surveys and excavations at Clement as part of OU's 2008 summer field school, employing modern techniques to better understand the history of the site and its place in the wider Caddo Area (Hammerstedt 2010:279). There were 4 primary goals of the 2008 project: collect more data to better understand site chronology, test the mound left unexcavated by the WPA to determine if there were intact cultural deposits, recover food remains using modern technique, and to locate the 1941 excavations including the exact locations of McCl-II and III (Hammerstedt et al. 2010:284).

Survey Techniques

In an effort to understand the layout of the site, split-core auger testing was conducted on a 20 m grid across the entire field encompassing the site, with additional 2 m transects on the tops of the large domiciliary mound (Mound A), the smaller, unexcavated mound (Mound B), and in the northern portion of the field where midden soils had been found (Hammerstedt et al. 2010:284). Students and faculty also used a gradiometer for subsurface geophysical survey in order to identify the total site area, determine if there were additional mounds north of mounds A and B, and locate McCl-III/34MC10 (Hammerstedt et al. 2010:284-285). These initial surveys located the outline of the Mound A excavations and other WPA trenches, 6 anomalies consistent with signatures of debris filled pits, and an anomaly that revealed a burned structure once excavated (Hammerstedt et al. 2010:285). 34MC9 and 10 were not located, likely due to time constraints which limited the amount of area which could be surveyed with the gradiometer (Hammerstedt et al. 2010: 284, 290).

Excavations

Block 1 of the 2008 field school was placed on a section of deeply buried black midden soils found during auger testing (Hammerstedt et al. 2010:285-286). Excavations revealed a deep midden-filled pit with irregular margins, and 2 separate strata: an upper with a lighter color and moderate artifact density, and a lower with a darker color and high artifact density (Hammerstedt et al. 2010:285-286). Based on the size and margins of the feature, it was proposed to be a clay extraction pit which was later used as a refuse pit (Hammerstedt et al 2010:286). One sample from the feature returned a radiocarbon 2-sigma calibrated date range of AD 990-1200 (Hammerstedt et al. 2010:286).

Block 2 was placed on the flank of Mound B and confirmed the presence of undisturbed cultural deposits including a hearth and compacted clay floor (Hammerstedt et al. 2010:287). Samples from the hearth and approximately 30 cm below the hearth returned calibrated intercept dates of AD 1400 and AD 1050 respectively (Hammerstedt et al. 2010:287).

Block 3, north of Mound A, and Block 4, west of Mound A, were opened on top of gradiometric anomalies which were interpreted as potential structures. However, no features were uncovered in either block and very few artifacts were found.

Block 5 was excavated to investigate the anomaly resembling a burned feature which was found using the gradiometer (Hammerstedt et al. 2010:288-289). Excavations revealed the remains of a burned structure (Structure 6) with a yellowish-gray clay floor above a red subsoil where the structure's post molds were located (Hammerstedt et al. 2010:288). The post outline of one wall of an additional structure (Structure 7) was found in part of the block which had not been surveyed with the gradiometer. Only part of Structure 7 was uncovered, as it was found on the second to last day of fieldwork (Hammerstedt et al. 2010:288).

Features – Clement Background

34MC8 encompasses several feature types including Mound A and B, Houses (Structures) 1 and 2, Structures 6 and 7, and various middens, caches (now referred to as pits), and burials (Baerreis 1941a, 1941b; Hammerstedt et al. 2010; Prewitt n.d.).

<u>Earthen Mounds</u>

Three mounds have been reported at Clement though only two of these have been investigated (Bell and Baerreis 1951:53; Hammerstedt et al 2010). Mound A, a large platform mound, which has been referred to as domiciliary mound and as a temple mound, was the primary focus of the WPA excavations in 1941 and served as the basis for McCl-I (Baerreis 1941a; Bell and Baerreis 1951:53) (Figure 3.3). Originally, Mound A was the larger of the two mounds that have been investigated, with a maximum diameter of approximately 100 feet (30.5 m) and a maximum height of 7 feet 10 inches (2.4 m) at the mound center (Baerreis 1941a). However, after extensive looting, WPA excavations, and being plowed over by landowners, the mound has been significantly reduced in size and is now the smaller of the mounds at the site (Hammerstedt et al. 2010:248; Prewitt n.d.:24; Regnier et al. 2013:119). Mound A is divided into three distinct strata with one midden layer sitting below two construction layers (Baerreis 1941a; Prewitt n.d.:19,24). The first layer (Unit I) is a dark soil covering the entire site, which Baerreis interpreted as the original local topsoil (Baerreis 1941a). Within the mound specifically, this stratum comprises a pre-mound midden generated by earlier habitation activity. The midden includes a baked clay floor, a fire basin 30 inches in diameter and 20 inches deep (76.2 x 50.8 cm), and an indeterminate house outline (Baerreis 1941a; Prewitt n.d.:24). The second stratum (Unit II) is a thin layer of dark ashy soil which caps the clay floor and house structure, serving as the first constructional layer of the mound (Baerreis 1941a; Prewitt n.d.:24). The third and final layer (Unit III) is a mottled yellow/grayish clay comprising the bulk of the mound, with a maximum thickness of 7 feet (2.1 m) (Baerreis 1941a; Prewitt n.d.:24). Due to the homogeneity of the top layer of mound fill, Baerreis suggested that the mound was built in a relatively short span of time (Baerreis 1941a). All these fill layers contain cultural materials, and ceramic data suggests that the mound was constructed during the later Sanders and McCurtain phases (Baerreis 1941a; Regnier 2017:185).

Figure 3.3: South edge of Mound A, WPA excavation; on file at SNOMNH

After Mound A was constructed, a deep shaft or pit, roughly circular in shape, was dug into the center of the mound, running through Units III and II, and partly into Unit I which disrupted the post patterns seen in the pre-mound midden (Baerreis 1941a; Hammerstedt et al. 2010:280; Prewitt n.d.:50). On the floor of the pit were the remains of 9 to 10 individuals who were interred with several ceramic vessels, shell discs, shell, pearl and seed beads, stone ear spools, a ground stone celt, and multiple small stemmed projectile points (Baerreis 1941a; Bell and Baerreis 1951:59; Prewitt n.d.:50,53). In the corners of the pit were 4 vertical cedar posts initially interpreted as the remains of a roofed structure within the pit (Bell and Baerreis 1951:54). However, it seems more likely that these were not structural, and instead served as spatial markers, or an axis mundi, the symbolic center of the universe at a place of ritual significance (Dowd 2012:273; Regnier 2017:193). This burial is an excellent example of a Caddo shaft tomb. Shaft tombs became widespread during the Early Caddo period but are also present at McCurtain phase sites along the Red River (Girard et al. 2014:47; Hammerstedt et al.

2010:284). These well-defined deep pits were dug into or close to the base of existing mounds where a limited number of individuals would be buried with exotic grave goods and several fine-ware ceramic vessels (Girard et al. 2014:47). Based on the number of high-quality grave goods associated with these exclusive group burials, it is likely that the people interred in shaft tombs were part of a high status social or religious class (Girard et al. 2014:47). Based on ceramic assemblages and a comparison of major Clement features to other Red River Caddo sites, it is clear that the shaft tomb is a later addition to the site and not contemporaneous with the other site components discussed here (Hammerstedt et al. 2010:284; Regnier 2017:185).

Mound B, originally the smaller of the two investigated mounds, was tested and partly excavated during the 2008 OU field school (Hammerstedt et al. 2010). The mound is located several hundred feet east of Mound A, although the WPA listed it as west of the mound (Baerreis 1941b; Bell and Baerreis 1951:53). This is most likely another instance of WPA archaeologists changing the location of features in their notes for security purposes. While the WPA did not conduct any excavations at this mound, it has been disturbed by plowing and looting activity, with some looters having dug a tunnel directly into the side of the mound (Hammerstedt et al. 2010:287). Despite these disturbances the 2008 excavations revealed intact deposits in the flank of the mound and radiocarbon samples were taken from a hearth and several centimeters below the hearth (Hammerstedt et al. 2010:287). Testing returned dates of AD 1410 for the hearth and AD 1050 for the area below the hearth. These dates match well with the ceramics found in association with these levels of the mound, supporting the idea of a much earlier occupation of the site than previously estimated (Hammerstedt et al. 2010:288).

A third mound is described by Bell and Baerreis as “a rather large mound… a short distance to the North [of Mound A]” (Bell and Baerreis 1951:53). However, this mound is not listed in Baerreis' September or December quarterly reports, and geophysical survey conducted during the 2008 field school did not reveal any mounds to the north of Mounds A and B (Baerreis 1941a,b; Hammerstedt et al. 2010). As such, it is unclear if the mound was accidentally recorded for the wrong site, its location at Clement was intentionally altered, or if the mound exists at all.

Structures

Northeast of Mound A, 2 overlapping square or rectangular structures were uncovered during the WPA excavations (Figure 3.4). These were initially labeled House 1 and House 2 of McCl-I, but they were renamed Structure 1 and Structure 2 during the 2008 excavations and will be referred to as such for the remainder of this paper (Baerreis 1941b; Hammerstedt et al. 2010:281). Structure 1 is roughly square in shape and each wall measures about 25.5 feet (7.8 m) in length (Figure 3.5). Additionally, the structure features a 6 foot (1.8 m) long, southwest facing entrance trench, which is partially disturbed by a later period Choctaw burial (Baerreis 1941b; Regnier et al. 2013:121). The roof of this structure was supported by 4 central posts arranged in a square. The northwestern post, located in unit 59:37, was charred and intact, and measured about 0.9 feet (27.4 cm) in diameter (Baerreis 1941b; Prewitt n.d.:42). Structure 1 also featured a prepared clay step placed immediately inside the entrance which was semi-circular in shape with the straight edge of the step placed towards the extended entryway (Baerreis 1941b). The clay step and the southwest facing extended entryway are common in Harlan style charnel houses found in the Arkansas River drainage, and Structure 1 at Clement is the only known example in southeast Oklahoma (Kay and Sabo 2006; Regnier et al. 2013:121). The southwest facing entrance trench seen in Harlan charnel houses likely has significant cosmological implications tied to ritual practices of the Caddo (Kay and Sabo 2006:32-33). Ethnographic sources from the Hasinai living in East Texas in the late 17th century indicate that the Caddo spirit world resides in the southwest sky. (Kay and Sabo 2006:32-33). Additionally, the winter solstice, the time of year when the sun sets in the southwest, is said to have been associated with winter and death (Kay and Sabo 2006:32-33). Since charnel houses are explicitly used for mortuary practices, a southwest facing entrance would have allowed direct light into the house during the winter solstice and would have been facing the spirit world in the southwest sky. This implies that the construction of these charnel houses was tied to the ritual and symbolic practice of guiding people to the spirit world (Kay and Sabo 2006:32-33).

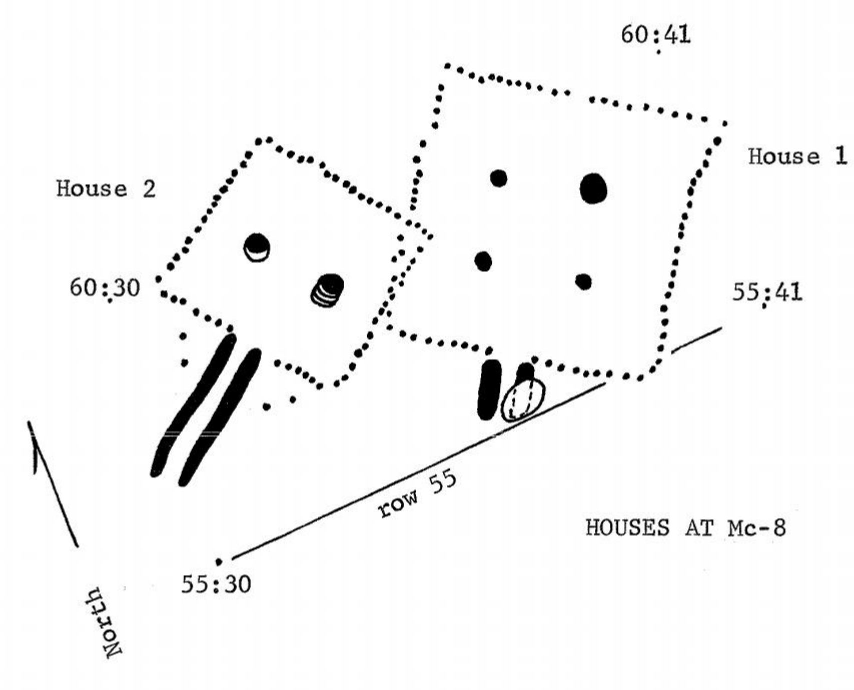


Figure 3.4: Plan drawing of 34MC8 structures 1 and 2 (Prewitt n.d.:44)

Structure 2 is immediately west of and partially overlaps with Structure 1 (Figure 3.6). It is rectangular in shape with the northwest – southeast running walls measuring 18.7 feet (5.7 m) in length while the northeast – southwest walls are 17.1 feet (5.2 m) long (Baerreis 1941b). The structure also features a southwest facing extended entryway, though it is unusually long, measuring approximately 15 feet (4.6 m) in length (Baerreis 1941b). While they are similar, Structure 2 lacks the clay floor and prepared clay step seen in Structure 1. Additionally, Structure 2 only has 2 center posts. These traits have led archaeologists to suggest that Structure 1 is the older of the two, as earlier Harlan phase structures often had 4 center posts, while 2 center posts were more common during the following Norman phase (Kay and Sabo 2006:42-43).

Figure 3.5: Structure 1 view facing east; on file at SNOMNH

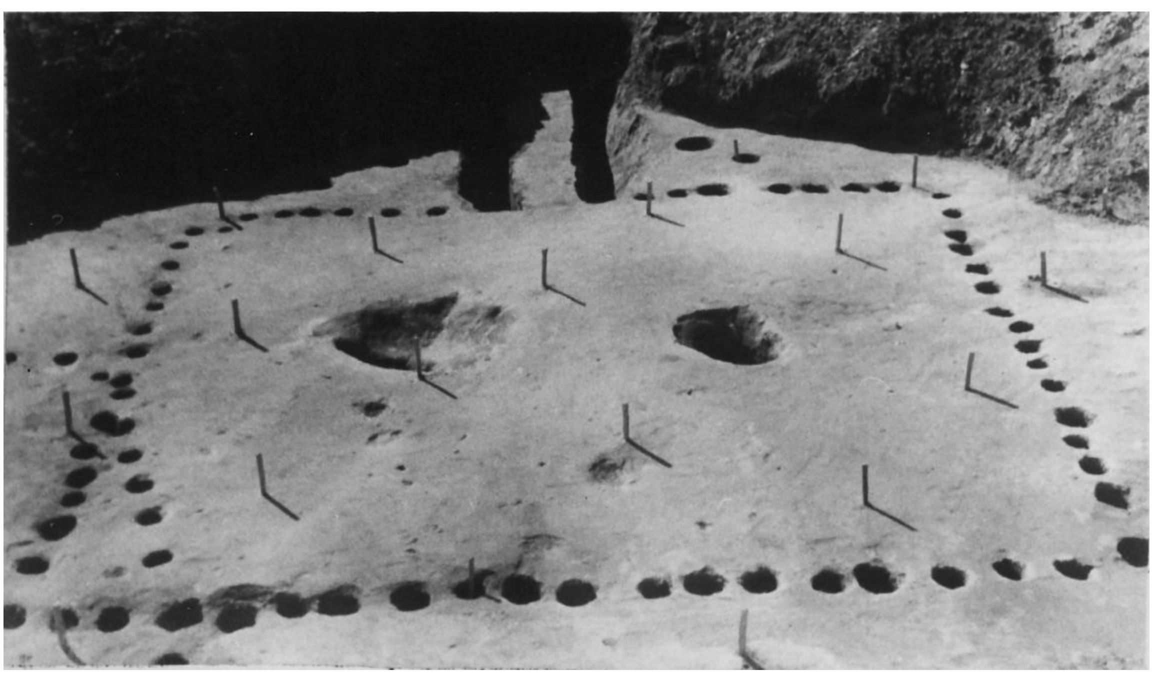


Figure 3.6: Structure 2 view from north; on file at SNOMNH

Structure 6 was initially detected during geophysical survey conducted in 2008 and was ultimately excavated in Block 5 directly west of Mound A (Hammerstedt et al. 2010:288). The top of the structure was immediately below the plow zone and consisted of burned and collapsed timbers, as well as charred canes and matting (Hammerstedt et al. 2010:288). One of the timbers was sampled for radiocarbon dating and returned a calibrated intercept of AD 1120 (Hammerstedt et al. 2010:288). Below the burned structural material was a yellowish/grayish clay floor over a red subsoil in which the bottoms of post molds were visible (Hammerstedt et al. 288). The post holes outlined a circular structure approximately 12 meters in diameter, with the suggestion of an entrance at the southern edge of the post pattern (Hammerstedt et al. 2010:288). Several indeterminate features were also found inside the structure, but these could only be seen in profile in unit balks (Hammerstedt et al. 2010:288). Since the floor was largely free of artifacts, it is likely that Structure 6 was cleaned before being burned (Hammerstedt et al. 2010:288).

Structure 7 is immediately west of Structure 6 and consists of 6 post holes in a straight line running southwest to southeast (Hammerstedt et al. 2010:288). Structure 7 was only partially excavated as it was found in Block 5 on the second to last day of the field school, so little is known about the entire building (Hammerstedt et al. 2010:288). However, a radiocarbon sample was collected from one of the post holes, returning an intercept date of AD 1080 (Hammerstedt et al. 2010:288).

Other Features

Several other features were recorded by the WPA in 1941, and these were generally divided into 2 classes: Class A features were artifacts and clusters of artifacts not found in defined pits, and Class C features which included a series of pits, heaths, and corn caches for which stratigraphic control was deemed necessary (Prewitt n.d.:60). Several of the Class A features consisted of groups of 5 or more whole vessels. Baerreis suggested that these features were burials in which the skeletal material had completely decomposed, and multiple archaeologists have agreed with this interpretation (Baerreis 1941a; Prewitt n.d.:60; Regnier et al. 2013:121). 2 of these features were found in the northern and southern sides of Mound A and potentially represent a continuity in mortuary practices as a means of ancestral veneration.

Previous Research – Clement Background

No formal report on Clement has ever been published, and the only comprehensive review of the site in its entirety is an unfinished manuscript written by Terry Prewitt, which predates the 2008 field work conducted by the University of Oklahoma (Prewitt n.d.). However, a number of analyses, primarily focused on ceramics, have been completed over the last 50 years, with the goal of better understanding Clement's social and political significance to the ancestral Caddo people in southeastern Oklahoma.

A basic attribute analysis of the WPA ceramic collections from Clement was conducted by undergraduate students working in the Southeastern Archaeological Laboratory at the University of Oklahoma in 2012 and 2013. The data collected from this analysis, along with OU's 2008 field work, has served as the basis for initial interpretations of the site, and has been used for comparative studies of other Caddo sites along the Glover and Little Rivers (Hammerstedt et al. 2010; Regnier 2013). Additionally, ceramic data from the site have been incorporated into a larger study relating to the transition between the Late Woodland (AD 900-1050) and Early Caddo (AD 1050-1200) periods as a means of understanding the development of a distinct Caddo culture (Regnier 2017). This research indicates that the Formative and Early Caddo ceramics are restricted to a portion of the site about 100 meters north of Mound A

(Regnier 2017:185). The presence of Early Caddo fine wares in this part of the site indicates that Clement likely served as an important ritual center earlier than previously proposed (Bell and Baerreis 1951; Regnier 2017:187).

Samples from both the 1941 and 2008 excavations have been submitted for radiocarbon dating in hopes of supplementing the basic site chronology established through ceramic typologies (Hammerstedt et al. 2010; Valastro et al. 1972:476-477). Samples from the WPA collections, including several corncobs from sub-mound contexts, and charred wood from Structure 1 and the shaft tomb, were sent to the University of Texas in 1968 returning uncorrected dates ranging from AD 1200 – 1810 (Hammerstedt et al. 2010:283; Valastro et al. 1972:476-477). The validity of these dates is questionable though, as there is no information regarding the treatment of the samples from the time of excavation to the time of submission (Hammerstedt et al. 2010:283). Also, the dates of the sub-mound sample vary by almost 600 years and can be as recent as 1950, which obviously doesn't align with expectations for pre-mound contexts (Hammerstedt et al. 2010:283) (Table 3.1). The 2008 samples appear to be much more reliable, and range from AD 900 – 1442, aligning with the suggested Formative/Early Caddo to Late McCurtain occupation of the site (Hammerstedt et al. 2010:287). These radiocarbon dates, in conjunction with architectural styles, mound construction, and shell temper distribution, point toward a multi-component occupation of the site spanning AD 1050 – 1500 (Hammerstedt et al. 2010:290) (Table 3.2).

Table 3.1: Radiocarbon dates from the WPA excavations*

TX #	Location	Type	Intercept (B.P.)	+/-	2-sigma calibrated age range
823A	Unknown	Wood	390	60	A.D. 1433–1640
823B	22:8; premound	Corncob	140	140	A.D. 1493
824	22:8; premound post hole	Corncob	190	70	A.D. 1523–1955
825	25:10; premound	Corncob	350	80	A.D. 1417–1952
829	Feature C6; base of mound	Corncob	140	70	A.D. 1662–1952
821	23:7; base of mound	Corncob	260	70	A.D. 1452–1954
826	21:9; lower stage of mound	Corncob	160	70	A.D. 1648–1953
827	24:5; premound post hole	Corncob	750	80	A.D. 1048–1399
820	21:9; Feature A14	Corncob	250	70	A.D. 1460–1954
828	Post in Burial 3	Wood	620	70	A.D. 1271–1429
822	NW center post, Structure 1	Wood	1690	80	A.D. 138–540

**Hammerstedt et al. 2010:283*

Table 3.2: Radiocarbon dates from the OU 2008 excavations*

Beta #	Location	Type	Intercept (B.P.)	+/-	2-sigma calibrated age range
251250	Mound B, Level 8 hearth	Wood, Charcoal	540	40	A.D. 1307–1442
253059	Mound B, Level 11	Wood, Charcoal	900	40	A.D. 1034–1215
251251	Block 1, midden Level 7	Wood, Charcoal	960	50	A.D. 990–1185
253326	Block 1, midden Level 7	Wood, Charcoal	80	40	A.D. 1681–1937
251253	Structure 7 post hole	Wood, Charcoal	870	40	A.D. 1042–1256
252247	Structure 6 post hole	Wood, Charcoal	830	60	A.D. 1042–1280

**Hammerstedt et al. 2010:287 (WPA Excavations)*

Two analyses of red slipped ceramics at Clement have been conducted at this point in time. The first study was conducted by Peggy Flynn in the 1970s while she was an undergraduate at the University of Oklahoma (Flynn 1976). Her work began as a generalized study of

McCurtain Focus red slipped rim sherds at Clement to develop a better understanding of the total ceramic assemblage from the site (Flynn 1976:127). Based on the type definitions from Suhm and Krieger, red slipped ceramics from the McCurtain Focus were generally classified as Avery Engraved (Sah-cooh) or Simms Engraved (Flynn 1976:127; Suhm and Krieger 1954:236, 354). However, as Flynn's analysis progressed, it became clear that 201 (52%) of the red slipped ceramics at Clement displayed decorative and morphological patterns that were distinct from these two ceramic types (Flynn 1976). Flynn created a new type, Clement Redware, to describe the red slipped sherds with scalloped lips, concave or carinated rim profiles, engraved triangle designs on the interior of the vessel, and lacking external decoration (Flynn 1976:133). While this study was limited in scope, Flynn argued that Clement Redware suggested the existence of other style series for red slipped ceramics, and that closer analysis of WPA collections would likely yield several examples of previously undescribed type-varieties (Flynn 1976:134).

The most recent and comprehensive study of red slipped ceramics at Clement was conducted by Delaney Horton as part of her master's thesis at the University of Oklahoma (Horton 2025). Horton examined over 2000 red slipped sherds and analyzed several attributes including vessel morphology, rim forms, decorative motifs, temper variation, slip location, slip thickness and slip color, as well as spatial distribution of these attributes across the site (Horton 2025). Additionally, 30 sherds from the 2008 excavations were selected for compositional analysis via LA-ICP-MS to determine if there were varying recipes for slips used at Clement (Horton 2025). The study found that while slipped sherds were widely distributed across the entire site, the highest concentrations were found in Mound A (Horton 2025:80). The presence of so many high-quality red slipped sherds at such a significant part of the site implies that these ceramics played an important role in ritual activities at Clement (Horton 2025:107). Horton has suggested that red slip wares at the site may have been used for feasting activities, which would align with the interpretation of Clement as a major ceremonial center in the region (Horton 2025:106).

Horton found that the primary temper used in over 60% of red slipped sherds was grog, and that this holds true for Clement ceramics made before and after the widespread adoption of shell temper in the Caddo Area around AD 1300 (Horton 2025:62). It has been suggested that the continuation of a grog tempering tradition at Clement may have been a means for the Caddo to maintain connections to their ancestors who first used grog temper in the Woodland period (Horton 2025:97; Lambert 2021:77). The theme of continuity in red slip ceramics can also be seen in the results of the slip compositional analysis. LA-ICP-MS testing indicated the presence of 2 distinct slip recipes, both of which were used continuously from the earliest occupation of Clement all the way to its abandonment in the mid-15th century (Horton 2025:95). Again, this level of continuity over a period of hundreds of years implies that there was an intentional maintenance of connections between successive generations of the ancestral Caddo living at Clement through the production of red slipped ceramics . This, combined with the concentration of red slipped sherds at Mound A points to red slipped wares serving an important role in the rituals of the Caddo people at the Clement site (Horton 2025).

Nearby Sites – Clement Background

There are several Caddo sites along the Glover and Little Rivers which are in close proximity to the Clement site. A few of these are worth mentioning here due to their contemporaneous occupation, possible use after Clement's abandonment, and similarities in known assemblages. These sites include Clement II, Clement III and the A.W. Davis/ McKinney mound sites (Baerreis 1941a,b; Prewitt n.d.; Wilson 1962).

Clement II

Clement II (McCl-II/ 34MC9) was the second unit excavated during the 1941 WPA excavations and consists of a village refuse area on a high "island" on the north bank of the Glover creek (Baerreis 1941a). According to Baerreis, the island was separated from the rest of the Clement property by a dry channel containing several springs, and that during high waters the patch of land became an actual island (Baerreis 1941a). A very limited number of test pits were excavated at this unit, revealing an abundance of cultural materials, wattle, and a baked clay floor, marking a partial outline of a house structure (Baerreis 1941a; Regnier et al. 2013:116). The house structure, unfortunately, straddled the property line, and the WPA field crew was unable to get the necessary permissions to excavate it. This led Baerreis and his team to abandon the unit without establishing a formal grid (Baerreis 1941b). Aside from the lack of an archaeological grid, confusion over the site location is exacerbated by the poor quality of WPA field notes. Baerreis lists McCl-II as being southeast of the mound while his foreman, Jess Jones lists, that the "island" is southwest of the mound instead (Regnier et al 2013). Prewitt's manuscript states that the exact location of Clement II was impossible to determine but makes mention of a "field check" of the site in 1968 which surveyed a low grassy island bound by the Glover Creek (Prewitt n.d.:12). This island apparently had abundant indications of occupancy including 4 potential house sites, and Prewitt hypothesized that this was the island Baerreis had mentioned (Prewitt n.d.:12). However, no notes or reports from this "field check" have been found, and Prewitt does not reference it anywhere else in his manuscript. Additionally, the OU field school was unable to locate Clement II through auger and gradiometric testing, so archaeologists are still not certain where this WPA unit is (Hammerstedt et al. 2010).

Clement III

Clement III (McCl-III/34MC10) was the third and final unit excavated by the WPA and consists of 3 houses on the western edge of the property (Baerreis 1941a). These were oriented in a north to south line, numbered 1 to 3 starting at the northernmost house (Prewitt n.d.:46). No formal grid system was established here, and archaeological materials, as well as the 10 burials at the site, were labeled according to the house structure in which they were found (Prewitt n.d.:16). The houses were revealed through traces of wattle, post molds partially outlining a rectangular house, and a clay floor in house 3 (Baerreis 1941a). House 1 appeared to be a rectangular structure, but the north and east sides were incomplete (Prewitt n.d.:46). 2 burials were found in the floor of House 1 and were identified by the presence of several whole pottery vessels and teeth caps (Baerreis 1941a). House 2, approximately 225 feet south of House 1, appeared to be 2 overlapping structures, but the post molds were heavily disturbed by the 5 burials in the floor of the house (Baerreis 1941a,b). All individuals were interred with several pottery vessels placed in varying arrangements around the remains (Baerreis 1941b). This structure also included a central well-prepared clay hearth (Prewitt n.d.:47). Finally, House 3 was denoted by the presence of a clay floor and was located about 115 feet south and slightly west of House 2 (Baerreis 1941a; Prewitt n.d.:46). No detailed plan of House 3 was created, but a large material collection was recovered from the structure. As with 34MC9, a full map of 34MC10 in relation to 34MC8 has not been found, and the unit was not located during the 2008 field school (Hammerstedt et al. 2010; Regnier et al. 2013).

A.W. Davis/ McKinney Mound (34MC6)

34MC6 is about a half mile northeast of the Clement site (Wilson 1962:107). The two sites are divided by a woodlot, but when the leaves are off the trees, you can clearly see the mound from the field at Clement (Prewitt n.d.:11; Scott Hammerstedt, personal communication). A.W. Davis was originally excavated by several commercial diggers and George T. Wright sometime prior to 1955 (Wilson 1962:103). Formal excavations were undertaken by Bell and nine students during the 1955 OU field school (Wilson 1962:103). Excavations were conducted in two main areas: Area A, a slight rise above a shallow creek in a densely wooded region and Area B, the mound and the surrounding midden (Wilson 1962:107). The excavations at Area A revealed a ring of posts about 18 feet in diameter circumscribed by a second ring of posts approximately 6 feet outside of the inner ring (Wilson 1962:109). This structure, reminiscent of Caddo or historic Wichita grass houses, included 2 in situ pine posts, one of which was so well preserved it could be dated by tree ring analysis (Wilson 1962:109). The structure showed no suggestion of an entry way and did not have a hard packed floor or hearth (Wilson 1962:109). Just south of the house was a cluster of 5 burials. The internment practice based on arranging ceramic vessels around the individual appears almost identical to the burials at Clement (Wilson 1962:109). Area B was only partially excavated and included the southeast corner of the McKinney Mound, named for Fred McKinney who owned this portion of the property (Wilson 1962:107). The mound, located about 100 yards northeast of Area A, is approximately 100 feet in diameter and 10 to 12 feet in elevation (Wilson 1962:107).

A total of 10,715 ceramic sherds were recovered at A.W. Davis, and 96% of these fall into 4 main types: Nash Neck Banded, Sah-Cooh (Avery Engraved), Hudson Engraved, and Simms Engraved (Wilson 1962:109). The vast majority of these sherds are tempered with crushed shell. Wilson suggests that A.W. Davis was a single occupation lasting from AD 1400 to 1542 which is corroborated by ongoing ceramic analysis which points to Clement being abandoned in the mid-15th century right as A.W. Davis was constructed upstream (Regnier et al.

2013:63; Wilson 1962:123). The lack of exotic goods at A.W. Davis when compared to Clement indicates a potential shift in external contacts, social status, or religious life in connection with the abandonment of the Clement mound center (Regnier et al. 2013:63).

McDonald (34MC11, 12)

The McDonald site (34MC11, 12) is approximately 2 miles upstream from Clement and shows clear signs of multiple occupations occurring in the Late Archaic/ Woodland period (1500 BC – AD 600), the Sanders phase (AD 1100 – 1300), and the Early, Middle, and Late subdivisions of the McCurtain phase (Regnier 2013). The WPA excavations began at McDonald immediately after work finished at Clement in December of 1941 and continued until March of 1942 when all federal archaeology in Oklahoma came to a halt as the US entered World War II (Regnier et al. 2013; Rogers 1978). While the work at McDonald was still under the direction of David Baerreis, excavations were directly supervised by Jess M. Jones, and much of the information garnered from the site is found in his field notes, along with the 1942 March quarterly report written by Baerreis (Baerreis 1942; Regnier 2013:28). The findings from WPA excavations at McDonald and Clement were ultimately used to establish the McCurtain Focus (Bell and Baerreis 1951).

McDonald was split into 2 units by the WPA: McMd-I and McMd-II. The most extensive work was conducted at McMd-I, while time constraints and a significantly reduced field crew only allowed for limited testing at McMd-II (Baerreis 1942). Unit I consisted of a large midden area with 30 burials described as “intrusive” to the midden (Baerreis 1942). 29 of these were poorly preserved, precontact burials found with a range of ceramic vessels placed in differing orientations around the remains (Baerreis 1942). The last burial was identified as a historic internment based on traces of a wooden coffin along with a silver ring (Baerreis 1942). Unit II, approximately 250 feet west of McMd-I, was described as a midden or village, featuring several burials, a cache pit, the outline of a round house, and the post molds of multiple square or rectangular houses, though these were not fully excavated (Baerreis 1942). The round house structure was about 18 feet in diameter and had a northwest-facing trench entryway which was 11 feet in length (Baerreis 1942). While this structure is similar to the one found at Clement in 2008, the floor was not cleared before it fell out of use, and two burials were found at the southern end of the house (Regnier 2013).

Amanda Regnier conducted an in-depth analysis of the McDonald collections which include 3,558 pottery sherds (502 of which are decorated), 5 clay pipe fragments, a single fired clay object with a maize impression, 211 lithic artifacts, and 140 faunal specimens. The study also included 100 whole and partial ceramic vessels taken from burial contexts, and 12 whole or partial vessels from non-burial contexts (Regnier 2013:32). In her analysis of the ceramic assemblage, Regnier found that only 12% of sherds had shell temper, despite the presence of several decorative types associated with post AD 1300 ceramics (Regnier 2013:62-63). The continuity of grog tempering despite the wide scale adoption of shell temper in the Red River drainage suggests that the Caddo at McDonald, similar to those at Clement, were part of a distinct and long enduring community which maintained a specific paste recipe even as vessel forms and decorative styles changed over the centuries (Regnier 2013:63). Based on this research, McDonald appears to have been a large, relatively stable residential community which was maintained in some form for about 400 years (Regnier 2013:64). Additionally, the slower adoption of shell temper, along with the lack of any apparent disruptions caused by the shift in ceremonial activity from Clement to A.W. Davis, implies that the people living at McDonald likely viewed Clement and A.W. Davis as important ritual centers, but maintained a level of cultural and political autonomy away from these sites (Regnier 2013:64).

Grobin Davis (34MC253)

Grobin Davis (34MC253) is about 6 km south of Clement and consists of 7 mounds arranged in a horseshoe shape on a terrace above the Little River (Regnier et al. 2014). Purchased by the Archaeological Conservancy in the 1980s, the site has been well maintained and protected from looters, and it is considered the best-preserved Caddo mound site in eastern Oklahoma (Regnier et al. 2014:88,103). The only archaeological field work conducted at Grobin Davis includes limited test excavations in 1983, and a geophysical survey in 2011-2012, both led by the Oklahoma Archeological Survey (Regnier et al. 2014; Wyckoff and Fisher 1985).

The 1983 test excavations led by Don Wyckoff included the digging of 57 post holes in off mound contexts across the site and 3, 1x1 meter test units placed at the base of the northern slopes of the 3 largest mounds, labeled as mounds A, B, and C (Wyckoff and Fisher 1985:26). The profile of Mound A, the northernmost mound, indicates that it was built in 6 stages, atop a partially cleared midden on which a house once stood (Wyckoff and Fisher 1985:39). This midden was covered with 70 centimeters of fill, and a heavily used building was constructed on top of this layer (Wyckoff and Fisher 1985:39). According to radiocarbon dates, this appears to have occurred over a 60-year period between AD 1230 and 1295 (Wyckoff and Fisher 1985:39). Following the dismantling of this house, another 1.5 meters of fill was added to the top of the low mound. The last four levels were observed in a small pothole in the top of the mound which was troweled and recorded. The first layer consisted of a compacted silt loam with evidence of a structure on top of it (Wyckoff and Fisher 1985:39). This building was eventually cleared off the mound and covered with a dark brown silt loam which served as the foundation of an additional building (Wyckoff and Fisher 1985:40). At some point, the building was burned, leaving a 3-9 centimeter layer of burned clay and earth, which was finally covered by the uppermost layer made up of 25-35 centimeters of gray-brown silt loam, containing little habitation debris (Wyckoff and Fisher 1985:40). Mound B is the largest of the 7 mounds, oriented north to south, and measures 75 meters in length and 30 meters in width (Wyckoff and Fisher 1985:40). Excavations and profiling at this mound proved difficult due to the soil being fully saturated with water. As such, the three horizons seen in the test unit could not be confidently assigned to a stage of mound construction (Wyckoff and Fisher 1985:41-43). Mound C, located 200 meters south of Mound A, is roughly circular in shape, 25 meters in diameter and is approximately 1 meter above the bank of White Oak Creek (Wyckoff and Fisher 1985:44). This unit proved to be less informative than the others, as it was placed too far down slope to fully capture traces of the construction stages (Wyckoff and Fisher 1985:46). Finally, Mounds D, E, F, and G, were initially thought to be natural low rises, but posthole testing yielded pottery, flakes, baked clay, angular sandstone, bones, and charcoal, determined that they were in fact man-made (Wyckoff and Fisher 1985:33). While these were only subject to limited testing, Wyckoff and Fisher proposed that they were built using sterile subsoil for the purpose of covering former houses or special purpose buildings (Wyckoff and Fisher 1985:35).

The geophysical survey conducted between 2011 and 2012 confirmed that Mounds D, E, and F, were constructed over burned structures and revealed that Mounds A, B, and G were likely platform mounds, consisting of sequences of superimposed building surfaces (Regnier et al. 2014:97). Additionally, the gradiometer exposed rectangular anomalies in Mounds A, B, and F, which have been interpreted as earthen berms (Regnier et al. 2014:97). These berms have been documented throughout the Caddo Area and seem to have been primarily constructed around pre-mound structures, charnel houses, and circular house structures (Regnier et al. 2014:97-102). Lastly, grids were surveyed north of Mounds A and B which Wyckoff had reported as the only area of the site with evidence of a substantial occupation. Geophysical data indicated that there were several off-mound buildings in this area and implies that this was a probable habitation area (Regnier et al. 2014:102).

Based on radiocarbon dates from Mound A and ceramic evidence from across the site, archaeologists have roughly estimated that Grobin Davis was occupied from AD 1200 to 1400 during the transition between the Sanders and McCurtain phases (Regnier et al. 2014:91). The geophysical survey combined with the 1983 test excavations paints a picture of Grobin Davis as a religious ceremonial precinct that was set aside at the edge of a cluster of farmsteads (Regnier et al. 2014:103). It is likely that the site was established about 100 years after Clement, but both were used contemporaneously for several centuries (Regnier et al. 2014:92).

<u>Conclusions</u>

Taken together, Clement I-III, A.W. Davis, McDonald, and Grobin Davis suggest that the Caddo of the Glover and Little Rivers lived in a settlement pattern much like the one portrayed in the Terán map (Regnier et al. 2014; Sabo 2013). The mound sites at Clement and Grobin Davis appear to have been civic ceremonial centers at the heart of Caddo religious life but were separated from residential areas. The McDonald site, which maintained distinct ceramic practices and had no evidence of a major disruption during the shift from Clement to A.W. Davis, implies that Caddo farmsteads in the surrounding region remained politically and culturally autonomous, while still viewing places such as Clement as a vital part of their religious sphere.

Chapter 4: Methods

In this chapter I describe the methods used to analyze the ceramics from Clement which were collected during the WPA excavations in 1941. The analysis uses weight, thickness, temper, decorative type, and vessel morphology to identify the full range of decorative and temper variation in the collection and to aid in the identification of specific communities of practice. I also explain the modified descriptive system designed for this thesis and how it contributes to a more detailed analysis of ceramic decorative variation.

Selection Criteria

For this study, a ceramic sherd was defined as a piece of ceramic too large to pass through a ½-inch wire mesh screen. Any sherds smaller than this were considered sherdlets and were not analyzed further. This study utilized a *judgement sampling* method in which artifacts were selected based on previous knowledge and specific criteria rather than choosing a truly random sample (Sinopoli 1991:48). Ceramic sherds and sherdlets were selected for analysis based on two criteria: 1) their provenience within the Clement site, and 2) the presence of decorative elements. The Clement ceramic collections are currently located at the Oklahoma Archeological Survey and are on loan from the SNOMNH. All artifacts from the Clement site will eventually be returned to the museum where they are curated. The red slip and decorated ceramics from Clement are stored on artifact trays labeled based on the WPA row number from which the artifacts were excavated. Using this information, trays corresponding to as many different WPA rows as possible were inspected for sherds featuring visible decorative elements. All sherds with distinct and easily recognizable decorative elements and surface treatments, including incised and engraved lines, pinching and brush marks, punctations, appliqués, and fingernail impressions, were pulled for further analysis.

After the sherds were selected, their catalog numbers, provided by the Sam Noble Museum, were recorded. Catalog numbers were assigned to each individual sherd during a preliminary analysis conducted between 2012 and 2013 by undergraduate students working in the Southeastern Archaeology Laboratory. Catalog numbers were then used to reference and record the WPA row and alley numbers corresponding to the unit from which each sherd was excavated, providing the specific provenience of each artifact.

NAGPRA Materials

During the WPA field work at Clement, several burials were excavated, and detailed notes were taken on their specific location within the site (Baerreis 1941a, 1941b; Prewitt n.d.). After careful review of the initial sample selected for this study, it became apparent that 45 sherds were from units associated with burials or potential burials. In accordance with the Native American Graves Protection and Repatriation Act (NAGPRA) enacted in 1990 and the updated guidelines passed in 2024, these sherds have been documented, pulled from the collection, removed from this analysis, and the SNOMNH has begun the repatriation process (NAGPRA 2025). This is a vital part of collections-based research as many museums have human remains and associated cultural materials that were curated before 1990, and these institutions are not always aware that the materials are in their collections (Haas et al. 2025). It is important that archaeologists prioritize the repatriation of these artifacts not just to comply with the law, but to strengthen collaborative efforts with tribes in our research and to ensure that ancestors and sacred objects are returned to their descendants.

Total Sample for Analysis

The goal was to analyze at least 1,000 sherds to ensure the sample was representative of the whole site without exceeding the scope and time constraints of this thesis. A total of 1,120 sherds were selected for this study. 145 of these are from a test pit excavated by WPA archaeologists who did not record any information regarding its location. The basic attributes of these sherds including temper and decoration were still analyzed, but due to their lack of provenience they were excluded from subsequent spatial analysis.

Ceramic Analysis

The size, wall thickness, weight, temper, surface treatment, and decoration type, were recorded for all sherds. Size was measured using a series of graded circles with the diameter of each consecutive circle increasing in 1 centimeter increments, with a maximum size of 10 cm (Figure 4.1). Sherds were assigned to a size grade based on the smallest circle which could encompass the entire sherd. Sherds larger than a size grade of 10 were recorded as >10. Wall thickness was measured in millimeters using digital calipers. Measurements were taken at the thickest part of the sherd body, excluding appliqués when present. Weight was measured in grams using a digital scale.

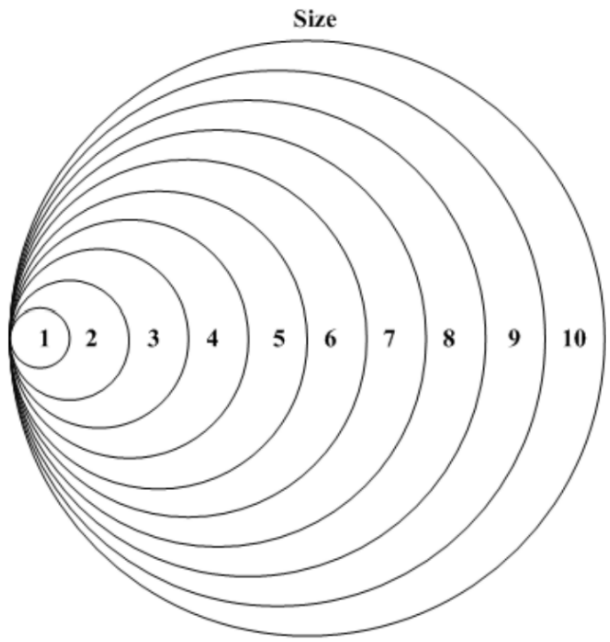


Figure 4.1: Sherd size chart (not to scale)

Temper

Temper type, size, and concentration were also recorded for each sherd. Temper refers to the non-plastic inclusions or materials deliberately added to ceramic paste by potters to alter various characteristics of the clay they are working with (Arnold 1974; Orton & Hughes 2013:75; Rye 1981:31). Generally, temper is used to modify plasticity, improve workability, prevent cracking during drying, and improve the firing behavior of ceramic vessels (Arnold 1974:36; Rice 2015:79; Rye 1981:31; Shepard 1985:25). There has been a great deal of debate over the use of the word as it can be extremely difficult to determine whether or not inclusions in ceramic fabrics were added or naturally occurring in the clay, and it can obscure other potential methods of processing and modifying ceramic pastes such as the mixing of clays from multiple sources (Rice 2015:83; Rye 1981:31). However, since the term is firmly established within archaeological research and literature, "temper" will be used to describe intentionally added non-plastic inclusions.

The first characteristic of the clay body or fabric which is essential to the production of clay pots is plasticity. Plasticity is the property that allows clay to be deformed or shaped by pressure and then retain its new shape once the pressure is removed (Rice 2015:64; Rye 1981:31). This is the result of a thin layer of absorbed water which surrounds clay particles, allowing them to slide over one another (Rice 2015:65). The plasticity of the clay body will increase as water content increases but only to a certain point, after which the clay becomes a sticky wet paste or "fluid state" which cannot maintain a stable form (Andrade et al. 2011:1; Velde & Druc 1999:76). One of the first functions of temper is to modify the clay body so that it maintains a workable level of plasticity and does not become too sticky or fluid to use for making pottery (Arnold 1974:36; Shepard 1985:25; Velde & Druc 1999:78). Using temper to maintain a balance between plasticity and workability is vital to forming clay vessels that can hold their shape while wet without collapsing under their own weight.

Once the vessel has been formed into the desired shape, the next step of the process is drying. Drying generally occurs through capillary action by which water is drawn through pores from the interior of the clay body to the exterior where it can then evaporate (Rice 2015:92; Velde & Druc 1999:152). The drying rate of clay is directly tied to the packing of minerals in the fabric, as this determines the size and distribution of pores or capillaries (Rye 1981:21). Water moves much more slowly through smaller capillaries created by a tighter packing of grains as seen in finer clays, resulting in a slower drying rate (Velde & Druc 1999:154). Finer clays also dry more slowly as their smaller particles have a larger overall surface area which allow for a greater volume of water to fill in the clay (Rice 2015:92). The drying process also causes shrinkage: as water evaporates from the clay body, grains are drawn closer together reducing the overall size of the ceramic object (Nait-Ali et al. 2024:3; Velde & Druc 1999:154). The higher number of water layers between grains in finer clays cause the particles to be drawn together across a greater distance as water evaporates, leading to increased macroscopic shrinkage than in coarser clays (Velde & Druc 1999:154).

Drying is a high-risk stage of pottery production as cracking and breakage can easily occur due to internal stresses caused by irregular rates of drying, shrinkage, and capillary pressure as water evaporates from the clay body (Nait-Ali et al. 2024:3). Tempering the clay is the primary way to counteract these effects. Non-plastic inclusions decrease the amount of water within the solid mass, reducing shrinkage and its associated internal stresses (Nait-Ali et al. 2024:3). Additionally, since evaporation begins at the surfaces and edges of clay pieces, the exterior of the clay body dries much more quickly than the interior (Rice 2015:92). Temper creates larger pores for water to evaporate, reducing capillary pressure and allowing for a faster, more uniform rate of drying which helps prevent cracking (Shepard 1985:25; Velde & Druc 1999:154).

Finally, the addition of temper to clay can improve the firing behavior of ceramic vessels. First, non-plastic tempers are generally more heat resistant than clay. This means that temper can serve as a "backbone" for clay bodies, ensuring that ceramic vessels retain their shape and dimensions during firing (Velde & Druc 1999:116). Second, the addition of temper reduces the concentration of clay which diminishes the differential expansion of compositional minerals during firing, and subsequently the frequency of cracking (Rice 2015:329). Lastly, the presence of temper is able to halt or alleviate crack propagation caused by thermal shock (West 1992). This is important during mixed firing where there are frequently uneven temperature gradients across the ceramic vessels in open air bonfires and pits (Rice 2015:180) and for finished cooking pots which are subjected to rapid heating and cooling (West 1992).

The ancestral Caddo used a wide variety of tempers in their ceramics with noticeable variations between different regions of the Caddo Area and across different time periods (McKinnon et al. 2021) Six types of temper were observed in the ceramic sherds from the Clement site: grog, shell, bone, limestone, grit, and sand, and many of the sherds contain various combinations of each type. Temper was identified through optical inspection using a 2.25x magnification mounted lens with a built-in light.

Grog is the most common tempering agent in decorated sherds at the Clement site. Grog is fired clay or broken pot sherds which have been crushed into smaller pieces to be used as temper (Rice 2015:457; Druc & Velde 1999:6). It is identified by the presence of isolated angular fired clay particles which are red brown to dull orange in color (Brown 1996:329; Peacock 1977:31). Grog is an ideal tempering agent for several reasons: it provides a use for broken pottery that would otherwise be wasted, it is easier to crush than most rocks and minerals, it is readily available at the manufacturing site, and it is a stable temper as it has already been fired and has the same thermal expansion characteristics as the clay that it is added to (Rye 1981:33; Velde & Druc:116).

Shell is identified as rectangular and smooth platelike white inclusions (Brown 1996:329). The use of shell as temper can also be inferred from the presence of platelike voids (sometimes curved) left behind by shell that leached out of the ceramic sherd (Peacock 1977:30). The problem with using shell as a temper is that between 650 – 750°F the calcite or calcium carbonate, $CaCO_3$, making up the shell begins to decompose into calcium oxide, CaO, and carbon dioxide, CO_2 (Bronitsky & Hamer 1986:97). Calcium oxide then rapidly combines with water vapors in the air to form calcium hydroxide, $Ca(OH)_2$, which occupies a much larger volume within the ceramic paste, which can lead to spalling of the vessel walls and even shatter the entire vessel (Bronitsky & Hamer 1986:97; Rye 1976:121). However, burning shell beforehand can greatly reduce this risk, and as an added benefit structural changes in the shell produced by heat render it much easier to crush for use as temper (Bronitsky & Hamer 1986:97; Rice 2015:81). Despite these issues, freshwater mussel shell was widely used in pottery throughout the Caddo Area after AD 1300, often replacing grog as the dominant temper type. However, its adoption was not uniform as seen in sites along the Mountain Fork and Little Rivers in southeastern Oklahoma (Perttula et al. 2011:251, 253).

Bone was often used by the Caddo in their pottery and was burned, calcined, then crushed before being added to the clay (Perttula et al. 2021:12). Bone is an effective temper as it binds well and has a similar thermal expansion coefficient to the clay, making a ware that is strong and flexible when heated (Stilborg 2001:400). Bone temper is identified as dull white, long grains with irregular outlines and surfaces (Brown 1996:329; Peacock 1977:31). Additionally, bone can be cancellous (formed by interconnected sheets) making it porous to the naked eye and more readily identified during analysis (Currey 2001:776).

Limestone is a soft, calcareous rock with a blocky fracture and can be recognized as light grey inclusions which are angular or rounded (Brown 1996:641; Peacock 1977:31). If leached from the ceramic fabric, it can be inferred from the presence of oval or spherical voids (Peacock 1977:30). Since it is primarily composed of calcium carbonate, limestone temper carries the same risks of vessel spalling and shattering as shell, described earlier in this chapter (Bronitsky & Hamer 1986; Rye 1976).

Grit is identified as large angular particles within the ceramic body and is composed of crushed and broken rock. In this study, the term grit is used as a generalized catch-all for common mineral tempers such as dolomite, granite, conglomerates, sandstone, etc. (Rice

2015:79). Since many of these kinds of rocks are naturally occurring in clay, sherds are considered grit tempered based on the size and angularity of the mineral particles in the body (Rice 2015:86).

Sand generally refers to rounded or angular particles of silica, SiO_2, with a size grade ranging from 0.5 mm to 2 mm (Rice 2015:461; Rye 1981:34). Sand naturally occurs in many clays used for pottery. As such it can be difficult to determine if it is a temper or a natural inclusion (Rice 2015:86; Rye 1981:31). The best method for distinguishing between natural or added sand involves extensive petrographic analysis of local clays (Arnold 1974:42), but for the purposes of this study sherd containing large quantities of sand are considered sand tempered. Aside from visual inspection, sand can also be identified by the rough texture on the surface of the sherd which is noticeable by touch.

Once the type of temper in a sherd was identified, its size grade and concentration were measured. These were determined by visually comparing the temper in the sherd to a particle size and concentration chart. Size was classified as Fine (F), Medium (M), or Coarse (C). The concentration of the temper was given a numerical rating from 1 to 4 with 1 being sparse and 4 being abundant. When a sherd had more than one temper, the size and concentration of the more abundant temper were recorded while only the type of the additional temper was recorded.

Decorative Analysis

Initially, only the basic type of decoration was recorded for each sherd. The types present at the Clement site include incised, engraved, punctated, fingernail impressed, pinched, brushed, and appliqué. The assemblage also contained sherds featuring combinations of these types.

Incising is a cutting technique in which a pointed tool is drawn across the surface of a vessel to create lines (Rice 2015:156). Incising is done when the clay is wet or leather hard, leaving a deeper and cleaner line, sometimes with a slightly raised edge from the displacement of the wet clay (Rice 2015:156; Shepard 1985:198). Incising done with a blunt instrument leaves a broad and rounded line, which is sometimes referred to as trailing (Suhm & Jelks 2009:87).

Engraving is also a cutting technique, but unlike incising, it is executed when the clay is fully dry or fired and requires a finer pointed tool (Rice 2015:157). Engraving can be recognized by thin, shallow lines with jagged edges which occur when the cutting implement finely chips the dry or fired clay (Rice 2015:157).

Punctation is the creation of depressions in the clay by poking the surface with a sharp or pointed instrument such as a stick, shell, hollow reed, or awl (Rice 2015:155; Rye 1981:92). Aside from hollow reeds which leave a clear ring impression, it is often difficult to determine the tool used, so punctation is generally recognized by the presence of deeper impressions of varying shapes.

Fingernail impressing is a specific type of punctation in which a potter presses their fingernail into the wet clay leaving a depression in the shape of their nail, usually a distinct thin crescent. This type is separate from general punctation as it is easily recognizable, and it was a commonly used technique throughout the Caddo Area.

In this study, three types of pinching are recognized. First is a punctation technique where the person making a vessel would press their fingernails into the wet clay and then pinch with their fingertips to form a raised area. This can be distinguished from fingernail impressing as the nail impressions are deeper and wider, and they flank a protruding ridge in the clay. The second type is referred to as “pinch and drag” in which the potter would press one fingernail into the clay and then pull it back leaving a wider streak with a crescent shape at one end. The third type of pinching is a forming technique in which clay coils are pinched or crimped during the construction of the vessel producing a corrugated appearance (Rice 2015:136; Suhm & Jelks 2009:111).

Brushing can be a decorative or finishing technique in which grass, straw, or other textured material is used to wipe down the entire surface or smaller portions of the vessel leaving faint and irregular linear impressions in the clay (Rice 2015:149).

Lastly, appliqué (application) is the attachment of small, shaped pieces of clay to the surface of the vessel, usually nodes or linear coils (Rice 2015:159; Rye 1981:93). The appliqué and vessel both needed to be in the plastic or leather hard stage of drying for the best results and were often joined by scoring and slipping the clay (Rice 2015:159).

Rim Sherds

Additional attributes were measured and recorded for rim sherds, including rim profile, rim curvature, rim form, rim treatment, lip shape, vessel orifice diameter, percentage of rim present, and vessel form. Occasionally rim sherds were too small, or too damaged for a complete analysis, but all basic attributes and certain rim attributes were still recorded when possible.

Rim profile and *rim curvature* were determined by placing the lip of the rim sherd against a straight edge and then rocking the sherd back and forth until reaching the point where the lip made the greatest amount of contact with the flat surface. The sherd was then viewed in profile, and the relevant attributes were recorded. In this study, rim profile refers to the orientation of the entire rim sherd when viewed in profile. Rims were recorded as standing, everted, or inverted.

Standing profiles have a vertical orientation, everted profiles incline outward, and inverted profiles incline inward (Brown 1996:331). Rim curvature denotes the presence or absence of a point of inflection, which is the point where the curvature of a sherd changes (Rice 2015:243; Shepard 1985:226). Rim curvature was recorded as straight, excurvate, or incurvate. Straight curvatures have no points of inflection while excurvate rims flare outward and incurvate flare inward at their respective points of inflection. (Figure 4.2).

Rim Curvature

Rim Shape	Code	Image
Straight (no curvature)	S	
Excurvate	E	
Incurvate	I	

Figure 4.2: Rim curvatures

Rim Form

Rim Form	Code	Image
Direct	D	
Thinned	T	
Expanding	E	
Collared	C	
Rolled	R	
Flanged	F	

Figure 4.3: Rim forms

Rim form was recorded as either direct, with no change in the thickness of the rim, or as thinned, collared, or rolled, which display various modifications to the body of the rim (Brown 1996:331). Thinned rims taper towards the lip and are thinner at the point where the vessel orifice ends. Collared rims are produced by adding clay to the exterior of the rim from the lip downward, which has the appearance of a thicker band running around the rim. This addition has a distinct cut-off forming a sharp angle between the collar and the rest of the rim. Finally, a rolled rim form is made by slightly rolling the lip of the vessel towards the exterior, creating a thicker, rounded portion at the top of the rim (Figure 4.3).

Rim treatments of the Clement ceramics included plain, castellated, and scalloped (Figure 4.4). Plain rims have no modification at the lip or top of the rim. A castellated treatment is where the rim of the vessel is shaped to create four peaks which almost act as corners, forming a relatively square orifice. Lastly, a scalloped rim has small undulations or ridges running along the top of the lip.

Lip shape was categorized as either flat (F) or round (R) with distinctions between types depending on the direction of slope and thickness of the lip when viewed in profile (Figure 5.5).

Finally, the *orifice diameter* of the vessel was calculated using a standard diameter measurement template, which consists of several concentric circles that increase in 1 cm increments. Diameter is determined by fitting the curvature of the rim sherd to the line of best fit on the measurement chart (Rice 2015:238). Additionally, the concentric circles on the template were divided into increments of 2.5% so that the percentage of the original orifice that each sherd represents could be recorded.

Rim Treatment

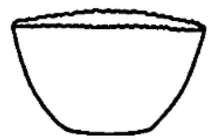
Rim Treatment	Cod e	Image
Plain	P	
Castellated	C	
Scalloped	S	

Figure 4.4: Rim Treatments

Lip Shape

Flat

Lip Shape Flat	Image
F1	
F2 (slope outward)	
F3 (slope inward)	
F4	
F5	
F6	
F7	

Round

Lip Shape Round	Image
R1	
R2 (slope outward)	
R3 (slope inward)	
R4	
R5	

Figure 4.5: Lip shapes

Taking all these attributes into account, rim sherds were assigned to a *vessel form* category using a flow chart developed by the University of Oklahoma and the Oklahoma Archeological Survey (Figure 4.6). Sherds were classified as simple bowls, jars, or bottles. A simple bowl is a "hemispherical to subspherical unrestricted vessel encompassing a great range in size and an equally greater diversity in silhouette" (Brown 1996:337). A sherd was classified as a bowl if the apparent vessel height was less than the orifice diameter and there was no constriction. A jar is defined by Brown as a shouldered vessel with a constricted orifice, everted rim, and a flat base (Brown 1996:338). Sherds were designated as jars if the orifice diameter was greater than 7cm, and the apparent vessel height was greater than the orifice. Lastly, a bottle is a restricted vessel with a narrow mouth on a well-defined neck resting on a bulbous body (Brown 1996:339). A sherd was considered part of a bottle if it had an orifice diameter of less than 7cm and had a standing rim profile. If a firm designation could not be determined sherds were recorded as "restricted vessel" or "unrestricted vessel." Normally, these classifications are assigned based on a comparison between the orifice diameter and the maximum diameter of the vessel (Shepard 1985:228). However, because it is extremely difficult or impossible to determine the maximum diameter using only a small fragment of the original vessel, this study uses the term "restricted" to refer to a vessel with one or more inflection points, while "unrestricted" vessels have no inflection points. If a vessel form could not be identified the sherd was recorded as "unknown." It should be noted that this classificatory scheme has several shortcomings. First, vessel categories often contain a wide range of forms, and attributes of different categories can overlap (Rice 2015:236). Additionally, vessel categories are usually based on ratios of height and maximum diameter, type of body, neck form, and overall vessel contour (Rice 2015:232-236; Shepard 1985:226). When analyzing sherds, many of these attributes cannot be determined, meaning that vessel classification could be wildly different based on the portion of vessel a single sherd represents. With this in mind, the vessel form identification scheme was used cautiously, and many of the sherds were simply classified as restricted or unrestricted vessels.

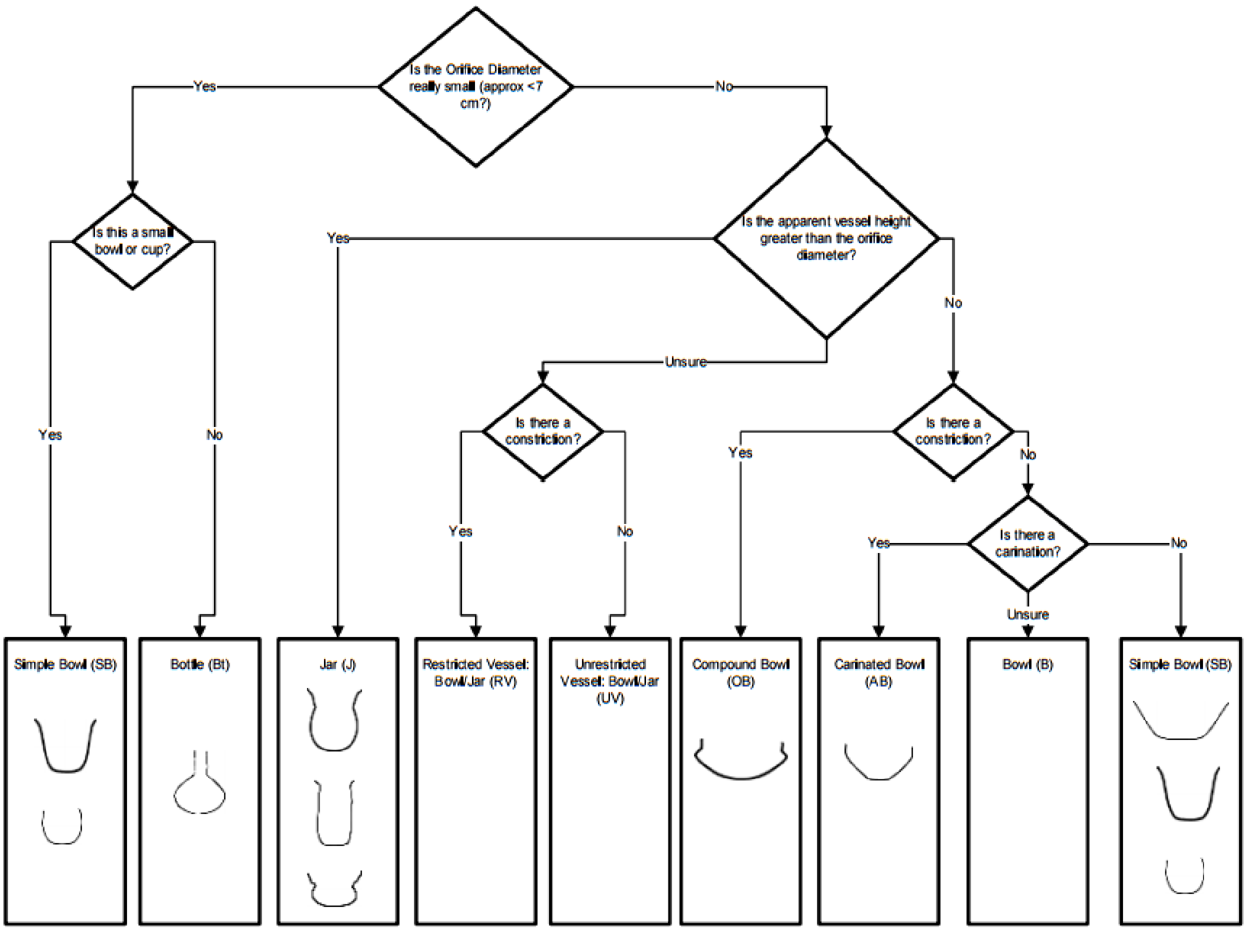


Figure 4.6: Vessel form flow chart

<u>Handles</u>

Additional information was recorded for sherds with handles including the handle type and location, along with additional notes and observations. Handles were classified as either loops or straps. Loop handles are more cylindrical and have approximately the same width and thickness (Ford & Griffin 1938:11; Hilgeman 2000:129). Straps are much wider than thick and look flatter and more rectangular (Ford & Griffin 1938:11; Hilgeman 2000:129). Handle location was recorded as “rim” if the top of the handle was connected at or just below the lip and was recorded as “body” if it was part of a body sherd, or the top of the handle was well below the lip of the vessel.

Ceramic Typology

In archaeology, “types” are classificatory groups which are created by archaeologists based on consistent patterning attributes of a specific material (Hill & Evans 1972:233; Rice 2015:223). In ceramic analysis, types are based on a range of vessel features including paste, temper, method of manufacture, wall thickness, size, shape, surface finish, and decorative design (Ford & Griffin 1938:2). While types are based on empirically real associations between two or more attributes (Rice 2015:224), it is important to note that they are tools made by archaeologists to help answer culturally relevant questions about the past. As such, types should only be used if they can successfully assist with archaeological interpretations and should be modified or replaced when necessary (Ford & Griffin 1938:2; Suhm & Jelks 2009:5).

As with any interpretive tools used by archaeologists, there are several issues with the typological approach, especially within the Caddo Area. First, because of the complexity in Caddo ceramic decoration and form, there are often attribute variations which are ignored and obscured by type classification which is based on attribute norms. This generalization can then distort archaeologists’ interpretations of past social behaviors (Prewitt 1969:61; Rice 2015:245). Additionally, types are often over-simplified and mistakenly treated as a one-to-one representation of specific past social groups, ignoring the potential for social relationships to overlap and change over time (Perttula 2021:7-8). Finally, types are primarily based on whole vessels (Rice 2015; Suhm & Jelks 2009; Suhm & Krieger 1954), so sherds are usually difficult or impossible to assign to a type. This is especially true for Caddo ceramics, as many types contain more than one decorative motif, and these motifs are often shared by different types (Early 2012; Prewitt 1969:61). This means that a sherd representing only a small portion of a vessel can appear to match several different ceramic types.

While there are several problems with the typology system, types can still be useful for establishing local and regional chronological sequences, and for facilitating comparisons between archaeological sites which can help define cultural areas like the Caddo Area (Rice 2015:244; Sinopoli 1991:53). Because of these benefits along with the widespread use of ceramic types by archaeologists in the Caddo Area, sherds in this study were assigned to a ceramic type based on decorative motifs when possible. Many of the Caddo ceramic types were defined in Suhm and Krieger's *An Introductory Handbook of Texas Archaeology* (1954) as well as Phillips, Ford, and Griffin's papers on the Lower Mississippi Valley (Phillips et al. 1951). The primary types found in the Clement collections are described below.

Type Descriptions

Coles Creek Incised: These vessels are generally coil built, tempered with grog, and have a moderately smoothed surface finish (Ford 1951:74; Phillips et al. 1951:96). Information regarding vessel types is spotty as they have most commonly been reconstructed from sherds. However, they are generally reported as being vertical walled bowls and barrel shaped vessels with straight rims and flattened or thin lips (Ford 1951:74; Phillips et al. 1951:96). The design of Coles Creek Incised consists of incised lines, often spaced less than .5 cm apart, that encircle the vessel parallel to the rim. These lines almost always begin at the lip of the vessel and cover the side walls for approximately 1/6th to half of the vessel height (Ford 1951:74; Phillips et al. 1951:96). Coles Creek Incised vessels are associated with the Coles Creek and Fourche Maline periods, and when associated with Early Caddo types it is used as a marker for the Formative Caddo period (Regnier 2017; Schambach 1982). It is important to note that Schambach argued Coles Creek in southwestern Arkansas was easily mis-attributed to ceramic sherds which were similar looking Caddo types, going so far as to claim at least 50% of Coles Creek Incised in the region was misclassified (Schambach 1982:166). Despite this, sherds at the Clement site can still be classified as "Coles Creek-Like" Incised with relative confidence and still carry the same temporal attributes as true Coles Creek Incised ceramics.

Crockett Curvilinear Incised: this type is often tempered with grog and grit, and occasionally crushed bone (Suhm and Krieger 1954:262). The most common vessel shapes include carinated bowls with an orifice diameter of up to 40 cm, globular bowls, and simple bowls (Suhm and Krieger 1954:262). The forms usually have a wall thickness of 5 – 6 mm, though they range from 4 –10 mm, and often have a plain rounded or flat lip shape (Suhm and Krieger 1954:262). These vessels have a smooth or polished surface treatment and are decorated with multiple variations of scroll motifs along with alternating rings and triangles (Suhm and Krieger 1954:262). The circle or ring is often the central element of the design and is flanked by inclined bands. The circles and rings are commonly filled with punctations while the inclined bands can be filled in with either punctations or lines (Suhm and Krieger 1954:262). This type is associated with the Formative to Early Caddo ceramic set which lasts from AD 800 – 1200 (Regnier et al. 2021:42, 47). Crockett Curvilinear Incised has not previously been noted at Clement (Regnier 2017:188-189).

Sah-cooh (Avery) Engraved: This type has a wide range of decorative variation and is commonly red slipped (Suhm and Krieger 1954:236). Wares are usually tempered with shell or grog and have a wall thickness between 3 – 5 mm (Suhm and Krieger 1954:236). The most common vessel form is compound bowls with conical bottoms, large, rounded shoulders, high curved rims, and a 10 – 40 mm opening diameter. Other forms include small bottles, small jars, and carinated bowls (Suhm and Krieger 1954:236). Archaeologists have argued that Sah-cooh (Avery) could be broken up into at least two different types just by splitting bottles and bowls (Regnier et al. 2021:59). There are three broad categories of decoration: 1.) Sunburst motifs, 2.) Design areas separated by an S shape and filled in with semi-circles, ticked lines, and narrow, hatched bands and 3.) Negative ovals outlined with parallel filler (Suhm and Krieger 1954:236). This is clearly a highly diverse type, and it should most likely be subdivided into separate types. Sah-cooh (Avery) is the best known and widely distributed ceramic type that is associated with the McCurtain phase (AD 1400 – 1680) in the Red River region (Regnier et al. 2021:42, 59).

Nash Neck Banded: these vessels are tempered with grog and shell and have an average wall thickness of 6 mm with a range of 3 – 10 mm (Suhm and Krieger 1954:332). The type only includes jars with rounded outward curved lips. Rims are often raised into 4 peaks and frequently have loop, strap, and lug handles (Suhm and Krieger 1954:332). Nash Neck Banded vessels are easily recognizable based on the carefully crimped or pinched neck coils which produces a corrugated or banded effect around the rim (Suhm and Krieger 1954:332). This type is also associated with the McCurtain phase (AD 1400 – 1680) and is very common in the Red River Valley (Regnier et al. 2021:61-62; Suhm and Krieger 1954:332).

Other types in the sample include Canton Incised, Maydelle Incised, Davis Incised, Dunkin Incised, Tay-shas (Friendship Engraved), Harleton Appliqued, Killough Pinched, Rockport Incised, Monkstown Fingernail Impressed, Iwi (Spiro) Engraved, and Weches Fingernail Impressed.

Descriptive System

While the basic decorative analysis conducted in this study is quick, informative, and facilitates comparisons between different sites and collections, it is clearly reductive and obscures a great deal of variation within decorative types. This is especially true for ancestral Caddo ceramics which feature complex and intricate designs using a wide variety of decorative techniques. Because of this and the shortcomings of ceramic typologies discussed previously, I decided to conduct an additional finer grained analysis which could capture more detail from the decorated sherds. This study utilized a modified "descriptive system," originally developed by James Ford and later refined for the Caddo area by Frank Schambach with the assistance of Susan Stiegler.

The descriptive system is a non-typological approach in which specimens are classified according to a hierarchy of categories based on surface treatment and decoration (Schambach and Stiegler 1981:114). Originally, the descriptive system classified sherds based on motifs, elements, and the specific manner of using elements to form motifs (Ford 1936:19). Motifs are the plan of decoration, such as scroll or parallel features, while elements are the means used to express the motif: incised lines, punctation, pinching etc. (Ford 1936:19). Ford used a coding scheme in which motifs were represented by a pair of numbers, with the first number in the pair symbolizing a general motif, and the second number symbolizing a more specific variation. This was then combined with a second pair of numbers representing the element tied to the specific motif (Ford 1936:19-23). While this did provide a solution to the problem of typing ceramic sherds, the main issue was that the number codes became extremely complicated when there was more than one motif and element present on the sherd. This numerical classification system was heavily criticized and largely abandoned until the development of Schambach's descriptive system. Schambach created the descriptive system in order to analyze ceramics from the Shallow Lake site in Arkansas which was excavated in 1972 and 1975 (Rolingson & Schambach 1981). The descriptive system classifies specimens according to class, pattern, and design. Class is based on decorative technique, incising, punctation, brushing etc., and motif, “the element used to isolate a class of pottery” (Schambach and Stiegler 1981:114). As an example, Class A pottery consists of diagonally opposed lines while Class B consists of horizontal lines (Schambach and Stiegler 1981:114). Patterns are groups of similar designs within classes, and are distinguished by characteristics such as surface finish, line quality, and minor variations in decorative technique (Schambach and Stiegler 1981:115). Lastly, designs are variations within particular classes and are distinguished based on minor differences in the design itself such as line spacing, quantity, and placement (Schambach and Stiegler 1981:116). The main advantage of Schambach’s system was that instead of just numbers, descriptive types were given names which indicated a specific class and pattern, and each name had a range of numbers representing different designs for those patterns (Schambach and Stiegler 1981). Schambach noted that the idea behind the isolation of designs is to discover and identify as much potentially significant variation as possible with the assumption all human behavior is patterned behavior, and therefore the complete range of design variation can be recorded (Schambach and Stiegler 1981:117).

While this descriptive system is highly effective it is currently incomplete and there is no published book of reference patterns. As such it has only been applied to a small number of assemblages by archaeologists working in Arkansas and Louisiana (Perttula et al. 2021:8; DeMaio 2013; Early 1988, 1993; Early ed. 2000; Kelley 1997; Lafferty et al. 2000; Schambach and Miller 1984; Trubitt 2012). Because of this lack of completed references and since this system has not been used in Oklahoma, this study utilizes a modified descriptive system based on concepts from both Ford and Schambach. Due to the nature of the collection, this modified system places greater emphasis on variations within decorative techniques rather than overarching designs.

Modified Descriptive System

The modified descriptive system used in this analysis can be broken down into 4 components 1.) Main decorative type, 2.) Decorative type variations, 3.) Variation details, and 4.) Overarching design

The main decorative type is the primary technique used in decorating the vessel such as incising or engraving. This is the same basic attribute recorded during the initial data collection phase of this study, and is the most general category assigned to each sherd in this analysis.

Decorative type variations are differences in the overall execution of the primary decorative type. For example, the appliqué type could present itself as a line or a node, incised and engraved lines can be rectilinear or curvilinear, and pinching can be identified as corrugated or ridged. Variation details are additions or modifications to the decoration: a line appliqué can be pinching or molded into a to produce repeating ridges, engraved lines can be embellished with tic marks or supplemented with adjacent, narrow cross hatching.

Variation details also include differences that can provide information on how a type of decoration was added to a vessel's surface. For example, the width of an incised line, and the shape of a punctation may reveal the kind of implement used in carving and impressing the clay.

Once these attributes and their specific variations have been recorded, the overarching design of the sherd is determined. A design is the visual complex produced by the arrangement of various structural components of decoration, such as elements and motifs (Rice 2015:395).

Therefore, the design codes in this analysis refer to the manner in which the lines, punctations, appliqués etc. are positioned in relation to one another. This includes the spacing between parallel lines, arrangements of appliqués into lines or fields, combinations of lines to form complex patterns and so on.

The 4 components are recorded as a string of letters and numbers beginning with the letter code associated with the main decorative types observed in the Clement ceramic collections: Appliqué (A), Brushed (B), Fingernail Impressed (D), Engraved (E), Incised (I), Pinching (N), and Punctated (U). This letter is then followed by a period [.] and then two lowercase letters corresponding to the decorative type variation, and the variation detail present on the sherd. These letters are followed by a design number in parentheses that is specific to the main decorative type. A basic example would be a sherd with engraved, rectilinear lines with tic marks that are parallel and narrowly spaced. This would be represented by the code **E.rt (2)**. As expected with Caddo pottery, the decorative variation is usually more complex, and there are a number of methods in this system for recording these complexities.

First, a single decorative type variation may have multiple modifications or details. Engraved lines are often adjacent to or encompass multiple shapes or patterns. In this case, the letter for a type variation would be followed by a detail letter and additional detail codes are added with a comma [,] so a sherd with rectilinear lines that are ticked, and adjacent to an area of narrow cross hatching would be coded as **E.rt,h (0)**.

Second, a single decorative type is often executed in multiple ways. For example, a sherd may include curvilinear and rectilinear lines each with different modifications. The different variations are then represented with letter codes separated by a colon [:] so an engraved sherd with a ticked curvilinear line that is perpendicular to an unmodified rectilinear line would be coded as **E.ct:rx (7)**.

Lastly, Caddo potters often decorated ceramic vessels using multiple primary techniques, so that many sherds feature different combinations of each of the main decorative types. In these instances, each main decorative type is coded individually with their own design codes and separated by a slash [/]. A sherd with a ridged line appliqué and narrow incised lines that are diagonally opposed to each other would be coded as **A.ar (0)/I.dn (3)**.

Codes were created for several type variations, variation details, and overarching designs across each of the main decorative types. These codes were based on decorative variations observed in the Clement ceramic collections. As such, this modified descriptive system is specific to 34MC8 and it is unclear if it can be used in a comparative analysis of Caddo ceramics from multiple sites. However, the hope is that this coding system will prove to be an effective method of ceramic decorative classification so that it can be utilized by other ceramicists working in the Caddo Area, eventually allowing for a more detailed comparison of Caddo ceramics. All letter and number codes produced for this thesis are listed in appendix A.

Due to time constraints a smaller sample was selected for descriptive analysis based on provenience information so that sherds were taken from as many different parts of the site as possible. A total of 9 "clusters" were created encompassing WPA units that were directly associated with a feature: (Mound A, Houses 1 and 2, Refuse/ Soil Anomaly) and units that were concentrated together in non-feature contexts (South of Mound, East of Mound, North of Mound, South of Houses, Northwest of Houses, Northernmost Cluster). A total of 925 sherds fell within these clusters, 716 (63.9% of the total assemblage) of which were selected for analysis using the modified descriptive system. The remaining 195 sherds in the total assemblage were divided between the WPA test pit and units that fell outside of the 9 clusters. Since these sherds were either highly dispersed or had no provenience information they were excluded from the descriptive analysis.

Chapter 5: Results

In this chapter I provide the results of the analysis of decorated ceramics from the Clement site. I start by discussing research limitations and potential biases which revolve around analyzing only a sub-sample of the total ceramic collections from Clement. I then present the results of the basic decorative analysis along with data relating to temper, vessel morphology, and spatial distribution of the various ceramic attributes which is followed by a discussion of the modified descriptive system. The chapter ends with the results of the chronological analysis and the comparative analysis between Caddo fine wares and utilitarian wares.

Research Limitations and Biases

Interpretations of the ceramic data are partly limited due to a number of factors. First, this study only focuses on sherds with clearly identifiable decorative characteristics. Since there is a massive quantity of decorated sherds in the Clement collections, only a subset of these artifacts could be analyzed to stay within the scope of this study. This subset also excluded any decorated sherds that were obviously red slipped as Horton (2025) has already analyzed many of these. The exclusion of red slipped ceramics has a high potential for skewing interpretations of the data, as red slipped wares make up roughly 30% of the 20,833 ceramic sherds within the Clement assemblage (Horton 2025:8). Since many red slipped Caddo ceramics are subsumed under the "fine ware" category, comparing fine wares to utilitarian wares without considering red slipped ceramics can create misleading results and conclusions. Additionally, there are thousands of undecorated sherds from Clement which have not yet been formally analyzed.

Second, studies of the Clement site have been hindered by a lack of reliable stratigraphic data, which makes chronology difficult to assess. During their excavations the WPA did not maintain consistent records of stratigraphy and as such most artifacts cannot be dated in relation to one another. The only way to approach chronology at Clement is through radiocarbon dates, decorative variation, and temper. Radiocarbon dates obtained through excavations conducted by OU in 2008 have been invaluable for establishing a rough time frame for the site, however these cannot provide specific details about when different parts of the site were used or how their functions changed over time. Decorative variation, specifically in the form of ceramic types is also a helpful chronological marker, however typology is very difficult to assess when dealing with small sherds as many Caddo ceramic types are incredibly complex and share many motifs and design elements. Lastly, shell temper is the most reliable temporal attribute as shell was widely adopted in the Caddo Area beginning in AD 1300, and often fully displaced grog as the primary temper used in ceramic production (Perttula et al. 2011:251). However, Caddo potters at Clement and nearby sites were evidently reluctant to adopt shell temper, and grog is the dominant tempering agent used in Clement pottery in every period of occupation at the site before and after AD 1300. This means that while shell is a good indicator of post AD 1300 activity, the absence of shell cannot automatically be interpreted as a sign of earlier activity.

While this body of work and Horton's analysis of red slipped ceramics are a major step forward in the study of the Clement site, additional in-depth analyses of ceramics and other artifacts are required to better understand Clement's role in the Glover River drainage and the Caddo Area as a whole. Furthermore, future surveys and excavations could provide more information on the location of 34MC9 and 10, artifact stratigraphy, and additional features such as middens and structures, all of which would contribute to a more complete picture of this ceremonial mound center.

Sherd Counts and Attribute Analysis

Before delving into analyses dealing specifically with chronology and fine wares vs. utilitarian wares, I discuss the general trends seen in the basic ceramic attributes, along with the results of several bivariate analyses that deal explicitly with relationships between these basic attributes. These results mainly serve to address the additional points of interest or supplemental questions posed at the beginning of this thesis.

A total of 1,120 ceramic sherds were analyzed for this study. This sample included 1,110 decorated sherds (99.1%) while the remaining 0.9% (n = 10) were only burnished but initially recorded as decorated. However, further inspection revealed that the markings on these specimens were the result of erosion or surface damage. The average weight of sherds in the assemblage is 11.4 grams ranging from 0.9 – 117.0 g with a median of 7.9 g. Sherds were divided into size classes ranging from 2 to greater than 10, with an average size of 5.1 and a median of 5.0. The sherds have an average wall thickness of 5.9 millimeters, a median of 5.9 mm, and range between 1.1 – 16.0 mm thick (Table 5.1). Of the sherds analyzed, 59.2% (n = 663) are between 5.0 and 7.0 mm thick, and 77.1% (n = 863) are between 4.0 and 7.0 mm thick (Figure 5.1).

Table 5.1: Sherd size, wall thickness, and weight

	Mean	Median	Range
Weight (g)	11.4	7.9	0.9 - 117.0
Thickness (mm)	5.9	5.9	1.1 - 16.0
Size	5.1	5	2 - >10

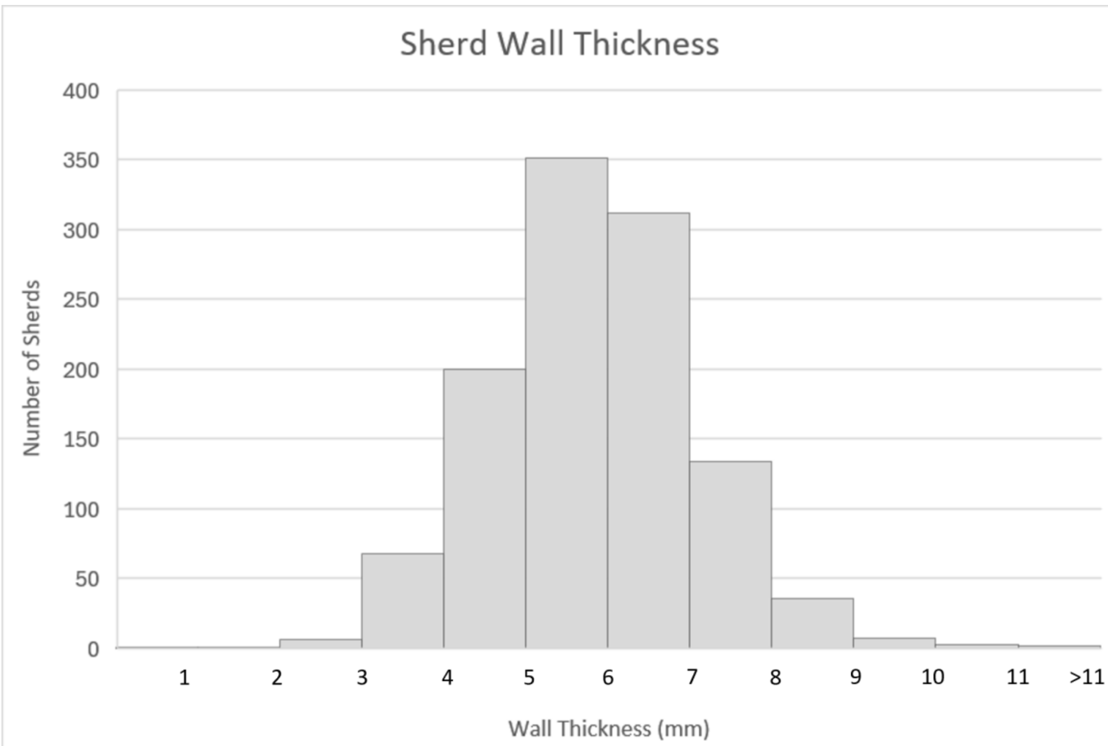


Figure 5.1: Histogram of sherd counts by wall thickness; 1.0 mm bins

The total ceramic assemblage is comprised of 848 body sherds (75.7%), 271 rim sherds (24.2%), and 1 handle (0.1%) (Table 5.2). There is a total of 22 sherds (6 body sherds, 16 rim sherds) with attached handles, including 14 strap handles and 8 loop handles (Table 5.3; Figure 5.2).

Table 5.2: Sherd types

Sherd Type	N =	% of Total Sherds
Body	848	75.7
Rim	271	24.2
Handle	1	0.1

Table 5.3: Counts of sherds with handles

	Loop Handle	Strap Handle	Total
Body Sherd	3	3	6
Rim Sherd	5	11	16
Totals	8	14	22

Figure 5.2: Strap and loop handle examples *A: strap, 812.1; B: loop, 337.1*

The assemblage also includes 2 body sherds with signs of use wear, indicating that broken vessels were occasionally repurposed, and 2 possible effigy vessel sherds (Figure 5.3, Figure 5.4). Effigy vessels were often ceremonial objects imbued with symbolic meaning, and their presence in certain archaeological contexts can help with interpreting site function (Dowd 2011, 2012).

Figure 5.3: Sherd with evidence of use wear *1274.413*

Figure 5.4: Potential effigy vessel sherds *(L): 167.1; (R): 1439.3*

Temper

Several tempers and combinations of tempers were observed during data collection, with only 2 sherds in the assemblage having an unidentified temper type. There are 6 individual temper types, and 4 temper combinations present (Table 5.4). The most common temper type is grog which makes up 55.8% (n = 625) of the total sample. The second most common type is shell which was observed in 200 sherds (17.9%). The other individual tempers include limestone (n = 31), grit (n = 21), bone (n = 15), and sand (n = 4). The third most common tempering agent is a combination of grog and bone, making up 11.0% of the assemblage (n = 123). The remaining temper combinations are grog and shell (n = 48), grog and grit (n = 26), and grog and limestone (n = 25). It is worth drawing attention to the frequencies of grog and shell temper, as this reinforces the findings from previous studies showing that the potters at Clement and other Glover River sites were reluctant to adopt shell tempering and continued to use grog well after AD 1300.

Table 5.4: Individual and combined temper types

Temper Type	N =	% of Total Sherds
Grog	625	55.8
Shell	200	17.9
Grog + Bone	123	11.0
Grog + Shell	48	4.3
Limestone	31	2.8
Grog + Grit	26	2.3
Grog + Limestone	25	2.2
Grit	21	1.9
Bone	15	1.3
Sand	4	0.4
Indeterminate	2	0.2
Total	1120	100.0

Basic Decorative Types

A total of 7 decorative techniques were identified including appliqué, brushed, fingernail impressed, engraved, incised, pinched, and punctated (Table 5.5). The most common decorative type in the assemblage is engraving (n = 364) which accounts for 32.5% of all sherds. This is followed by fingernail impressed (n = 192) representing 17.1% and incised (n = 187) representing 16.7% of all sherds analyzed. Aside from the 970 sherds with a single decorative type and the 10 sherds with no decoration, the sample also includes 140 sherds (12.5%) which display two or more decorative types. All 21 type combinations are listed below (Table 5.5), but the most common are appliqué and fingernail impressed (n = 33), appliqué and incised (n = 17), fingernail impressed and incised (n = 17), and appliqué and pinched (n = 15). Since the counts for the other 17 combinations were relatively low, these were combined into a single "other" category (n = 58) during further analysis.

Table 5.5: Counts of decorative types; orange = individual types, blue = combined types

Decorative Type	N =	% of Total Sherds
Engraved (E)	364	32.5
Fingernail (D)	192	17.1
Incised (I)	187	16.7
Pinched	152	13.6
Applique (A)	57	5.1
Punctated (U)	14	1.3
None/ Indeterminate	10	0.9
Brushed (B)	4	0.4
A, D	33	2.9
A, I	17	1.5
D, I	17	1.5
A, N	15	1.3
I, N	9	0.8
D, N	8	0.7
E, U	6	0.5
I, U	6	0.5
A, E	5	0.4
E, I	4	0.4
A, D, I	3	0.3
A, U	2	0.2
B, D	2	0.2
B, E	2	0.2
B, I	2	0.2
B, N	2	0.2
D, E	2	0.2
D, U	2	0.2
N, U	1	0.1
A, B, D	1	0.1
A, B, D, I	1	0.1
Full Totals	*1120*	*100.0*

Ceramic Typology

A total of 128 sherds were assigned to a ceramic type based primarily on decorative motifs. These sherds were assigned to one of 20 types based on Suhm and Krieger's Handbook Texas Archeology (1954). An additional 40 sherds displayed a clear overarching design but could not be successfully matched to a specific ware type. These were recorded as “indeterminate” and could potentially be assigned a type after further comparative analysis. Due to issues with the type system mentioned previously, the types listed in this thesis (Table 5.6) should be viewed with caution. The most common type in this study (n = 26; 15.5%) is likely a regional variant of Coles Creek Incised, sometimes referred to as “Coles Creek-Like Incised” (Figure 5.5) (Regnier et al. 2021). This is followed by Sah-cooh (Avery) Engraved (Figure 5.6). Canton or Maydelle Incised (Figure 5.7) and Miscellaneous Utility Wares (Suhm and Krieger 1954:368-371) are each 6.5% of the typed sherds (n = 11). It is also worth mentioning that multiple Crockett Curvilinear Incised sherds (n = 9) were recorded during the analysis (Figure 5.8) and this type had not been previously noted at the Clement site (Regnier 2017:42, 47). Finally, 9 Nash Neck Banded sherds were also recorded in the collection (Figure 5.9). These types are all chronologically sensitive and they will be described in further detail later in this chapter during the discussion on site chronology and Caddo fine wares.

Table 5.6: Counts of ceramic types

Ceramic Type	N =	%
Coles Creek Incised-like	26	15.5
Sah-cooh (Avery)	11	6.5
Canton or Maydelle Incised	11	6.5
Crockett Curvilinear Incised	9	5.4
Nash Neck Banded	9	5.4
Iwi (Spiro)	6	3.6
Tay-shas (Friendship)	5	3.0
Sinner Linear or Monkstown Fingernail	5	3.0
Harleton Appliqued	4	2.4
Killough Pinched	4	2.4
Poynor Engraved	4	2.4
Simms Engraved	4	2.4
Weches Fingernail Impressed	4	2.4
Davis Incised	3	1.8
Dunkin Incised	3	1.8
Rockport Incised	3	1.8
Duren Neck Banded	2	1.2
Bailey Engraved	2	1.2
Maxey Noded Redware	2	1.2
Misc. Utility	11	6.5
Indeterminate Pattern	40	23.8
Total	**168**	**100.0**

Figure 5.5: Coles Creek/Coles Creek-Like Incised (*Left: 1664.2 and 1368.1, Right: 1360.8)*

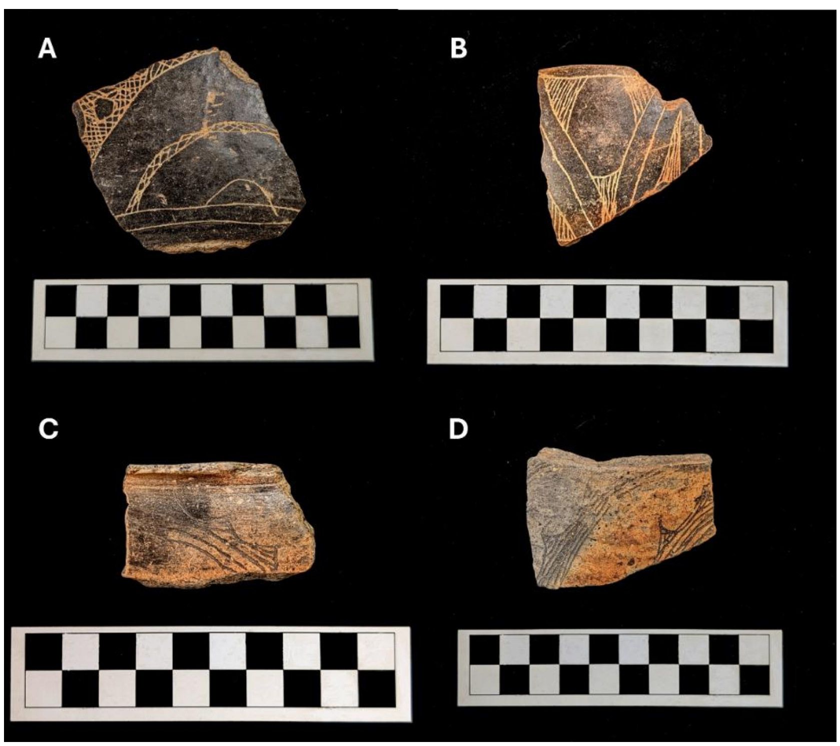


Figure 5.6: Sah-cooh (Avery) Engraved *A: concentric circles, 1245.72; B: triangles and ovals, 1240.4;*

C-D: sunburst, 1920.1, 1169.9

Figure 5.7: Canton or Maydelle Incised *left to right, top to bottom: 1184.1, 734.60, 889.2, 213.1*

Figure 5.8: Crockett Curvilinear Incised *A: 1249.1; B: 749.2; C: 790.43; D: 1251.2a; E: 790.42; F: 790.1 (L) and 789.5 (R); G: 302.1; H: 44.1*

Figure 5.9: Nash Neck Banded *A: 2101.3; B: 578.2; C: 1274.328*

Rim Sherds

Rim form, and rim treatment were recorded for all 271 rim sherds in this analysis. The rim forms observed were collared, rounded, flattened, flanged, rolled, and thinned (Table 5.7). Rim treatments were either plain, castellated, or scalloped (Table 5.8). Any rim forms or treatments that could not be confidently identified due to damage or inadequate sherd size were recorded as indeterminate. The majority of the rim sherds had either a rounded (n = 98) or flattened (n = 81) rim form, and 84.9% of all rim sherds had a plain rim treatment (n = 230).

Table 5.7: Counts of rim forms

Rim Form	N =	% of Rims
Collared	18	6.6
Rounded	98	36.2
Flattened	81	29.9
Flanged	1	0.4
Rolled	23	8.5
Thinned	44	16.2
Indeterminate	6	2.2
Totals	271	100.0

Table 5.8: Counts of rim treatments

Rim Treatment	N =	% of Rims
Castellated	23	8.5
Plain	230	84.9
Scalloped	8	3.0
Indeterminate	10	3.7
Totals	271	100.0

Vessel form was determined for 263 rim sherds, though the majority of these were too small to be identified beyond unrestricted vessel (n = 167; 61.6%) or restricted vessel (n = 29; 10.7%). Other vessel forms include jars (n = 22), simple bowls (n = 31), carinated bowls (n = 10), compound bowls (n = 2) and bottles (n = 2). The 8 remaining rim sherds were too small to determine a form and were recorded as indeterminate (Table 5.9).

Table 5.9: Counts of vessel forms

Vessel Form	N =	% of Rims
Jar	22	8.1
Simple Bowl	31	11.4
Carinated Bowl	10	3.7
Compound Bowl	2	0.7
Bottle	2	0.7
Unrestricted Vessel	167	61.6
Restricted Vessel	29	10.7
Indeterminate	8	3.0
Totals	271	100.0

Of the 271 rim sherds in this study, 225 (83.0%) were large enough to estimate vessel orifice diameter. These rim sherds had an average estimated diameter of 25.2 cm, a median of 25.0 cm, and a range of 4.0 – 46.0 cm (Figure 5.10). Percentage of orifice remaining was also recorded for each of these sherds and ranged from 2.5 – 25.0% with the majority of sherds representing 2.5% (n = 81) or 5.0% (n = 83) of the original vessel orifice (Table 5.10).

Table 5.10: Counts of sherds by percentage of vessel orifice remaining

% Orifice Remaining	N =
2.5	81
5	83
7	1
7.5	29
10	14
12.5	9
15	3
17.5	4
25	1

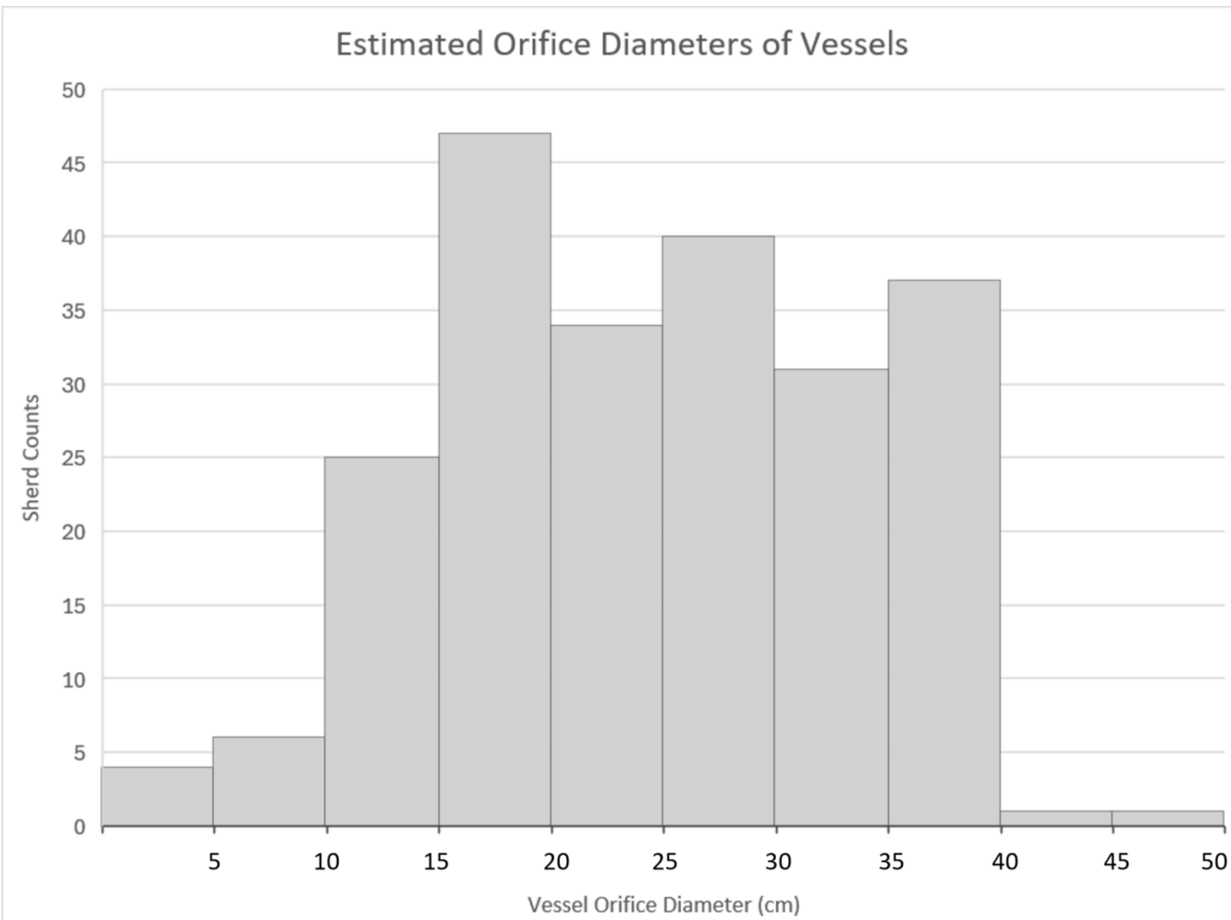


Figure 5.10: Histogram of estimated vessel orifice diameters (5.0 cm bins)

Bivariate Analysis

Basic comparative analysis indicated that all temper types have roughly the same average sherd size (Figure 5.11). Grog tempered sherds are the smallest with an average size of 4.8 while limestone tempered sherds are the largest with an average size of 5.5. Comparisons of sherd size to ceramic attributes, is used as an approximation of sherd breakage by attribute to ensure that certain ceramic attributes are not over-represented in the assemblage due to certain vessels breaking into a larger number smaller sherds. Additionally, the similarities in sherd size between tempers can also be used to infer that temper does not significantly impact vessel wall strength.

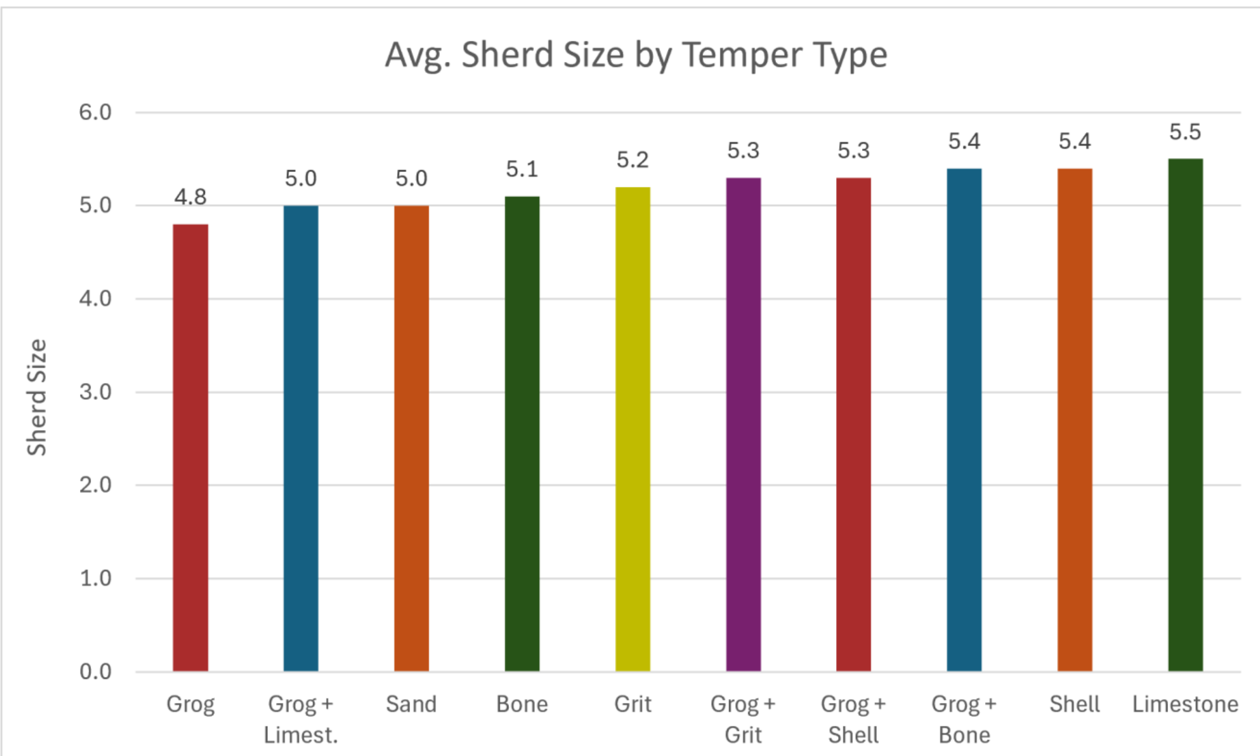


Figure 5.11: Average sherd size by temper type.

Bivariate analysis was conducted to determine if there was a correlation between decorative types and temper. Sherd counts by decoration and temper are listed in (Table 5.11). These counts were then divided by the total number of sherds with the relevant decorative type to determine what percent of a specific decorative type is made with each temper. (Table 5.12). These percentages were compared to the temper type percentages of the total assemblage. If the temper percentage of each decorative type is similar to the temper percentage of the full sample, this implies that there is no correlation between that particular decoration and temper. The bivariate analysis revealed that there are noticeable patterns between certain decorative techniques and tempers. Most noticeably are the high percentages of shell tempering seen in applique, fingernail impressed, pinched, and punctated ceramics, which may have important chronological implications. Engraved sherds also have a much higher percentage of grog tempering (71.7%) than the overall assemblage and are rarely tempered with shell (5.5%).

Table 5.11: Bivariate analysis; sherd counts by temper and decorative type

	Grog	Shell	Bone	G + S	G + B	G + L	G + R	Limestone	Grit	Sand	Unknown	Total
Applique	19	25	1	3	4	4	1	0	0	0	0	57
Brushed	2	1	0	0	1	0	0	0	0	0	0	4
Fingernail	87	48	5	10	21	4	4	3	6	3	1	192
Engraved	261	20	3	2	40	10	8	12	7	1	0	364
Incised	112	30	1	9	15	4	7	3	5	0	1	187
Pinched	64	40	3	15	22	1	2	4	1	0	0	152
Punctate	5	6	0	0	0	0	1	2	0	0	0	14
N/A	5	1	0	0	3	0	1	0	0	0	0	10
A, D	11	8	0	5	5	1	0	2	1	0	0	33
A, I	5	5	0	1	3	0	0	2	1	0	0	17
A, N	5	8	0	0	1	0	1	0	0	0	0	15
D, I	14	1	0	1	1	0	0	0	0	0	0	17
Other	35	7	2	1	8	1	1	3	0	0	0	58

Table 5.12: Bivariate analysis; percentages of temper and decorative type

	Grog	Shell	Bone	G + S	G + B	G + L	G + R	Limestone	Grit	Sand	Unknown	Total
Applique	33.3	43.9	1.8	5.3	7.0	7.0	1.8	0.0	0.0	0.0	0.0	100.0
Brushed	50.0	25.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Fingernail	45.3	25.0	2.6	5.2	10.9	2.1	2.1	1.6	3.1	1.6	0.5	100.0
Engraved	71.7	5.5	0.8	0.5	11.0	2.7	2.2	3.3	1.9	0.3	0.0	100.0
Incised	59.9	16.0	0.5	4.8	8.0	2.1	3.7	1.6	2.7	0.0	0.5	100.0
Pinched	42.1	26.3	2.0	9.9	14.5	0.7	1.3	2.6	0.7	0.0	0.0	100.0
Punctate	35.7	42.9	0.0	0.0	0.0	0.0	7.1	14.3	0.0	0.0	0.0	100.0
N/A	50.0	10.0	0.0	0.0	30.0	0.0	10.0	0.0	0.0	0.0	0.0	100.0
A, D	33.3	24.2	0.0	15.2	15.2	3.0	0.0	6.1	3.0	0.0	0.0	100.0
A, I	29.4	29.4	0.0	5.9	17.6	0.0	0.0	11.8	5.9	0.0	0.0	100.0
A, N	33.3	53.3	0.0	0.0	6.7	0.0	6.7	0.0	0.0	0.0	0.0	100.0
D, I	82.4	5.9	0.0	5.9	5.9	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Other	60.3	12.1	3.4	1.7	13.8	1.7	1.7	5.2	0.0	0.0	0.0	100.0

Spatial Analysis

A total of 975 sherds had provenience data denoting the WPA excavation unit they were recovered from. The remaining 145 sherds were from a test pit which the WPA did not record any locational data for. The WPA McCl-I grid was reconstructed in ArcGIS Pro, and sherd counts were assigned to each 5 x 5 excavation unit according to their corresponding stake number (Figure 5.12). Most of the spatial analysis in this thesis was conducted using 9 distinct groupings of WPA units (Figure 5.13). These groups were created based on the units' association with a known archaeological feature: Mound A, Houses 1 and 2, Soil Anomaly, or based on visual inspection of positive units which were in close proximity to one another and generally situated in a cardinal direction from the known features: South of Mound, East of Mound, North of Mound, South of Houses, Northwest of Houses, and Northmost Cluster. These spatial groupings contained 925 of the provenienced sherds, while the remaining 50 were distributed amongst units that each contained very few artifacts and were isolated from the main groupings (Table 5.13).

Table 5.13: Sherd counts by location; yellow = main groupings, blue = random units

Cluster	N =	% of Total Sherds
East of Mound	61	5.4
Houses 1 & 2	35	3.1
Mound A	512	45.7
North of Mound	42	3.7
Northmost Cluster	94	8.4
NW of Houses	36	3.2
Soil Anomaly	36	3.2
South of Houses	90	8.0
South of Mound	19	1.7
Test Pit	145	13.0
North of Houses	2	0.2
Northeast of Mound	15	1.3
Northwest of Mound	1	0.1
South of soil anomaly	5	0.4
Far south of Houses	2	0.2
Southeast of Houses	2	0.2
Southeast of Mound	9	0.8
Southwest of Mound	7	0.6
West of Houses	5	0.4
West of Mound	2	0.2
Full Totals	1120	100.00

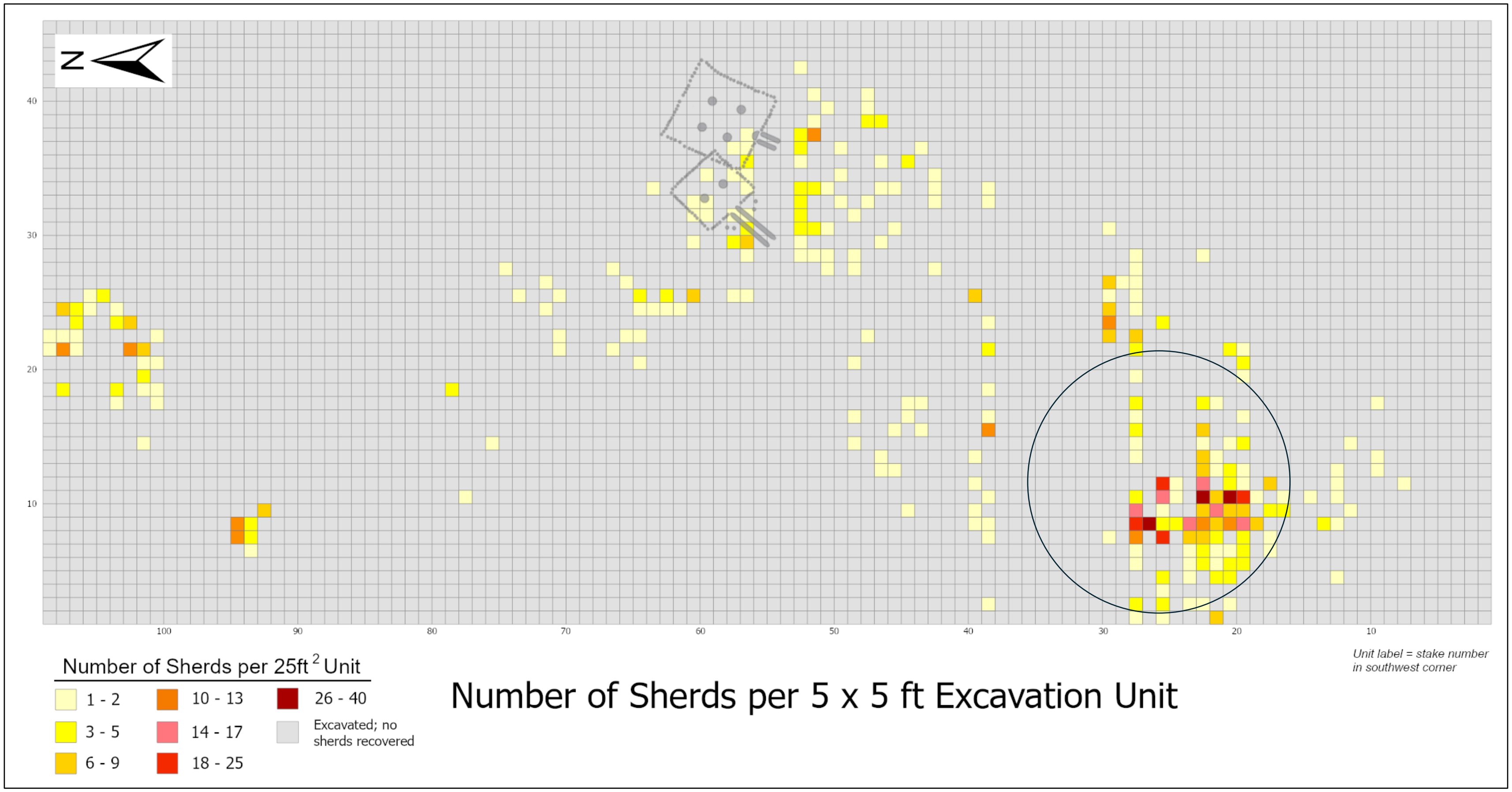


Figure 5.12: Map of sherd distribution by count with overlay of Structures 1 & 2 and Mound A

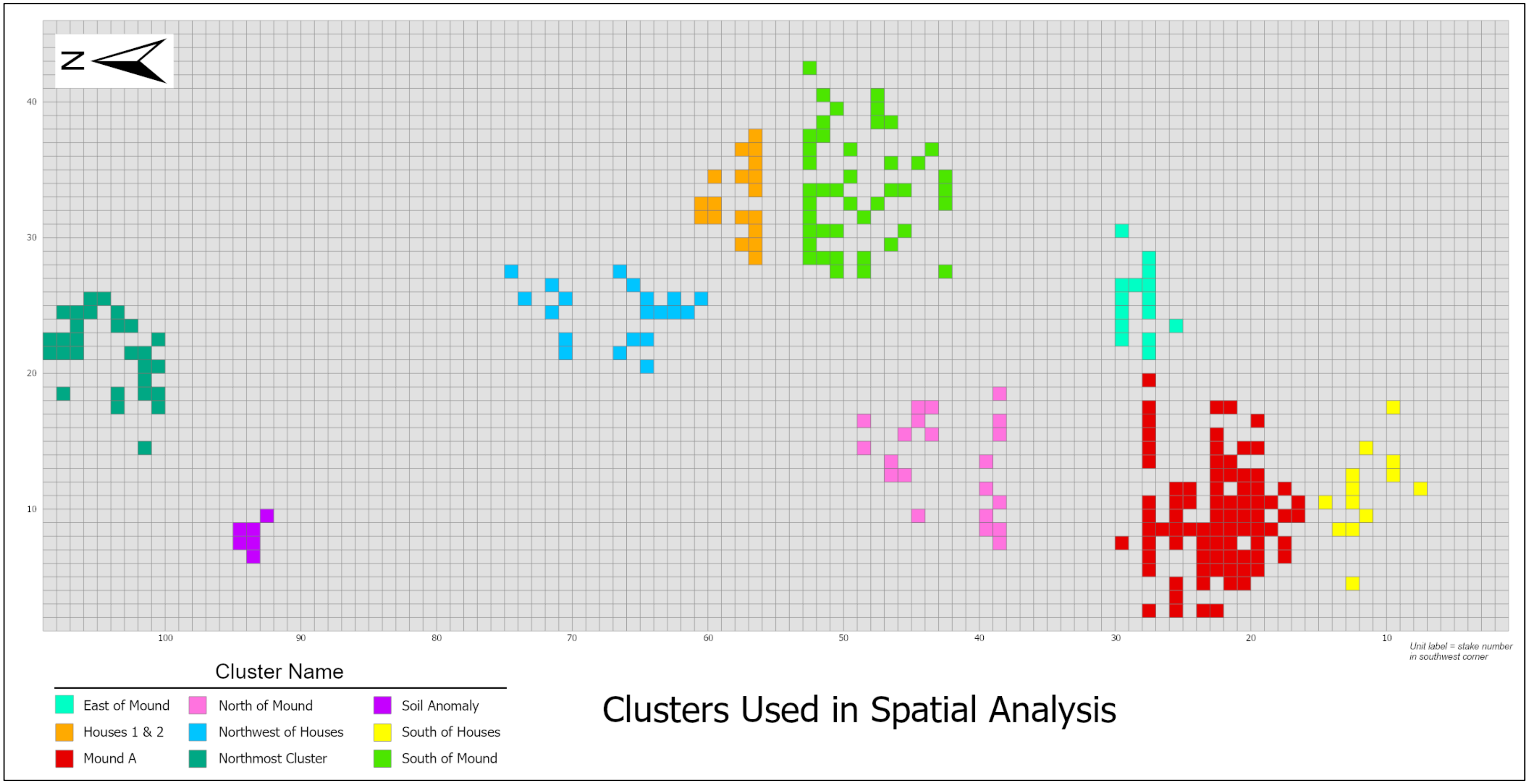


Figure 5.13: Map of unit clusters used in spatial analysis

Initial analysis examined the relationship between sherd size and spatial cluster as a means of interpreting the impact of location on sherd breakage. The average size class was calculated for the sherds in each of the main clusters. The smallest sherds were found to the north of the mound with an average size of 4.5 while the largest sherds were to the south of the mound with an average size of 5.7. Despite the difference between these two clusters, sherd size is fairly consistent across the site (Figure 5.14).

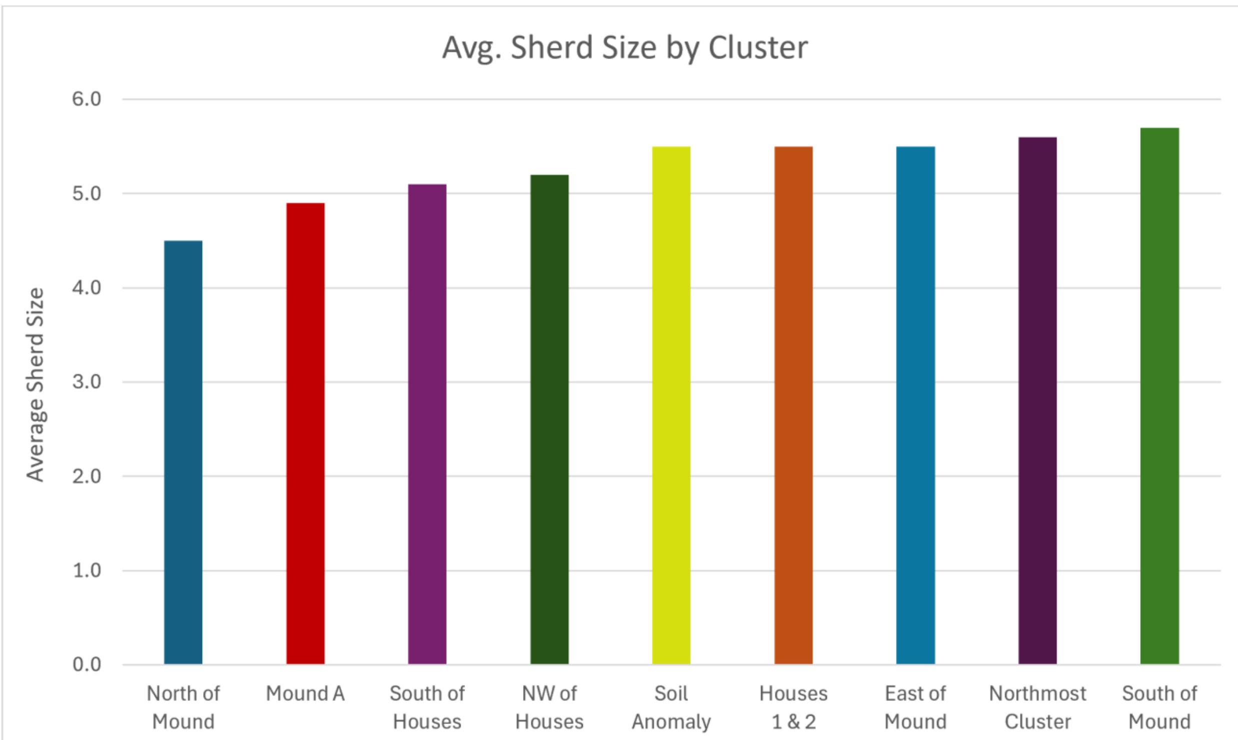


Figure 5.14: Average sherd size by location

Bivariate analysis was conducted to compare the distribution of main decorative types across the 9 clusters. The percent of main decorative types by the total number of sherds in each cluster was calculated and compared to the decorative type percentage across the entire assemblage to determine if there is a correlation between decorative techniques and location within the site (Table 5.14, Table 5.15). While this serves as an additional avenue for examining intra-site chronology, spatial distribution of decorative types can infer certain social networks or behaviors. However, there needs to be some level of control for chronology before making these interpretations, as differences in ceramic decoration could also be the result of changes in style over time (Dowd 2012).

Temper by site location was also examined to establish if there are distinct chronological differences between the major spatial clusters and to determine if ceramics were produced differently based on where they were deposited which would imply specialized production or site function (Table 5.16, Table 5.17). Maps depicting the distribution of grog and shell temper across all WPA units regardless of cluster are also included below (Figure 5.15, Figure 5.16).

Table 5.14: Bivariate analysis; decorative type by spatial grouping

	Applique	Brushed	Fingernail	Engraved	Incised	Pinched	Punctate	N/A	A, D	A, I	A, N	D, I	Other
E. of Mound	1	0	5	27	9	9	1	0	4	0	1	0	4
Houses 1 & 2	0	0	9	14	5	4	0	1	2	0	0	0	0
Mound A	32	2	110	171	62	66	3	5	9	13	7	11	21
N. of Mound	0	0	3	24	6	3	0	0	2	0	0	1	3
Nm. Cluster	7	0	14	22	15	19	9	1	2	0	1	0	4
NW of Houses	1	1	8	11	8	4	0	0	1	0	0	1	1
Soil Anomaly	0	0	0	16	18	2	0	0	0	0	0	0	0
S. of Houses	2	0	13	31	20	12	1	1	3	1	1	1	4
S. of Mound	1	0	2	3	8	2	0	1	0	2	0	0	0
Test Pit	12	1	25	27	28	25	0	0	7	1	3	2	14
General	1	0	3	18	8	6	0	1	3	0	2	1	7

Table 5.15: Bivariate analysis; percent decorative type by spatial grouping (row percentage)

	Applique	Brushed	Fingernail	Engraved	Incised	Pinched	Punctate	N/A	A, D	A, I	A, N	D, I	Other
E. of Mound	1.6	0.0	8.2	44.3	14.8	14.8	1.6	0.0	6.6	0.0	1.6	0.0	6.6
Houses 1 & 2	0.0	0.0	25.7	40.0	14.3	11.4	0.0	2.9	5.7	0.0	0.0	0.0	0.0
Mound A	6.3	0.4	21.5	33.4	12.1	12.9	0.6	1.0	1.8	2.5	1.4	2.1	4.1
N. of Mound	0.0	0.0	7.1	57.1	14.3	7.1	0.0	0.0	4.8	0.0	0.0	2.4	7.1
Nm. Cluster	7.4	0.0	14.9	23.4	16.0	20.2	9.6	1.1	2.1	0.0	1.1	0.0	4.3
NW of Houses	2.8	2.8	22.2	30.6	22.2	11.1	0.0	0.0	2.8	0.0	0.0	2.8	2.8
Soil Anomaly	0.0	0.0	0.0	44.4	50.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S. of Houses	2.2	0.0	14.4	34.4	22.2	13.3	1.1	1.1	3.3	1.1	1.1	1.1	4.4
S. of Mound	5.3	0.0	10.5	15.8	42.1	10.5	0.0	5.3	0.0	10.5	0.0	0.0	0.0
Test Pit	8.3	0.7	17.2	18.6	19.3	17.2	0.0	0.0	4.8	0.7	2.1	1.4	9.7
General	2.0	0.0	6.0	36.0	16.0	12.0	0.0	2.0	6.0	0.0	4.0	2.0	14.0

Table 5.16: Bivariate analysis; temper type by spatial grouping

	Grog	Shell	Bone	G + S	G + B	G + L	G + R	Limestone	Grit	Sand	N/A
E. of Mound	44	2	0	3	6	1	1	2	2	0	0
Houses 1 & 2	17	2	0	0	8	2	3	1	2	0	0
Mound A	301	93	2	28	43	11	9	17	5	1	2
N. of Mound	27	4	2	0	2	5	1	0	1	0	0
Nm. Cluster	30	34	1	5	9	1	3	7	3	1	0
NW of Houses	17	2	0	3	12	0	1	0	0	1	0
Soil Anomaly	29	0	0	0	4	0	2	0	1	0	0
S. of Houses	66	7	0	0	15	0	1	0	1	0	0
S. of Mound	15	1	0	2	0	1	0	0	0	0	0
Test Pit	53	55	9	7	14	0	1	2	3	1	0
General	26	0	1	0	10	4	4	2	3	0	0

Table 5.17: Bivariate analysis; percent temper type by spatial location (row percentage)

	Grog	Shell	Bone	G + S	G + B	G + L	G + R	Limestone	Grit	Sand	N/A
E. of Mound	72.1	3.3	0.0	4.9	9.8	1.6	1.6	3.3	3.3	0.0	0.0
Houses 1 & 2	48.6	5.7	0.0	0.0	22.9	5.7	8.6	2.9	5.7	0.0	0.0
Mound A	58.8	18.2	0.4	5.5	8.4	2.1	1.8	3.3	1.0	0.2	0.4
N. of Mound	64.3	9.5	4.8	0.0	4.8	11.9	2.4	0.0	2.4	0.0	0.0
Nm. Cluster	31.9	36.2	1.1	5.3	9.6	1.1	3.2	7.4	3.2	1.1	0.0
NW of Houses	47.2	5.6	0.0	8.3	33.3	0.0	2.8	0.0	0.0	2.8	0.0
Soil Anomaly	80.6	0.0	0.0	0.0	11.1	0.0	5.6	0.0	2.8	0.0	0.0
S. of Houses	73.3	7.8	0.0	0.0	16.7	0.0	1.1	0.0	1.1	0.0	0.0
S. of Mound	78.9	5.3	0.0	10.5	0.0	5.3	0.0	0.0	0.0	0.0	0.0
Test Pit	36.6	37.9	6.2	4.8	9.7	0.0	0.7	1.4	2.1	0.7	0.0
General	52.0	0.0	2.0	0.0	20.0	8.0	8.0	4.0	6.0	0.0	0.0

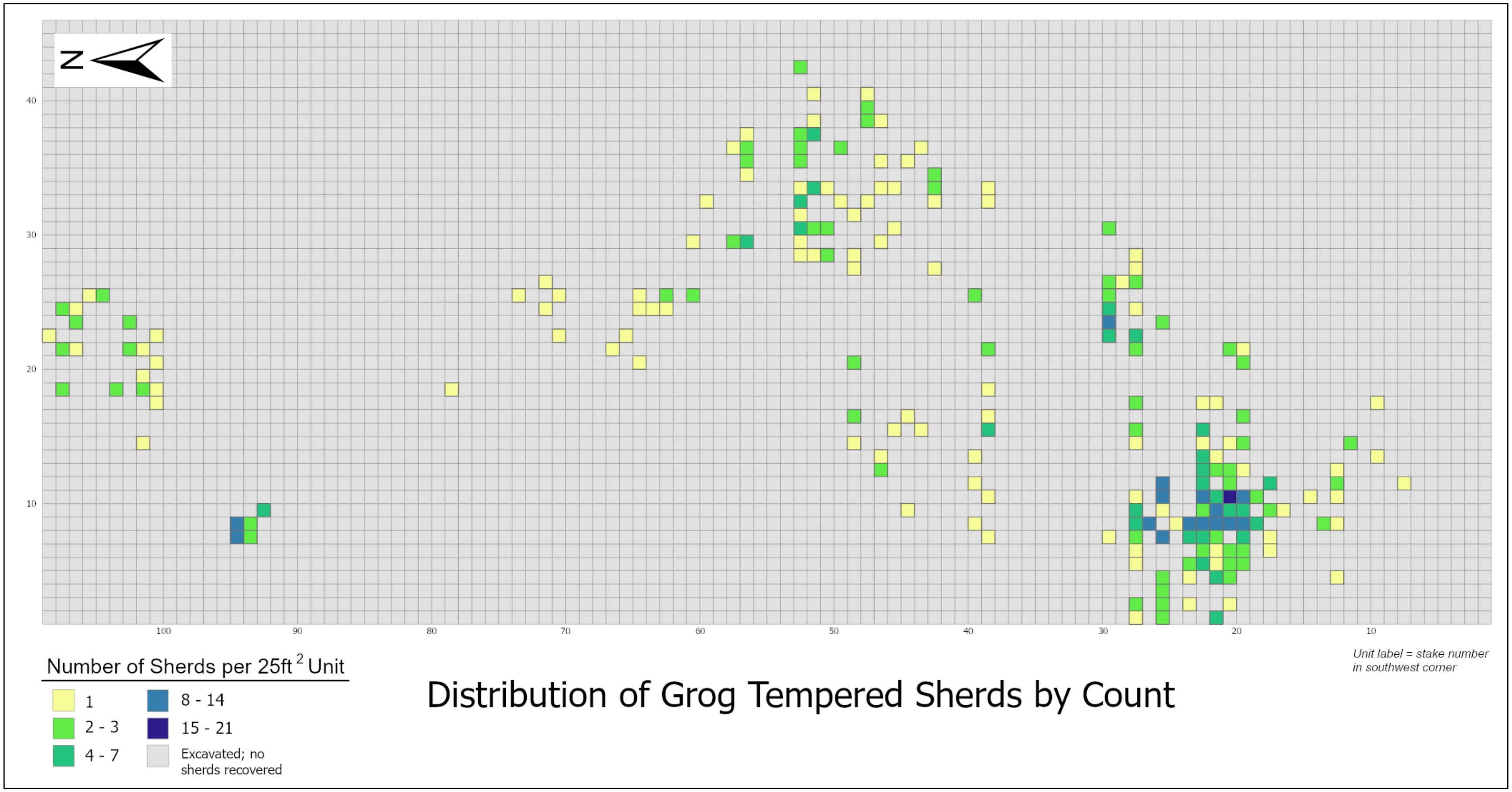


Figure 5.15: Distribution of grog tempered sherds across all WPA excavation units

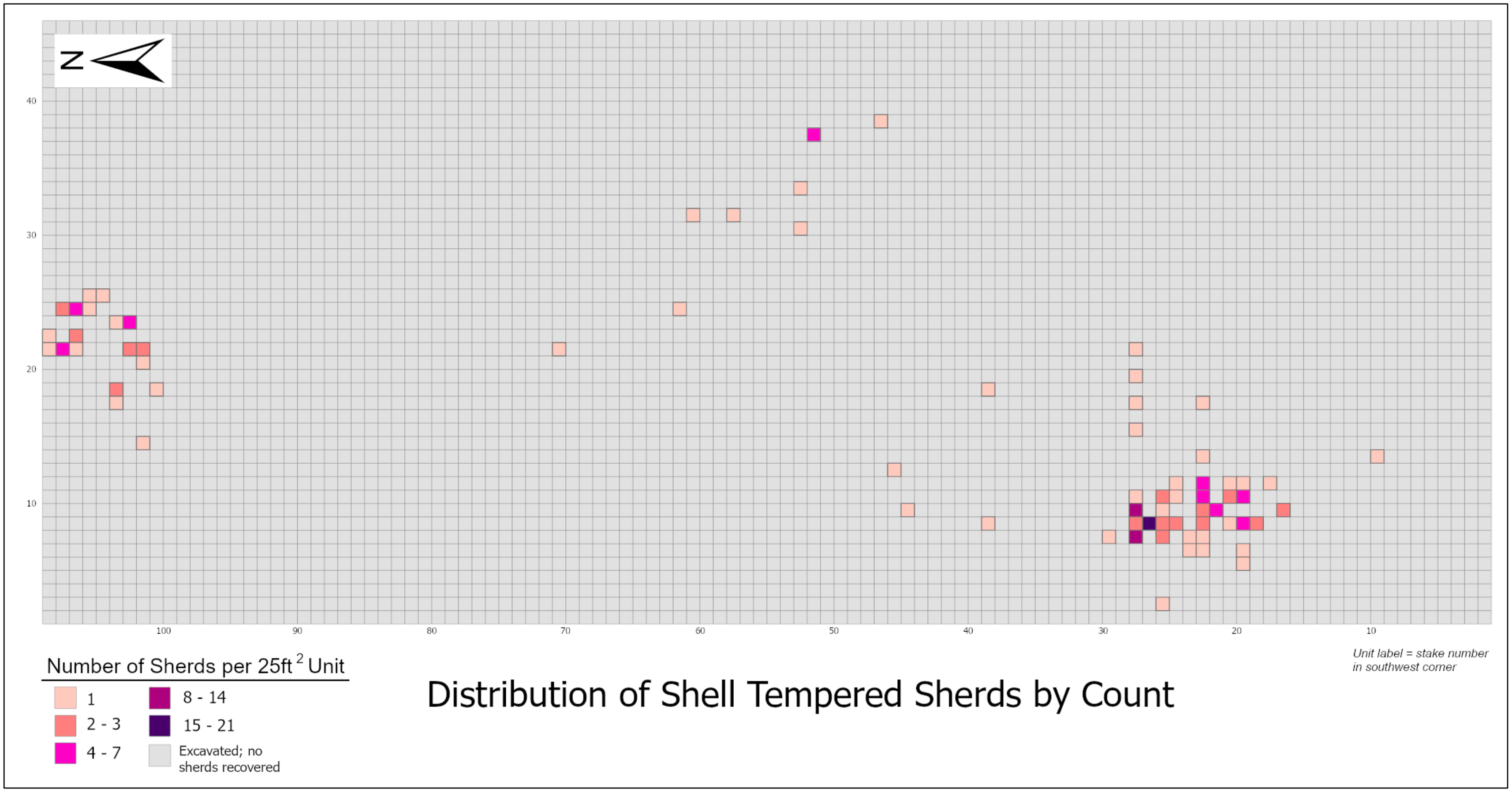


Figure 5.16: Distribution of shell tempered sherds across all WPA excavation units

The widespread distribution of highly concentrated grog-tempered ceramics emphasizes the continued ceramic tradition of the Caddo at the Clement while the much narrower distribution of shell highlights their reluctance to adopt this new temper post AD 1300. The distribution of shell is also critical for interpreting site chronology and will be discussed in further detail later in this chapter.

Rim Sherds

Additional data collected from rim sherds was used to compare both vessel form and average diameter to spatial cluster. Since form and orifice diameter are often related to vessel function, patterns in their distribution can be used to interpret the types of behavior occurring in different parts of the site. Of the 271 rim sherds in the study sample, 234 (86.3%) were found in the 9 primary spatial clusters with the remaining 37 divided between the test pit and the various units not associated with a cluster (Table 5.18). The majority of these sherds were concentrated in Mound A (n = 128). Vessel form distribution was analyzed to be used as a proxy for intra-site function. These distributions were determined via bivariate analysis. The widest range of vessel forms was found in Mound A, which included 14 jars, 15 bowls, 3 carinated bowls, 1 compound bowl, 1 bottle, 12 restricted vessels, 78 unrestricted vessels and 4 sherds classified as indeterminate (Table 5.19).

Table 5.18: Counts of rim sherds by location; yellow = spatial groups, blue = random units

Cluster	N =	% of Rims
E. of Mound	16	5.9
Houses 1 & 2	12	4.4
Mound A	128	47.2
N. of Mound	7	2.6
Nm. Cluster	19	7.0
NW of Houses	10	3.7
Soil Anomaly	15	5.5
S. of Houses	17	6.3
S. of Mound	10	3.7
Test Pit	25	9.2
General	12	4.4
Totals	**271**	**100.0**

Table 5.19: Vessel form by location

	Jar	Bowl	Carinated B.	Compound B.	Bottle	Restricted	Unrestricted	N/A
E. of Mound	2	5	1	1	0	0	7	0
Houses 1 & 2	1	1	0	0	0	0	10	0
Mound A	14	15	3	1	1	12	78	4
N. of Mound	0	0	1	0	0	1	5	0
Nm. Cluster	0	1	3	0	0	3	12	0
NW of Houses	0	2	0	0	0	1	7	0
Soil Anomaly	0	3	0	0	0	2	9	1
S. of Houses	1	3	0	0	0	4	9	0
S. of Mound	0	0	0	0	1	1	8	0
Test Pit	3	0	1	0	0	3	15	3
General	1	1	1	0	0	2	7	0
N =	22	31	10	2	2	29	167	8

A total of 197 rim sherds (72.7%) in the spatial clusters were large enough to take diameter measurements along with 28 rim sherds from the test pit and non-cluster units. While function is best extrapolated from a combination of vessel forms and their respective orifice diameters, a quick analysis of diameter by spatial group was conducted as a preliminary test of vessel size (Figure 5.17). The majority of the groupings share a wide range of orifice diameters, but the Northmost Cluster appears to have a higher concentration of larger vessels. This could imply that the vessels in this area were intended for serving large groups of people, however this is a very preliminary test, and should not be treated as a definitive line of evidence.

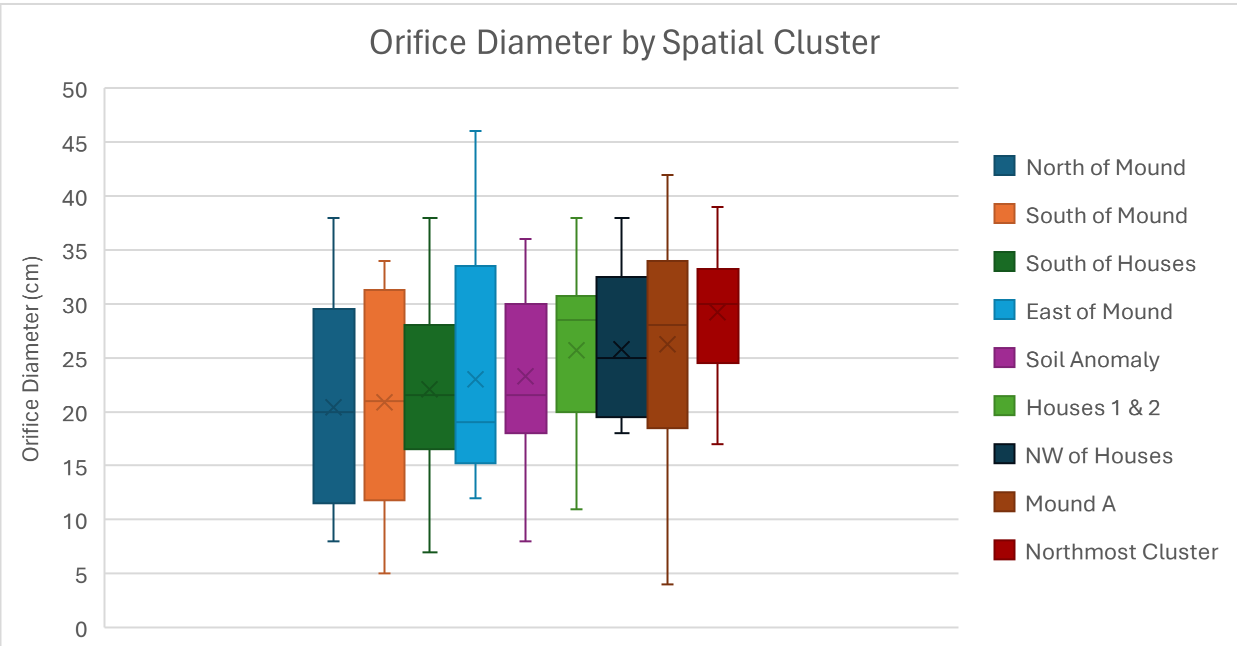


Figure 5.17: Box and whisker plot of diameters by spatial grouping; median represented by line within the box, average represented by the X within the box

Descriptive System

Due to time constraints, a subsample of the Clement decorated ceramics consisting of 716 sherds (63.9%) was analyzed using the modified descriptive system created for this thesis. This sample included 56.1% of the sherds in Mound A (n = 287), and all sherds from the other 8 primary clusters (n = 413). The remaining 16 sherds were not associated with the primary clusters (Table 5.20)

Table 5.20: Descriptive system counts by location

	N =	% of Cluster	% of Total
East of Mound	61	100.0	5.4
Houses 1 & 2	35	100.0	3.1
Mound A	287	56.1	25.6
North of Mound	42	100.0	3.8
Northmost Cluster	94	100.0	8.4
NW of Houses	36	100.0	3.2
Soil Anomaly	36	100.0	3.2
South of Houses	90	100.0	8.0
South of Mound	19	100.0	1.7
General	16	32.0	1.4
Total	716	/	63.9

All primary decorative types and combinations of decorative types were represented in the descriptive system subsample (Table 5.21). The majority of the sherds analyzed were engraved (n = 252), incised (n = 134), and fingernail impressed (n = 104). During the analysis, 6 sherds were found to have no decoration, making up the bulk of the "indeterminate" sherds with surface damage that was originally interpreted as decorative variation. Additionally, 8 of the sherds had no type variations or variation details, which was often the result of a sherd being too small to discern any information other than basic decorative type.

Table 5.21: Counts of decorative types in descriptive analysis, and percentage of total decorative types

Types	Counts	% of Dec. Type
Applique	28	49.1
Brushed	2	50.0
Fingernail	104	54.2
Engraved	252	69.2
Incised	134	71.7
Pinching	97	63.8
Punctated	14	100.0
A, D	21	63.6
A, I	7	41.2
A, N	6	40.0
D, I	5	29.4
Other Combination	32	55.2
No Variation/ Details	8	100.0
No Decoration	6	0.6
Totals	716	N/A

It quickly became clear that there was an overwhelming amount of variation recorded for secondary and tertiary decorative attributes as well as overall design. Due to the quantity and complexity of the descriptive types, the 71 sherds featuring two or more decorative types were excluded from subsequent analysis. Not including these sherds, the Clement collection subsample has a total of 164 different combinations of main decorative types, type variations, and variation details, not accounting for overall design code (Appendix B - D; Table 5.22). Even when scaling back to just examine main decorative variation, there are still 38 different types. Lastly, there are a total of 64 different design codes divided across the main decorative types including applique (n = 5), brushed (n = 0), fingernail impressed (n = 9), engraved (n = 23), incised (n = 13), pinched (n = 9) and punctated (n = 4).

Table 5.22: Counts of variation, detail, and design types for all main decorative types

	Full Detail Types	Variation Types	Design Types
Applique	18	8	5
Brushed	2	2	1
Fingernail	19	5	9
Engraved	90	10	23
Incised	18	5	13
Pinched	10	4	9
Punctated	7	4	4
Total	164	38	64

With this level of variation it was not possible to analyze each decorative type in full detail while remaining within the time constraints of this thesis. To test the effectiveness of this new descriptive system, bivariate analyses of variation to temper and variation to spatial cluster were only conducted for two of the fingernail impressed variations. This type was selected as it had a solid sample size, and because utility wares are presumed to transmit less symbolic content (Dowd 2012:259). As such, minute differences in how the decorative type is executed are more likely to represent differing social identities or communities of practice which shared a specific techniques for decorating a vessel without being an intentional display of identity.

The fingernail impressed type was primarily split into horizontal impressions (n = 31) and diagonal impressions (n = 65) (Figure 5.18). The North of Mound cluster and Houses 1 and 2 cluster only had diagonal fingernail impressed sherds, and the Northmost cluster and East of Mound cluster had higher percentages of horizontal fingernail impressions (19.4% and 9.7% respectively). All other contexts had highly similar distributions of both types (Table 5.23). Temper distribution is also almost identical between the impression types, however sherds with horizontal impression have more shell tempering (25.8%) and grog and bone tempering (16.1%) than sherds with diagonal impressions (20.0% and 9.2%) (Table 5.24).

Table 5.23: Fingernail impressed variations by spatial grouping

	D.d	*D.h*	*D.d*	*D.h*
Location	**N =**	**N =**	**%**	**%**
E. Mound	2	3	3.1	9.7
H. 1 & 2	7	0	10.8	0.0
Mound A	30	14	46.2	45.2
N. Mound	3	0	4.6	0.0
Nm. Cluster	8	6	12.3	19.4
Nw. House	6	3	9.2	9.7
Soil Anomaly	0	0	0.0	0.0
S. House	8	4	12.3	12.9
S. Mound	1	0	1.5	0.0
N/A	0	1	0.0	3.2
Totals	65	31		

Table 5.24: Fingernail impressed variations by temper

	D.d	*D.h*	*D.d*	*D.h*
Temper	**N =**	**N =**	**%**	**%**
Shell	13	8	20.0	25.8
Grit	3	0	4.6	0.0
Limestone	1	2	1.5	6.5
Bone	0	0	0.0	0.0
Sand	0	2	0.0	6.5
Grog	34	14	52.3	45.2
Grog + Bone	6	5	9.2	16.1
Grog + Shell	4	0	6.2	0.0
Grog + Grit	1	0	1.5	0.0
Grog + Limest.	3	0	4.6	0.0
Indeterminate	0	0	0.0	0.0
Totals	65	31	100.0	100.0

Figure 5.18: Diagonal fingernail impressions *(top, 2134.2)* and horizontal fingernail impressions *(bottom, 294.3)*

There was also an abundance of design codes for each decorative type. The majority of sherds in all decorative categories were designated as (0) for no overarching design. The remaining sherds were often split up across several design codes to the point where the numbers of specimens in each category were too low to produce meaningful results. Bivariate analysis was conducted on the fingernail impressed sherds (n = 36) (Table 5.25, Table 5.26). A few patterns were noticeable in the analysis but the incredible small sample size for each design type makes it difficult to claim these are meaningful. However, it does appear that sherds with medium spaced parallel lines (D3) and perpendicular lines (D6) are more likely to be tempered with shell, grog, limestone or grog + limestone. The sherds with perpendicular lines are also more concentrated in Mound A and the Northmost Cluster. This combination of attribute and spatial distributions potentially implies that the perpendicular lines of fingernail impressions has temporal significance. This interpretation relies on several lines of evidence that have not been fully discussed yet, so the significance of these variation and design types will be expanded upon in the next chapter.

Table 5.25: Fingernail Impressed design types; counts and percentages by location

	D (3)	*D (4)*	*D (5)*	*D (6)*	*D (7)*	*D (3)*	*D (4)*	*D (5)*	*D (6)*	*D (7)*
Location	**N =**	**N =**	**N =**	**N =**	**N =**	**%**	**%**	**%**	**%**	**%**
E. Mound	1	0	1	0	0	20.0	0	7.7	0.0	0.0
H. 1 & 2	0	1	3	0	0	0.0	20	23.1	0.0	0.0
Mound A	4	3	1	4	3	80.0	60	7.7	57.1	50.0
N. Mound	0	0	0	0	0	0.0	0	0.0	0.0	0.0
Nm. Cluster	0	0	2	2	1	0.0	0	15.4	28.6	16.7
Nw. House	0	0	5	0	1	0.0	0	38.5	0.0	16.7
Soil Anomaly	0	0	0	0	0	0.0	0	0.0	0.0	0.0
S. House	0	1	1	1	1	0.0	20	7.7	14.3	16.7
S. Mound	0	0	0	0	0	0.0	0	0.0	0.0	0.0
N/A	0	0	0	0	0	0.0	0	0.0	0.0	0.0
Totals	5	5	13	7	6	100.0	100.0	100.0	100.0	100.0

Table 5.26: Fingernail Impressed design types; counts and percentages by temper

	D (3)	*D (4)*	*D (5)*	*D (6)*	*D (7)*	*D (3)*	*D (4)*	*D (5)*	*D (6)*	*D (7)*
Temper	**N =**	**N =**	**N =**	**N =**	**N =**	**%**	**%**	**%**	**%**	**%**
Shell	3	0	2	2	1	60.0	0.0	15.4	28.6	16.7
Grit	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
Limestone	0	0	0	1	0	0.0	0.0	0.0	14.3	0.0
Bone	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
Sand	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
Grog	1	4	7	4	4	20.0	80.0	53.8	57.1	66.7
Grog + Bone	0	0	3	0	1	0.0	0.0	23.1	0.0	16.7
Grog + Shell	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
Grog + Grit	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
Grog + Limest.	1	1	1	0	0	20.0	20.0	7.7	0.0	0.0
Indeterminate	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
Totals	5	5	13	7	6	100.0	100.0	100.0	100.0	100.0

Chronology, Fine Wares, and Utilitarian Wares

As noted previously, the lack of reliable stratigraphic data at Clement has made it difficult to interpret the chronology of the site. In order to get around this issue, chronology can be interpreted through the distribution of shell temper and ceramic types. As seen earlier in this chapter, shell tempering has a much narrower range of distribution across the site and is found in much lower quantities than the grog temper which dominated the bulk of the collection (Figure 5.15, Figure 5.16, Table 5.4). Based on the bivariate analysis between temper and spatial grouping, shell temper is very clearly concentrated in Mound A (n = 93; 18.2%) and the Northmost Cluster (n = 34; 36.2%), and it is absent from the Soil Anomaly altogether (Table 5.16, Table 5.17).

The other way to examine chronology is through ceramic typology. Many of the ceramic types recorded in this study are directly associated with the Early, Middle, and Late Caddo periods. The distribution of these types can then be used to infer periods of occupation at different portions of Clement. Of the types recorded, the ones that are definitively found in the Red River region were divided into groups based on period. The Early types in this study include Coles Creek (like) Incised, Crockett Curvilinear Incised, Davis Incised, Dunkin Incised, and Iwi (Spiro) Engraved. Middle Caddo types include Canton Incised, Tay-shas (Friendship) Engraved, Monkstown Fingernail Impressed, and Maxey Noded Redware. Finally, the Late period ceramics consist of Sah-cooh (Avery) Engraved, Nash Neck Banded, and Simms Engraved. Distribution of these types by spatial cluster was analyzed to determine if there is clear chronological patterning (Table 5.27).

Table 5.27: Early, Middle, and Late Caddo ceramic types by spatial grouping

	Early					*Middle*				*Late (McCurtain)*			
Cluster	**Coles Creek**	**Crockett**	**Davis**	**Dunkin**	**Iwi**	**Canton**	**Tay-shas**	**Monkstown**	**Maxey**	**Sah-cooh**	**Nash Neck**	**Simms**	**Totals**
East of Mound	2	2	0	0	1	1	1	1	1	0	0	0	9
Houses 1 & 2	2	0	1	1	0	0	0	0	0	0	0	0	4
Mound A	1	4	2	2		4	2	2	1	4	8	2	32
North of Mound	0	1	0	0	0	1	0	0	0	6	0	0	8
Northmost Cluster	0	0	0	0	1	0	0	0	0	0	0	1	2
NW of Houses	0	0	0	0	0	0	0	0	0	0	0	0	0
Soil Anomaly	19	0	0	0	2	0	0	0	0	0	0	0	21
South of Houses	0	1	0	0	1	5	2	1	0	1	0	0	11
South of Mound	0	0	0	0	0	0	0	1	0	0	0	0	1
Total	24	8	3	3	5	11	5	5	2	11	8	3	88

As expected, the widest range of ceramic types is located in Mound A with sherds from all three periods represented in the sample. Aside from the mound, however, there are additional patterns worth noting. First, the Soil Anomaly only contains Formative/Early Caddo ceramic types and has the highest concentration of Coles Creek-like Incised sherds in the entire site. The South of Houses cluster has the highest concentration of Middle period sherds and contains only 3 sherds from the Early and Late periods. The East of Mound grouping is also interesting as it has relatively even distributions of Early and Middle Caddo ceramics but none from the Late period. Finally, the Late Caddo ceramics (McCurtain phase) are mostly concentrated in Mound A and in the North of Mound Cluster.

Fine Wares vs. Utilitarian Wares

Within the Caddo Area, ceramics can oftentimes be divided into two categories: Fine wares and utilitarian wares. Fine wares include engraved, red slipped, and or burnished compound jars, bowls, and bottles and are presumed to have been for displaying or serving foods in ceremonial practices such as feasting (Perttula et al. 2021:12; Regnier and Dowd 2013:6). Utilitarian ware on the other hand is a generalized catch-all term for plain, fingernail impressed, incised, corrugated, and applique jars and bowls which would have fulfilled a wide range of functions (Perttula et al. 2021:12; Regnier and Dowd 2013:6). Because of their consistent use as ceramic categories, analysis of fine wares and utility wares is often vital for comparisons of ceramic assemblages from different sites. Since they are also inherently functional categories, their distribution across a site can serve as a proxy for site function, ritual activity, and sociopolitical complexity (Regnier and Dowd 2013:2).

There were a total of 382 fine wares (34.1%) and 738 utilitarian wares (65.9%) included in this study. As a preface to analysis of these sherds and their attributes, it is important to note that the red slipped sherds analyzed by Horton would mostly be subsumed under the fine ware category, so the comparatively low frequency of fine wares in this study is a bit misleading. Analyses conducted in this study included comparisons of ware type to vessel form, temper, and location within the site. Both ware types included the same vessel forms except for carinated bowls, compound bowls, and bottles, which were only found in the fine ware category (Table 5.28). This aligns with general expectations as these three more complex vessel forms are generally subsumed under the fine ware definition. The higher frequency of jars in the utility category is also in line with expectations of these wares.

Table 5.28: Fine and utilitarian wares by vessel form

	Fine Ware	Utility	Total
Jar	2	20	22
Simple Bowl	22	8	30
Carinated Bowl	10	0	10
Compound Bowl	2	0	2
Bottle	2	0	2
Unrestricted Vessel	52	116	168
Restricted Vessel	5	24	29
Indeterminate	1	7	8
Totals	94	177	271

Analysis of wares by temper provided more interesting results. Fine wares are overwhelmingly grog tempered at the Clement site, and shell tempering (5.5%) and grog + shell tempering (0.5%) frequencies for fine wares are both abnormally low when compared to the percent shell and grog + shell of the total assemblage (Table 5.29, Table 5.30). These distributions have interesting implications for both chronology and ceramic production at Clement.

Table 5.29: Fine and utilitarian wares by temper

Temper	Fine Wares	Utilitarian	Total
Grog	273	352	625
Shell	21	179	200
Bone	3	12	15
G + S	2	46	48
G + B	44	79	123
G + L	10	15	25
G + R	9	17	26
Limestone	12	19	31
Grit	7	14	21
Sand	1	3	4
Unknown	0	2	2
Total Count:	382	738	1120

Table 5.30: Fine and utilitarian wares by temper percentages

Temper	% of Fine Wares	% of Utilitarian
Grog	71.5	47.7
Shell	5.5	24.3
Bone	0.8	1.6
G + S	0.5	6.2
G + B	11.5	10.7
G + L	2.6	2.0
G + R	2.4	2.3
Limestone	3.1	2.6
Grit	1.8	1.9
Sand	0.3	0.4
Unknown	0.0	0.3
Total Count:	100.0	100.0

The spatial distribution of wares was also analyzed as this can provide insights into intra-site function (Table 5.31, Table 5.32). There are some notable trends here, such as the lower percentages in of fine wares in Mound A, Northmost Cluster, and South of Mound. However, these are likely due to the absence of red-slipped sherds in this analysis. While the exact counts of red slipped sherds are not listed in Horton (2025), she does note that there was at least one

WPA unit in which over 100 red slip sherds were found (Horton 2025:80). Taking this into account, it is reasonable to assume that the ratios of fine wares to utilitarian wares in this study, at least within the mound, are inaccurate and that there were significantly more fine wares than utilitarian wares.

Table 5.31: Fine and utilitarian wares by location

Cluster	Fine Wares	Utilitarian
East of Mound	28	33
Houses 1 & 2	14	21
Mound A	181	331
North of Mound	24	18
Northmost Cluster	23	71
NW of Houses	11	25
Soil Anomaly	16	20
South of Houses	33	57
South of Mound	4	15
(N/A) Test Pit	28	117
(N/A) General	20	30
Total Count:	382	738

Table 5.32: Fine and utilitarian wares; percentage of sherds in each cluster, row percentages

Cluster	Fine Wares	Utilitarian
East of Mound	45.9	54.1
Houses 1 & 2	40.0	60.0
Mound A	35.4	64.6
North of Mound	57.1	42.9
Northmost Cluster	24.5	75.5
NW of Houses	30.6	69.4
Soil Anomaly	44.4	55.6
South of Houses	36.7	63.3
South of Mound	21.1	78.9
(N/A) Test Pit	19.3	80.7
(N/A) General	40.0	60.0

Finally, fine ware vessel forms and utilitarian vessel forms were both compared to site location (Table 5.33, 5.34, 5.35, 5.36,). The purpose of this analysis was to determine if there were functional differences within the fine vs utility categories based on where the vessels were deposited which could be used to interpret site function.

Table 5.33: Fine ware forms by location

Fine Ware Forms	Jar	Simple	Carinated	Compound	Bottle	UV	RV	N/A	Totals
East of Mound	0	3	1	1	0	4	0	0	9
Houses 1 & 2	0	0	0	0	0	4	0	0	4
Mound A	2	11	3	1	1	23	3	0	44
North of Mound	0	0	1	0	0	2	0	0	3
Northmost Cluster	0	1	3	0	0	2	1	0	7
NW of Houses	0	1	0	0	0	2	0	0	3
Soil Anomaly	0	3	0	0	0	2	1	0	6
South of Houses	0	2	0	0	0	6	0	0	8
South of Mound	0	0	0	0	1	1	0	0	2
N/A	0	1	1	0	0	6	0	0	8
Totals	2	22	9	2	2	52	5	0	94

Table 5.34: Fine ware forms; percentage of sherds by location

Fine Ware Forms	Jar	Simple	Carinated	Compound	Bottle	UV	RV	N/A	Total
East of Mound	0.0	33.3	11.1	11.1	0.0	44.4	0.0	0	100.0
Houses 1 & 2	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0	100.0
Mound A	4.5	25.0	6.8	2.3	2.3	52.3	6.8	0	100.0
North of Mound	0.0	0.0	33.3	0.0	0.0	66.7	0.0	0	100.0
Northmost Cluster	0.0	14.3	42.9	0.0	0.0	28.6	14.3	0	100.0
NW of Houses	0.0	33.3	0.0	0.0	0.0	66.7	0.0	0	100.0
Soil Anomaly	0.0	50.0	0.0	0.0	0.0	33.3	16.7	0	100.0
South of Houses	0.0	25.0	0.0	0.0	0.0	75.0	0.0	0	100.0
South of Mound	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0	100.0
N/A	0.0	12.5	12.5	0.0	0.0	75.0	0.0	0	100.0

Table 5.35: Utilitarian ware forms by location

Utilitarian Forms	Jar	Simple	Carinated	Compound	Bottle	UV	RV	N/A	Totals
East of Mound	2	2	0	0	0	3	0	0	7
Houses 1 & 2	1	1	0	0	0	6	0	0	8
Mound A	12	4	0	0	0	55	9	4	84
North of Mound	0	0	0	0	0	3	1	0	4
Northmost Cluster	0	0	0	0	0	10	2	0	12
NW of Houses	0	1	0	0	0	5	1	0	7
Soil Anomaly	0	0	0	0	0	7	1	1	9
South of Houses	1	0	0	0	0	4	4	0	9
South of Mound	0	0	0	0	0	7	1	0	8
N/A	4	0	1	0	0	16	5	3	29
Totals	20	8	1	0	0	116	24	8	177

Table 5.36: Utilitarian ware forms; percentage of sherds by location

Utilitarian Forms	Jar	Simple	Carinated	Compound	Bottle	UV	RV	N/A	Total
East of Mound	28.6	28.6	0.0	0.0	0.0	42.9	0.0	0.0	100.0
Houses 1 & 2	12.5	12.5	0.0	0.0	0.0	75	0.0	0.0	100.0
Mound A	14.3	4.8	0.0	0.0	0.0	65.5	10.7	4.8	100.0
North of Mound	0.0	0.0	0.0	0.0	0.0	75.0	25.0	0.0	100.0
Northmost Cluster	0.0	0.0	0.0	0.0	0.0	83.3	16.7	0.0	100.0
NW of Houses	0.0	14.3	0.0	0.0	0.0	71.4	14.3	0.0	100.0
Soil Anomaly	0.0	0.0	0.0	0.0	0.0	77.8	11.1	11.1	100.0
South of Houses	11.1	0.0	0.0	0.0	0.0	44.4	44.4	0.0	100.0
South of Mound	0.0	0.0	0.0	0.0	0.0	87.5	12.5	0.0	100.0
N/A	13.8	0.0	3.4	0.0	0.0	55.2	17.2	10.3	100.0

Chapter 6: Discussion

This thesis aimed to answer two primary questions related to the Clement site, and address three minor points of interest relating to the Clement ceramic collections themselves. The additional points of interest included A.) What is the overall decorative and temper variation of Clement? B.) Is there a significant correlation between decorative type and temper in the Clement collection? C.) Does a finer grained analysis of ceramic decorative variation reveal patterns that are otherwise obscured by a simple attribute analysis? The purpose of these supplemental questions was to better understand what all is in the Clement collection as it has not been fully analyzed, to determine if there are additional chronological markers seen in the relationships between temper and decorative types, and to determine if the modified descriptive system would prove beneficial in future studies of Caddo ceramic decorative variation.

While these are simple questions with no direct implications for studying past behavior and culture, they were able to help with answering the primary research questions of this study: 1.) Does the frequency and distribution of chronologically sensitive attributes support current interpretations of Clement? 2.) Do the distributions of fine wares and utility wares at Clement align with those seen at other Caddo sites in the region such as the Woods Mound Group (34MC104)?

Chronology of the Clement Site

Current interpretations regarding Clement chronology are based on radiocarbon dates, characteristics of primary features at the site, and ceramic analysis, both the introductory review by undergraduates and professors at the University of Oklahoma, and Horton's analysis of the red slipped ceramics at the site (2025). Radiocarbon dates obtained from the 2008 OU field school indicate a period of occupation or multiple occupations spanning from approximately AD 900 – 1500 (Hammerstedt et al. 2010). These dates have generally been supported by ceramic distributions which include Formative/ Early period concentrations north of Mound A (Regnier 2017) and widespread mixes of Early, Middle, and Late (McCurtain phase) Caddo ceramic types. The site has also been characterized as having a continuous, long-term occupation based on the continued use of Mound A which was likely constructed on top of a Formative or Early Caddo midden and then built in several stages containing ceramics from the Sanders phase through the McCurtain phase when an elaborate shaft tomb was dug through the top of the mound (Hammerstedt et al. 2010; Regnier 2017). Additionally, Horton (2025) has argued that the ceramic concentration, which consists primarily of McCurtain phase ceramics, at the far northern end of the site represents one or more episodes of Caddo from A.W. Davis revisiting Clement.

The ceramic analysis in this study appears to support the current chronological interpretations of the Clement site and has additionally revealed two new potential chronologically sensitive ceramic attributes in the collection.

East of Mound and South of Houses

While there is not an abundance of supportive data, it is worth noting that the grouping of units immediately east of Mound A, and the group immediately south of Houses 1 and 2, do contain multiple Early and Middle Caddo ceramic types. Both clusters have the highest counts of Middle Caddo sherds in the site. With this in mind, these are both possible areas of interest for future research at Clement regarding the Middle Caddo period/ Sanders phase.

Soil Anomaly

The soil anomaly noted by the WPA to the north of Mound A was found to contain no shell tempering, and only included Formative and Early Caddo ceramic types, primarily Coles Creek Incised (n = 19) and Iwi (Spiro) Engraved (n = 2) (Figure 6.1). This evidence is bolstered by the fact that the only decorative types present in the soil anomaly are engraved and incising and that the temper in the feature consists mainly of grog (80.6%) and grog + bone (11.1%). Horton's analysis of this feature supports this interpretation as there is a high concentration of grog tempered early red slip wares in the soil anomaly (Horton 2025:98).

Figure 6.1: Iwi (Spiro) Engraved sherd, 589.1

Mound A

Ceramic data from this study also supports the hypothesis that the mound was used continuously or near continuously from the time of its construction to Clement's abandonment in the McCurtain phase. In addition to having the highest concentration of ceramic sherds in the site, Mound A has examples of almost every ceramic attribute found in the collection as a whole, and this includes temporally sensitive markers such as shell tempering, Early, Middle, and Late ceramic types, the entire range of ceramic vessel forms, and all basic decorative types. This combined with the presence of multiple successive buried mound structures indicates that the mound was utilized by the Caddo at Clement for approximately 500 – 600 years. Later in this chapter I will discuss the possible reasons for this continued used of the mound.

Northmost Cluster

The decorative ceramics at the northmost portion of the site indicates that this is a more recent area of occupation in the history of the site. This grouping has the highest concentration of shell temper in the site (36.2%) and includes a number of sherds tempered with both grog and shell (5.3%). This portion of the site also has relatively high concentrations of both applique and pinching decoration which are generally considered early McCurtain phase traits (Regnier 2017:63). Of these pinched sherds, the majority had the corrugated design seen on McCurtain phase Nash Neck Banded vessels (n = 11) and all but one of these were tempered with shell. This cluster also included a handful of combined decorative types, all of which consisted of applique, fingernail impressions, incising, or pinching, which are common for McCurtain phase vessels. While many of the traits listed here are tied to the early McCurtain phase when Clement was abandoned, Horton has documented a number McCurtain red-slip sherds that can clearly be dated to the late McCurtain *after* Clement is assumed to have been abandoned. This includes a spool shaped bottle neck that is highly diagnostic for this time period (Horton 2025:103). Attribute analysis at this part of the site also revealed some potential chronologically sensitive attributes. The Northmost Cluster contained high concentrations of both punctation (n = 9) and limestone temper (n = 7). While the sample size for these attributes is not the best, the majority of the punctated sherds are found in the Northmost Cluster, and the grouping has the second highest concentration of limestone temper aside from in Mound A. The high degree of overlap of these attributes in an area that is most likely a McCurtain phase occupation points to the possibility of these being later period attributes. There is also a possible line of evidence seen at A.W. Davis as Wilson notes that many of the non-typed ceramics had circular void temper which is often the result of leached limestone (Wilson 1962). If the temper at A.W. Davis is in fact limestone, it would further support the hypothesis that Caddo from this new mound site were returning to Clement as a possible means of strengthening ties with their ancestors that occupied the site before its abandonment.

Modified Descriptive System

Before moving on to the second primary research question I will briefly discuss the results and interpretations of the ceramic analysis involving the modified descriptive system created for this study. The purpose of using this system was to try and overcome the shortcomings of ceramic typologies which are exacerbated when studying sherds of stylistically complex Caddo ceramics. Focusing on primary decorative techniques, the goal was to create a system that could record as much detail as possible to avoid obscuring any variation that may be of temporal or social significance. While this modified system does enable much more detailed recording of decorative variation, there often ended up being too much detail to allow for meaningful analysis. Scaling back to the level of decorative type variations proved more manageable. Fingernail impressed variations were selected for limited analysis as utilitarian ceramic vessels are thought to be less symbolically laden, so minute differences in decorative technique can act as a proxy for communities of practice which shared methods of decoration.

The quick analysis of horizontal versus diagonal nail impressions showed that while distributions were fairly similar, horizontal nail impressions had higher concentrations of shell temper and were more commonly found in the Northmost Cluster than the diagonal variant. While it is not the most significant patterning, it does point to the fact that these small variations in decorative types have potential for illuminating chronological changes or identifying distinct groups of potters. I argue that, while the system needs to be refined, it is worth testing this method on different collections, preferably those with a greater number of utilitarian wares, as variations in fine wares were too abundant and complex to distinguish any meaningful patterns.

Fine Wares vs. Utilitarian Wares: Interpretations of Site Function

The second primary goal of this research was to determine if the distribution of fine wares and utilitarian wares at the Clement site aligned with any of the "site types" proposed by Dowd in her dissertation on sociopolitical complexity in the Mountain Fork region (Dowd 2012). The example in her dissertation that best demonstrates the differences in ceremonial mound centers in the Caddo Area is the Woods Mound Group (34MC104). Woods is a mound site along the Mountain Fork River which runs parallel to the Glover River. Dowd found that Woods and other mound sites in the region could be distinguished from one another based on frequencies and distributions of fine wares and utilitarian wares across the site as well as their corresponding vessel forms and sizes (Dowd 2012). The 8 mound Woods site had a very few fine wares and primarily consisted of utilitarian jars despite the collection being exclusively taken from mound contexts (Regnier and Dowd 2013). This was in stark contrast other mound centers such as Biggham Creek which had a much higher percentage of fine wares (Dowd 2012:266). Combining this ceramic data with information about mound construction and use, Dowd proposed that the Woods Mound Group was an example of a ceremonial site where many dispersed communities could come together to participate in widely inclusive and egalitarian ceremonies and rituals for the purpose of maintaining social networks through social memory (Dowd 2012). Social memory in this case refers to collective notions in the past which can be used in a number of different ways to shape the social landscape (Dowd 2012:271). This is easily identified through the presence of buried mound structures as well as buried poles both of which have sacred and cosmological meanings and are part of maintaining and renewing ties to the past (Dowd 2012).

While Clement is also a mound center with a ritual program involving the use of social memory, there are clear differences between here and Woods based on the frequencies and distributions of fine wares and utilitarian wares. The most obvious difference between the two sites is that Clement has a massive amount of fine wares in Mound A and several in off mound contexts whereas the Woods assemblage primarily consists of utilitarian wares which are confined to the 8 mounds. The abundance of fine wares in Mound A, particularly the red slipped sherds which have a much higher concentration than the non-slipped decorative sherds, points towards a hierarchical structure with somewhat exclusive access to these elaborately decorated vessels. This is further supported by the presence of the shaft tomb in Mound A which contained a limited number of individuals with several exotic grave goods indicating some level of elite social status. This is in direct contrast with Woods which was much more egalitarian in their ritual practices involving social memory. However, Clement still displays traits which imply more inclusive practices, including the abundance of large fine wares intended for feasting as well as the fact that Mound A was an open platform mound lacking an above ground structure intended for exclusive ritual practices (Dowd 2012). This combination of both hierarchical and inclusive traits, such as the high frequencies of red slip and non-slipped fine wares and the large number of vessels intended for feasting demonstrates that Clement is distinct from other sites and sociopolitical models described by Dowd. As such, I agree with Regnier and Dowd (2013) and Horton (2025) in their interpretation of Clement as a gathering place for wide scale ceremonial events. Communities would engage in a shared and intensive ritual program revolving around social memory at the site, but the events were likely “sponsored” by a smaller group living at Clement that used these events along with social memory to legitimize their social status.

This research has contributed to the idea of a high-ranking group at Clement that organized ceremonial gatherings to their own benefit by highlighting the continued trend of fine wares being concentrated in the mound. My analysis also indicates that fine wares were primarily produced using grog temper well beyond the point of the widespread adoption of shell temper. I argue that this continued use of grog was another means of practicing social memory and that the people at Clement were producing fine wares using techniques to maintain and strengthen ties to Caddo ancestors extending all the way back to the Woodland period as previously suggested by Lambert (2021b:77).

Chapter 7: Conclusion

In this chapter I review the overall findings of this study and how they tie into trends seen in previous research at Clement. This includes the chronological interpretations of the site, site function, and a comparison of the site to existing models of sociopolitical complexity in southeastern Oklahoma. I then discuss future avenues of research involving the Clement collections, comparative studies of nearby sites such as A.W. Davis and McDonald, and potential uses for the modified descriptive system developed for this thesis.

Conclusions

Despite the lack of stratigraphic data from the original WPA excavations, several chronological trends across the Clement site were successfully derived from various ceramic attributes and their distributions. Most notably the long-term, continual use of Mound A was confirmed by the presence of chronologically sensitive markers from every major period dating from the Formative/ Early Caddo period all the way to the McCurtain phase. The Formative period occupation to the North of the mound was confirmed by examining tempers, ceramic types, and general decorative types, bolstering the radiocarbon date range of AD 900 – 1500 obtained during the 2008 OU field school. Lastly the grouping of units to the northernmost end of the site was determined to be a McCurtain phase occupation, and it likely represents one or more episodes of Caddo from A.W. Davis revisiting Clement to engage in some form of ancestral veneration, or to strengthen the social memory of their past at the Clement site.

This study also found that fine wares and utilitarian wares are both widely distributed across the site in many different contexts. However, when taking the red-slip fine wares into account it is clear that Mound A has an exponentially higher concentration of fine wares than anywhere else in the site. Fine wares at Clement also have a continued tradition of being tempered with grog tracing back to the Formative/ Early Caddo occupation of the site. I argue that since the fine wares were likely produced and used by high status individuals administering ceremonial gatherings at the Clement site, the social memory tied to grog tempering would have been leveraged by these Caddo potters to help legitimize and maintain their social ranking.

Finally, in comparison to other mound sites in the region such as the Woods Mound Group, it is clear that Clement is a unique ceremonial center in the region as it is not a fully egalitarian communal space for social gatherings, but it is also not a fully exclusive site reserved for a small group of elites maintaining specialized ritual knowledge. Based on the distributions and functions of decorative ceramics along with the general character of the major features at the site, Clement is likely a ceremonial center occupied by a group of higher status individuals who organized and administered ceremonial events for communities in the wider Glover region. This group of people then leveraged exclusive cultural materials, such as the elaborate fine wares, along with social memory emphasized in ritual practices in order to legitimize their social status.

Overall this study has confirmed previous interpretations of site function and chronology while also contextualizing the role of Clement as a ceremonial center in what is probably a widespread settlement or area of occupation that spans several miles of the Glover River.

Future Research

First, more comprehensive comparative studies of the Clement ceramics and collections from nearby sites such as McDonald and A.W. Davis are needed to better understand the full range of ceramic variability in the Glover River region, as well the changes in ceramic production and human behavior over time. A comparison to the A.W. Davis ceramics would also be extremely useful for understanding the shift in occupancy from Clement to this more recent mound site, and could provide evidence of visitation and continued, albeit limited, use of the Clement site beyond the point of its apparent abandonment.

Because it is difficult to identify multiple communities of practice through variations in temper, decoration, and spatial distribution, it is possible that composition analysis could identify separate clay sources which would imply that ceramics were being brought into the site by different groups that were making their own pottery offering an additional explanation for the vast quantity of decorative variation in the ceramic collection. However, if all clays were procured in southeastern Oklahoma, compositional analysis may be futile as clays from this region are incredibly heterogenous.

Finally, detailed analysis of the plainwares at the site, along with studies of the faunal, palaeobotanical, and lithic collections are all needed to create a full picture of human activity at the Clement mound center.

Descriptive System

While the modified descriptive system used in this study was not as central to answering the primary research questions as I had hoped, I believe that there is vast potential in this form of detailed ceramic analysis, not only within the Caddo Area, but for the study of archaeological ceramics as a whole. First, this system may prove to be more beneficial with assemblages that primarily consist of utilitarian wares as these carry less intentionally viable symbolism, so the variations in these vessels are more likely to tell us about communities of potters or practice. Second, this method may also be a more useful tool when applied to assemblages outside of the Caddo Area where ceramic designs and styles are less complex. The level of detail captured in this descriptive system may be able to identify communities of practice that are distinguished by traces of potting techniques that are not intentionally visible. The best example of this is seen in Minar's (2001a, 2001b) ethnographic work on the direction of the final twist in the cordage used to stamp cord marked pottery which demonstrates that different communities of practice have a particular way of making cordage that is not an intentional display of.

The system itself can also be refined now that it has been used in a formal study of archaeological ceramics and its strengths and weaknesses are known. For example engraved sherds have an overwhelming number of elements to describe creating a convoluted list of descriptive codes that are difficult to incorporate into data analysis. This could be remedied by focusing on overall design first and then assigning specific variation and detail types to each individual design rather than using them universally for all engraved sherds. Additionally, studying whole vessel decorative variation across the entire Caddo Area would also be beneficial as it could help to create more standardized decorative codes for variation that is known to be part of the ancestral Caddo material culture. Once the system is improved, I believe that it will be beneficial not only for in-depth ceramic studies, but also for recording basic data during mass analysis as conducted on the Clement ceramics back in 2012. The system is not difficult to learn and it includes quantifiable descriptions such as measured line spacing, so there is a level of replicability involved. It also improves basic decorative analyses by documenting far more variation which can be used for in-depth analysis at a later date and once it has been used for collections from multiple sites it will allow for more detailed comparative analyses which are a vital part of studying communities of practice.

Concluding Thoughts

Overall, this study has demonstrated the benefit of ceramic analysis in understanding site chronology, function, and sociopolitical complexity in relation to nearby communities as well as those in the wider Caddo Area. The Clement site is a small part of a much wider area of occupation along the Glover River, and further archaeological here and at nearby sites will contribute to our knowledge and understanding of ancestral Caddo history.

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Appendix A: Modified Descriptive System Instructions and Codes

- Letter and number codes are listed in this order: main decorative type, decorative type variation, variation details, design #

- Main decorative type codes are always capitalized, decorative type variations and variation details are lowercase

- Main decorative type code is separated from the decorative type variation and variation detail codes with a period "."

- Design codes are in parentheses (#) following the letter codes

- Basic Example:
  - i.e.) Nail impressed, diagonal impressions, medium spacing, (design #)
  - D.dm (1)

- If there are multiple variation details for *one* decorative type variation, keep the variation and its details together, separate the details with a comma " , "
  - i.e.) Engraved, rectilinear lines, parallel hatching + tic marks, (design #)
  - E.rp,t (1)

- If there are multiple decorative type variations for *one* main decorative type, separate the variation and detail pairs with a colon " : "
  - i.e.) Engraved, rectilinear lines, parallel hatching *and* curvilinear lines, cross hatching, (design #)
  - E.rp:ch (1)

- If there are multiple main decorative types, separate the letter codes using " / "
- Each of the main decorative types is assigned a code from the list of numbers *for that specific main decorative type*
  - i.e.) Applique, narrow & low line, ridges, (no overarching design) *and* Incised, curvilinear, medium width lines, (parallel lines with narrow spacing)
  - A.br (0)/I.cm (2)

- If there are no details for the decorative type variation use "x" in lieu of a variation detail letter code
  - Engraved, rectilinear, no details, (design #)
  - E.rx (1)

= **<u>Descriptive System Codes</u>** =

I.) Main Decorative Type

A = Appliqué
B = Brushed
D = Fingernail Impressed
E = Engraved
I = Incised
N = Pinching
U = Punctated

II.) Decorative Type Variations

<u>Appliqué</u> (A)

a = line, narrow + tall
b = line, narrow + low
c = line, wide + tall
d = line, wide + low
e = node, narrow + tall
f = node, narrow + low
g = node, wide + tall
h = node, wide + low

Note: *"narrow" is < 6mm, "wide" is > 6mm, tall vs. low is qualitative*

<u>Brushed</u> (B)

a = area brushing
f = full coverage brushing

<u>Fingernail Impressed</u> (D)

d = diagonal
h = horizontal
v = vertical
f = field of impressions (no lines)

Note: *direction is based on nail impressions in relation to each other in a line*

<u>Engraved</u> (E)

r = rectilinear
c = curvilinear
h = horizontal
v = vertical
d = diagonal
t = triangular

Note: *h, v, and d: are in relation to a rim or inflection point*
*asterisk * indicates an area formed by a type of line; i.e.) c* = curvilinear area*

Incised (I)

r = rectilinear
c = curvilinear
h = horizontal
v = vertical
d = diagonal
t = triangular

Note: *h, v, and d: are in relation to a rim or inflection point*
*asterisk * indicates an area formed by a type of line; i.e.) c* = curvilinear area*

Pinching (N)

c = crimping/ corrugated
p = pinch and drag
r = ridge pinching
m = miscellaneous pinching

Punctated (U)

r = rectilinear line
c = curvilinear line
h = horizontal line
v = vertical line
f = field of punctations
s = single punctation

III.) Variation Details

Applique (A)

i = incised (line)
r = ridges (line)
p = punctated (line)
t = rectangular (node)
c = circular (node)
o = oval (node)
s = saddle (node)
a = triangular (node)
e = eroded

Brushed (B)

h = horizontal strokes
v = vertical strokes
r = random directions/ no consistent direction
u = unsure of direction *(body sherds)*

Fingernail Impressed (D)

c = connected ---------------- *(no space between impressions)*
n = narrow spacing --------- *(< 1mm between impressions)*
m = medium spacing ------- *(1 – 1.9mm between impressions)*
w = wide spacing ----------- *(2 – 2.9mm between impressions)*
v = very wide spacing ------ *(> 3mm between impressions)*

Engraved (E)

t = tic marks	p = vertical/ horizontal parallel hatching
c = circles	d = diagonal parallel hatching
o = ovals	h = cross hatching
i = dots	s = scratched hatching

Incised (I)

n = narrow lines -------- *(< 1mm wide)*
m = medium lines ------ *(1 – 1.9mm wide)*
w = wide lines ---------- *(2 – 2.9mm wide)*
v = very wide lines ----- *(> 3mm wide)*

Pinched (N)

d = deep pinching
s = shallow/ flat pinching

Punctated (U)

c = circular	e = semi-circle
l = linear	s = square
t = triangular	h = hollow circle (reed)
o = oval	

IV.) Design Numbers

Note: For rim sherds, all numbers regardless of decorative technique are followed by a number indicating the location of the decorative elements on the sherd.
".1" design confined to the body
".2" design confined to the rim
".3" design present on rim and body
".4" design is present on the rim, but no clear distinction between the rim and body
".5: design is confined to the lip of the vessel

For codes with an additional letter modifier, the letter is added *after* the location number
i.e.) Nail impressions, perpendicular lines with additional parallel lines, confined to the body of the sherd: D… (7.3a)

Note: Measurements for spacing between lines taken from (Schambach 1981:120), "very wide spacing" (>13mm) category was added specifically for this study

Note: Measurements for width of lines taken from (Schambach 1981:120); measurements also applied to spacing between individual fingernail impressions

Appliqué (A)

A (0): No overarching design

A (1): Line of node and/or line appliqués, (i.e. **– o – o –** ; **o o o** ; **– – –**)

A (2): Field of node appliqués

A (3): Perpendicular lines

a: one perpendicular line is parallel to additional lines (i.e. Π shape)
b: both perpendicular lines are parallel to additional lines

A (4): Diagonal Perpendicular lines

a: one perpendicular line is parallel to additional lines
b: both perpendicular lines are parallel to additional lines

A (5): Lines forming a point

A (6): Concentric triangles

A (7): Vertical line running from rim downwards

a: line runs over a handle
b: line is confined to a handle

Brushed (B)

B (0): no overarching design

Fingernail Impressed (D)

D (0): No overarching design

D (1): Very close spaced parallel lines (< 2mm)

D (2): Close spaced parallel lines (2 – 5.9mm)

D (3): Medium spaced parallel lines (6 – 8.9mm)

D (4): Wide spaced parallel lines (9 – 12.9mm)

D (5): Very wide spaced parallel lines (>13mm)

D (6): Perpendicular lines

a: one perpendicular line is parallel to additional lines (i.e. π shape)
b: both perpendicular lines are parallel to additional lines

D (7): Diagonal perpendicular lines

a: one perpendicular line is parallel to additional lines (i.e. *π* shape)
b: both perpendicular lines are parallel to additional lines

D (8): Field of fingernail impressions, no specific lines

D (9): Curved lines of nail impressions, possibly part of a spiral

Engraved (E)

E (0): No overarching design

E (1): Very close spaced parallel lines (< 2mm)

E (2): Close spaced parallel lines (2 – 5.9mm)

E (3): Medium spaced parallel lines (6 – 8.9mm)

E (4): Wide spaced parallel lines (9 – 12.9mm)

E (5): Very wide spaced parallel lines (>13mm)

E (6): Very close lines, often overlapping, random scratching appearance

E (7): Perpendicular lines

a: one perpendicular line is parallel to additional lines (i.e. π shape)
b: both perpendicular lines are parallel to additional lines

E (8): Diagonal perpendicular lines

a: one perpendicular line is parallel to additional lines (i.e. *π* shape)
b: both perpendicular lines are parallel to additional lines

E (9): Sunburst design (Likely Sah-Cooh/ Avery Engraved)

E (10): Banding/ scrolls with complex designs (Barkman p242; Friendship p274; Glassel p282)

E (11): Triangular areas formed by conjoined/overlapping straight or curvilinear lines

E (12): Bowtie shape/area formed by curvilinear lines flanked by curvilinear or straight lines

E (13): Concentric triangles/ concentric open-ended triangles (diagonal lines coming to a point)

E (14): Concentric circles

a – e: very close spaced to very wide spaced

E (15): Narrow linear area (generally filled in with some kind of patterning)

E (16): Wide linear area (generally filled in with some kind of patterning)

E (17): Wavy line pattern

E (18): Spiral pattern

E (Comp): Complex; too much detail to capture in a single design code

Incised (I)

I (0): No overarching design

I (1): Very close spaced parallel lines (< 2mm)

I (2): Close spaced parallel lines (2 – 5.9mm)

I (3): Medium spaced parallel lines (6 – 8.9mm)

I (4): Wide spaced parallel lines (9 – 12.9mm)

I (5): Very wide spaced parallel lines (>13mm)

I (6): Very close to close lines, often overlapping, random scratching appearance

I (7): Perpendicular lines

a: one perpendicular line is parallel to additional lines (i.e. Π shape)
b: both perpendicular lines are parallel to additional lines

I (8): Diagonal perpendicular lines

a: one perpendicular line is parallel to additional lines (i.e. $\mathit{\Pi}$ shape)
b: both perpendicular lines are parallel to additional lines

I (9): Alternating triangles

I (10): Crossed diagonal lines forming multiple diamond shapes

a: very narrow diamonds (< 2mm)
b: narrow diamonds (2 – 5.9mm)
c: medium diamonds (6 – 8.9mm)
d: wide diamonds (9 – 12.9mm)
e: very wide diamonds (>13mm)

* add a " - " to the end of the suffix letter to indicate a horizontal line in center of diamond)
* diamonds measured horizontally across the width of the diamond

I (11): Overhang incising, producing a corrugated effect

I (Comp.): Complex; too much detail to capture in a single design code

Pinching (N)

N (0): No overarching design

N (1): Very close spaced parallel lines (< 2mm)

N (2): Close spaced parallel lines (2 – 5.9mm)

N (3): Medium spaced parallel lines (6 – 8.9mm)

N (4): Wide spaced parallel lines (9 – 12.9mm)

N (5): Very wide spaced parallel lines (>13mm)

N (6): Lines of pinching forming a point

N (7): Field of Pinching

N (8): Rows of corrugated pinching/ mimic corrugated pinching

N (9): Potentially curved line(s) of pinching/ spiral design (similar to Weches fingernail??)

Punctated (U)

U (0): No overarching pattern

U (1): Very close spaced parallel lines (< 2mm)

U (2): Close spaced parallel lines (2 – 5.9mm)

U (3): Medium spaced parallel lines (6 – 8.9mm)

U (4): Wide spaced parallel lines (9 – 12.9mm)

U (5): Very wide spaced parallel lines (>13mm)

U (6): Perpendicular lines
a: one perpendicular line is parallel to additional lines
b: both perpendicular lines are parallel to additional lines

Appendix B: Variation Details

Table B.1: Applique variation details

Applique Detail-Types (N = 18)	N =	%
A.ap	2	7.1
A.ar	2	7.1
A.ax:ec	1	3.6
A.bp	5	17.9
A.br	2	7.1
A.bx:hc	1	3.6
A.cx	1	3.6
A.de	2	7.1
A.dp	2	7.1
A.dx	2	7.1
A.ec	1	3.6
A.es	1	3.6
A.et	1	3.6
A.fe	1	3.6
A.ft	1	3.6
A.go	1	3.6
A.gs	1	3.6
A.hr	1	3.6
Totals	**28**	**100.0**

Table B.2: Fingernail Impressed variation details

Fingernail Detail-Types (N = 19)	N =	%
D.dc	4	3.8
D.dm	15	14.4
D.dm:dv	1	1.0
D.dm:vm	1	1.0
D.dn	3	2.9
D.dn:dm	1	1.0
D.dv	29	27.9
D.dw	11	10.6
D.fx	2	1.9
D.hc	13	12.5
D.hm	2	1.9
D.hn	1	1.0
D.hv	10	9.6
D.hw	5	4.8
D.vm	1	1.0
D.vn	2	1.9
D.vv	1	1.0
D.vw	1	1.0
D.xx	1	1.0
Totals	**104**	**100.0**

Table B.3: Engraved variation details

Engraved Detail-Types (N = 90)	N =	%
E.c*c,o,p	1	0.4
E.c*c,s:dx	1	0.4
E.c*d	3	1.2
E.c*h	1	0.4
E.c*h,c	1	0.4
E.c*h:cx	1	0.4
E.c*h:rx	1	0.4
E.c*p	2	0.8
E.c*p:cx	1	0.4
E.c*p:cx:r*p,c	1	0.4
E.c*p:rx	1	0.4
E.c*s,c	1	0.4
E.c*t,p,o	1	0.4
E.c*x:r*h	1	0.4
E.cd	1	0.4
E.cd,c	1	0.4
E.ch	1	0.4

E.ci	3	1.2
E.cp	1	0.4
E.ct	2	0.8
E.ct:rx	1	0.4
E.cx	44	17.5
E.cx:c*s	2	0.8
E.cx:c*s,o	1	0.4
E.cx:rx	3	1.2
E.cx:t*d	1	0.4
E.cx:t*h	2	0.8
E.cx:t*p	2	0.8
E.cx:t*s	3	1.2
E.cx:tx	1	0.4
E.ds	1	0.4
E.dx	2	0.8
E.ht	1	0.4
E.hx	7	2.8
E.hx:cx	1	0.4
E.hx:dx	1	0.4
E.hx:hc,s	1	0.4
E.hx:t*p	1	0.4
E.hx:v*s	1	0.4
E.r*c,p	1	0.4
E.r*d	3	1.2
E.r*d,o	1	0.4
E.r*d:cx	2	0.8
E.r*h	1	0.4
E.r*h,c	1	0.4
E.r*I	1	0.4
E.r*o	1	0.4
E.r*o,h	1	0.4
E.r*o,s	1	0.4
E.r*p	1	0.4
E.r*p,o	1	0.4
E.r*p:rx	1	0.4
E.r*s	1	0.4
E.r*s,o	1	0.4
E.r*s,t	1	0.4
E.r*s:c*s	1	0.4
E.rd	4	1.6
E.rh	1	0.4
E.rh:cx	1	0.4
E.ri	1	0.4

E.rp,o	1	0.4
E.rs	1	0.4
E.rs,c	1	0.4
E.rt	2	0.8
E.rx	80	31.7
E.rx:c*p,c	1	0.4
E.rx:c*s	1	0.4
E.rx:c*t,o,s	1	0.4
E.rx:ci	1	0.4
E.rx:cp	1	0.4
E.rx:ct	2	0.8
E.rx:cx	6	2.4
E.rx:cx:c*i	2	0.8
E.rx:cx:t*p	1	0.4
E.rx:dx	1	0.4
E.rx:r*p	1	0.4
E.rx:t*c	1	0.4
E.rx:t*c,h	3	1.2
E.rx:t*c,s	1	0.4
E.rx:t*h	1	0.4
E.rx:t*o,p	1	0.4
E.rx:t*s	2	0.8
E.rx:t*s,c	1	0.4
E.rx:tx	1	0.4
E.t*o,s:rx	1	0.4
E.t*s,c:rx	1	0.4
E.t*s,o	3	1.2
E.tx	1	0.4
E.vx	2	0.8
E.xh	1	0.4
Totals	**252**	**100.0**

Table B.4: Incised variation details

Incised Detail-Types (18)	N =	%
I.cm	3	2.2
I.cn	1	0.8
I.dm	5	3.7
I.dn	10	7.5
I.dn:hn	4	3.0
I.dw	1	0.8
I.hm	4	3.0
I.hn	26	19.4
I.hw	1	0.8
I.hx	2	1.5
I.hx:dx:c*d	1	0.8
I.rm	15	11.2
I.rn	46	34.3
I.rw	3	2.2
I.rx	5	3.7
I.vm	2	1.5
I.vn	4	3.0
I.vw	1	0.8
Totals	**134**	**100.0**

Table B.5: Pinched variation details

Pinched Detail-Types (10)	N =	%
N.cd	4	4.1
N.cd,s	1	1.0
N.cs	35	36.1
N.md	2	2.1
N.ms	9	9.3
N.mx	1	1.0
N.pd	12	12.4
N.ps	5	5.2
N.rd	27	27.8
N.rs	1	1.0
Totals	**97**	**100.0**

Table B.6: Punctated, variation details

Punctated Detail-Types (7)	N =	%
U.cc	1	7.1
U.fc	1	7.1
U.rl	6	42.9
U.ro	1	7.1
U.rt	4	28.6
U.st	1	7.1
Totals	**14**	**100.0**

Appendix C: Decorative Type Variations

Table C.1: Applique type variations

Variation-Types (N = 8)	Counts	%
A.a	5	17.9
A.b	8	28.6
A.c	1	3.6
A.d	6	21.4
A.e	3	10.7
A.f	2	7.1
A.g	2	7.1
A.h	1	3.6
Totals	**28**	**100.0**

Table C.2: Fingernail Impressed type variations

Variation-Types (N = 5)	Counts	%
D.d	65	62.5
D.f	2	1.9
D.h	31	29.8
D.v	5	4.8
D.x	1	1.0
Totals	**104**	**100.0**

Table C.3: Engraved variation types

Variation-Types (N = 10)	Counts	%
E.c*	17	6.7
E.c	69	27.4
E.d	3	1.2
E.h	13	5.2
E.r*	20	7.9
E.r	121	48.0
E.t*	5	2.0
E.t	1	0.4
E.v	2	0.8
E.x	1	0.4
Totals	**252**	**100.0**

Table C.4: Incised variation types

Variation-Types (N = 5)	Counts	%
I.c	4	3.0
I.d	20	14.9
I.h	34	25.4
I.r	69	51.5
I.v	7	5.2
Totals	**134**	**100.0**

Table C.5: Pinched type variation types

Variation-Types (N = 4)	Counts	% of N
N.c	40	41.2
N.m	12	12.4
N.p	17	17.5
N.r	28	28.9
Totals	**97**	**100.0**

Table C.6: Punctated variation types

Variation-Types (N = 4)	Counts	% of U
U.c	1	7.1
U.f	1	7.1
U.r	11	78.6
U.s	1	7.1
Totals	**14**	**100.0**

Appendix D: Design Types/ Codes

Table D.1: Applique design types

Design (N = 5)	Count	% Applique
A (0)	22	78.6
A (2)	3	10.7
A (3)	1	3.6
A (6)	1	3.6
A (7)	1	3.6
Totals	28	100.0

Table D.2: Fingernail Impressed design types

Design (N = 9)	Count	% Fingernail
D (0)	63	60.6
D (2)	1	1.0
D (3)	6	5.8
D (4)	6	5.8
D (5)	13	12.5
D (6)	7	6.7
D (7)	6	5.8
D (9)	1	1.0
D (1/5)	1	1.0
Totals	104	100.0

Table D.3: Engraved design types

Design (N = 23)	Count	% Engraved
E (0)	46	18.3
E (1)	12	4.8
E (2)	17	6.7
E (3)	22	8.7
E (4)	16	6.3
E (5)	11	4.4
E (6)	15	6.0
E (7)	7	2.8
E (8)	14	5.6
E (9)	6	2.4
E (10)	3	1.2
E (11)	13	5.2
E (12)	5	2.0
E (13)	3	1.2
E (14)	1	0.4
E (15)	9	3.6
E (16)	3	1.2
E (18)	1	0.4
E (comp.)	6	2.4
E (1/15)	2	0.8
E (3/11)	7	2.8
E (6/11)	4	1.6
Other	29	11.5
Totals	252	100.0

Table D.4: Incised design types

Design (N = 13)	Count	% Incised
I (0)	40	29.9
I (1)	3	2.2
I (2)	14	10.4
I (3)	14	10.4
I (4)	8	6.0
I (5)	4	3.0
I (6)	28	20.9
I (7)	1	0.7
I (8)	5	3.7
I (9)	1	0.7
I (10)	12	9.0
I (comp.)	1	0.7
Other	3	2.2
Totals	134	100.0

Table D.5: Pinched design types

Design (N = 9)	Count	% Pinched
N (0)	32	33.0
N (2)	4	4.1
N (3)	4	4.1
N (4)	1	1.0
N (5)	3	3.1
N (6)	4	4.1
N (7)	3	3.1
N (8)	42	43.3
N (9)	4	4.1
Totals	97	100.0

Table D.6: Punctated design types

Design (N = 4)	Count	% Punctated
U (0)	9	64.3
U (1)	1	7.1
U (3)	2	14.3
U (4)	2	14.3
Totals	14	100.0

Appendix E: Additional Photos

Figure E.1: A: narrow low line ridged applique *787.1*; B: narrow tall line ridged applique *986.1*

Figure E.2: Narrow low line ridged applique with diagonal and horizontal fingernail impressions, *343.1*

Figure E.3: Horizontal fingernail impressions, perpendicular and parallel *1138.1*

Figure E.4: Carinated bowl, indeterminate engraved type *1043.3*

Figure E.5: Circular punctations, parallel lines *1667.1*

Figure E.6: Applique, field of saddle shaped nodes, tall and narrow *1391.1*

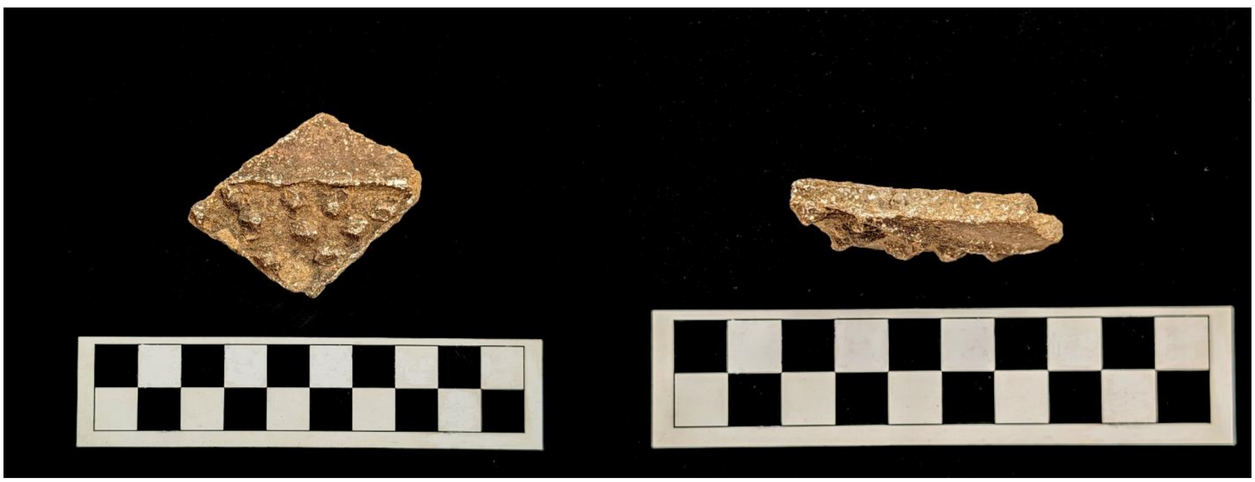

Figure E.7: Applique, field of tall narrow circular nodes *20.17*

Figure E.8: Engraved, wide spaced parallel lines, triangular area with empty circles *1360.14*

Figure E.9: Narrow, low line applique, nested triangles *417.3*

Figure E.10: Incised cross hatching, narrow diamonds with center lines *(L): 1590.2; (R): 1559.5*

Figure E.11: Incised cross hatching, very wide diamonds *1502.4*

Figure E.12: Applique, fingernail impressed, and incised sherd *2079.2*