CONSTRUCTING COMMUNITY AND COSMOS: A BIOARCHAEOLOGICAL ANALYSIS OF WISCONSIN EFFIGY MOUND MORTUARY PRACTICES AND MOUND CONSTRUCTION

By

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ABSTRACT

CONSTRUCTING COMMUNITY AND COSMOS: A BIOARCHAEOLOGICAL ANALYSIS OF WISCONSIN EFFIGY MOUND MORTUARY PRACTICES AND MOUND CONSTRUCTION

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This dissertation presents an analysis of the mounds, human skeletal remains, grave goods, and ritual paraphernalia interred within mounds traditionally categorized as belonging to the Wisconsin Effigy Mound Tradition. The term 'Effigy Mound Tradition' commonly refers to a widespread mound building and ritual phenomenon that spanned the Upper Midwest during the Late Woodland (A.D. 600-A.D. 1150). Specifically, this study explores how features of mound construction and burial may have operated in the social structure of communities participating in this panregional ceremonial movement.

The study uses previously excavated skeletal material, published archaeological reports, unpublished field notes, and photographs housed at the Milwaukee Public Museum to examine the social connotations of various mound forms and mortuary ritual among Wisconsin Effigy Mound communities. The archaeological and skeletal datasets consisted of data collected from seven mound sites with an aggregate sample of 197 mounds and a minimum number of individuals of 329.

The mortuary analysis in this study explores whether the patterning of human remains interred within mounds were part of a system involved with the 1) creation of collective/ corporate identity, 2) denoting individual distinction and/or social inequality, or 3) a combination of both processes occurring simultaneously within Effigy Mound communities.

The results from the mortuary analysis suggests that Effigy Mound monumentalism and mortuary practices likely played a role in the creation and celebration of both corporate and individual identities within communities participating in this ceremonial movement. The findings also suggest that mound building was not performed solely for burial; rather mound construction and ceremonialism were possibly part of a panregional world renewal ceremonial and religious movement that sometimes included human burial. This study also illustrates how the Effigy Mound religious movement may have permeated other aspects of the social structure, particularly the creation of social inequality and/or 'masked hierarchy' within communities participating in this movement.

This study suggests that burial within mounds was a communicative act to those responsible for mound construction and burial. Burial within conical and oval mounds was likely symbolic of collective identity creation. Burial within effigy mound forms, on the other hand, was much more limited and likely reflective of a system of individual distinction. The differential treatment of those buried within mounds belonging to the Effigy Mound Movement reveals that mound construction and burial likely performed processes of integration and distinction simultaneously among communities participating in this ceremonial movement.

Dedication

To my mother, who inspired my interest in physical anthropology, encouraged my dreams, and sadly did not get to see me finish. You are missed but never forgotten.

To my amazing husband Jered, you have made all my dreams come true.

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I would like to thank the Milwaukee Public Museum for allowing access to the Effigy Mound skeletal collection and archaeological documents. I would like to extend a special "Thank you" to Ms. Dawn Scher-Thomae of the Milwaukee Public Museum. You are a wonderful collections manager and made every trip run smoothly and efficiently. But perhaps, the best part of my work at the MPM was getting to you know you and your family and gaining a new friend.

I would like to thank all the members of my doctoral committee, Dr. Goldstein, Dr. Lovis, Dr. O'Gorman, Dr. Sauer, and Dr. Bice. This dissertation could not have been completed without the help and support of the entire committee. I would, however, like to acknowledge the contribution of the archaeologists who threw me a much needed rope when I was teetering over the edge of the "graduate student cliff". I will never forget that moment and extend my sincerest thanks to you.

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And to Jered, thank you for being such an amazing husband, colleague, friend, and fellow researcher. The hundreds of hours spent sitting across the lab table collecting data and discussing our hypotheses regarding the Effigy Mound material have been challenging but also fun. I could not imagine doing this with anyone else. I look forward to many future projects with you – as long as I am first author. I love you more than you will ever know.

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Chapter 1: Introduction

Introduction

This dissertation presents a bioarchaeological examination of the human skeletal remains and associated ceremonialism observed within mounds traditionally described as belonging to the Wisconsin Effigy Mound Tradition and how both may have operated in community social structure. It uses previously excavated and analyzed skeletal material, published archaeological reports, unpublished field notes, and photographs housed at the Milwaukee Public Museum (MPM) to examine the social connotations of various mound forms and mortuary ritual among Wisconsin Effigy Mound communities. Specifically, this research explores the varied forms of mound construction and mortuary behaviors among Effigy Mound communities to address whether the patterning of human remains within mounds denoted a ritual system involved with the creation of collective identity, social inequality/masked hierarchy, or a combination of the two within Effigy Mound communities.

This study departs dramatically from other bioarchaeological studies of Effigy Mound material by also considering the human remains interred within mounds as material objects selected by Effigy Mound communities to communicate information through their ritual use (Joyce 2005**;** Shanks and Tilley 1982; Sofaer 2006). It is the examination of *individual skeletal biology and the social use of the skeletal remains* in Effigy Mound mortuary ritual that is the focus of this dissertation. Specifically, this research applies both agency and structuration theories to create a conceptual framework which explores differences in the patterning of skeletal and mortuary variables among Effigy mound forms and how these differences may have operated to integrate groups of individuals while at the same time reinforcing distinctions between socio-ideological groups based on differential access to ritual and ritual facilities.

Effigy Mound Tradition

The term 'Effigy Mound Tradition' commonly refers to a widespread mound building and ritual phenomenon that spanned geographically across southern Wisconsin, eastern Iowa, northern Illinois, and southeastern Minnesota and temporally from A.D. 600 to A.D. 1200. Effigy Mound sites are most numerous in southern Wisconsin and tended to be located by major water sources such as lakes, rivers, and/or large wetland areas (Figure 1.1) (Birmingham and Eisenberg 2000; Goldstein 1995; Lapham 1855).

These locations offered abundant natural resources which would have been of considerable value to Effigy Mound communities who by and large practiced a hunting-fishing-gathering subsistence and moved across the landscape in seasonal rounds. It is believed that these groups likely settled in larger aggregates in locales that offered abundant resources during particular times of the year (Benn 1979; Birmingham 2010; Birmingham and Eisenberg 2000; Goldstein 1995; Mallam 1976; 1984; Storck 1974).

The most distinguishing features of Effigy Mound sites, however, are the varied mound forms and associated ceremonialism (Figure 1.2). Communities participating in Effigy Mound ceremonialism constructed low-relief earthen mounds of both geometric (e.g. conical, oval, biconical, and linear) and zoomorphic forms (e.g. bird, bear, panther, turtle, canine, deer). Mounds commonly ranged in height from one to four feet. However, the length and width of some linear and effigy mound forms, particularly the wingspan of bird effigies and tails of water

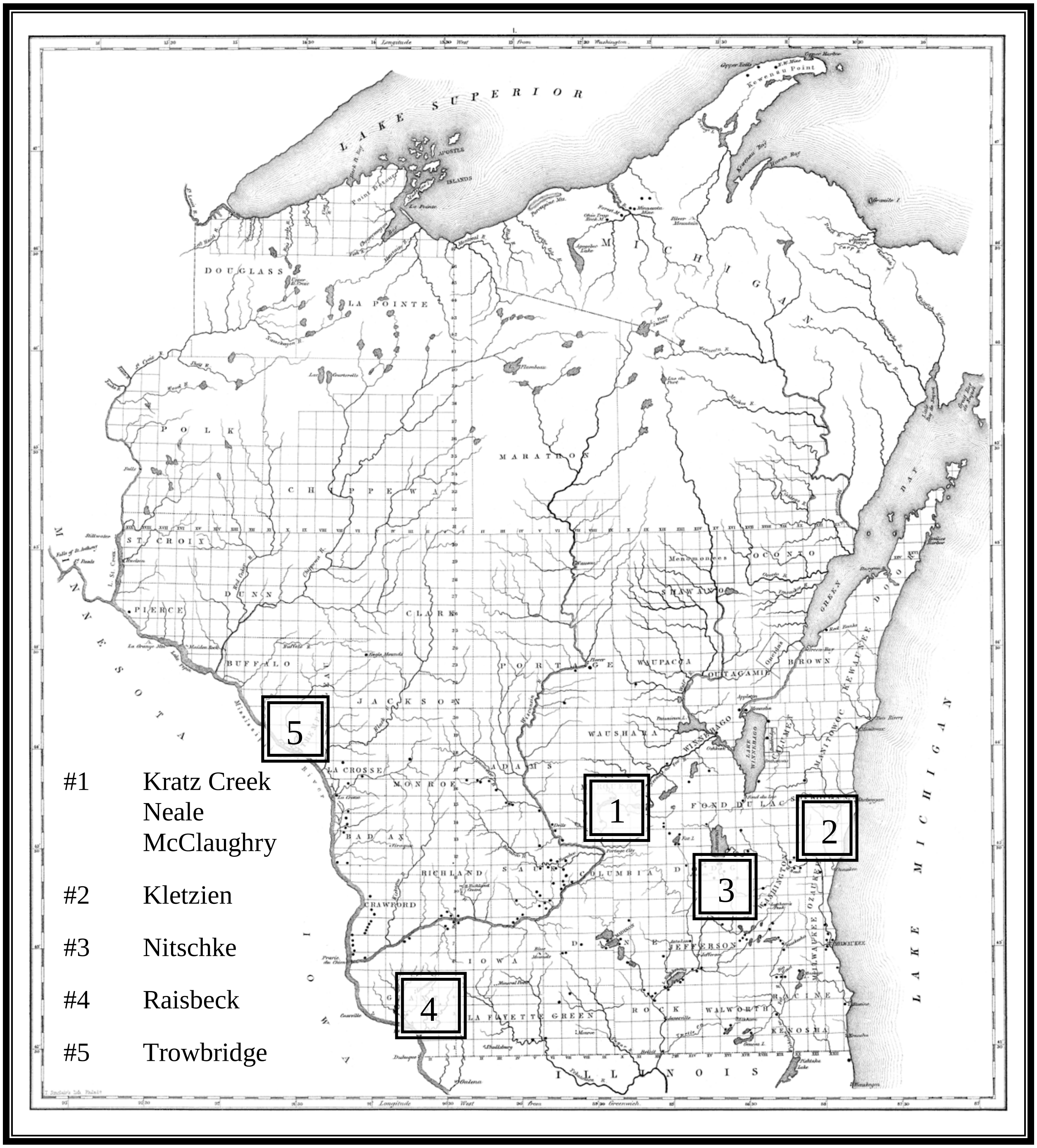

Figure 1.1 Locations of Wisconsin Mound Groups from Lapham, Increase (1855) *The Antiquities of Wisconsin.* Smithsonian Institution, Washington. Text in the figure, other than the numbers on the map, is not meant to be readable, but is for visual reference only.

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panther mounds, could be exceptionally large. For example the wingspan of a bird effigy mound at the Mendota State Hospital grounds in Madison, Wisconsin has a wing span of over 600 feet (Figure 1.2) (Birmingham and Rankin 1996).

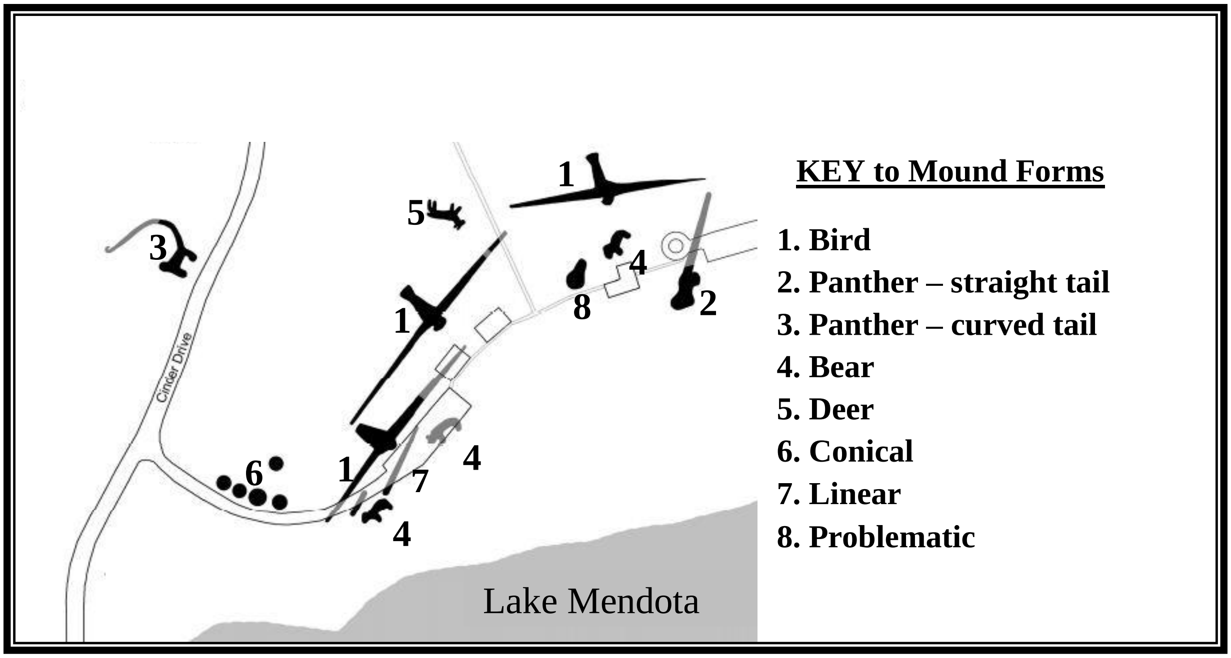

Figure 1.2 Effigy Mounds at Mendota Hospital Grounds from Birmingham, A and Rankin, K. (1996) *Native American Mounds in Madison and Dane County.* City of Madison and Sate Historical Society of Wisconsin, Madison. Text in the figure, other than numbers and key, is not meant to be readable, but is for visual reference only.

Both geometric and effigy mound forms (Figure 1.2) were regularly constructed within the same grouping. Mounds of either shape frequently contained evidence of human burials and/or other ritual activity (Barrett and Hawkes 1919; Goldstein 1995; Mallam 1976; McKern 1928, 1930; Rowe 1956; Rosebrough 2010). The ritual features observed within Effigy mounds include: evidence of fire (fire hearths), rock formations (rock altars), bowl-like structures formed from clay and pebbles (cists), special incorporated soils, and pottery (Barrett and Hawkes 1919; Benn 1979; Birmingham and Eisenberg 2000; Goldstein 1995; Hurley 1975; McKern 1928, 1930; Rosebrough 2010; Rowe 1956). These features may appear singly or in various combinations. Alternatively, some mounds exhibited no evidence of ritual activity other than the construction of the mound itself.

The number of human burials interred within the mounds was generally few, averaging only one to three individuals. In some instances, the number of individuals interred ranged as high as 10-12 or even higher in "mass burials" (Birmingham and Eisenberg 2000; Goldstein 1995). These mass burials occurred in conical, oval, or egg-shaped mound forms and contained 20 or more individuals. The burials interred within Effigy mounds were commonly disposed as primary flexed burials or secondary bundle reburials. Other less common dispositions included extended burials and cremations (Barrett and Hawkes 1919; Goldstein 1995; McKern 1928, 1930; Rowe 1956; Ruth 2000).

Burials were generally not distributed equally between mound forms. Effigy mound forms, when they contained burials, often contained one or two individuals. Non-effigy mounds, on the other hand, generally exhibited larger numbers of individuals. Additionally, the form of bodily disposition seemed to differ between geometric and effigy mound forms. Chandler Rowe (1956: 93-97), tabulated the distribution of burial types (fleshed versus reburial) for the following sites: Diamond Bluff, Green Lake, Heller, Kletzien, Kratz Creek, McClaughry I, Neale, Nitschke, Raisbeck, and Utley and found that secondary burial is more common in non-effigy forms. The disparity in the number of bodies interred in geometric and effigy mound forms and type of disposition afforded them suggests that burial in different mound forms may have reflected diverse symbolic meanings and social function.

The low number of burials in most mounds and differential patterning of the interments, specifically more individuals interred in conical and oval forms compared to effigy mounds, suggests that some form of social selection was occurring with regard to who was included in mound burial among communities participating in Effigy Mound ceremonialism (Goldstein 1995). Yet the inclusion and exclusion criteria employed by Effigy Mound communities or its meaning in the larger sociocultural context are not understood.

This study aims to answer Goldstein's (1981:56) call for an evaluation of the *context* of these groupings by addressing, "What does each group or status type mean? How do the groups relate to each other? What are the functions of each group, and what are the functional relationships between groups?" In this study, the group refers to the burials within each mound form category – geometric or effigy. The emphasis is less on the actual biology of the individuals interred within the mounds but instead focuses on the agency behind their selection.

Significance of the Problem: Need for a Social Bioarchaeological Approach

Although several archaeological studies have been performed regarding the significance of mound burial within the larger Effigy Mound sociocultural context, little bioarchaeological analysis of the actual human remains has been performed. What has been done has focused predominantly on the biologic qualities of the remains. Consequently the nature of Effigy Mound mortuary practices, particularly as it pertains to mound burial and their meaning is poorly understand.

Some authors suggest that Effigy Mound social organization and mortuary ritual was largely egalitarian based the presence of relatively few grave goods and the general utilitarian nature of these items (Birmngham and Eisenberg 2000; Ruth 2000). Others argue that mound burial itself may have connoted distinct social positions and perhaps even contributed to a "masked hierarchical" system of differential prestige and influence (Birmingham 2010; Goldstein 1995; Rosebrough 2010). Such discrepancies in interpretation are understandable particularly since "monuments in many cases, can reinforce *both* egalitarian and hierarchical relations" (Thompson and Pluckhahn 2012, emphasis added).

Effigy Mound earthen construction marks a dramatic alteration in mound form types. As Charles (1992:186-187) noted, the general trend in mound form is for "gradual, patterned alteration in mound shape and structure, as ritual practice undergoes 'drift' through time. Dramatic or sudden changes need additional explanation." Yet, Late Woodland Effigy Mound mortuary patterning and mound construction has not received nearly the same bioarchaeological interest as Hopewell and Mississippian mortuary practices.

In fact, a review of the Effigy Mound literature reveals that the vast majority of bioarchaeological investigations of Effigy Mound skeletal material have been site specific in nature and/or focused on particular characteristics of the skeletal material such as markers of physical activity or pathology with little reference to cultural context (Bradley 2005; Handwerk 2007; Smith 2008; Sullivan 1985). An exception to the site and trait specific analyses is the review of Effigy Mound skeletal material performed by Christine Ruth (1998, 2000).

Ruth's (1998) study included all of the skeletal remains housed at the MPM recovered from several Wisconsin Effigy Mound sites. As part of her analysis, Ruth (1998) reconstructed demographic profiles from the material recovered from the mounds and examined the remains for paleopathology (trauma, infection, arthritis, dental pathology, and metabolic disorders). She also investigated possible correlations between disposal type (primary, secondary, and cremation) and age and sex. However, no effort was made to determine demographic profiles according to mound form across sites or within mound groups. Additionally the limited methodologies employed by Ruth for determining age and sex and subsequent demographic categorization of the dataset (e.g. juvenile age category = 1 to 17 years of age) make the application of the results problematic.

Although claiming to present a bioarcheaological analysis of Effigy Mound remains, the work is principally an inventory and description of the skeletal material with some minor inferences made as to what those remains may mean in Effigy Mound ceremonialism and sociopolitical organization.

It is critical that bioarchaeological investigations of Effigy Mound mortuary remains move beyond viewing the skeletal remains as solely biologic features. This is best exemplified by the inclusion of a pottery bone proxy in a linear mound at the McClaughry site (McKern 1928). The presence of this manmade bone proxy suggests that the bones included in mound ritual may have communicated meaning beyond the identity of the individual buried. As Shanks and Tilley (1982:134-135) note, "the cultural use of the body is part of any society's social construction of reality. It provides a restricted yet rich set of metaphorical possibilities for non-verbal communication." Yet it is important to remember that these skeletal remains are not isolated material elements but are also embodied representations of lived cultural experiences of gender, age, and health or pathology that were selected by living actors for inclusion in mound burial (Joyce 2005).

Conceptual Frameworks

Before describing the specific purpose and scope of this project, it is important to understand some of the basic conceptual frameworks guiding this research. This dissertation builds predominantly on the work of Mallam (1976, 1982, 1984), Goldstein (1995), and Rosebrough (2010).

Mallam (1982, 1984) focused on the integrative function of the mounds while also emphasizing the cosmological and ritual meaning of mounds. Birmingham (2010:11) continued with Mallam's (1982, 1984) emphasis on ritual and cosmology arguing that Effigy Mound builders "re-created and renewed their world by duplicating both its cosmological and social structure" in the mound forms and arrangements.

Goldstein's (1995) interpretation of Effigy Mound mortuary practices, particularly the presence of secondary bundle burials, placement of those burials, and the structure of the mounds is essential in this research. She suggested that the social organization of Effigy Mound Culture emphasized group identity over individual distinction. However, Goldstein also noted that the scarcity of individuals buried in effigy mounds may indicate that only a specific segment of the community was afforded this type of mortuary treatment.

Rosebrough (2010) also suggested that the social organization of Effigy Mound communities was not entirely egalitarian. She concluded, as Goldstein (1995) that mound burial, particularly burial in effigy mound forms, may reflect differential or elevated status among effigy mound communities (Rosebrough 2010).

Monumental building construction, in this case mounds, and the use of the dead (ancestors) may have performed numerous and seemingly contradictory functions: group renewal, legitimization of claims to authority and power, and the creation of social distinctions while simultaneously reinforcing community solidarity (Hastorf 2003:309). Specifically, it will be shown that the mounds and associated ritual of Effigy Mound ceremonialism functioned to maintain and communicate social cohesion externally, while simultaneously reproduce internal social distinctions through differential access to select mound forms.

The bioarchaeological perspective utilized in this research provides the best framework within which to address whether the human burials interred within Effigy Mounds were part of socio-ideological processes intended to create collective identities and social cohesion, demarcate distinct social positions not open to all members of the community, or both acting simultaneously. Through the integration of the biology and mortuary context, this study moves beyond a simple analysis of who *is* interred in the mounds and what those burials mean, but also explores who is *excluded* from burial within certain mound forms and why. The application of the conceptual frameworks described above provides a particularly valuable backdrop for this research, as it embraces the inherent complexity of human mound building behavior.

Purpose and Scope of the Study

This study examines the human skeletal and ritual remains interred within Wisconsin Effigy mounds to determine the relationship between mound construction, ritual, and mortuary activity, and how they may have operated in concert to create, reproduce, and possibly transform Effigy Mound social structure as part of the Effigy Mound ceremonial movement.

Before detailing the purpose and scope of the project, a brief description of how the study originated is in order. This research came about somewhat by happenchance. While assisting a fellow graduate student with data collection for his dissertation on Effigy Mound material, the author observed some interesting associations between various demographic distributions, pathology, and mound form burial that warranted further exploration.

The original skeletal data collection for the J. Cornelison dissertation involved: inventory of all skeletal remains, determination of minimum number of individuals (MNI), measurement of all cranial and limb bones when possible, observation of cranial and postcranial epigenetic traits, and determination of age and sex. Data on paleopathology were subsequently added to the data collection to address one of the research questions posed in this original research. Archaeological data collection consisted of: review of published site reports, examination of unpublished field notes, and associating skeletal remains with accession records and photographs.

It is important to note that although certain portions of the datasets used for both dissertations were jointly collected and identical (MNI, age and sex data, and archaeological site descriptions), the data was partitioned differently to address very diverse questions regarding the meanings and/or functions of Effigy Mound monumental construction and mound burial.

Cornelison's project (personal communication) explores bioarchaeologically whether the spatial patterning of Effigy mound building and burial across Wisconsin functioned as part of a kinship based land tenure system. His study uses the skeletal remains, namely the presence or absence of various suites of cranial and postcranial epigenetic traits, to measure the biological distance of skeletal samples between Effigy Mound groups within and across different physiographic regions. Additionally, Cornelison examines similarities and differences in mortuary practices at nine sites to determine whether local homogenous kin groups created and maintained mounds within a mound group, regardless of form, or whether specific kin groups maintained certain forms across the different physiographic regions.

This research, on the other hand, uses the same demographic and mortuary data from seven Effigy Mound sites to explore differences in the patterning of skeletal remains and associated ritual within effigy and geometric mound forms and what those differences may signify. Specifically, this dissertation analyzes the skeletal material, archaeological publications, field notes, and photographs from the following Effigy Mound sites: Kratz Creek, Neale, McClaughry, Kletzein, Raisbeck, Nitschke, and Trowbridge.

These sites were selected because they were systematically excavated by trained archaeologists, the observations were published or the field notes were available for study, and the majority of the skeletal material remains are available for study at the MPM. Additionally, these sites were selected because they were situated in diverse physiographic regions of the state (Martin 1965). Kratz Creek, McClaughry, and Neal Mound Groups were located in the Central Plain which exhibits a variety of topographies from bluff and steep slopes to gentle hills and numerous swamps. The Trowbridge and Raisbeck Mound Groups were situated in the Western Uplands, specifically within the Driftless Zone. The Driftless Zone is an area of the state that escaped glaciation and exhibits dramatic variation in elevation and includes the Mississippi River and importantly the Mississippi Flyway. The Kletzien and Nitschke Mound Groups were located in the Eastern Ridges and Lowlands area which is dominated by level topography, fertile soils, and moderate climate due to the influence of Lake Michigan (Martin 1965).

Research Goals

Variation in: mound form, the number and type of ritual activities that occurred within the mounds, and inclusion criteria for burial suggest that some mound forms had greater accessibility to all members of the community compared to others. The objective of this research is to determine if burial and associated ritual within the various mound forms (effigy versus geometric) served diverse social processes, namely the creation of collective identities and group cohesion, demarcation of select segments of the collective, or both processes operating simultaneously. As Hastorf (2003:309) notes, "different styles of civic space and memorialization reflect not only the scale of the collective but also the levels of access and therefore the layered knowledge experienced by the participants."

This study examines the meaning and function of Effigy mound construction on both intra-group and intergroup levels of analyses. The intergroup level of analysis focuses on the social integrative function of mound construction in Wisconsin as suggested by Mallam (1976), Benn (1979) and Goldstein (1995). It explores how ritual and burial functioned as mechanisms of the Effigy Mound ceremonial movement for the creation of a collective social identity and integrated various segments of participating communities. The intra-group level of analysis explores the possibility that Effigy mound construction and ritual created an avenue for disparities in access to mound burial, social group demarcation, and "masked hierarchy" based on differential access to ritual knowledge (Goldstein 1995; Rosebrough 2010).

This project has two fundamental goals. They are:

1) Isolate how the human remains and ritual associated with geometric and effigy mound forms diverge in their symbolic representation.

2) Determine the role of monumental construction and mound burial played in the Effigy Mound ceremonial movement and social structure.

Assumptions and Limitations

The limitations for this study fall into three categories: temporal, material, and interpretive limitations. Temporal control is a major concern in this dissertation research. Effigy Mound ceremonialism spanned roughly 600 years (A.D. 600- A.D. 1200). Radiocarbon dates for sites included in the study are rare (Bender 2006). And as Rosebrough (2010:2) notes, “fine-scaled chronological ordering of ceramic and mound types is rough to non-existent.” Like

Rosebrough (2010), this study proceeds with an aggregate sample of Wisconsin Effigy Mound sites which likely span several hundred years. The research assumes that variation in mortuary and ritual behavior is the consequence of social decisions rather than shifting temporal trends.

The primary material limitation is sampling bias. Sampling bias potentially impacts this study on several levels. One potential form of sampling bias may be due to the actual archaeological excavations of the mound sites. Not all Effigy Mound sites were excavated equally, some sites like Kletzien, Kratz Creek, McClaughry I and Nitschke have a very good proportion of the mound group excavated, all roughly at fifty percent or greater. Mound sites such as McClaughry II, Neale, and Raisbeck have significantly lower percentage of the total site excavated. For example, the number of mounds excavated at Neale appears comparable to other sites in the study with twenty-four mounds excavated. However, the entire mound site consisted of eighty-eight mounds meaning less than a quarter of the mounds in that group were sampled. The situation is similar in the Raisbeck Mound Group. The published account describes twenty excavated mounds; however, the site consisted of eighty mounds.

A second form of sampling bias is associated with the context of the remains themselves. The collection at the MPM only contains remains from individuals recovered from mound excavation. The number of individuals recovered from the mounds clearly indicates that not everyone in the community was afforded mound burial (Goldstein 1995). Additionally, not all the remains observed during excavation of the mounds made it to the museum. Therefore, although the collection is quite large, it is clearly a biased sample (Goldstein 1981).

A third material limitation is the nature of the remains. As noted previously, the remains in the collection are very fragmentary and are generally in fair to poor condition making determination of key categories such as age and sex of analysis potentially problematic (Ruth 2000).

Conclusion

Utilizing Buikstra's concept of bioarchaeology, this re-evaluation of Effigy Mound skeletal and archaeological data, moves beyond previous skeletal analyses of Effigy Mound material by providing a broader, more contextualized, and theoretically informed social bioarchaeological analysis of the human remains. By contextualizing the human remains in relation to the observed mortuary patterns, Effigy Mound ceremonialism, and social organization, this dissertation presents a more comprehensive bioarchaeological analysis of the Effigy Mound skeletal remains. As opposed to trait lists and site specific examinations, the research presented here is built upon a solid foundation of mortuary, archaeological, and social theory which is used to address the role that Effigy Mound construction and associated ritual played in integrating groups of individuals while at the same time reinforcing distinctions between socio-ideological groups based on differential access to ritual and ritual facilities.

This research contributes to a current void in Effigy Mound bioarchaeological research by examining the remains as part of a cultural process rather than as isolated biological components analyzed separate from sociocultural theory and interpretation. The study builds on the work of Mallam (1976, 1982, 1984), Goldstein (1995), and Rosebrough (2010) by attempting to clarify whether some mound forms may have had greater access for burial inclusion and functioned to create collective identities while other forms functioned to memorialize distinct social positions or institutions. It investigates whether access to particular mound forms and their associated rituals may have served to legitimize the social position or even power of certain subsets of the larger aggregate.

Using the biological data, this study explores whether patterned asymmetries existed between mound burials along the lines of life-course, sex, and pathology. The goal of this thesis is to determine whether communities participating in the Effigy Mound cermonialism had distinct social positions that were reflected in differential access to effigy mound burial.

This research is particularly valuable because a detailed bioarchaeological analysis of Effigy Mound mortuary patterning along lines of life-course, sex, and pathology has never been undertaken. The emphasis on pathology as it pertains to Effigy Mound social ideologies is a particularly unique approach to Effigy Mound research. The examination of the skeletal remains in this context will add a deeper understanding to the interpretations of both the social organization associated with the Effigy Mound ceremonial movement and mound form and function.

Organization of Dissertation

To understand Wisconsin Effigy Mound ceremonialism and monumental construction, one must fully understand the historical and social context of mound building and ceremonial movements in the region. Manmade mounded landscapes were a tradition in the region for centuries and Effigy mounds were regularly built in the same locales as those of earlier mound-building communities. The continued use of the same locales for mound building by different mound building communities suggests that mound building not only connected people to each other but to sacred landscapes of the ancestors. Chapter Two provides an overview of the physical and social environment of the region and review of mound building traditions in the

Upper Midwest through time. In addition to basic description of mound building cultures, the chapter also presents major archaeological interpretations of mound construction meaning and function.

Chapter Three provides a synthesis of mortuary and ritual theory critical to the analysis of Effigy Mound ceremonialism, ritual, and mortuary practices. The chapter also describes the specific mortuary analytic framework used in the study.

Chapter Four presents the research questions posed in this research and a series of corresponding expectations for Effigy Mound monumentalism and mortuary behavior. The chapter also describes the relevant contextual and theoretical background associated with each expectation. Specifically six expectations were developed and ultimately explored statistically (Chapter 7).

Chapter Five introduces the material data sets used in the study. The data sets included skeletal data and archaeological reports, field notes, photographs, and accession records. The chapter also details the methods used to assess age, sex, and paleopathology from the skeletal remains.

Chapter Six provides detailed descriptions of the specific mound sites included in the study. The chapter includes descriptions of each mound group location in Wisconsin, dominant physiographic features, general mound construction, and internal features (in tabular form) of the mounds.

Chapter Seven provides the results of the descriptive statistics and testing of the various expectations of this study. Specifically, the chapter presents the descriptive statistics associated with the cultural and biological datasets examined as part of this dissertation research. Following the section on the descriptive statistics, the chapter explores each expectation for Wisconsin Effigy Mound monumentalism and mortuary practices outlined in Chapter 4.

Chapter Eight summarizes and synthesizes the findings from this research. An important contribution of the chapter is the incorporation of the results into the broader understanding of Effigy Mound ceremonialism and sociopolitical organization. The chapter presents an interpretive social model for the meaning and purpose for Wisconsin Effigy Mound monumentalism and mortuary ritual among communities participating in this ceremonial movement.

Chapter Nine concludes by addressing the assumptions and limitations of the study and suggestions for future research.

Chapter 2: Diachronic Analysis of Mound Construction in the Upper Midwest

Introduction

In order to understand the context of Effigy Mound construction and use in Wisconsin, it is useful to examine the role of mound building and utilization in Upper Midwestern cultures throughout prehistory in the region. Across time and space in the region, the subsistence and settlement practices of inhabitants have varied from relatively mobile hunting and gathering groups to sedentary agriculturalists. Despite this variation, all Native societies were intimately tied to the landscape, either moving across it in seasonal rounds collecting available natural resources or altering the land to cultivate and harvest selected foodstuffs. This connection to the landscape was likely reinforced through the construction of mounds. People for thousands of years in the Eastern Woodlands, particularly in the Upper Midwest, came together and permanently transformed their landscape physically, socially, and symbolically to create communal ritual spaces in the form of mounds (Buikstra and Charles 1999; Spielmann 2008).

Additionally, the construction of earthen monuments and associated ritual likely played a critical role in the social structure of Native societies. Thus an analysis of mound building through time may provide valuable insight into the reconstruction of prehistoric lifeways, sociopolitical organization, religious ideology and landscape use. Additionally, in many regions, the land upon which the mounds were placed often became "sacred spaces" that were repeatedly used and modified by later generations (Buikstra et al. 1998; Clay 1987; Seeman and Branch 2006).

The mounds likely served numerous and varied functions for the people who built them and interpreting their meaning has been an important part of Eastern Woodland archaeological and bioarchaeological research for decades. Interpretations of mound construction and use are often intimately linked with cultural-ecological adaptation and features of socio-political organization, particularly as it relates to subsistence and settlement practices (Schroeder 2004). Therefore, before presenting a diachronic review of mound construction, the physiography and climate that these various mound-building societies experienced will be described.

The goal of this chapter is to provide the reader with an understanding of the Upper Midwest environment, its ecological regions, and the social context surrounding the origins and continual use of mound construction by Native peoples through time which is vital to any analysis of mound building and use.

Environment of the Upper Midwest Region of the Eastern Woodlands

The Eastern Woodlands encompasses a vast area ranging from the Atlantic Coast to the east, the Gulf Coast to the south and the Mississippi River to the west. The Upper Midwest region of the Eastern Woodlands includes the eastern –central portion of the continental United States and for the purposes of this discussion includes the following states: Ohio, Michigan, Indiana, Illinois, Missouri, Iowa, Wisconsin, and Minnesota. Major features of the area include: the Prairie Peninsula, the Great Lakes, and large rivers including the Mississippi, Ohio, and Illinois Rivers and their tributaries. Ecologically, this region is quite varied and exhibits incredible diversity in its climate, topography, and flora and fauna.

The general ecosystem of this region of the Eastern Woodlands largely falls under Bailey's (1980) Humid Temperate Domain (Figure 2.1). The climate as described by Bailey (1980:13) is governed by both tropical and polar air masses in this zone, which results in distinct seasons in the mid-latitude portion of the domain. Forests in the Humid Temperate Domain contain both broadleaf deciduous and conifer trees. The ecosystems of the Upper Midwestern region of the Eastern Woodlands can be further subdivided into three divisions: warm continental division, hot continental division, and the prairie division (Bailey 1998).

The warm continental division of the Upper Midwest includes the northern portions of Minnesota, Wisconsin, and Michigan which can be further classified as the Laurentian Mixed Forest Province (Bailey 1980). The area can exhibit long and fairly harsh winters. The topography of the region can be generally categorized as having low relief but with rolling hills

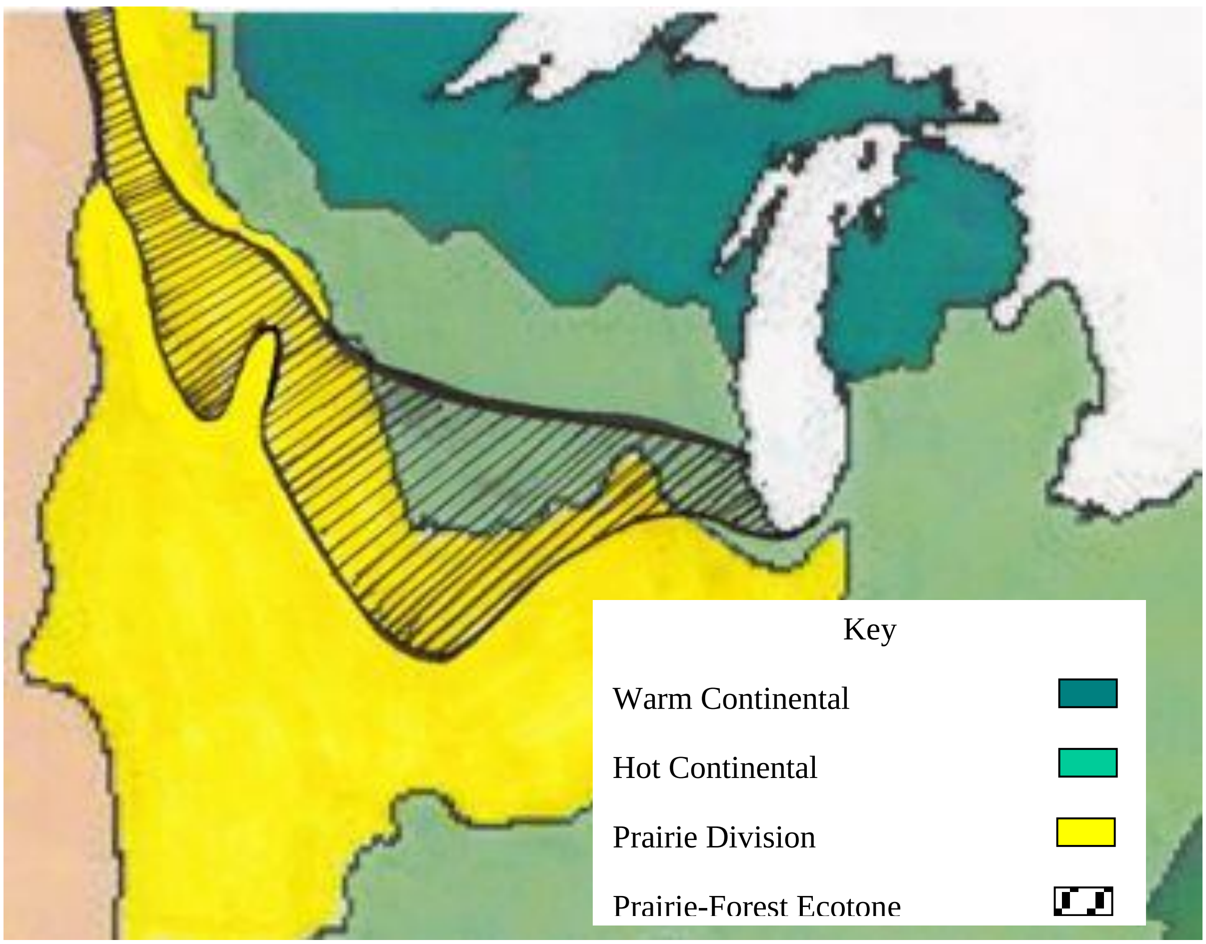

Figure 2.1 Ecosystem Divisions adapted from *Ecoregions of the United States* by Bailey (1998) *http://www.fs.fed.us/land/ecosysmgmt/colorimagemap/ecoreg1divisions.html*, Davis (1977). For interpretation of the references to color in this and all other figures, the reader is referred to the electronic version of this dissertation.

in many areas (Bailey 1980) and numerous glacial features including lakes. Vegetation in this province is transitional between boreal and deciduous forests of northern hardwoods that may exist in mixed stands or in clusters of either pure deciduous or coniferous forests depending on the soils present (Bailey 1980; Braschler et al. 2000; Cleland 1966; Fitting and Cleland 1975; Simon 2000). The transitional nature of the vegetation influences the types of fauna present. Animal species in this region include moose, spruce grouse, snowshoe hare, loon, and numerous lake-spawning fish species (Brashler et al 2000; Cleland 1966).

Directly south of the warm continental division is the hot continental division characterized by greater humidity, more moderate temperatures with warm summers and cool winters (Bailey 1980). Like the warm continental climatic region, most of the hot continental climatic area was covered by ice during the Wisconsinian Glaciation of the Pleistocene and is consequently low in relief and exhibits evidence of glaciation including lakes, drumlins, moraines, and outwash plains (Albert 1995). The exception is the Driftless Area, an area that remained unglaciated and includes the southwestern and west-central Wisconsin, southeastern Minnesota, northeastern Iowa, and northeastern Illinois. The Driftless Area exhibits rugged relief and lacks glacial deposits (Albert 1995; Rosebrough 2010; Theler and Boszhardt 2003). The vegetation in the hot continental division is classified largely as savanna or forest and includes oak-hickory hardwood forests with soils and climate amenable to agriculture (Albert 1995; Bailey 1980; Brashler et al. 2000; Fitting and Cleland 1975; Simon 2000). Predominant animal species in this region include white-tail deer, cottontail rabbit, turkey, and fish (Brashler et al. 2000; Cleland 1966). It is interesting to note that mound construction flourished across much of this region throughout time.

The final region is the prairie division which is considered sub-humid with high air and soil temperatures in the summer. The area largely lacks trees except for locales close to water sources. The mixture of tall grasses and forest is due to the particular environment of the region, notably the higher temperatures and increased evaporation of precipitation compared to the forested areas to the north and east (Bailey 1980). An eastern extension of this prairie habitat called the Prairie Peninsula stretches from northeastern Missouri, Illinois, central Indiana and northwestern Ohio (Davis 1977). The Prairie Peninsula exhibits a mix of habitats including tall grasses, savanna, and forests and during prehistoric times was predominated by tall grasses and herbaceous plants, but also contained pockets of forested woods often consisting of oak and hickory along rivers and streams (Davis 1977; Milner 2004; Simon 2000).

There is a large prairie-forest transitional zone of mixed forest and prairie in the eastern portion of the Prairie Division. This prairie-forest ecotone extends from Minnesota, northeastern Iowa, northern Illinois, and southern Wisconsin and offers a mosaic of habitats including oak savanna, deciduous and conifer forests, and areas of prairie (Davis 1977). Large portions of the prairie-forest ecotone, particularly southeastern Minnesota, northeastern Iowa, and southern Wisconsin, correspond with the limits of the Effigy Mound Ritual Complex (Benn 1979; Hurley 1975; Mallam 1976; Rosebrough 2010).

Within these broader environmental divisions certain areas within close proximity to the Great Lakes and major rivers exhibit their own unique microenvironments due to the influences of these natural features. The topography of the Great Lakes region is the result of the advance and retreat of the Laurentide ice sheet. As the massive sheet advanced from the north and northeast towards the south, it eventually covered portions of Ohio, Illinois, Indiana and completely covered the state of Michigan. The most dramatic effect of glaciation and deglaciation in the region was the formation of the five Great Lakes. Other resultant tographical features include the low relief of much of the region and the remnants of post-glaciation features such as kames, eskers, outwash, moraines, and smaller lakes found throughout the area (Bailey 1980; Kapp 1999).

The proximity to the Great Lakes asserts considerable influence on the climate including increasing the intensity of storms during the winter while decreasing their intensity during the spring and summer (Albert 1995). Additionally, the Great Lakes moderate temperatures in locales along the lakes which allows for longer growing seasons (Fitting and Cleland 1975). Climates vary considerably between lowland areas near the Great Lakes and interior highlands in Michigan. The inland areas experience greater extremes in temperatures, greater snowfall, and shorter growing seasons (Kapp 1999).

Another major influencing factor, particularly in environments in direct proximity of the Great Lakes, was the changing lake levels associated with deglaciation, outlet opening, and isostatic rebound (Larsen 1999; Lovis and MacDonald 1999; Lovis et al 2005). These changes would have significantly impacted aboriginal populations living in the region, particularly with regard to episodic increasing and decreasing available land masses for occupations (Lovis and MacDonald 1999; Lovis et al. 2005). Associated climatic changes altered the forest composition including the retreat of the boreal forest to the extreme north, the northern expansion of mixed forest eventually covering the northern half of the Great Lakes region, and the dominance of deciduous forest in the southern half of the region (Lovis and MacDonald 1999).

The Upper Mississippi River and drainage system also asserted considerable influence in the ecosystems of areas within its vicinity. The Upper Mississippi River begins at Lake Itasca in northern Minnesota and eventually joins the Ohio River in southern Illinois and is connected to the Great Lakes via the Illinois River. Major tributaries of the Mississippi River include the Missouri, Illinois, and Wisconsin Rivers. The Basin is also crossed by numerous streams and contains plentiful wetland areas (Milner 2004; O'Gorman and Hassen 2000). The Upper Mississippi River System can be categorized as a floodplain ecosystem which includes portions of Illinois, Iowa, Minnesota, Missouri, Indiana, Michigan, and Wisconsin. A unique feature of floodplain ecosystems is their alternating or pulsing pattern of water on the floodplain which results in a mosaic of biotic communities and enhanced biological diversity and productivity (Bayley 1995; Lubinski 1999; Milner 2004; Theler and Boszhardt 2003). Prior to European settlement, the floral and faunal characteristics of the Upper Mississippi River System were incredibly diverse. Prairie was the dominant community type on the floodplain and ridgetops; oak savanna and oak woodlands were prominent near the river and its tributaries; and poorly drained floodplains exhibited wetland habitats with cattail and wild rice (Nelson 1999; O'Gorman and Hassen 2000; Theler and Boszhardt 2003). In the bottoms, particularly on the islands, cottonwood, hackberry, box elder, American elm, ash, sycamore, pin-oak, bur oak, hickory, pecan, and silver maple prevailed (Nelson 1999; O'Gorman and Hassen 2000). Animal species living in the floodplain habitat include white-tail deer, waterfowl, beaver, fish, muskrat, and mussels (O'Gorman and Hassen 2000; Theler and Boszhardt 2003).

The general features of the environment described above often figure prominently in descriptions of prehistoric cultural adaptation and change in the region. However, it is important to note that there is also considerable variation in the microenvironments of these areas and subsequently the available floral and faunal resources available to local populations living in the prehistoric Upper Midwest. Not surprisingly, the subsistence and settlement patterns of different societies varied dramatically through time and space according to local environmental conditions. The cultures that developed in the Upper Midwest were not the sole product of cultural-ecological adaptation to varying environmental conditions, but were in all likelihood strongly shaped by them. In the following section, the cultural adaptations and histories of different societies through time will be examined with special reference to mound building and use.

Archaeological Investigations of Mound Construction

The connection between humans and their environment is vital to survival. The varying environments described in the previous section not only affected the subsistence and settlement patterns of the prehistoric inhabitants residing in these locales but also likely influenced socio-politico-religious aspects which may have been reflected in the alteration of the landscape through the building of mounds. Examination of the variation in mound construction and associated mortuary programs in the Eastern Woodlands provides insight into the social organization and ideologies of its inhabitants through time.

Many cultural traditions of the Upper Midwest dating from the Late Archaic, through Middle Mississippian periods in the Upper Midwest shared a common feature; they built mounds or mound-like structures and permanently transformed the natural landscape. In many instances, the chosen locales for mound construction were used and reused for millennia and likely represented significant terrains on numerous levels including important resource territories, the location of ancestors and thus ties to identity, and possibly symbols of social structure and memory (Bolnick and Smith 2007; Buikstra and Charles 1999; Charles 1992; Charles 1995; Seeman and Branch 2006; Spielmann 2008**).** Therefore, an understanding of landscape use, cultural-ecology, and mortuary practices may provide information as to why some societies constructed mounds and situated them where they did. What follows is a discussion of general cultural adaptation, mound construction and use, and associated mortuary programs through time in the Midcontinetal region of the Eastern Woodlands.

The Middle Archaic Period

This discussion of mound building commences with the Middle Archaic given this is when the first mounds and other monumental earthen structures appeared in North America (Emerson and McElrath 2009). Understanding cultural significance surrounding the creation of these early cemeteries and mound-like structures during the Middle Archaic is important for the examination of later mortuary behavior, landscape usage, and mound building. As Buikstra and Charles noted (1999), it was during the Middle Archaic that these "sacred” landscapes were chosen for cemeteries, mound-like construction, and ultimately the creation of social memory and ties to the ancestors.

The Middle Archaic is dated roughly between 6000 B.C. and 4000 B.C. and marked by dramatic climatic change, generally warmer and drier conditions associated with Holocene Hypsithermal Interval or Altithermal (Brown and Vierra 1983; Denniston et al 1999; McElrath et al 2009; Theler and Boszhardt 2003). This warm, dry climate peaked around 5000 B.C. and was followed by episodic warm, moist conditions (Lovis et al. 2005; Theler and Boszhardt 2003). This climatic shift altered the nature of the forest composition, river valleys, and ultimately the subsistence and settlement patterns of late Middle and Late Archaic peoples (Lovis et al 2005; McElrath et al. 2009; Stafford 1994). Areas of the Upper Midwestern region exhibited an expansion of prairie habitat, a replacement of mesic deciduous forest with dry oak-hickory forests, and alterations in the rivers that resulted in the creation of oxbow lakes (Milner 2004; Stafford 1994). These new environments, particularly those in large river valleys, lakeshores, and some uplands provided abundant aquatic and terrestrial resources and allowed Middle Archaic peoples to pursue reduced residential mobility settlement patterns (Brown and Vierra 1983; Lovis et al 2005; Stafford 1994).

This change in mobility patterning marked a critical cultural transformation delineating Early from Middle Archaic peoples. During this period, Native peoples were practicing hunting-gathering-fishing subsistence economies that tended to focus on fewer, more dependable resources rather than harvesting all available resources within a territory (Brown and Vierra 1983; Stafford 1994; Theler and Boszhardt 2003). In many locations Native Middle Archaic groups erected long-term base camps in strategic sites that allowed simultaneous exploitation of both upland and wetland environments (Charles and Buikstra 1983; Jeffries 1997; Lovis et al. 2005; Milner 2004). This greater permanence of residence likely produced several cultural changes including increased need to delineate territories between groups and increase inter-regional social networking (Charles and Buikstra 1983; Jeffries 1997; Gibson 2006, Hill 2009).

Through a series of publications Jane Buikstra and Douglas Charles described the location of Archaic burials in the Illinois Valley, various aspects of associated mortuary practices and, perhaps most importantly, the possible influence and power that these burials had on future cultures (Buikstra 1981; Charles and Buikstra 1983; Buikstra and Charles 1999; Charles and Buikstra 2002). The authors argued that the environment of the lower Illinois River Valley during the Middle Archaic period allowed for a significant degree of sedentism among the hunting and gathering peoples of the region, as evidenced by the presence of formal cemeteries by 4000 B.C. (Buikstra 1981; Charles and Buikstra 1983; Buikstra and Charles 1999). These locations then became important “sacred landscapes” for future generations to gather, inter their dead and ultimately create collective memories that were integral in recreating or contesting the social order (Buikstra and Charles 1999).

The authors described three types of mortuary treatment in the region during the Middle Archaic (Buikstra and Charles 1999). The first type was within middens located in and/or near residential sites. These burials were often very young subadults, very old adults, and those exhibiting significant pathology and/or disability and were buried without grave goods or other forms of elaboration (Buikstra 1981; Buikstra and Charles 1999; Charles and Buikstra 2002). Burial in bluff crest knolls with grave goods, on the other hand, was the predominate mortuary treatment for juveniles, young-adults, and middle aged individuals in the Illinois Valley during the Middle Archaic (Charles et al. 1986; Buikstra and Charles 1999). The authors argued that as bodies were added accretionally to the knolls it created "mound-like" structures that may have served as markers of corporate rights to territories (Buikstra and Charles 1999; Charles and Buikstra 1983; Charles et al. 1986; Charles 1995; Charles and Buikstra 2002). Archaic bluff-top cemeteries were meaningful along two dimensions. They served as interment sites for contributing members of the community, and because they were in a sense marked, they represented a link between ancestors and the land. The third type of mortuary behavior is typified by the Bullseye site located on a linear sand ridge in the lower Illinois River Valley. The Bullseye site contained over a hundred individuals, many in the form of bundle reburials, and large caches of a variety of stone tools. Buikstra and Charles (1999) interpreted the Bullseye site as a site of group aggregation where multiple households may have gathered to bury their dead and interact with others. These burials differed from bluff-top cemeteries in their lack of visibility suggesting that ancestor cult was not an aspect of the mortuary program in these floodplain locales. The authors argue that the pattern at Bullseye may have been more reflective of a period or periods of residential mobility and the burials interred as part of a multi-community seasonal ritual and that the burial of large quantities of non-skeletal material items may have represented competitive displays that were part of creating and contesting territorial alliances (Buikstra and Charles 1999).

Charles and Buikstra (2002) noted that the Middle Archaic bluff-top cemeteries may have reflected social integration among the community while simultaneously demarcating distinction and territorial rights from competing communities. Floodplain sites, on the other hand, may have reflected integration among communities and differentiation among individuals with regard to status and power with respect to portable wealth. These associations of integration and differentiation formed the baseline for the evolution of Woodland period mortuary behavior in the region.

Similar to Illinois, the mortuary patterns often referred to as the Old Copper Complex in the Northern Great lakes, demonstrated significant regional and locational variability. The Old Copper Complex in Wisconsin appears to be represented by at least two types of burial programs, the Osceola Phase and the Oconto/Reigh Phase (Hill 2009; Pleger 2000; Stoltman 1997; Wittry and Ritzenthaler 1956).

The Osceola Phase, typified by the Osceola and Price III sites, are located in the southwestern portion of Wisconsin and have the following features: burials were predominantly secondary and cremation; burials tended to occur in significant numbers (500 in one grave at Osceola and 88 in a single grave at Price III); and grave goods were relatively rare and not typically associated with specific individuals. Interpretations of the Osceola Phase mortuary program have suggested that the burials emphasized the corporate group rather than specific individuals and the location was likely a spot where multiple households returned on a regular seasonal basis to bury their dead (Hill 2009; Stoltman 1997; Wittry and Ritzenthaler 1956).

In contrast, the Oconto and Reigh sites are located in the eastern portion of the state and exhibited a very different mortuary patterning. Burials tended to have the following features: primary disposition predominated but there was also evidence for secondary burial treatment and cremation; use of multiple, discrete graves typically contained one individual but up to seven; and grave goods associated with specific individuals (Pleger 2000; Stoltman 1997; Wittry and Ritzenthaler 1956). At Oconto, both sexes were included as were a variety of age ranges (Pleger 2000). Some of the grave goods recovered from Octonto/Reigh sites were composed of exotic materials and include copper and marine shell suggesting interregional exchange. In addition, some individuals were covered with red ochre and others had elaborate grave goods including a copper "feather" headdress found in a Reigh burial. The pattern of differential grave good inclusion suggests that the Oconto/Reigh mortuary program may have emphasized individual status and achievement (Hill 2009; Stoltman 1997).

The distinction in burials programs in Wisconsin and across the Upper Midwest indicates that the Middle Archaic pattern was not homogenous through time and space and is reflective of variation in several aspects including subsistence and settlement practices, participation in interregional exchange, and local cultural histories. Understanding these early uses and modifications of landscape is important not only for Illinois and Wisconsin but other areas of the Upper Midwest as culturally constructed landscapes were often repeatedly reused and modified by later generations.

__The Late Archaic Period/Early Woodland Period__

The Late Archaic period is marked by cooler, moister conditions. Native peoples during this time were still primarily hunter-gatherer-fishers but there was also the addition of wild cultigens into the diet during this phase (Hill 2009; Yerkes 1988). Some very broad patterns of subsistence and settlement patterns in the Upper Midwest during the Late Archaic include: intensive focus on floodplain resources; shellfish exploitation; nut harvesting and processing; increased sedentism in long term base camps, and cultivation of indigenous wild plants, squash, and gourds (Emerson and McElrath 1983; Hill 2009; McElrath and Emerson 2009; Milner et al 2009; Yerkes 1988). The period, however, was marked by increasing differentiation in material culture and mortuary patterns which exhibited significant regional variability and increased elaboration (Milner et al. 2009; Yerkes 1988).

Throughout the Eastern Woodlands, the transition from the Archaic to the Woodland period has been traditionally defined by the following: the adoption of pottery manufacture, the creation of burial mounds, and plant cultivation (Stoltmann 1997). The transformation was not abrupt and in many locations strong archaeological evidence exists for subsistence and settlement practices that are comparable to Late Archaic patterns; namely, hunting-gathering-fishing subsistence while residing in long-term base camps located in or near: river valleys, marshes, and lakes (Griffin 1986). Late Archaic/Early Woodland mortuary complexes include the Glacial Kame (3000-2500 BP) and Red Ochre mortuary complexes (3000-2500 BP) (Milner et al. 2009; Yerkes 1988).

The "Glacial Kame" mortuary complex was found in the southern Great Lakes area, particularly northwestern Ohio and eastern Indiana. The burials tended to be located away from habitation sites in glacial kames which are natural hill or mound-like features of the landscape created by glacial activity. The number of burials interred at Glacial Kame sites was variable ranging from less than 30 to over 600. In general, burials tended to be in flexed and semi-flexed positions and placed in round or oval pits. Many of the burials had elaborate grave goods which included: sandal-sole gorgets, marine shell beads, copper beads, pipes, and antler and bone artifacts (Purtill 2009).

In some locations, mound construction sites were continually reused into the Early and later Woodland periods. Purtelli (2009:590) suggested that “mound placement directly over Late Archaic mortuary pits and domestic-looking features suggest knowledge of earlier components and the deliberate association of Woodland-period burials with earlier ‘ancestor’ groups.” Mound construction and burial also occurred in its own right during the Terminal Archaic at the following sites in Ohio: Phillips Mound I, Byler, Toepfner, Munson Spring, Kline, and McCoy. The Kline Mound, in particular, provides unequivocal evidence of Terminal Archaic burial mound-construction and use in the Upper Midwestal region. It contained five burial pits with the remains of nine individuals and extensive grave goods of both local and exotic materials. Importantly, the mound fill was void of later material suggesting that it was not constructed during later periods (Purtelli 2009).

Burials in the Green River Valley, as exemplified by Indian Knoll, had less elaborate burial patterns. Burials tended to be located in large shell and midden heaps that later took the form of mounds through accretional deposition. Several hundred individuals of both sexes and all ages were buried at Indian Knoll, many with grave goods composed of non-local materials including shell beads, bannerstones, and copper suggesting some level of interregional exchange (Milner et al 2009; Yerkes 1988).

In the Illinois Valley, there was a pattern of continued separation of cemeteries and residential areas (Milner et al 2009). Groups in the region continued to use the same bluff-top landscapes to bury their dead suggesting the expansion of populations into the upland areas and the need to demarcate territories through the construction of mound-marked cemeteries (Buikstra and Charles 1999).

In the Upper Midwest, particularly the Great Lakes region, the Red Ochre mortuary complex predominated. It is dated roughly between 1200 B.C. and 300 B.C. and is believed to have evolved out of the Old Copper complex (Pleger and Stoltman 2009; Stevenson et al 1997). Burials took many forms including flexed, secondary bundle reburials and cremations and were commonly placed in pits dug into natural knolls which have may have marked territorial boundaries as they had during Middle Archaic times (Birmingham and Eisenberg 2000; Pleger and Stoltman 2009; Stevenson et al. 1997). However, the most distinguishing feature of the Red Ochre complex was the presence of red ochre powder or a red ochre and sand mixture placed on the bodies. Additional material associated with the burials included: caches of bifaces and ceremonial knives composed of exotic material like hornstone chert derived from Indiana and Illinois, copper beads, and in some instances marine shell beads (Pleger 2000; Pleger and Stoltman 2009; Stevenson et al. 1997; Theler and Boszhardt 2003).

In Wisconsin, Red Ochre burials were often placed in natural knolls, perhaps marking territorial boundaries (Stevenson et al. 1997). The Riverside site, which is one of the more thoroughly studied Upper Great Lakes Red Ochre cemetery sites, is located along on the Menominee River which forms the boundary between Wisconsin and the Upper Peninsula of Michigan (Pleger 2000; Stevenson et al. 1997; Stoltman and Hughes 2004). The cemetery contained over 75 individuals and numerous grave goods composed of exotic materials including an obsidian block imported from the Yellowstone area, copper projectile points (typical of Old Copper burials), copper beads, ceremonial knives, and marine shell beads. The presence of marine shell and obsidian from Yellowstone suggests that participants in the Red Ochre mortuary complex were involved in broad interregional exchange systems (Stevenson et al. 1997). The Barnes Creek site is located in the southeast corner of the state and contains evidence of long history of habitation. Five burials reported at Barnes Creek were disposed as cremations. Like other Red Ochre sites, the burials were placed along the most prominent elevations. Grave associated materials included copper beads, a copper awl, and a slate gorget. Other material items recovered at the site included both Late Archaic and Early Woodland projectile points (Overstreet et al. 1996).

Red Ochre burials have also been associated with mound building in Wisconsin, as seen at the Henschel site (Overstreet et al. 1996). The Henschel site is also located on the eastern side of Wisconsin in Sheboygan County on the northern margin of Sheboygan Marsh (Overstreet et al., 1996). Five individuals, two adults and three subadults, were reported at the Henshel site. They exhibited a variety of dispositions which included: cremated and in the flesh and/or bundle reburials (Overstreet et al. 1996:46). Reports from earlier excavations described a large conical mound at the site which contained 40 skeletons housed within a vault lined with large boulders (Overstreet et al. 1996).

Red Ochre burials from the Upper Midwest exemplified the transitional nature of the culture change that took place between the Terminal Archaic and Early Woodland periods. Across the Upper Midwest, Red Ochre sites have been associated with both mound and non-mounded construction. In portions of Illinois, northeastern Iowa, and Wisconsin Red Ochre mortuary practices have been associated with both mound building and Early Woodland pottery, suggesting it may be an intermediary phase, retaining both the ancestral ties to Late Archaic technology and Early Woodland mound building traditions (Benn and Thompson 2009: Overstreet 1996: Stevenson et al. 1997). The construction of mounds and inclusion of exotic trade items in the Red Ochre ceremonial complex also suggests that certain hallmark features of future Middle Woodland ceremonialism may actually have their roots in earlier cultures (Pleger 2000; Stevenson et al. 1997).

The Early Woodland

Early Woodland groups in some regions such as the American Bottom tended to be smaller, more dispersed, and exhibited greater residential mobility compared to their Terminal Late Archaic predecessors (Emerson and Fortier 1986). Not surprisingly, mortuary activity was 'nearly invisible" in these areas of the lower Illinois River Valley and the few small cemeteries observed may suggest depopulation of the area (Buikstra and Charles 1999:212; Charles et al. 1986). In some locales, the dead were interred in middens (Charles and Buikstra: 2002).

In the Upper Mississippi River Valley, Early Woodland peoples appear to be organized into small egalitarian bands of hunters and gatherers who moved across the landscape in seasonal rounds (Theler and Boszhardt 2003). In these regions mound building tended to be relatively sporadic and the resultant mounds were generally smaller in size compared to other regions and those constructed during later periods.

In contrast, native groups in the Ohio River Valley were constructing large mounds some containing log-lined tombs. The group responsible for this Early Woodland mound construction is commonly referred to as the Adena Culture. Adena mounds have been found in portions of: Ohio, Kentucky, Indiana, Pennsylvania, and West Virginia (Spaulding 1952). Hallmarks of the

Adena Culture include: burial mound construction, elaborate mortuary practices, and specific artifact classes such as tubular pipes, Adena projectile points, copper adornments such as rings, beads and bracelets, hematite celts, and Adena ceramics (Seeman 1986; Spaulding 1952). Burial mounds can occurred in isolation or in groups and were occasionally associated with earthen enclosures. They vary dramatically in height (ranging from less than one meter to 21 meters) and location (mountain ridge tops, blufftops, low floodplainridges, and terraces) (Seeman 1986; Spaulding 1952). Most, however, appear to have occurred in elevated areas (Clay 1987). The burials within the mounds also exhibited considerable variability ranging from single interments to dozens of individuals (Seeman 1986).

Unfortunately, little is known about Adena Culture habitation. A few small open air sites have been identified. They occur in both upland and river valley locations and suggest small population size composed of single households or other small related groups (Seeman 1986). There is also evidence for transient camps and the use of rockshelters (Seeman 1986).

Aspects of the Adena Culture and other Early Woodland mortuary programs appear to have many features in common with the Terminal Late Archaic, particularly the placement of cemeteries on prominent knolls, ridges, and hilltops. The continued use of elevated landscapes for the placement of the dead suggests that these terrains were significant on multiple levels including the demarcation of territory and ties to identity.

Early Woodland mound groups in Wisconsin tended to occur in small groupings of conical mounds that averaged a couple of meters in height. The mounds typically contained a central pit with several burials. Burials were often extended or bundle reburials. The Hilgen Springs in eastern Wisconsin is an example of an Early Woodland mound site. The mound contained concentrations of limestone and colored fieldstone alongside the central pit.

Birmingham (2010) has interpreted this Early Woodland mound construction and mortuary ritual as an early example of the type of world renewal ritual that would be seen during later mound construction episodes.

This alteration and use of the natural landscape for permanent cemeteries was initiated during the Middle Archaic and continued through the Early Woodland and likely linked generations to the land (Charles et al. 1986). This continued use of specific prominent and highly visible locales for burial combined with the longstanding tradition of interregional trade and interment of exotic materials ultimately set the stage for Middle Woodland mound construction (Charles and Buikstra 1986; Yerkes 1988).

The Middle Woodland

The Middle Woodland was a period marked by a significant expansion and elaboration of mound construction throughout large portions of the Upper Midwest. Archaeological evidence indicates that the subsistence and settlement practices in many regions during this period had a prominent riverine focus (Abrams 2009; Brashler et al. 2000; Bolnick and Smith 2007; Milner 2004). In fact, the Middle Woodland has been described as a period of dramatic demographic redistribution of communities into the major river valleys of the Midwest, particularly Illinois and Ohio (Charles 1992; Charles and Buikstra 2002).

Areas outside Ohio and Illinois also saw intensive occupation along large river drainages during the Middle Woodland **(**Brashler et al 2000). Charles (1992: 176) suggested that this pattern of occupation was related to increased reliance on horticulture, particularly starchy seeds which could be processed more readily with improved ceramic technology. The shift to more riverine adaptation and settlement is evidenced by the dramatic increase in the distribution of sites along major rivers and confluences.

It is important to note, however, there was a continuum of sedentism exhibited by Middle Woodland communities ranging from long term settlements in areas that provided plentiful resources to significant seasonal mobility in less ecologically rich zones. Subsistence also varied but appears to have been based on both hunting/fishing/gathering and horticulture with an increasing reliance on cultivation of starchy seed plants throughout the period (Abrams 2009; Charles 1992; Struever 1965).

Mound building and other monumental construction during this period is commonly associated with the Hopewell Interaction Sphere. In fact, when one thinks of the Middle Woodland in North America, the term “Hopewell” often comes to mind. The term “Hopewell” may refer to many things: a phase, a set of mortuary practices, or a period (Bolnick and Smith 2006; Seeman and Branch 2006; Struever 1965). The typical "Classic" Hopewell and Havana Hopewellian sites are more commonly found in Ohio and Illinois respectively, but evidence for Hopewell influence has been found in sites throughout the Upper Midwestern United States including: Michigan, Indiana, Iowa, Missouri, Arkansas, Kentucky, Tennessee, West Virginia, Georgia, Alabama, Mississippi, and Louisiana (Figure 2.2). Of importance to this research are the interpretations of Hopewell traditions in its two regional centers and its expression in Wisconsin.

The Hopewell phenomenon centers on the widespread appearance of sites that exhibited some of the following features: complex burial mounds, elaborate funerary programs which can include exotic raw material grave inclusions composed of mica, copper, obsidian, bear teeth, marine shell and shark teeth imported from widespread locations, Hopewell ceramics, copper panpipes, copper ear spools, and celts, worked bear-canine teeth, plain and effigy platform pipes, and human figurines (Abrams 2009; Bolnick and Smith 2007; Brose and Greber 1979; Seeman and Branch 2006; Struever 1965). The pattern suggests that participants in the Hopewell Interaction Sphere had widespread interregional trade networks and shared general ideologies as exhibited by artifact forms and mortuary program similarities.

However, despite the presence of expansive regional interaction in the Midwest and shared ceremonialism, there still existed a significant degree of variation between non-Hopewell and Hopewellian societies and even between groups considered Hopewellian (Abrams 2009; Bernadini 2004; Bolnick and Smith 2007; Struever 1965). This variation is likely due to local adaptations and specific culture histories (Seeman and Branch 2006).

Additionally, it is important to realize that, although the Hopewell Interaction Sphere was quite expansive in its reaches, ceremonial and monumental construction practices were not adopted by all groups that may have interacted with Hopewellian societies. Particularly interesting are cultures from the Upper Peninsula and upper Lower Peninsula of Michigan. The majority of the copper that appears across the Eastern Woodlands throughout the Middle Woodland period can be sourced back to this region, yet many communities in the area did not adopt the ceremonialism and construction typical of the Hopewell Interaction Sphere (Brose and Hambacher 2000). Other regions of Michigan including the western portion and Saginaw Bay area appear to have been influenced by different aspects of Hopewellian exchange and ceremonialism (Kingsley et al. 1999).

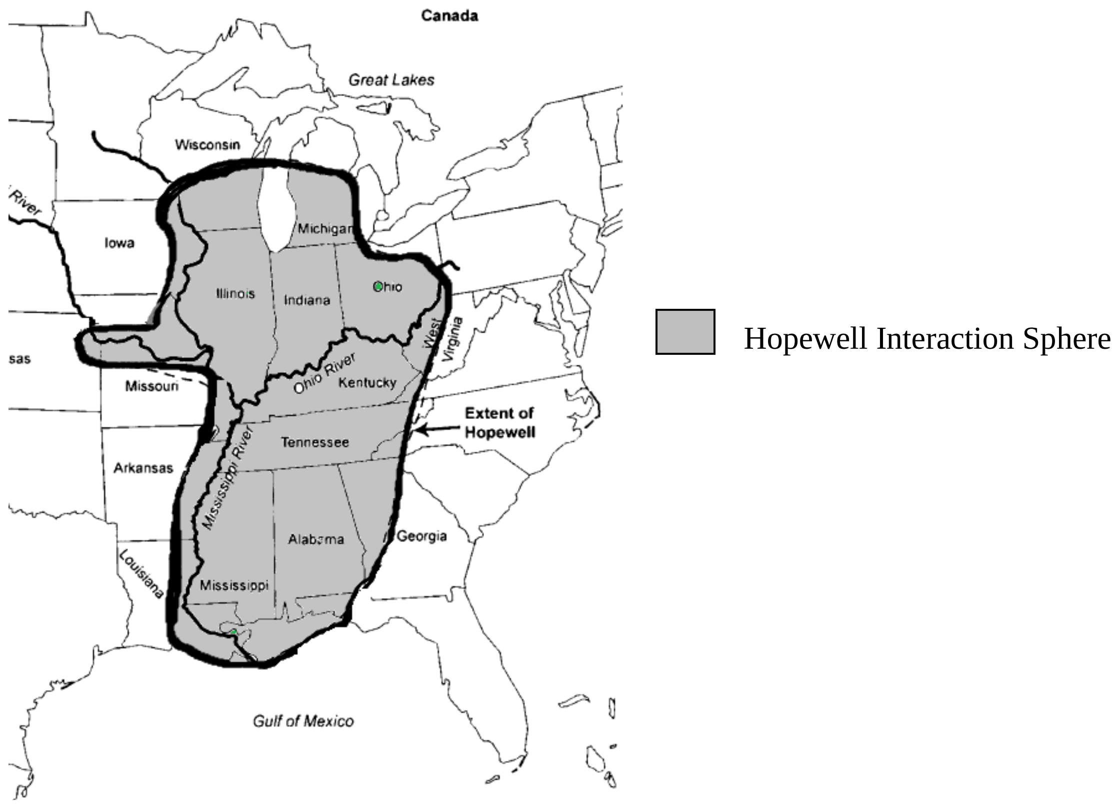

Figure 2.2 Hopewell Interaction Sphere adapted from Elliot M. Abrams, Hopewell Archaeology: A View from the NorthernWoodlands. *Journal of Archaeological Research* (2009) 17:169–204. The text in the figure is not meant to be readable, but is for visual reference only.

Ohio is considered a regional center for the Scioto Tradition also referred to as “Classic Hopewell” culture. Ohio Hopewell earthwork sites are located largely in the south-central portion of the state along the Miami, Muskimgum, and Scioto River drainages (Speilmann 2008; Struever 1965). Hallmarks of the Scioto Tradition included: significant diversity in the type of mortuary treatment afforded individuals, grave inclusions that varied both in number and type, the inclusion of large collections of non-local raw materials, elaborately worked points and figurines, numerous mounds and large geometric earthworks (Spielmann 2008; Struever 1965; Yerkes198).

The geometric earthworks associated with Scioto Hopewell included: circles, squares, octagons, parallel embankments, and tripartite earthworks composed of two circles and a square and are of considerable size, at times enclosing areas of 20 to 30 acres (Bernadini 2004; Spielmann 2008). The largest numbers of geometric earthworks occur along the Scioto River and its tributaries (Bernardini 2004; Spielmann 2008). The large tripartite earthworks were somewhat atypical of Hopewell earthen architecture. They were largely not used for burial and were generally free of habitation debris (Bernardini 2004).

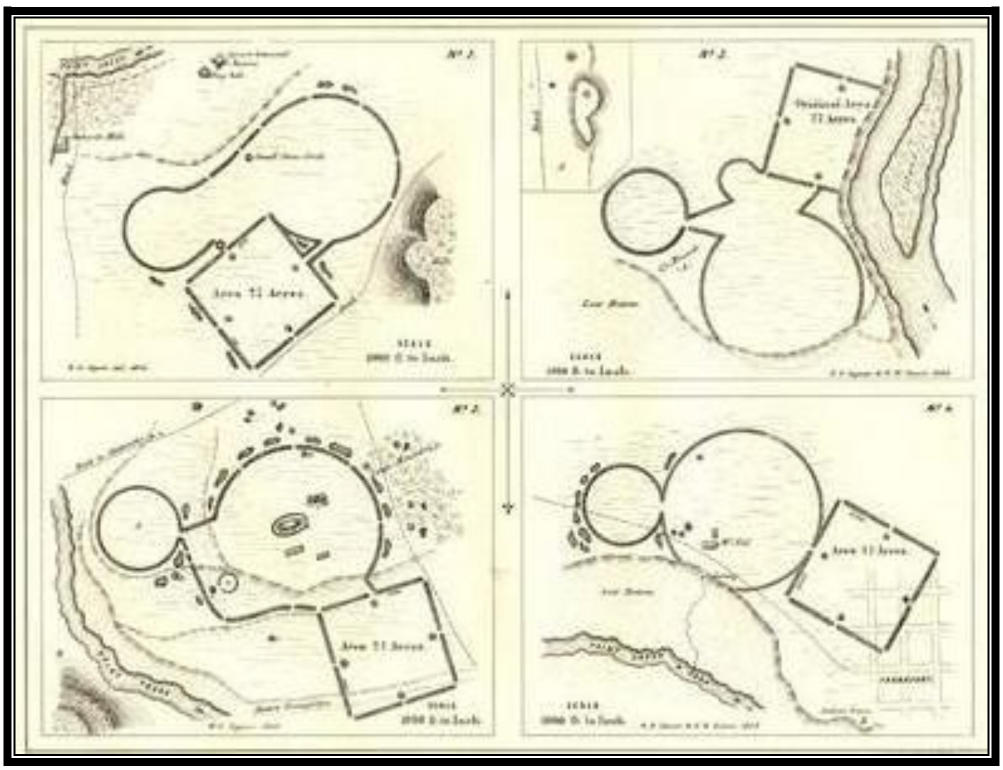

Figure 2.3 Hopewell Geometric Earthworks from Squier, E. G., and E. H. Davis (1848) *Ancient monuments of the Mississippi Valley. Smithsonian Contribution to Knowledge*, Vol. 1 The text in the figure is not meant to be readable, but is for visual reference only.

These tripartite constructions have been interpreted as "village surrogates" or "vacant ceremonial centers" which according to Bernardini are central monuments used by members of a dispersed population constructed to symbolize and reproduce the community (Bernardini 2004:335; Dancey and Pacheco 1997). Bernardini (2004), however, argued against the village surrogate interpretation of the tripartite earthworks suggesting instead that these monuments functioned as part of a much larger pan-local ceremonialism.

The majority of Scioto Hopewell earthen monuments, however, consisted of conical mounds. The greatest numbers of mounds were found in the Scioto-Paint Creek confluence, which is a resource rich area with tremendous ecological diversity. Additionally, the largest mounds also tended to occur in these more environmentally productive areas which may reflect that the groups that built them were larger than those constructing mounds near smaller tributaries (Seeman and Branch 2006).

Ohio mounds often contained mortuary structures known as "charnel houses" (Brown 1979; Greber 1979; Milner 2004). Charnel houses were large roofed structures that typically housed one room, although occasionally consisted of two or more rooms joined together by narrow passageways (Milner 2004). These were permanent mortuary facilities where remains and other grave furnishings were prepared, displayed, and eventually interred. They required significant community effort to build and maintain (Brown 1979). Within the structures, specific areas were delineated for burials and crematory basins (Brown 1979; Greber 1979; Milner 2004). Ohio Hopewell modes of body treatment included cremation, bundle reburial, and extended (Milner 2004). The differential modes of corpse treatment along with variation in the quantities and types of grave furnishings have led many to conclude that Ohio Hopewell had a mortuary program that emphasized individual social positions in addition to corporate identity (Brown 1979; Greber 1979; Spielmann 2008; Struever 1965).

The earthen monuments and mortuary practices of Hopewell groups in Illinois, however present a different embodiment of Middle Woodland mound construction. Participants in the Hopewell Interaction Sphere residing in the central and lower Illinois River Valley were generally referred to as Havana Hopewell. Illinois Valley sites also tended to be distributed fairly continuously over large areas of the river valley compared to the more clustered distribution of Ohio Hopewell sites (Seeman and Branch 2006; Struever 1965).

Hopewell mound sites in Illinois were commonly along bluff-tops and sand ridges in the floodplain, following the pattern of mortuary placement that originated during the Archaic (Buikstra and Charles 1999; Charles 1992; Charles and Buikstra 2002; Seeman and Branch 2006). In fact, "the earliest Middle Woodland mounds were constructed directly on top of Archaic cemeteries" (Charles and Buikstra 2002:19). Buikstra and Charles (1999) noted significant differences between mounds located atop bluff crests and those on the floodplain floor. Bluff crest mounds tended to be more numerous than those on the floodplain. Floodplain mounds, however, tended to be larger and have more structurally complex tumuli. The authors suggested that floodplain mounds, in comparison, appeared to be prepared around open spaces possibly for allowing greater number of participants in collective rituals.

Illinois Havana Hopewell mound groups tended to involve linear arrangements of between two and a dozen mounds (Struever 1965). Charles (1992:176) described the general construction of Illinois Hopewell mounds as follows. Mounds were constructed in two stages. The first phase of construction included clearing the surface of all vegetation in the area where the mound was to be built and/or removing the A-horizon soils. Next a log-lined crypt was assembled. The crypt had a removable roof and is believed to have served as a storage facility and viewing area for the corpse (Brown 1979; Charles 1992). Soil was then arranged around the sides of the crypt to create a ramp for access to the crypt. Bodies and grave furnishings were then placed in the crypt. In some instances, the bodies were later removed from the central crypt and reinterred in areas around the ramp. In other cases, extended bodies were buried in simple pits with typically less numerous and elaborate grave furnishings (Charles 1992; Milner 2004). The second phase of Illinois Hopewell mound construction involved the final capping of the mound with a layer of soil and essentially sealing the mortuary structure (Charles 1992).

Brown (1979) noted that the effort required to construct the log-lined crypts of Illinois Hopewell was considerably less than what was required to construct and maintain Ohio Hopewell charnel houses. According the Brown (1979:212), "their location on isolated high spots away from villages, the maintenance-free construction, and the simple burial processing methods that were associated with these crypts strongly suggest a rather minimal curation commitment congruent with a simple mortuary program." In addition to location and material features of the simpler, bluff-top mounds and crypts, demographic patterns of those interred within them suggest that the Illinois Hopewell mortuary program emphasized single corporate or kin based functions (Brown 1979; Buikstra, et al. 1998; Buikstra and Charles 1999). These mounds were later expanded as communities grew through immigration and communities needed to symbolize social positions, particularly inequalities among lineages through mound construction and use (Buikstra and Charles 1999). Buikstra et al. (1998) suggested floodplain mounds with their caches of interred material items and more elaborate mortuary ritual may have functioned as larger multi-community gatherings that improved social cohesion among communities. These mounds may have provided a ceremonial stage for the enactment of important rituals that may have served to reify certain social positions and claims to authority by members of the community (Buikstra and Charles 1999).

Middle Woodland mound construction in Wisconsin was largely associated with the Trempealeau Phase (AD 100-300) of the Hopewell Interaction Sphere (Birmingham and Eisenberg 2000; McKern 1931; Stevenson et al 1997; Theler and Boszhardt 2003). Trempealeau Phase sites were located in the southwestern part of the state and like other Hopewellian sites tend to be situated along major river valleys (Birmingham and Eisenberg 2000; Stevenson et al. 1997). The phase was originally defined by McKern (1931) as the Trempealeau Variant of the Hopewell Culture. Between 1928 and 1930 McKern excavated 40 mounds which were clustered into three distinct mound groups: Shrake, Schwert, and Trowbridge (Theler and Boszhardt 2003). Based on shared ceramic and lithic styles, Trempealeau Phase communities appear to have been in close contact with Illinois Havana Hopewell communities (Stevenson et al. 1997; Theler and Boszhardt 2003). Additional characteristic Hopewell mortuary artifacts recovered from Wisconsin sites include: copper earspools, celts, and breastplates, worked bear teeth, large chipped knives made from nonlocal material, platform pipes, and objects made of silver (McKern 1931; Stevenson et al. 1997).

Trempealeau Phase mounds were conical in shape, relatively large, and typically situated in groups (Birmingham and Eisenberg 2000). The burials within the mounds were typically placed in: the fill, subfloor pits, or rectangular crypts made of bark or stone at the base of the mound (Birmingham and Eisenberg 2000; McKern 1931; Stevenson et al. 1997). Burials were either extended or secondary bundle burials (Birmingham and Eisenberg 2000; McKern 1931). Many mounds contained multiple burials, at least 46 in one mound of the Schwert Group in Trempealeau County. The pattern of interment appears to be similar to the Illinois Hopewell customs in that some Trempealeau Phase crypts were likely continually used and bones from earlier deposits may have been bundled or moved to make room for later interments (Birmingham and Eisenberg 2000; Stevenson et al. 1997).

The Nicholls mound is a particularly well known Wisconsin Hopewellian mound. Nicholls mound is a conical mound that at the time of excavation had a diameter of 90 feet and a height of 12 feet. The mound contained a roofed rectangular burial pit at the center. Within the pit were the remains of four extended primary adult burials, one infant, and two secondary bundle burials (McKern 1931; Theler and Boszhardt 2003). Grave offerings recovered from the Nicholls mound included: copper celts, a copper breastplate, freshwater pearl beads, a knife, copper and silver coated ear ornaments and buttons (Theler and Boszhardt 2003). The mound also included an intrusive primary extended burial approximately 2.5 feet from the surface that contained several Hopewellian items including: an obsidian knife, jasper and quartzite knives made from nonlocal sources, copper ornaments, and a platform pipe made from catlinite (Theler and Boszhardt 2003).

Trempealeau Phase mound groups have been interpreted as reflecting territorial boundaries of corporate groups (Birmingham and Eisenberg 2000). The burials within the mounds and particularly the grave furnishing associated with them have been interpreted as possibly belonging to lineages or kin-based groups that controlled access to and the distribution of Hixton Silicified Sandstone, a raw material that was exchanged within the Hopewell Interaction Sphere (Birmingham and Eisenberg 2000). This interpretation of Trempealeau Phase burials suggests that individuals buried within the mounds may have comprised an elevated status or special position compared to other segments of the society.

In southeastern Wisconsin, Middle Woodland mound building is associated with the Waukesha phase (AD 100-300) (Salkin 2000; Stevenson et al. 1997; Yerkes 1988). Waukesha phase mound construction is also linked to Havana Hopewellian influence (Salkin 2000, Stevenson et al. 1997; Yerkes 1988). Like the other Middle Woodland mound building traditions in Wisconsin, Waukesha mounds were conical in form, relatively large in height, and occurred singularly or in groups (Birmingham and Eisenberg 2000; Stevenson et al. 1997). Sites tended to be clustered in the major river valleys. Burials were typically placed in rectangular subfloor pits. The disposition of the bodies within the mounds was: flexed, extended, or secondary bundle reburials. In some instances, mounds contained multiple burials of all three types (Stevenson et al. 1997). Grave furnishings of a Hopewellian nature were included, although rarely. When present the quantity and variety of grave goods were significantly lower than Trempealeau Phase burials (Birmingham and Eisenberg 2000; Stevenson 1997). Stevenson et al. (1997) interpreted the scarcity of Hopewell items in Waukesha Phase mounds as a consequence of well established adaptation to the southeastern Wisconsin environment and thus a diminished need to participate in this interregional exchange system. Other regions of Wisconsin, however, seemed to exhibit little Hopewellian influence.

Archaeological interpretations of Hopewell mound and geometric earthwork construction are numerous. The two interpretations most often suggested are: (1) the mounds and associated mortuary remains represented corporate territorial markers; and (2) mound construction and placement created sacred landscapes that tied communities to the ancestors, local cultural history, and group identity (Bolnick and Smith 2007; Buikstra and Charles 1999; Buikstra, Charles and Rakita 1998; Charles and Buikstra, Charles 1992; Milner 2004; Seeman and Branch 2006). Some have argued that mounds may have demarcated territorial boundaries, particularly access to important resource rich environments that river confluences provided (Charles 1992; Bolnick and Smith 2007; Milner 2004; Seeman and Branch 2006).

However, mounds probably functioned as sacred landscapes, connecting members of communities to each other and ideology through mound construction and associated ritual (Buikstra et al. 1998; Charles and Buikstra 2002). As Seeman and Branch (2006:121) noted, "Hopewell mounds were symbols, potentially pertaining to both identity and ideology." These sacred landscapes created a focal point for referencing ancestors and became an emotionally charged part of the social memory of the group, legitimizing sociopolitical claims (Charles and Buikstra 2002). Buikstra and Charles (1999) suggested Illinois Middle Woodland mounds and mortuary rituals recreated the Hopewell vision of the cosmos and were part of world renewal ceremonies. Robert Hall (1979:260) concurred stating, "A strong argument can be made that some Hopewellian and other Woodland mortuary ceremonialism was in fact creation drama reenacting mythical origins."

Another useful concept for the interpretation of mound construction and use during the Middle Woodland is that of "sociograms" suggested by Spielmann (2008). As previously noted, sociograms refer to material constructs of smaller scale societies that express the social and/or political segmentation of the groups that created them. The segments within the group were commonly corporate groups and the constructs may be mounds and/or other ceremonial structures. The act and product of communal constructions, specifically mounds and geometric earthworks may reaffirm and/or legitimize the relationships between groups and ultimately the social structure.

Spielmann (2008:57) suggested that the Ohio Hopewell earthworks may be an example of a sociogram where specific clans constructed portions of the ritual structure. This is evidenced by differential use of colored soils and stones within the embankments between earthworks and sometimes within the same monument. In addition to the segmented portions, there were examples of continuous construction in Ohio earthworks. The construction of large continuous circles suggests that the physical expression of larger multi-unit group cohesion was also important in Ohio Hopewell monuments (Spielmann 2008)

The concept of sociogram can be applied to Charles and Buikstra's (2002) interpretation of the functional difference between bluff-top and floodplain mounds. The authors suggested that the bluff-top mounds were the expression of single segments of the community reaffirming their position within the society. Floodplain mounds, on the other hand, may have served multiple segments and acted as the physical expression of "corporateness at a higher level – a community of communities (Charles and Buikstra 2002:20)." Of particular importance, the authors noted that the floodplain sites may have served as a location where corporate authority between groups was actively recreated and/or contested.

The presence of both segmented and continuous earthen constructs in Ohio and Illinois Hopewell earthworks illustrates that earthen monumental construction likely functioned on several levels with prehistoric North American societies. As noted earlier, the application of this concept to differential mound construction and use may be of particular value to the analysis of Wisconsin Effigy Mound earthen construction.

Mound construction during the Middle Woodland, particularly the Hopewell phenomenon is largely viewed as a reworking of earlier Archaic and Early Woodland patterns of interregional exchange and monumental construction (Bolnick and Smith 2007; Buikstra and Charles 1999; Charles and Buikstra 2002; Seeman and Branch 2006; Stevenson et al. 1997). Understanding *how* societies incorporated monuments of previous generations into their own constructions and perceptions of identity, history, and memory is vital to the study of prehistoric mound construction (Wallis 2008). This tradition of reconfiguring mound forms in ancestral locations will take on new importance in Effigy Mound earthen construction of the Late Woodland. As Birmingham and Eisenberg (2000:109) note, Effigy Mound groups "were frequently built around the large conical M(iddle) W(oodland) mounds, indicating shared cultural understanding of the sacred places involved."

The Late Woodland

General Overview

Unfortunately, earlier research has often mischaracterized Late Woodland societies as "The Good Gray Cultures," describing them in terms relative to preceding groups from the Middle Woodland period (particularly a decline in interregional interaction) and successive societies from the Mississippian period (lack of hierarchical social organization and social complexity) (McElrath et al 2000). Although the exchange of exotics through interregional interaction may be rare or nonexistent in many Late Woodland societies, the presence of shared large-scale ceremonial and ideological practices did not end with the Middle Woodland. The Effigy Mound ceremonial movement, in particular, marked a spectacular and dynamic period of mound construction. This mound building and ceremonial complex was centered largely in southern Wisconsin but was also seen in portions of northeastern Iowa, eastern Minnesota, and northern Illinois (Benn 1979; Birmingham and Eisenberg 2000; Goldstein 1995; Hurley 1975; Mallam 1976; Rosebrough 2010; Yerkes 1988).

Before describing Effigy Mound ceremonialism and mound construction in detail, this section will review basic Late Woodland subsistence and settlement patterns in the Upper Midwest and other mound building traditions outside the Effigy Mound region. The Late Woodland commonly refers to the cultural manifestations of the northern Upper Midwest dating between AD 500/600 to AD 1000/1100; although in some regions these dates may be earlier and in portions of Michigan the Late Woodland continued until contact (Brashler et al. 2000; Simon 2000). Some researchers have divided the Late Woodland period into an Early or Initial Late Woodland and a Late or Mature Late Woodland (McElrath et al. 2000; Rosebrough 2010; Simon 2000). Two key cultural innovations, the introduction of the bow and arrow and adoption of maize agriculture, have been commonly used to demarcate these divisions (McElrath et al. 2000). McElrath et al. (2000) suggest a third cultural transformation which may have played prominently in the development of Late Woodland societies, namely the shift of communities out of favored river-valley core areas following the decline of the Middle Woodland pattern and resultant variability between communities.

General characteristics of Late Woodland cultures include: communities dispersed across a variety of settings including river valleys, riverine and lakeshore environments, and uplands; subsistence based on hunting and gathering wild resources and some domesticates such as squash and maize (McElrath et al. 2000; Schroeder 2004; Simon 2000; Theler and Boszhardt 2003). The cultures of the Late Woodland stage across the Upper Midwest should be seen as remarkably dynamic in regional adaptations, social organization, and material culture rather than earlier characterizations as dull and static. Certainly, the one generalization that can be made about Late Woodland societies across the Upper Midwest is that they exhibited tremendous variability (Birmingham 2010; McElrath et al. 2000; Simon 2000).

As previously noted, major technological and cultural transformations occurred during this period across the Upper Midwest. The widespread adoption of the bow and arrow by Midwestern communities appeared during the seventh to the ninth centuries (Charles 1992; McElrath et al. 2000; Theler and Boszhardt 2003). The bow and arrow marked a significant innovation in technology, allowing multiple projectiles to be ready for use quickly compared to the atlatl and spear, though its advantages for hunting deer have been debated (Theler and Boszhardt 2003). Theler and Boszhardt (2003:137) state "the bow and arrow allowed increased deer harvests, including the possibility of successful year-round hunting." McElrath et al. (2000) on the other hand, argue that faunal analyses from across the Midwest are not strong enough to conclude that its adoption dramatically altered the amount of game harvested. The authors offer an additional suggestion for its widespread adoption; namely that it provided both a more efficient hunting tool and weapon that could be used for both raiding resources and defense. They cited two lines of evidence to support their hypothesis: significant number of embedded arrowpoints in skeletal remains and sites exhibiting substantial fortification in the Ohio drainage areas (McElrath et al. 2000).

Increased reliance on cultigens and maize-based agricultural economies followed the implementation of the bow and arrow in many Late Woodland communities (McElrath 2000). However, it is important to note that not all Late Woodland communities adopted this pattern of horticultural intensification. Simon (2000) reviewed changing patterns of both wild and cultivated plant use during the Late Woodland across the Upper Midwest. She divided the region into four subareas: (1) Upper Ohio River Region, (2) Lower Ohio and Central Mississippi Rivers Region, (3) Illinois, Missouri, and North-Central Mississippi Rivers Region, and (4) Southern Great Lakes Region.

According to Simon (2000:43), plant use in the Upper Ohio River Region throughout the Late Woodland period was exemplified by the following trends. Upper Ohio communities appear to have had a decreased use in starchy cultigens and nut crops which accompanied an increased reliance on corn and beans. Fleshy fruit, sunflower, squash, and chenopod continued to be used as they had in the past. Based on charcoal evidence, it seems that Late Woodland communities in this area may have actively cleared land for cultivation through the use of fire. Although there was a dramatic change in social organization between the Middle and Late Woodland periods, these changes did not dramatically alter the plants used by communities.

The Lower Ohio River region, particularly communities living in rugged upland areas, exhibited a generalized subsistence strategy with a heavy reliance on wild plant resources. The physiography of the area is not conducive to horticulture and consequently cultigens used by communities within the region were typically incidental in nature (Simon 2000:47). Communities residing in the Central Mississippi River region, in contrast, adopted a subsistence strategy that included an increasing reliance on cultigens, particularly starchy grains like chenopod and maygrass. Oily cultigens such as sunflower and sumpweed were also important, as was pepo squash. Plant cultivation continually increased in importance throughout the Late Woodland period in this region and between A.D.900 and A.D.1000, corn was added to the subsistence base in southern Illinois and southeastern Missouri respectively (Simon 2000:47).

The Illinois, Missouri, and North-Central Mississippi Rivers Region has a well known archaeological record of plant use. Simon (2000) summarized plant use during the Late Woodland in this region as follows. Communities residing within and close to major river valleys had increased reliance on cultigens. "Even at the beginning of the Late Woodland period, many of the sites in major riverine areas display a fully horitcultural complex...by the end of the Late Woodland period, the subsistence economies of groups living along major rivers were clearly agricultural (Simon 2000:54)." Conversely, communities farther from the major rivers exhibited decreased reliance on cultivated plants. Yet many were still practicing some forms of horticulture at the beginning of the Late Woodland. This reliance steadily increased through time in interior locales. Wild plant resources, particularly nuts, however also remained very important especially in the southern portion of the region. Simon (2000:54) interpreted this variation between main floodplain and secondary valleys sites as reflecting local cultural variation in availability and preference of resources within the basic Late Woodland pattern. This region in particular saw fairly ubiquitous adoption of corn cultivation during the late Late Woodland.

The Southern Great Lakes Region extends from western Iowa, northern Illinois and Indiana, southern Wisconsin, and southern Michigan (Simon 2000). The broader region includes areas associated with Effigy Mound sites**.** Plant usage within these Effigy Mound areas will be discussed in detail. In general, Effigy Mound communities can be characterized as possessing a "Cultivating Ecosystem Type," which means they utilized some cultivated plants yet they largely lacked a heavy reliance on cultigens (Stoltman and Christiansen 2000:512).

Unfortunately, evidence of plant usage during the early Late Woodland (pre-A.D. 700) in the Driftless Area, a core area of Effigy Mound sites, is very poor. The late Late Woodland record (A.D. 700 – A.D. 1000) in this area, on the other hand, is significantly better. In northeastern Iowa, the late Late Woodland is designated as the Keyes phase and shows evidence of chenopod, sunflower, and maize use (Rosebrough 2010; Simon 2000). Plant usage during the Eastman Phase in southwestern Wisconsin was varied dependent on location (Simon 2000). Wild resources, including nuts (hickory, walnut, butternut, and hazelnut), fleshy fruits, and wild rice, were utilized in upland areas while horticulture figured more prominently in riverine locales (Rosebrough 2010; Simon 2000; Stoltman and Christiansen 2000; Theler and Boszhardt 2000). However, limited evidence of corn has been recovered from interior upland rockshelters suggesting that limited amounts of maize may have been used by some Effigy Mound communities (Rosebrough 2010; Simon 2000; Stoltman and Christiansen 2000). Eastman riverine sites contained a variety of cultigens including chenopods, erect knotweed, pepo squash, and corn (Rosebrough 2010; Simon 2000).

Plant use in the interior of northern Illinois and south-central Wisconsin during the early Late Woodland was predominantly based on wild resources. Cultivated plants included barley chenopod, and pepo squash, but were present in limited amounts suggesting the presence of small gardens that supplemented diets more reliant on wild resources (Rosebrough 2010; Simon 2000). Plant usage during the late Late Woodland included both wild resources and cultigens, including chenopod, sunflower, and sumpweed (Rosebrough 2010; Salkin 2000; Simon 2000). Kekoskee phase sites in the area, which are considered by some to be non-Effigy Mound, showdemonstrated a significant degree of corn utilization (Salkin 2000; Simon 2000). Others have argued, however, that there is no conclusive evidence to suggest that Kekoskee communities did not participate in Effigy Mound construction. The placement of Kekoskee sites within the larger Effigy Mound tradition raises important questions about past interpretations of Effigy Mound subsistence and settlement practices and the possible function of mound construction (Rosebrough 2010).

Sites dated to the Late Woodland period in southeastern Wisconsin are typically referred to as either Horicon or Kekoskee phases. According to Salkin (2000:536), Horicon phase communities relied predominantly on wild resources "making no use of domesticates, as evidenced by the lack of such remains from excavations at all of the major sites." However, as suggested by Salkin (2000), Horicon phase communities may have traded for cultivated foodstuffs, such as maize, with neighboring Kekoskee communities. Others, however, viewed the horticultural Kekoskee phase in this area to be a later development of Horicon mobile hunting and gathering communities (Rosebrough 2010; Stoltman and Christiansen 2000).

Simon (2000) summarized the general pattern of plant usage in the Southern Great Lakes Region as follows. Plant usage in the northern portion of the region was focused largely on wild resources with limited cultivation of indigenous crops in small, temporary gardens. During the early Late Woodland, the use of cultigens, namely chenopod, sunflower, and squash was limited largely to the western part of the region. In southern Michigan during this same time, communities were heavily reliant on wild plant resources, particularly fleshy fruits. In northern Illinois and southern Wisconsin, plant use was intermediate. However, by the late Late Woodland, the cultivation of corn was fairly widespread.

Plant use in the Upper Midwest during the Late Woodland has been described as a continuum of subsistence behaviors with intensive cultivation and wild resource gathering on either ends of the spectrum (Simon 2000). Communities' locations along the spectrum were likely influenced by numerous factors including local environments and physiography, population size, mobility patterns, and proximity to neighboring groups (Simon 2000). Not surprisingly, alterations in plant use during the Late Woodland likely had tremendous impact on settlement practices and population densities within these communities.

As noted previously, the Late Woodland period was marked by major population resettlement outside of core-river valleys particularly in the Illinois and Ohio River Valleys (Birmingham 2010; McElrath et al. 2000). The demographic shifts were more complex than just a simple shift out of the river valleys into upland environments. Although this certainly was the case in some Late Woodland settings, population resettlements also included significant shifts in relation to increasing reliance on cultigens. As some communities became more reliant on cultivated crops, settlement practices consequently shifted to more permanent settlements near crop fields. These shifts, both the expansion into non-riverine upland areas and later movement towards larger, more permanent horticultural settlements, resulted in major differences in local culture histories and significant variability in site assemblages (McElrath 2000).

Additionally, it has been suggested that some locations exhibited significant population increases during the Late Woodland (Charles 1992; McElrath 2000; Rosebrough 2010). The strongest evidence to support this derives from lower Illinois River Valley burial mound survey data (Charles 1992; Charles and Buikstra 2002; McElrath 2000). Charles (1992) found that the number of burial mounds increased throughout the Middle and Late Woodland periods suggesting that the population had grown by the end of the Late Woodland period. Furthermore, the number of individuals included within a mound burial also increases during the Late Woodland suggesting a "fairly dramatic increase in population (Charles 1992:187)."

The pattern of mound construction and placement on the landscape also changed in the lower Illinois Valley during the Late Woodland. Late Woodland mounds in the Illinois Valley rarely contain the log-lined or limestone crypt and ramp structure previously used during the Middle Woodland (Buikstra and Charles 1999, Charles 1992). The mounds were often constructed through a series of sequential actions.

> Initially, graves were excavated into a knoll or ridge. The cemetery was then generally sealed by a layer of earth, in effect creating a new knoll. On this new surface, a crypt (smaller and simpler in form than a MW crypt) or crematory might be created, with a number of bodies disposed of in the appropriate manner. This feature would again be sealed, possible to serve as the surface of another feature or cemetery. The complete life of the cemetery might involve from one to seven such stages (Charles 1992:178).

Buikstra and Charles (1999:217) suggested this patterning of mound construction may reflect the disposal area for a single corporate group or lineage. Additional support for singular lineage or corporate group disposal comes from the increased variability in internal structuring of Late

Woodland mounds. This variation may have reflected a movement away from shared regional symbolism to locally derived funerary rituals (Charles 1992). Charles (1992:178) likened the placement of Late Woodland mounds to earlier Archaic cemeteries in that both may be characterized as interments into or on natural knolls compared to Middle Woodland mounds which were constructed on prominent high spots.

Charles and Buikstra (2002) suggested this transformation in form and location of mound construction was ultimately the result of the alterations in subsistence and settlement patterns that occurred during the Late Woodland. Specifically, permanence in settlement locations related to increasing reliance on cultigens stabilized kinship networks significantly reducing the need for elaborate exchange systems and funerary display (Charles and Buikstra, 2002:21**).** In this interpretation, alterations in mound construction and use were reflective of the general restructuring of the social organization - increasingly sedentary communities and horticultural subsistence economy – that marked the Late Woodland period in the Illinois Valley.

In Wisconsin, portions of northern Illinois, eastern Iowa and Minnesota, mound construction took a dramatic shift with regard to form during the Late Woodland.   Beginning around A.D. 600, mounds were constructed in forms not previously seen, including birds, bears, and possible water spirits just to name a few (Birmingham and Eisenberg 2000; Goldstein 1995; Hurley 1975; Mallam 1975; Rosebrough 2010; Theler and Boszhardt 2003). This transformation in mound form construction was not immediate, however, as can be witnessed by the Millville phase. The Millville phase (AD 200-500) represents a late Middle Woodland/early Late Woodland mound building tradition in the southwestern portion of Wisconsin (Rosebrough 2010; Salkin 2000; Stevenson et al. 1997; Stoltman 1990; Theler 1987; Theler and Boszhardt 2003).

Millville Phase mounds are exemplified by the Rehbein I mound group. This group contained two linear and seven conical mound forms, six of which were excavated. It was determined that the linear forms were associated with the Effigy Mound Tradition and the conical forms with the Millville phase (Mead 1979; Theler and Boszhardt 2003). Millville phase mounds appear to have been constructed by removing the topsoil and preparing a subfloor pit (Theler and Boszhardt 2003). Burials placed within the pits were either primary extended burials or secondary bundle burials (Theler and Boszhardt 2003). Millville burials included both sexes and a wide distribution of ages (Theler and Boszhardt 2003). Unlike Trempealeau Phase mound burials, grave furnishing tended to be few and of local source material (Mead 1979).

Millville exemplifies the transitional nature of mound building in Wisconsin between Middle Woodland and Late Woodland. Three features of Millville mound construction are significant for this study: the continued use of conical mound forms, the placement of the mound groups, and the patterning of internal mound features. The description of Millville mound construction is similar to Effigy Mound conical mound construction patterns. It suggests that the conical mound form continued to be an important symbol that was retained by Millville communities. The internal characteristics are also very similar to mortuary treatments seen inside Effigy Mound burials: subfloor pit, extended and secondary burial treatment, and few grave goods of local material. The mortuary practices seen at Millville may have embodied both the decline of the Hopewell Interaction Sphere (lack of interregional trade items and crypts) and the new internal patterning of Effigy Mound traditions (simple subfloor pits, few grave offerings and when present, objects made of local materials). The placement of Effigy Mound linear forms in the same location of Millville conical forms may suggests that succeeding Effigy Mound communities wanted to link their present ritual and memory to the ancestors and history through monumental construction and burial within these sacred landscapes. It is the dramatic alteration in mound form, however, that is most intriguing.

Effigy Mound Monumental Construction

As previously noted in Chapter 1, the “Effigy Mound Tradition” refers to a widespread ceremonial complex that spanned geographically from southern Wisconsin, eastern Iowa, northern Illinois, and southeastern Minnesota and temporally from A.D. 600 to A.D. 1200 (Benn 1979; Birmingham and Eisenberg 2000; Goldstein 1995; Mallam 1976).

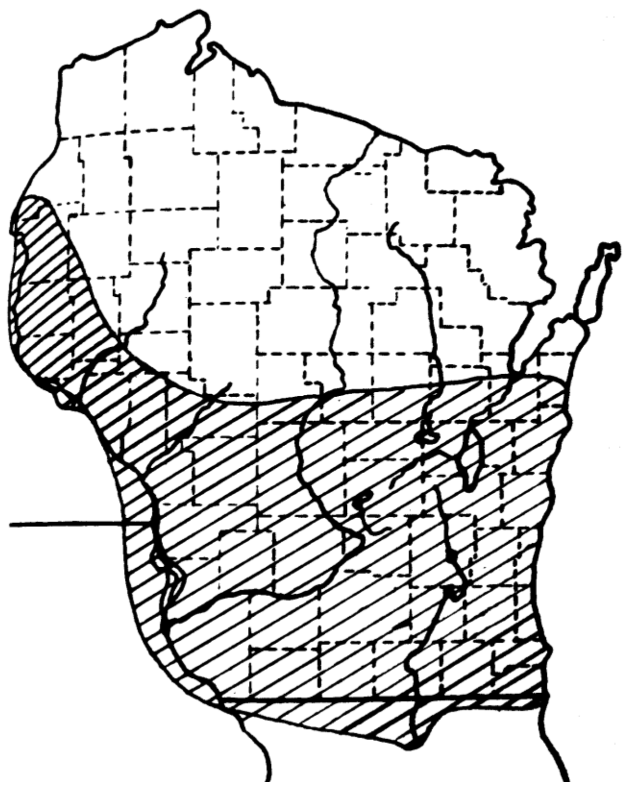

Figure 2.4 Effigy Mound Distribution from Rowe, C.(1956) The Effigy Mound Culture of Wisconsin. *Milwaukee Public Museum Publications in Anthropology*. Number 3. Milwaukee: Milwaukee Public Museum.

The subsistence and settlement pattern of communities participating in Effigy Mound ceremonialism has been characterized as groups of semi-sedentary people that practiced a hunting-gathering-fishing subsistence economy, moving across the landscape in seasonal rounds (Mallam 1976; Theler and Boszhardt 2000). It is believed that these groups likely settled in larger aggregates in locales that offered abundant resources during particular times of the year (Benn 1979; Birmingham 2010; Birmingham and Eisenberg 2000; Goldstein 1995; Mallam 1976, 1984; Storck 1974; Theler and Boszhardt 2000).

In light of the previous review of plant usage in Effigy Mound areas, however, the use of cultigens should be included with Effigy Mound subsistence practices and settlements patterns. As Theler and Boszhardt note (2003:131-132), "though not a significant part of the Late Woodland diet, intensified plant cultivation generally corresponds with increased social tension and conflict, in part because it requires greater ties to specific plots of land." This alteration in land usage may require different interpretations with regard to the function and meaning of mound construction in these varied communities (Cornelison, in press).

The most distinguishing feature of the Effigy Mound ceremonial complex, however, is the varied forms of mound types which include: conical, biconical, linear, oval, and numerous effigy forms with the predominant types composed of birds, bears, panthers, and deer (Goldstein 1995; Rosebrough 2010; Rowe 1956). The various mound forms, dimensions, locations and internal features of mounds analyzed in this research are described in greater detail in Chapter 6. In general, Effigy Mound monumental construction, internal features, and burial patterns display significant variability between Effigy Mound sites suggesting that Effigy Mound ceremonialism and mound construction may be reflective of local community participation within a larger shared ceremonial movement (Rosebrough 2010).

Explanations for the meaning and function of Effigy mounds have a long history and are quite diverse including: totems of clan affiliation (Benn 1979; Radin 1911; Stout 1911);

primarily burial tumuli (Rowe 1956); representations of cosmology and products of socio-religious ceremonies (Birmingham and Eisenberg 2000; Birmingham 2010; Hall 1993; Mallam 1982, 1984); territorial markers of corporate rites to resource rich areas (Benn 1979; Goldstein 1995; Mallam 1976; Stout 1911); and also as a means of creating social integration and cohesiveness (Benn 1979; Birmingham 2010; Goldstein 1995; Mallam 1976; Rosebrough 2010). As one can see there are several possible explanations for mound construction and function, each of which need not be mutually exclusive. It is quite plausible that the mounds functioned in many of the ways mentioned. What follows is a review of key interpretations surrounding the meaning and function of effigy mound forms.

Effigy Mound research has a long history, beginning with Increase Lapham's 1836 description of a 'turtle-mound" and other effigy mound forms in newspapers of the day (Lapham 1855). These early accounts were largely descriptive, however, some interpretations regarding effigy mound function and meaning were also offered. For example, the descriptive account of R. Taylor in 1838 noted that mound groups were commonly located by lakes and rivers and in elevated locations and "by this arrangement the greatest publicity was given to the burial places" (Taylor 1838:97). Taylor also speculated that the effigy forms may "have served in some way to designate the respective tribes or branches to which the deceased, in whose honor the structures were reared, belonged (Taylor 1838: 100)," a hypothesis still proposed today to explain effigy form and function.

Lapham's (1855) report entitled "*The Antiquities of Wisconsin"* presented his survey and occasional excavation of mound groups, including effigy mounds across the southern region of Wisconsin. Throughout the work, Lapham also made continual reference to the location of mound groups suggesting both the sacred and functional nature of the mound group localities.

The connection between mound group location and areas of abundant resources observed by Lapham continued to be a prominent theme in later Effigy Mound research. Lapham's descriptions are of particular value today since most of the mounds have been destroyed despite his pleas to preserve them.

The 1894 work by Cyrus Thomas entitled, *Report on the Mound Explorations of the Bureau of Ethnology* is often cited as finally dispelling the Mound Builder Myth (Birmingham and Eisenberg 2000; Hurley 1975; Mallam 1976). Much of the survey and excavation of Wisconsin mounds was limited primarily to the southwestern counties. The work provided a thorough description of the layout of mound forms within mound groups, the stratigraphy of excavated mounds, descriptions of mound inclusions, and the corpse treatment (extended, cremated, bundled, etc.) afforded individuals within each excavated mound.

Arlow B. Stout (1911) provided a descriptive overview of the following earthen structures found in Wisconsin: enclosures, conical mounds, flat topped mounds, effigy mounds, linear mounds, intaglios, middens, garden beds, and corn fields. The majority of the article, however, was devoted to the "most interesting and remarkable of Wisconsin antiquities, the effigy mounds (Stout 1911:11)." Stout (1911:26) concluded that "they were built as totems in connection with the clan system of Indian organization" and further speculated that they were likely built by the Ho-Chunk (Winnebago in original) during historic times.

The hypothesis that the Ho-Chunk (Winnebago, in original) were the authors of the effigy mounds was largely purported by Paul Radin (1911). Radin argued, based on accounts from informants that the effigies functioned as territory markers. Radin rejected the antiquity of the mounds and like Stout suggested the Effigy mounds were constructed recently, specifically during the eighteenth century. This view was widely held until observations by archaeologists, particularly the presence of grit-tempered pottery in effigy mounds, seriously called in to question the claims that the Ho-Chunk created the mounds. The argument against Ho-Chuck authorship of effigy mounds came largely from W.C. McKern (1928, 1930). McKern based much of his argument on the striking differences between Ho-Chunk, shell-tempered pottery decorated with incised geometric designs, and the grit-tempered, cord-impressed pottery found in the Effigy mounds which he referred to as Lake Michigan pottery (McKern 1930:469). As a consequence of continued mound excavation and analysis during 1920's and 1930's, Radin's conclusions were eventually rejected.

Professional archaeological excavation of Wisconsin's effigy mounds was led by Samuel A. Barrett at the beginning of the Twentieth Century. Barrett and his team excavated the Kratz Creek Mound Group located in Marquette County. W.C. McKern continued the work of Barrett, carefully excavating numerous mound groups across the state, including Kletzien, McClaughry, Neale, Nitschke and Trowbridge (McKern 1928, 1930). McKern's published accounts offer greater detail regarding mound inclusions than earlier works. Like much of the archaeology of the time, excavation of sites was focused predominantly on mounds with little exploration between mounds and adjacent habitation areas (Barrett and Hawkes 1919; McKern 1928, 1930).

Although vital for Effigy Mound research, these analyses were focused predominantly on presenting descriptions of mound formation, ceremonialism, and material remains and did not explore the meaning and function of mound construction nor the human burials interred within the mounds. Rather, they resulted in a trait list for the Effigy Mound Culture which included the following: semi-sedentary small, temporary habitation areas; hunting-fishing-gathering wild resources; mounds constructed in geometric and effigy forms; generalized lithic artifacts that included stemmed and notched points, celts, and scrapers; bone artifacts including harpoon points and awls; ceramic artifacts that were grit-tempered and cord-impressed; and ceremonial life that included the creation of mounds primarily for burial purposes (McKern and Ritzenthaler 1949:40-48; Rowe 1956: 75-76).

Chandler Rowe (1956) attempted to synthesize the previously collected data on the Effigy Mound Tradition and presented information on the Raisbeck Mound Group which had been excavated by McKern in 1932 but never published. The study was based on 482 mounds from thirteen sites (Utley, Green Lake, Neale, McClaughry, Raisbeck, Kletzien, Kratz Creek, Ross, Diamond Bluff, and Heller). The goal of Rowe’s volume was to provide a general description of the Effigy Mound Culture in Wisconsin, including the mound forms, associated artifacts found in the mounds, methods of mound construction, and burial practices. This goal was accomplished by presenting the findings from both published and unpublished data, particularly the Raisbeck Mound Group, which Rowe considered to be an Effigy Mound Culture type site. Rowe presented the following Effigy Mound Culture trait list: small, temporary habitation areas; hunting, fishing, and gathering subsistence economy; generalized lithics and grit-tempered pottery; and ceremonial life that included the creation of mounds primarily for burial purposes (Rowe 1956: 75-76).

Perhaps Rowe’s most important contribution to Effigy Mound Tradition research was his examination of association between Effigy Mound culture and historic Native groups. In particular, Rowe compared effigy mound forms with clan totems of the following Native groups: Menominee, Chippewa, Chiwere Sioux (Oto, Missouri, and Iowa), Fox, Sauk, Ho-Chunk (Winnebago), and Mascouten (Prairie Potawatomi). Rowe (1956:87) found that the effigy mound forms did not correlate well with totem and/or clan symbols and in addition the "fact that at least half of the mounds of the Effigy Mound culture are conical, and a large number are linear or oval. These forms do not tie up with the clan names of the tribes."

William Hurley (1975) also reviewed previous Effigy Mound research and presented an analysis of two Effigy Mound sites, the Bigelow site (Mound group type site-Middle Effigy Period) and the Sanders site (village site), in central Wisconsin. Particularly significant contributions of Hurley's (1975) analyses were the excavation of habitation sites associated with mound groups, the application of radiocarbon dating to charcoal obtained from the sites, and a detailed description of pottery styles characteristic of the Effigy Mound Complex.

Hurley (1975) also created a new chronology for the Effigy Mound Tradition which was based on earlier reports and his findings from the Bigelow and Sanders site. The chronology divides the Effigy Mound Tradition into three periods: Early Effigy Mound (A.D. 300-A.D. 700), Middle Effigy Mound (A.D.700-A.D.1100), and Late Effigy Mound (A.D. 1100-A.D.1642). According to Hurley, the Early Effigy Mound period developed from an unidentified Middle Woodland culture. Hurley categorized the community pattern as central-based wandering with scattered villages or campsites and the use of rockshelters. The mound groups included effigy, conical, oval, and linear forms. Subsistence was based on hunting, gathering, and fishing. The Middle Effigy Mound period was characterized by an increase in size and quantity of the mound groups and open sites. According to Hurley, it was also marked by a greater degree of sedentism. Subsistence economy was still based on hunting, gathering, and fishing. The Late Effigy Mound period included the Aztalan site which Hurley believed included Middle Mississippian and Effigy Mound peoples. This period can best be described by interaction with other cultural groups. Hurley's description of habitation sites were particularly valuable to Effigy Mound research, however his chronology, particularly the extension of the temporal span of the Effigy Mound complex to be contemporaneous with Hopewell, Middle Mississippian, Oneota, and European contact, has largely been refuted.

Reacting to the cultural-historical approach and its emphasis on trait lists, R. Clark Mallam (1976), presented an interpretive cultural model for the Iowa Effigy Mound Tradition that could be applied to Wisconsin Effigy Mound mound construction and ceremonialism. Specifically, Mallam used a cultural-ecological approach to create a model that emphasized the cultural variables (including subsistence economy, sociopolitical organization, ceremonial aspects) for the Effigy Mound manifestation and their relationship to the environment of the Upper Mississippi area. He argued that understanding the subsistence strategies and environment of Effigy Mound peoples was vital for the interpretation of effigy mound complex meaning and function. His model moved beyond traditional explanations of mound complexes as solely burial mounds.

Mallam's (1976) model suggested that effigy mound complexes within the region served as integrative mechanisms for coordinating the aggregation and activities critical for large group cohesion. Mallam (1976:34) noted that the mounds occurred in particularly seasonally rich locales which suggested that "mound complexes of this cultural system served as integrative mechanisms herein defined as institutions with consequences for combining social units into unified and supportive entities." Mounds functioned as "multipurpose institutions to coordinate and integrate the social, religious, economic, and political needs of the larger social groups (Mallam 1976:38)." Mallam (1976) argued that the ceremonial activities, including the burial of individuals in some mounds, enhanced the group's identity and cohesiveness while at the same time demarcated the assembled family units' resource territories.

In later works, Mallam (1982, 1984) focused on the ideological and ritual aspects of the effigy mounds. Mallam (1982, 1984:19), used historical and ethnographic analogy to suggest that the effigy mounds may have been part of "world renewal ritual, a sacred activity humans entered into in order to insure regular and consistent production of natural resources." In this regard, the effigy mound forms reflect the cosmology of the groups that built them.

David W. Benn (1979) built on Mallam's (1976) model that the mounds functioned as integrative mechanism. Benn (1979:71) argued that the varied mound forms may have reflected "political or social symbols of the corporate group who constructed them and are buried within." Benn's (1979:70) model attempted to address three aspects of effigy mound form: "the motivation for constructing effigy mounds at particular locations, the reasons for the variety of mound shapes, and the internal content of mounds." Although Benn (1979:73) gave primacy to totemic symbolism, he acknowledged that other rituals associated with fire and water ideology were associated with the mounds and concluded that these features were one part of "a tightly integrated system of philosophical and religious beliefs...amalgamated with the social organization and subsistence requirements."

The studies by Mallam (1976) and Benn (1979) mark a critical shift in mound research, namely the movement away from primarily descriptive studies towards an integrative approach to mound meaning and function. Of particular importance for this research is the notion of group identity created, communicated, and reinforced through mound construction and associated mortuary ritual.

Lynne Goldstein (1995) examined the distribution of effigy mound forms in southeastern Wisconsin to determine the validity of previous Effigy Mound culture models and explore regional relationships between Effigy Mound mortuary practices. Goldstein (1995:109) noted, "if the effigies represent totems or totemic symbols, one would not expect to find them equally spaced across the landscape." Goldstein found a clinal or zonal pattern with decreasing heterogeneity in effigy mound form from west to east in the region. Goldstein related the distribution pattern to the dominant natural resources located in the vicinity of the various mound groups. She noted that this pattern followed the variety of natural resources and that the largest number of effigy mounds were located in regions with the greatest diversity of natural resources. She found that mound groups tended to cluster in areas of wetlands, particularly "at the intersection of marsh, oak forests, and oak openings...This association is significant since this combination is not the most common vegetation set for the region overall" (Goldstein 1995:113). She concluded that the location of Effigy Mound sites may reflect aggregation centers where groups could harvest seasonally abundant resources. She agreed with the findings of Mallam (1976) and Benn (1979) that mound groups probably functioned as aggregation centers where communities could harvest seasonally abundant resources.

Further, Goldstein (1995:113-114) suggested "the differential distribution of effigy types lends some credence to the notion of mounds as clan symbols or corporate group symbols." She also noted, however, that totemic symbolism is likely not the only explanation for mound construction since conical, linear, and oval mound forms were also present. She noted that differentiation along the lines of age or sex did not appear evident and that grave goods were generally associated with the mound rather than with specific individuals. Disposition of the body tended to be secondary, which according to Goldstein (1995:115) "supports the notion of the mounds as aggregation points, with people bringing burials because of who the individual is vis-a-vis the group or because of when the individual died." As previously noted, Goldstein concluded that the secondary nature of the burials, particularly the presence of bundle burials, placement of those burials, and the structure of the mounds suggested that the social organization of Effigy Mound communities emphasized group identity over individual distinction (Goldstein (1995). Yet, she also pointed out that although the mortuary data does not indicate differentiation of status, the small number of individuals buried in the mounds may indicate differential access to mound burial.

Birmingham and Eisenberg (2000) reviewed and synthesized many of the more recent interpretations surrounding the meaning and function of effigy mounds. The authors concurred with the interpretations of Mallam (1976) and Goldstein (1995) specifically that the location of many effigy mound groups were situated in areas that offered numerous wild resources that would support large seasonal aggregates. They also noted, however, the locations "may not have been based solely on topographic and economic considerations" (Birmingham and Eisenberg 2000:112). The placement of mounds within sacred landscapes of Middle Woodland origin and their proximity to springs and other natural features suggested effigy mound construction and associated ceremonialism may have also functioned as representations of social and spiritual ideologies

The authors combined the interpretations of both Mallam (1982) and Hall (1993) regarding possible Effigy Mound symbolism and the meaning of various mound forms. The authors suggested that the Native American concept of upperworld (air) and lowerworld (earth and water) cosmology provides the foundation underlying the various mound forms (Birmingham and Eisenberg 2000:115). Mound construction in the form of various animals and/or spirits may have functioned as part of important earth renewal ceremonies meant to create balance and order in the natural world (Birmingham and Eisenberg 2000; Hall 1993; Mallam 1982, 1984). Based on ethnographic analogy, Birmingham and Eisenberg (2000) also suggested that clans or communities participating in Effigy Mound ceremonialism may have been divided according to the upperworld (bird, bird-man) and lowerworld (panthers, lizards, turtles – water and bear, deer, fox – earth) dichotomy and consequently effigy mound forms could have also served as important clan/ moiety symbols. They concluded, "in short, effigy mound groups are maps of ancient belief systems. They recapitulate the structure of the universe and model the relationship of the social divisions and clans of the effigy mound builders" (Birmingham and Eisenberg 2000:129).

Finally, the authors suggested that Effigy Mound ceremonialism functioned to create community integration through shared ritual and ceremonial activities. They concluded that this function may have been vital to communities that were transitioning from small hunting and gathering groups to increased reliance on cultigens and larger permanent settlements (Birmingham and Eisenberg 2000:134).

Birmingham's (2010) more recent analysis further expanded on the concepts of ideology, world renewal ritual, and the role of effigy mounds as ceremonial centers. Using an ideological approach, Birmingham interpreted effigy mound construction as a means of recreating the social and cosmological order by replicating its structure through the construction and patterning of the mounds. Key to Birmingham's interpretation were Hall's (1993) observations that: various effigy forms can be classified as upperworld and lowerworld spirits, mound forms may correspond to clans or moieties, and that mound building may have functioned as part of world renewal ceremonies. Birmingham noted that cosmology and the social order are closely linked and, consequently, the mounds may have also served an important role in creating and reaffirming the social structure. He suggested that effigy mound construction may have also played a role in the creation of community identity through the incorporation of both religious and corporate group symbols in shared ritual. The connection to the ancestors through the placement of effigy mounds in the sacred landscapes of earlier mound builders may have been an integral part of the creation of community identity and memory. Ultimately, Birmingham (2010:201) concluded that the effigy mounds functioned on multiple social and religious levels: marking territories and of communities and linking them "to the land through their ancestors"; possibly reflecting clan and/or moiety structure (upperworld/lowerworld); and were part of important world renewal ceremonies.

Rosebrough (2010) performed an exhaustive review of Effigy Mound data, including an examination of style and structure of effigy mound forms and associated ceramic collections from a number of sites spanning the entire Effigy Mound geographic region. Using stylistic and spatial analyses for both mound and ceramic styles, Rosebrough effectively deconstructed the "Effigy Mound Culture" concept and argued *against* the notion: that communities that built the effigy mounds were a homogeneous and distinct cultural entity; habitation sites exhibited a single set of material traits; communities followed the same cultural trajectory; Effigy Mound communities were a socially bounded ethnic group; and Effigy Mound communities were socially isolated. Instead, she found that communities that participated in Effigy Mound ceremonialism exhibited tremendous variability in subsistence, residential mobility, and the ritualism that is associated with the mounds themselves.

Rosebrough (2010) concluded that Effigy Mound earthen construction was the responsibility of particular subsets of the larger aggregated community. These subsets were generally responsible for the construction of mounds regardless of form within a mound group and remained within the territory of their respective mound groups.

Interestingly, Rosebrough (2010) suggested that differential participation in Effigy Mound construction and ritual may have participated in the creation of *masked ranking* defined as "a system of prestige accumulation and maintenance linked to the control of knowledge and ritual rather than economic relations" (Rosebrough 2010:3). In this interpretation, the mounds may have functioned as part of a system of social inequality or at minimum been reflective of differential access to varying social positions, ritual, and monumentalism. She noted that "if some households obtained prestige through the control of knowledge derived from effigy mound ritualism- or if prestige was tied to sodality, lineage, or other connections signified by effigy mound symbolism…then those households would have been tied intimately to landscape and place" (Rosebrough 2010:36). However, Rosebrough also noted that if effigy forms represented some sort of sodality or other social grouping, then mound building communities were likely composed of multiple groupings and the construction of mounds and associated ceremonialism may have also served as an important integrative mechanism.

It is the author's opinion that Rosebrough (2010:16) makes a strong argument for the abandonment of terms "Effigy Mound Culture", "Effigy Mound Tradition", and "Effigy Mound Variant." However, her suggestion that the phrase "effigy mound-building populations" be used in its place emphasizes the practice of earthen construction and its materiality rather than the ideologies associated with mound building.

This study follows Beck and Brown (2011:75) and treats Effigy Mound monumental construction and associated ritual as a Late Woodland as a *routinized* religious or ceremonial movement that spread across the Upper Midwest. A fundamental feature of that ceremonial movement was the creation of mounds in both geometric and effigy forms. As Mallam succinctly stated, “the visible signs of this new faith are the mounds themselves" (Mallam 1984).

Key characteristics of routinization are the construction of cultic centers and some form of economic surplus which is required to support the movement (Beck and Brown 2011). Cultic centers include long-lasting constructs "situated within the cultural landscape where cultic practitioners and their observers enact routinized rituals and manipulate associated paraphernalia" (Beck and Brown 2011:74). Routinization also requires contributions from those that support the movement either through economic or physical labor (Beck and Brown 2011). There is little doubt that mounds operated as cultic centers for communities participating in Effigy Mound ceremonialism. With regard to the surplus requirement, numerous authors note that the locations of Effigy Mound sites are not randomly situated on the landscape but rather strategically placed in resource rich locations (Benn 1979; Birmingham and Eisenberg 2000; Goldstein 1995; Mallam 1976; Rosebrough 2010). Groups were likely able to harvest the necessary surpluses in these locales during times of ritual aggregation. Emotional and economic connections to these landscapes were likely further strengthened through mound construction, ritual performance, and burial of community members.

Of particular importance for the current research is the conclusion of Beck and Brown (2011) that routinized religious movements may exert considerable influence beyond the religious realm and ultimately initiate change in socio-economic and political spheres as well. Biehl (2011: 141) concurred, "beliefs direct ritual which includes religious experience which in turn helps regulate the social and economic processes of a society."

One area where religion and its material practice, ritual, appears to have tremendous impact is the creation and reinforcement of social inequality (Aldenderfer 2011; Brown and Beck

2012; Shanks and Tilley 1982). Brown and Beck (2012:83) noted, "those that were better able to finance the movement's routinization were better able to direct its agenda and to legitimize their political and ritual prerogatives" (Beck and Brown 2011:83). This notion was supported by Shanks and Tilley (1982:130) who suggested "ritual activities form an active part of the social construction of reality within social formations and may be conceived as a particular form of the ideological legitimation of the social order, serving sectional interests of particular groups."

The conceptual framework of routinization and influence, as presented by Beck and Brown (2011), will be used to examine the role of mound burial in the creation of distinct social positions and to test Rosebrough's (2010) assertion that Effigy Mounds were built and maintained by a select group of individuals that may have exerted influence and prestige through differential ritual knowledge and authority.

The types of effigy mounds, particularly the reoccurrence of certain forms such as bird, bear, panther, conical, and oval, are the most routinized aspect of the Effigy Mound ceremonial movement (Rosebrough 2010). As such, it is reasonable to assume that the selection of what mound forms were to be constructed and what they represented was not random but had significant meaning for the builders.

Aspects of mound construction and burial during the Late Woodland, specifically the formation of community identity and integration through monumental construction, while simultaneously creating social distinction through differential ritual and mound access, were likely familiar constructs to communities participating in Effigy Mound ceremonialism. This pattern of integration and differentiation was present during earlier periods of mound construction, most notably the Middle Woodland, and so it should not be surprising that it was repeated yet also transformed by later Effigy Mound builders.

The placement of Effigy mounds among Middle Woodland mounds also suggests that Effigy mounds may have functioned as a connection to past or assisted in the creation of social memory (Birmingham and Eisenberg 2000; Birmingham 2010). Late Woodland communities, particularly those that participated in Effigy Mound ceremonialism with its novel mound forms, created mound groups that may have both incorporated the past through the use of traditional conical forms, but also transformed it with emphasis on new ideologies. Understanding these new ideologies surrounding mound construction and function may provide valuable insight regarding the formation of increasing disparities between mound construction and access to ritual which epitomized the Mississippian period.

Middle Mississippian

The Mississippian period (A.D.800- A.D. 1650), particularly the Middle Mississippian, is marked by impressive transformations in subsistence and settlement practices, sociopolitical organization, ritual customs, and mound construction (Bense 1996; Buikstra and Charles 1999; Goldstein 1980). Emergent Mississippian (A.D.800- A.D. 1000) traits are believed to have developed from American Bottom Late Woodland communities and eventually spread throughout much of the Midwest and Southeast (Goldstein 1980; Green and Rodell 1994; Yerkes 1988**)**. In Wisconsin, Emergent Mississippian community arrangements developed into a more highly ordered plan than those of their Late Woodland predecessors. Examples of this increased structuring and permanence of habitation areas include residential buildings arranged around a courtyard that often contained a communal building or collections of storage pits (Goldstein 1980; Mehrer 1995; Yerkes 1988). Mehrer (1995:14) noted that the increasing elaboration of construction required considerable investment in time, energy, and resources which suggested that Emergent Mississippian communities were forming long-term commitments to particular locations on the landscape.

These permanent settlements were in part possibly due to the adoption of intensive agricultural practices, particularly the addition of maize (Mehrer 1995; Goldstein 1980; Pauketat and Emerson 1997). Other cultigens important to Mississippian communities included beans, squash, gourd, marsh elder, and sunflowers (Bense 1996; Goldstein 1980; Yerkes 1988). Hunting, fishing, and collecting wild resources continued to provide essential portions of the subsistence economy as well (Goldstein 1980; Mehrer 1995; Pauketat and Emerson 1997). The combination of intensive agriculture and use of wild resources allowed considerable increase in population densities among Emergent Mississippian communities (Bense 1996; Goldstein 1980; Mehrer 1995). The increase in population densities, adoption of intensive agriculture and alteration of settlement structure and permanence resulted in specializations of: labor, domestic and communal architecture, sociopolitical organization, religious ceremonialism, and technologies never seen before in the Upper Midwest (Goldstein 1980; Griffin 1967; Mehrer 1995; Yerkes 1988).

In the area that would eventually become Cahokia, these Emergent Mississippian communities radically altered previous patterns of subsistence, settlement, social organization, and monumental construction (Yerkes 1988). According to Pauketat and Emerson (1997) these changes occurred very quickly around A.D. 1050 and mark what is referred to as the Lohman Phase (A.D. 1000- A.D. 1050). The Lohman phase represents the first Middle Mississippian phase in the American Bottom (Emerson 1997b). In the Cahokia region, the Lohman Phase of the Mississippian period shows evidence of a tremendous population increase in the order of five to ten times over previous periods (Pauketat and Lopinot 1997). It is also during the Lohman

Phase that several of the characteristic Middle Mississippian traits were maifested including: town-and dispersed homestead settlement organization, wall-trench architecture, large central plazas, new mound forms and utilization, shell-tempered pottery, and major transformations in sociopolitical ideology and religious cosmology (Collins 1997; Emerson 1997a&b; Goldstein 1980; Kelly 1997; Pauketat and Emerson 1997).

Significant architectural features were constructed throughout this period, including the commencement of Monks Mound, sun circles, and woodhenges (Emerson 1997; Yerkes 1988). Monks mound would eventually cover six hectares and rise to thirty meters in height (Yerkes 1988). Mortuary remains also suggest that social stratification was established during this time, as evidenced by Mound 72 burials which included exotic grave goods and possible retainer sacrifice burials (Emerson 1997a; Goldstein 1980). Specifically, Mound 72 contained 261 individuals, including the 122 retainers, and a high ranking individual that had thousands of drilled shell disk beads and exotic grave goods ranging from Wisconsin, Tennessee, and the Caddoan area (Yerkes 1988).

The changes first witnessed at Cahokia during the Lohman phase would eventually result in the efflorescence of social complexity and monumental construction that are hallmarks of the Stirling Phase of American Bottom Mississippian societies (Emerson 1997b; Mehrer 1995; Pauketat and Alt 2005; Yerkes 1988). The Stirling phase (A.D.1100- A.D. 1200) is often considered the cultural climax of American Bottom Mississippian societies and marked the peak of Cahokian power and influence (Emerson 1997b; Kelly 1997). Stirling Phase Middle Mississippian communities are characterized by the following: very large population densities in urban centers; continuously occupied sites often located along rivers and streams; settlements organized in a hierarchical manner; settlements which included planned permanent towns and ceremonial centers with large earthen mounds, fortified communities, villages, hamlets, farmsteads, and extractive camps; hierarchical social, political, and religious structures with variations over time and space; a mortuary program that included multiple forms within a hierarchical system; a belief system that integrated and emphasized interaction between the spirit world and man, fertility, ancestors, and war; maize horticulture, and extensive trade (Bense 1996; Blitz 2010; Goldstein 1980; Green 1997; Pauketat and Emerson 1997; Yerkes 1988).

Monumental architecture was greatest during the Stirling phase in comparison to other periods, and included some of the largest Mississippian constructs (Kelly 1997; Yerkes 1988). In addition to the completion of Monks Mound, numerous additional mounds and circular structures were constructed. Eventually the Cahokia area would include nearly 120 earthen mounds (Buikstra and Charles 1999; Yerkes 1988). Mississippian mound construction, specifically platform mounds, differs from earlier episodes in that it typically involved multistage episodes of both construction and destruction and involved a greater variety of activities centered on and around the mound (Knight 1986; Lindauer and Blitz 1997). Features of Mississippian platform mounds include:

> multicolored earthen fills or stages; well-defined, special-purpose structure remains on mound summits and premound surfaces; destruction of mound buildings by fire or razing; massive clay hearths that were frequently refurbished; partitions or fences enclosing mound summits or bases; mound summits kept free of debris; mound-side middens dumped from the summit; large, isolated post holes; and concentrations of rare or nonlocal raw materials or finished valuables. Some late platform mounds served as mortuaries...Both residential (domestic) and non-residential buildings are found on mound summits (Lindauer and Blitz, 1997:173).

Kelly (1997) suggested that some of the mounds may have functioned to demarcate different social components and segment larger communal spaces. Kelly (1997) interpreted monumental construction as having two important functions: it played a critical role in

Mississippian religious ideology and cosmology and legitimized the hierarchical social structure through both physical segmentation of the constructions and the labor required to build such monuments.

Knight (1986:675) considered platform mounds a Mississippian "iconic family" which can be defined as the set of artifacts and icons associated with the mounds that "have been charged with conventional supernatural meaning, in the context of ritual activity or display." He noted the repeated act of deconstruction and construction of platform mounds was a fundamental feature of Mississippian mound construction and more importantly represented a ritual act. Knight suggested that the rebuilding of mound surfaces with a new layer of material may have represented a mortuary rite for the mound itself rather than the individuals interred. Knight (1986:678) suggested that platform mounds may have been symbols of the earth that were "manipulated by periodic burial as temporary means of achieving purification in the context of a communal rite of intensification." According to Knight, the platform mound served a communal cult institution in that its monumentality required the labor of many and its core symbolism was available to all. The reconstruction of the mounds likely served to reinforce the communal nature of the ritual by requiring the active manipulation of the symbol (i.e. the platform mound) by the larger community (Knight 1986).

Lindauer and Blitz (1997) listed four functions of Mississippian platform mounds: elite or chiefly residences, temples and/or ancestor shrines, foundation for communal non-residential structures, and areas or courtyards which may have functioned as a ceremonial stage. These functions may have operated separately or in combination. Additionally, the function of a mound may have changed through time. Like other researchers, Lindauer and Blitz (1997), suggested the restructuring of mound function that is one constant in Mississippian platform mound construction and use.

Lindauer and Blitz (1997) interpreted platform mounds as an integral part of Mississippian social processes which served to integrate members of the community while at the same time legitimized differential access to resources, knowledge, and space. The authors suggested that the boundedness created by palisades and other architectural features of the mounds created locations where social differentiation operated by limiting access and perhaps visibility to various levels or associated structures. In addition, platform mounds often exhibited an increased quantity of artifacts particularly items of prestige which suggest that mounds may have functioned as "sacred precincts (Lindauer and Blitz 1997:181)." The human remains interred within these special locations may have served to legitimize social ranking and differentiation that was part of the Mississippian social structure. The combination of limited access to this burial location and inclusion of prestige items in the burial context may have served to reinforce the social differentiation that was operating in Mississippian societies (Lindauer and Blitz 1997). Finally, the presence of elite or chiefly residences atop some platform mounds may have marked a critical change in the social structure of Mississippian communities. The presence of residences and/ or burials may have reflected control over a mound and the rights and resources associated with it (Buikstra and Charles 1999; Lindauer and Blitz 1997).

The Mississippian practice of remodeling existing mounds may have played an important role in sociopolitical processes of corporate group and individual status differentiation. It is believed that the episodic destruction of mound features followed by new mound construction may have reflected the death and subsequent succession of a new chief or significant change in corporate group status. The Mississippian practice of repeatedly covering and replacing a previous structure with a new construction was a critical element in the sociopolitical function and meaning of platform mounds (Lindauer and Blitz 1997).

The monumental size of these large platform mounds, however, required social integration. Integration, according to Lindauer and Blitz (1997) was essential to maintain social inequality within a sociopolitical system because those that were denied access to either resources or knowledge must feel that they were gaining something from the unbalanced system in order to continue to participate. The role of platform mounds in Mississippian societies as important ritual centers, community meeting places, and the location and distribution of resources created a physical and likely emotional link to them by community members. Thus, the construction of platform mounds, feasting, and exchange of ritual knowledge and perhaps prestige items may have served as an integrative activity that reaffirmed relationships between community members and reinforced the social structure (Lindauer and Blitz 1997). Mississippian platform mounds appeared to have served concurrently as both status monuments for elite individuals and also community or corporate group symbols. This dual meaning and function of platform mounds likely played a critical role in the legitimization of Mississippian social inequality (Lindauer and Blitz 1997).

In addition to mound construction, the northern expansion of Cahokian Mississippian traits is of particular relevance to the current study. The influence of these early Middle Mississippian communities in the Midwest was eventually seen far north including: Minnesota, South Dakota, Upper Peninsula of Michigan and northern Lower Michigan, Iowa and Wisconsin (Emerson 1997a; Goldstein 1980; Pauketat and Alt 2005; Yerkes 1988). Of specific interest for the current research are the Trempealeau and Aztalan sites in Wisconsin (Goldstein and Richards

1991; Goldstein 2010; Green and Rodell 1994). These sites both contained evidence of Effigy Mound ceremonialism and Mississippian influence suggesting that these locations may have reflected sacred landscapes and/or were areas of important culture interaction.

The Trempealeau site in Wisconsin has been interpreted as an intrusive Mississippian community that entered the region around A.D. 1100. The interpretation is based on the presence of platform mounds and Mississippian ceramics (Green and Rodell 1994). The Trempealeau site has two mound features that suggest they are of Mississippian origin. The first is the Little Bluff Platform mound complex which consisted of three platforms: the north platform, the middle platform, and the south platform (Fig. 2.4). The north platform was pentagon in shape. The south platform was rectangular in shape and the middle platform was hexagonal in shape. Additionally (not pictured in figure 2.4), a small conical mound was located along the south mound (Green and Rodell 1994). It appears that most of the soil used to construct the mounds was local, however, imported fill containing gravel and crystalline rock was found in the middle platform (Green and Rodell 1994). A second mound at Trempealeau called the 3rd Street Mound is more problematic with regard to shape and cultural affiliation but is suggestive of a Mississippian platform mound.

The Trempealeau platform mounds represent some of the earliest Cahokian Mississippian contact in Wisconsin. Green and Rodell (1994) suggested the construction, particularly the form of the mounds, may have been an effort to recreate a smaller version or replica of Monks Mound. The authors interpreted this episode of mound construction as a form of sociopolitical and ritual communication. They suggested that the platform mounds may have served as a microcosm or sociogram reflecting the sociopolitical organization by "both symbolizing and operationalizing

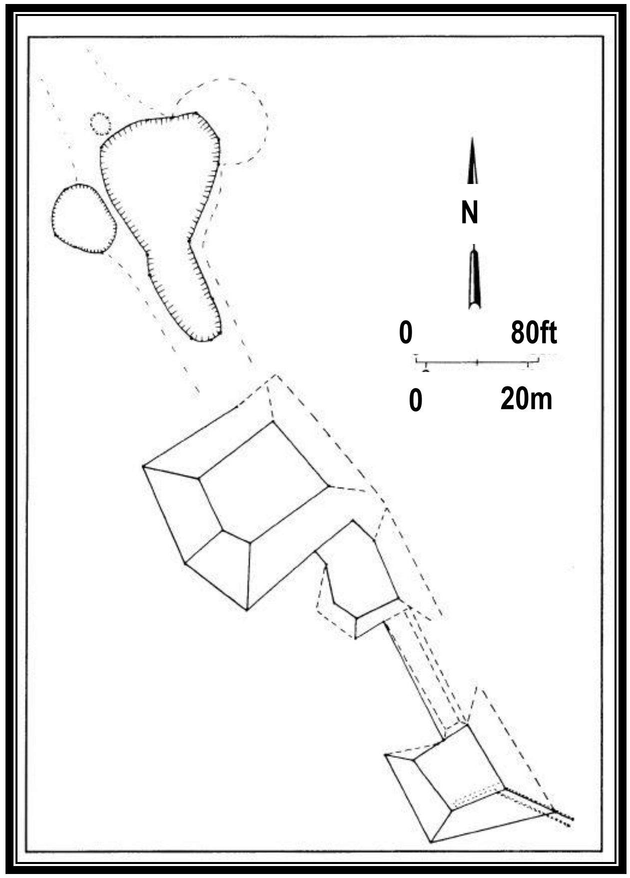

Figure 2.5 Little Bluff Platform Mound Complex from Green, W. and Rodell, R.L. The Mississippian Presence and Cahokia Interaction at Trempealeau, Wisconsin. *American Antiquity* (1994) 59:334–359.

ascent to the summit of power through a series of steps, placing rulers or other elite personages literally several levels above the rest of the population and perhaps indicating the existence of an intermediate rank or a space for communication between elites and commoners" (Green and Rodell 1994:352). Monumental construction may have also represented a physical expression of elite control over resources and labor (Green and Rodell 1994).

The Trempealeau site is significant with regard to landscape usage, specifically the reuse of sacred landscapes through time. As Goldstein (2010:99) noted, certain landscapes may have acted as "arenas of transformation, necessarily embodying multiple time periods, and as such have the potential to demonstrate both continuity and transformation." The Little Bluff Platform Mound Group is situated in what was likely a sacred landscape for preexisting western Wisconsin communities. Trempealeau exhibited both conical and effigy mound forms that date to Middle Woodland and Late Woodland periods respectively. Constructing platform mounds in this sacred landscape that may have once served as a site of ancestor worship and social memory may be one way that Mississippian intruders tried to subvert Late Woodland organization and express the dominance of American Bottom elites (Green and Rodell 1994). An alternate and perhaps more benign interpretation regarding the placement of platform mounds among preexisting earthen constructs may be that Mississippian communities were actively trying to incorporate local histories and transform them to communicate their own ideologies about ritual and social structure (Wallis 2008).

Aztalan is Wisconsin's best known Stirling phase Cahokian influence Mississippian site. The Aztalan site is a palisaded village and mound complex site that contains elements of both Late Woodland and Mississippian societies. It dates to the Lohman phase and earlier (A.D. 800-A.D.1200), however the greatest occupation appears to be between A.D. 1100 and A.D.1300 (Goldstein and Richards 1991; Goldstein 2010). The site is located on the west bank of the Crawfish River near the confluence of the Crawfish and Rock Rivers (Goldstein and Richards 1991; Goldstein 2010).

Monumental construction is quite extraordinary at this location. A vast area (approximately nine hectares) was encircled by single post palisades (Goldstein and Richards 1991). The palisades at the Aztalan site perhaps served two functions. They likely served as defensive structures but perhaps also demarcated important ritual space, restricted visibility and access to Effigy Mound neighbors, and served to create a distinct area of social identity separate from surrounding inhabitants (Goldstein 2010). Within the larger palisaded area were three platform pyramidal mounds, located in the southwest, northeast, and northwest corners (Goldstein and Richards 1991). Structures were located on two of the mounds. The southwest mound supported a large roofed building, while the northeast mound upheld a large, open structure (Goldstein and Richards 1991).

Goldstein (2010) presented an analysis of landscape usage and the mortuary remains recovered from the Aztalan site. Excavation of portions of the site both within and outside of the palisades in 2001 and 2002 exposed some interesting aspects of land use and monumental construction in the Aztalan community. Excavation on the eastern bank of the Crawfish River revealed both Effigy Mound and Mississippian occupations, suggesting the importance of this local perhaps for both economic resources and ritual significance.

A striking alteration of the landscape within the palisades was what Goldstein (2010:104) referred to as the "sculptuary". The sculptuary refers to an area of the plaza south of the northwest platform mound that appears to have been "deliberately sculpted into a tiered mound-like structure that was incorporated into the side of a hill" (Goldstein 2010:103). Located within the tiers were various types of pits, some serving as refuse and/or storage pits while others contained human burials.

Goldstein (2010) found three methods of disposal at Aztalan. These include: primary interments situated in small clusters within the habitation precinct and internal palisade structure and the sculptuary; primary and secondary disposal in the charnel house located atop the northwest platform mound; and secondary bone scatter indicative of extensive mortuary processing which was limited to the area within the minor stockade and sculptuary structure. Goldstein (2010:109-110) interpreted the distribution of skeletal remains at Aztalan as not random, but rather following a fairly strict ritualized order. Burials along the palisade wall may have served to reinforce the social memory of the community or segments of the community. The area with the inner palisade served both as a habitation area and ritual space where remains of certain deceased were processed. Two locations of processing have been identified, the charnel structure atop the northwest platform mound and the pits located within the sculptuary. These distinct locations likely reflected differences in the social identity of the deceased and his/her relationship to the larger community. There may be other forms of mortuary treatment and ritual that occurred at Aztalan that have yet to be accounted for since the skeletal remains recovered from the site likely do not represent all the site's inhabitants.

Goldstein (2010:111-112) placed the landscape usage and mortuary practices of the Aztalan site within the larger Middle Mississippian context and concluded that the mortuary rituals at Aztalan were definitely Mississippian in nature, particularly the use of row structure for remains in the charnel house and the primary burials located within the sculptuary. A second characteristic of Mississippian mortuary treatment present at Aztalan is the spatial symmetry of the sculptuary and gravel knolls at opposite corners of the site both containing similar remains. However, Aztalan also exhibited distinct mortuary features such as the absence of burials within residential structures and the sculptuary. Aztalan earthen construction and mortuary practices may have been similar to Effigy Mound sites in that, while some very broad features were shared, in this case with the larger Mississippian ceremonialism, other aspects were unique to Aztalan's specific local culture history.

So what led to the change in Middle Mississippian social structure, particularly the appearance of inherent social inequality? Many authors would argue that mound construction itself not only legitimized these radical changes in the sociopolitical organization but actually played a critical role in its creation. Mound-top residences, production of prestige items, and funerary deposit of bodies and finished items were active parts of the sociopolitical process linking: access to mound structures, ritual, and economic resources to the creation and continued renegotiation of the social structure (Lindauer and Blitz 1997). The mounds and mound related activities were not just reflective of the social inequality present in Mississippian communities but played an active and essential role in creating the social differentiation. Further, it is believed that ancestor worship was an essential source of authority in Mississippian societies. The construction of ancestral shrines in the form of platforms mounds and restricting access to these shrines and symbols acted as a critical mechanism in the creation and reinforcement of social differentiation (Lindauer and Blitz 1997).

Perhaps even more important, why is understanding Mississippian mound construction valuable to the current study of Effigy Mound monumental architecture? The culture history of Mississippian communities, particularly at the Trempealeau and Aztalan sites appear to be intimately linked with Effigy Mound societies. In addition, a key archaeological model that originated with Mississippian research may be particularly useful for the current study.

The location for construction and use of Mississippian platform mounds in Wisconsin at Trempealeau and Aztalan suggests a strong connection of communities to ancestral "sacred" locations perhaps in an effort to either embrace local histories or subvert them. As Wallis (2008:240) noted, “the reuse or modification of monuments and other material of the past is often interpreted as a source of political legitimization.” Constructing mounds in areas with preexisting mound formations may have been one strategy that Mississippian communities, like those from earlier periods, used to develop physical and ideological relational identities with those that existed before them (Wallis 2008). An alternative explanation is that the repeated use of locales may have indicated that those were prime resource areas and communities staked "claim" to those areas through mound construction (Goldstein and Richards 1991; Goldstein 2010). This pattern of repeated use of certain landscapes suggests that the utilization of mounds as corporate group symbols and territorial markers continued to be important across space and time (Charles and Buikstra 1999; Goldstein and Richards 1991; Lindauer and Blitz 1997).

Additionally, studies of Mississippian mound construction and use have generated some useful interpretive concepts that may be applicable to the current study of Effigy Mound ceremonialism and mound construction. Knight's (1998) concept of diagrammatic ceremonial center is of particular value. Knight's analysis of Moundville, although not part of the topic region, offers a useful interpretation of monumental construction and site structure. Knight (1998) analyzed the Moundville site, which included twenty-nine mounds that were arranged in orderly rows around a central plaza. The site exhibited a significant amount of bilateral symmetry and north-south polarity. The largest mounds were situated in the northern part of the site. Additionally, there appeared to be a patterning of elite residences and paired mortuary mounds alternating around the central plaza. Knight interpreted this physical organization of space and architecture as representative of possible segmentation and ranking of the corporate segments within Moundville society.

Knight argued that Moundville's formal layout suggests that it may have been a diagrammatic ceremonial center which can be defined as "central places in traditional societies in which the layout of public architecture or monuments call deliberate attention to key social and cosmological distinctions, in a maplike manner" (Knight 1998:45). Knight suggested that diagrammatic ceremonial centers may have represented an effort by a society to present through construction a physical reflection of the social structure and consequently insure intergenerational constancy.

A fundamental aspect of the diagrammatic ceremonial center concept is that the built environments not only reflect the social structure and ideologies of a society but perhaps even more importantly may serve as arenas where these representations could be negotiated and contested. Additionally, diagrammatic ceremonial centers, both through monumental architecture and associated ritual, likely served multiple uses and social segments and thus singular interpretations of mound construction and use during any time period are likely overly simplistic.

Summary

The Upper Midwest in General

The review of earthen monumental construction in the Upper Midwest illustrates that mound construction had multiple and varied meanings within prehistoric North American societies. It is quite plausible that mound construction and use through time and space functioned concurrently as: territorial markers of corporate rites to resource rich areas, representations of cosmology and products of socio-religious ceremonies, integrative multiuse facilities, and also as a means of creating social integration and cohesiveness while at the same time denoting social distinction within communities.

Examination of mound construction and variation in associated mortuary programs in the Upper Midwest provides insight into the social organization and ideologies of its inhabitants through time. In general, mortuary practices throughout the Archaic increased in complexity and permanence. For example, during the Early Archaic, individuals were buried in midden deposits and by the Late-terminal Archaic there was increased mortuary complexity. Terminal Archaic mortuary practices are believed to have set the stage for Middle Woodland networks of exchange, mound construction, and ceremonialism, particularly in the Upper Midwest.

During the Early Woodland, formal mound construction begian to spread throughout the area yet in many instances the mortuary patterning was similar to earlier forms. Middle Woodland cultures, principally those that were part of the Hopewell Interaction Sphere were marked by a dramatic shift in mound construction and burial practices. Burials were included in mounds located along bluff-tops and in major river valleys which reflected the associated population shift to valley floors. The mortuary programs also increased in elaboration during this time.

The Late Woodland in some regions saw an increase in the number of mounds or a shift in mound forms. Despite the increase in number or change in mound form, there appears to be a decrease in differentiation between "elite" and "non-elite" burials in many locations which has often been interpreted as a shift from emphasis on individual identity to corporate identity. Alternatively, burials associated with Effigy Mound ceremonialism, namely differential access to mound burial itself, may have reflected disparity regarding access to ritual structures, a pattern that characterizes the subsequent Mississippian period.

Mississippian cultures were marked by increased social stratification reflected in the elaboration of mound construction and ceremonialism and especially the apparent differential access to such structures and associated ritual. As previously noted, the differential access to ancestral shrines and symbols, a key source of Mississippian authority may have acted as a critical mechanism in the creation and reinforcement of social differentiation.

The Mississippian period of mound construction provides an exceptional illustration of how mounds and mound related activities were not just reflective of the social structure but possibly played a role in creating it. Regardless of the subsistence and settlement patterns or the complexity of social organization, many communities dating from the Archaic through the Mississippian periods shared a common feature; they permanently transformed the natural landscape through mound building and other earthen monumental construction indicating its integral role in the social lives of prehistoric Eastern Woodland peoples.

Wisconsin Mound Building and Mortuary Behavior through Time

The array of prehistoric mortuary behavior observed in Wisconsin through time suggests that the practices of collective identity creation and individual remembrance have been employed for millennia. At times, these processes occurred simultaneously. While at other times, one appeared to be emphasized more than another.

During the Middle Archaic, the Osceola Phase, with its predominance of large multiple burials disposed as secondary burials and cremations, is suggestive of collective identity creation (Hill 2009; Stoltman 1997; Wittry and Ritzenthaler 1956). While the Oconto and Reigh sites, on the other hand, exhibited primary burials in discrete graves. Many of the graves contained grave goods which were associated with specific individuals. The pattern of mortuary behavior at these sites appeared to have emphasized individual status and achievement (Hill 2009; Stoltman 1997).

During the Late Archaic/ Early Woodland period in Wisconsin, Red Ochre burials exhibited a variety of exotic grave goods which is suggestive of the presence of a broad interregional ceremonial and exchange system (Hill 2009; Stevenson et al. 1997). Differential inclusion of these exotic items has been interpreted as denoting a system of differential prestige accumulation with emphasis on individual accomplishment and identity (Pleger 2000).

Formal mound construction appeared in Wisconsin during the Early Woodland period. These small conical mounds contained burials that were commonly disposed as extended or bundle reburials. Some mounds also exhibited evidence of elaborate religious ceremonialism which suggests they served as more than just burial tumuli. For example, the mounds at the Hilgen Springs site in eastern Wisconsin also exhibited concentrations of limestone and colored fieldstone which has been interpreted as an early example of world renewal ritual that would be seen during later periods (Birmingham 2010).

Middle Woodland mound construction in western Wisconsin (Trempealeau Phase) was heavily influenced by Havana Hopewell in style. Local interpretations of mound construction and burial at this site, particularly the differential presence of grave furnishings, suggests that mounds were created by kin-groups and that certain individuals interred within the mounds may have held an elevated status or distinct social position within the community (Birmingham and Eisenberg 2000). Southeastern Wisconsin Middle Woodland (Waukesha Phase) sites also exhibited Hopewellian influence. Mounds were fairly high conical mounds with Havana Hopewellian influenced grave furnishing. The Waukesha Phase in comparison to Trempealeau Phase appears to have had less involvement with the Hopewell Interaction Sphere and also less internal differentiation of associated furnishings with the interred remains.

The emergence of new linear mound forms appeared in Wisconsin during the early Late Woodland (Millville Phase) as exemplified by the Rehbein I Mound Group. Burials within these mounds exhibited few grave furnishings and what was present appeared to be made from local source material (Mead 1979). Access for burial within these new mound forms appeared to be open to both sexes and a variety of ages.

Linear mound forms continued to be created in addition to new animal effigy mound forms with the rise and expansion of the Effigy Mound ceremonialism. Communities participating in this movement also continued to build the conical mound forms of their ancestors which had marked the landscape for centuries. Access to these varied mound forms along the lines of age and sex, however, is less clear.

Although it is known that males and females, adults and subadults were afforded burial within geometric and effigy mounds, the specific patterning until now was not known. It is likely that construction of mounds and burial of individuals within them created community cohesion and collective identity (Benn 1979; Goldstein 1995; Mallam 1976). Yet, the relatively low number of included burials suggests not everyone was afforded mound burial (Goldstein 1995; Rosebrough 2010).

The findings of Rosebrough (2010), namely that particular subsets of the larger community were responsible for mound construction is particularly exciting. Her suggestion that mound construction and ritual may have provided an arena for obtainment and negotiation of differential prestige through ritual knowledge is interesting. The differential ability of some subsets to exercise control of important religious constructs may indicate a form of social inequality practiced among Effigy Mound participants based on religious ideology and ritual knowledge.

By the time of Middle Mississippian expansion, many Wisconsin communities were already familiar with expansive ceremonial movements, various forms of symbolic communication through mound construction and ritual, and perhaps even the beginnings of social inequality through differential access to mound facilities and ritual. The Trempealeau platform mounds may have functioned as a sociogram, ritually and symbolically communicating the separation of elites from the rest of the community (Green and Rodell 1994). Likewise, monumental construction at Aztalan functioned to symbolically communicate distinctions of social identity within the larger community. The placement of human remains in distinct locations such as: small clusters in the habitation precinct and internal palisade; bone scatter in sculptuary; and in the charnel house atop the northwest mound likely reinforced social distinctions among those participating in Aztalan mortuary behavior (Goldstein 2010).

It is only through the diachronic review of mound construction in Wisconsin that one realizes that mound building did not occur as isolated events in time but rather continually evolved through series of both large scale regional movements and small local events. As such, there is no single answer to what mounds functioned as during specific periods. Rather it is likely that mound construction incorporated the active reconstruction of the past in new ways that communicated meaning to community members (Bradley 1993).

The Meaning of Mound Construction the Upper Midwest

The examination of mound construction and use through time provides valuable insight for the study of Effigy Mound earthen construction and ceremonialism. Three patterns emerge that are particularly relevant for this study of Effigy Mound ritual, mound construction, and burial. First, mounds are often placed within sacred and/or ceremonial landscapes. The creation and continued use of ceremonial landscapes is a crucial aspect of mound construction and use. As seen in the previous pages, this pattern of repeated sacred landscape use and transformation has a long history in the Eastern Woodlands. For example, the placement of Early and later

Woodland mounds directly on top of Glacial Kame mortuary remains suggests that these Woodland groups may have deliberately located their mounds in the sacred landscape of their ancestors (Purtelli 2009). The pattern is repeated in the bluff crests and floodplains of the Illinois River Valley where Middle Woodland mounds were placed in the same localities as earlier Archaic cemeteries and has been interpreted as reflecting ancestor cult rituals (Buikstra and Charles 1999; Charles and Buikstra 2002). Likewise, as noted by Birmingham and Eisenberg (2000), Effigy mounds were commonly placed among Middle Woodland mounds which suggest that mound construction, in addition to marking territories, may also play an important role in social memory and/or connection to the ancestors. The placement of Mississippian mounds among Effigy mounds may mark the subversion and transformation of meaning of mound construction between the Woodland and Mississippian periods - from ancestor cult to fertility cult or the creation of disparate access to ritual knowledge and ultimately ranked hierarchy (Buikstra and Charles 1999; Lindauer and Blitz 1997).

This pattern of continued use and transformation and mound locations and form suggests that location of mound construction probably went beyond associations with resources and subsistence. Perhaps originally, mounds were burial places that marked territories. However, through time, these sacred landscapes became emotionally charged locations for referencing ancestors and likely became part of the social memory of the group. The mound groups possibly acted as symbols of both identity and ideology and potentially legitimized sociopolitical claims (Birmingham 2010; Birmingham and Eisenberg 2000; Buikstra and Charles 1999; Charles and Buikstra 2002; Goldstein 2010; Wallis 2008).

The second pattern to emerge is that various forms of mound construction and use in many mound building traditions resulted in the creation of sociograms or diagrammatic ceremonial centers (Spielmann 2008; Knight 1998). The various mound forms (conical, linear, effigy, platform, etc.), arrangements within mound groups, internal structuring, inclusions, and associated ritual likely reflected the socio-religious ideologies underlying the social organization of mound building communities. Perhaps even more importantly, the actual process of mound building may have actually played an active role in creating and legitimizing the sociopolitical structures of communities through both the incorporation and transformation of historic symbols and memory. Mound construction created a ritual landscape where the social structure was continually recreated and social memories formed. The associated mortuary ritual within mounds created an avenue where the social structure was reaffirmed or possibly contested. As Charles and Buikstra (2002:19) noted "the location and form of the ritual comprise a communicative act. The meaning of such acts is lodged in traditional associations of space and form: in the specific, historical setting of a particular point in time; and in the active manipulation of the funerary medium by individuals or groups for their own ends."

The third pattern to emerge from the examination of Eastern Woodland monumental construction is that mound building and mortuary patterning likely reflected both processes of integration and differentiation throughout time. As Lindauer and Blitz (1997) noted for Mississippian platform mounds, the process of monumental construction and associated ritual often involved community effort and integration. Access to such construction either during life or after death may not be equal, however, and thus mounds and associated mortuary practices may have simultaneously functioned to differentiate segments of the society.

Many earlier mound building societies are characterized as egalitarian; yet truly egalitarian societies are nonexistent. Human communities have always recognized distinction in social positions related to achievement, lifecourse, sex, and group affiliation. Mound construction and disparate mortuary practices such as: differential distribution of copper ornaments and other exotic items during Archaic and Middle Woodland periods; the inclusion of burial within Effigy mounds; or the type of mound (conical, effigy, or later platform) an individual was buried within, all highlight differential roles and social positions and perhaps valued identities. It is this final aspect of mound construction and associated mortuary behavior, namely the creation of an integrated corporate group identity while simultaneously accentuating distinct social positions through differential access to mound burial, which is the focus of the current research.

The preceding pages illustrate that mounds in their varied forms and locations across the landscape likely served multiple purposes for the communities that created them. Yet, the study of mound construction without consideration of associated ritual is incomplete.

> These constructs were not simply observed but mutually experienced, and thus provided a way for all participants/observers to make simultaneous sense of their individual ritual experiences and in the process, create important shared meaningful/symbolic relationships between persons and things (Owoc 2005:276).

Investigations of mound construction need to consider the complex interplay of past mound building behavior and interaction with constructed environs, local ecology, and specific culture histories in combination *with* the ritual and mortuary materials interred within the mounds.

Mound construction and ritual formed a complex system of communication within and between communities; it is likely the combination of: mound form, location on the landscape, and the *rituals* performed in association with mound construction that conveyed meaning to participants in the Effigy Mound ceremonial movement. The following chapter reviews the underlying mortuary ritual theory used in this dissertation research.

Chapter 3: Mortuary Archaeological Theory and Analysis

Introduction

At the heart of this research is an investigation of how identity is created and represented by participants in the Effigy Mound ceremonial movement through mound construction and mortuary ritual and ultimately the role these played in Effigy Mound social organization. The term "identity" is used in a variety of ways and depending on the field may have multiple definitions (Diaz-Andreu and Lucy 2005:1). Identity in this study is defined as an "individuals' identification with broader groups on the basis of differences socially sanctioned as significant" (Diaz-Andreu and Lucy 2005:1). Absent from this definition but considered in this research is the role of recognized similarities that are socially sanctioned as significant as well.

Monumental construction and the mortuary rituals associated with them were part of the social and symbolic knowledge communicated to participants regarding the identity of the community as a whole and the separate individuals that comprise it (Benn 1979; Birmingham and Eisenberg 2000; Buikstra et al. 1998; Charles and Buikstra 2002; Goldstein 1995, 2010; Knight 1998; Lindauer and Blitz 1997; Owoc 2005). The preceding chapter reviewed archaeological inquiry into mound construction and its various meanings through time and space in the prehistoric Midwest. From that review, it is clear that mound construction likely played a role in communicating aspects of social organization, including community identity and politico-economic institutions within and between groups, as well as possibly contributing to the actual creation of the underlying social organization of mound building communities.

Yet mound construction alone was not solely responsible for the creation of social identities. The rituals associated with mound construction, particularly mortuary rituals, likely played an equally important role in the creation of community and individual identities and ultimately the reification and/or transformation of the social structure.

It is widely held that mortuary rituals provide a public arena where community identity and various social personae can be demonstrated and the social structure reified and/or renegotiated to participants (Binford 1971; Brown 1971a, 1971b; Carr 1995; Goldstein 1981; Goldstein 2000; Saxe 1970; Shanks and Tilley 1982; Silverman 2002; Tainter 1978). As Chesson (1999:138) noted, these rituals typically involve "the use of emotional expression, material culture, and the built environment in display and negotiation of social identity." Of particular concern for this study is the built environment and material cultural remains of past ritual processes. As noted by Owoc (2005:263), "The operation of symbols and the enactments of communal projects were part of processes involved in forming shared or community identity, as well as the creation of conceptual or participatory communities."

Ritual, including mortuary ritual, is commonly viewed as one way in which societies produce and reproduce their worlds (Bell 2009). As Laneri (2007:8) stated, the performance of ritual and creation of funerary monuments "constitute the founding framework for a 'collective memory' of a given society's culture, and, subsequently, reinforce the social boundaries of the community in which these ritualistic performances are enacted."

It will be demonstrated through this study that it was likely through the shared experience of mound building *and* ritual, specifically mortuary ritual, that individuals within Effigy Mound societies negotiated the underlying social structure of their respective communities (Dornan 2005; Joyce and Lopiparo 2005; Owoc 2005; Silverman 2002). What follows is a review of key theoretical frameworks associated with the analysis of mortuary ritual, particularly structuration theory and agency-based approaches, and a brief description of how these theoretical frameworks are used in conjunction to create the approach used in the analysis of Effigy Mound mortuary practices

Mortuary Archaeological Theory

Current inquiries into the study of mortuary ritual, especially studies linking mortuary practices to social organization, owe much to the theoretical frameworks developed by Saxe (1970) and Binford (1971).

The Saxe-Binford Approach

The Saxe-Binford Approach developed from the unpublished dissertation of Arthur Saxe (1970) and Lewis Binford's (1971) chapter entitled "Mortuary practices: Their study and their potential" in the *Memoir* 25 of the Society for American Archaeology edited by James Brown.

Probably one of the most influential and often cited dissertation in anthropology is that of Arthur Saxe's (1970). Saxe's (1970) dissertation created a body of theory that examined the sociocultural determinants of various aspects of mortuary practices and their visibility in archaeological contexts. In his dissertation, Saxe developed eight hypotheses to test how various disposal types could elucidate the social organization of the society that produced them.

The first four hypotheses were concerned with the way that social personae would be differentially represented in the mortuary practices of a society. "Social personae" refer to the composite of several identities selected as appropriate to a specific social interaction (Gillespie 2001; Saxe 1970; Tainter 1978). Examples of identities making up part of the composite included: an individual's age, sex, group affiliation, and status within the community. In life, these various personae mediated the relationships and directed the social interactions of community members. Saxe hypothesized that a society's mortuary disposal domains partitioned the social world and any observed differential mortuary treatment was reflective of distinct social personae within the society.

Saxe's final four hypotheses were concerned with the way different social structures such as sociopolitical complexity, attitudes regarding deviant behavior, and corporate rights to use and/or control critical resources were differentially represented among different disposal domains. Saxe tested all eight of his hypotheses with ethnographic accounts of mortuary practices from three cultures, each exemplifying different levels of social complexity. He found that that the hypotheses dealing with the representation of social personae were all supported. However, the other hypotheses dealing specifically with the representation of larger social structures were neither supported nor disproved and/or needed additional testing.

Binford (1971) similarly created a systematic way to examine the social dimensions underlying the disposal types of a society. Binford used subsistence practices (hunter-gatherer, pastoralist, shifting-agriculturalist, and settled-agriculturalist) as a proxy for social complexity to test the relationship between social complexity and mortuary treatment. Binford found that the dimensions of social personae recognized in different mortuary ritual varied significantly with the social complexity of a society.   He also found that the numbers of dimensions recognized varied with the organizational complexity of a society. He concluded that the form and structure which characterize mortuary practices of any society are conditioned by the form and complexity of the underlying social structure of the society itself. For example, societies with little social complexity will exhibit differentiation of mortuary treatment in the dimensions of age, sex, and personal achievement. The mortuary practices of societies exhibiting greater complexity, on the other hand, will represent positions that may be defined in terms more abstract than age, sex, and personal achievement, like sub-group affiliation. According to Binford (1971), the expectation is that there should be a strong correspondence between the mortuary practices, particularly the types of social personae represented, and the social organization of the society responsible for the observed behavior.

The Saxe-Binford Approach was quickly adopted by numerous researchers during the 1970's and early 1980's (Brown 1971, 1981; O'Shea 1984; Peebles 1971; Rothschild 1979). Frequently cited examples include the work of Peebles (1971) and Brown (1971) who examined Mississippian mortuary practices in light of social organizational principles, specifically status distinction and stratification. They examined the Moundville and Spiro sites respectively for specialized and differential mortuary treatment of individuals living in and around these ceremonial centers. Both found that differentiation and regularity existed between classes of individuals in terms of mortuary behavior within the cemeteries and platform mounds. Using the guiding principles as outlined by Saxe (1970) and Binford (1971), these authors concluded that the different mortuary behaviors observed at Moundville and Spiro were reflective of various social personae and statuses which were ultimately the direct result of a complex ranked and specialized politico-religiously organized cultural system (Brown 1971; Peebles 1971).

Tainter (1978) reviewed some of these basic conceptual frameworks and analytical methods used in mortuary analysis. He (1978:119) argued,

> The selection of categories of archaeological data for use in mortuary studies must be based on the variety of means by which social positions are symbolized in mortuary treatment. Many archaeological studies have neglected the diversity of symbolic forms which may be employed in mortuary ritual, and have assumed instead that the most significant information may be derived from one data class: grave associations.

Tainter (1978) suggested that differential energy expenditure with respect to complexity of body treatment, construction and placement of the interment facility, and the extent and duration of the mortuary ritual as appropriate measures to distinguish structural differentiation and identify rank.

Goldstein (1976) examined Mississippian social organization by examining two cemeteries located in the lower Illinois River Valley, the Moss and Schild sites. Additionally, she tested Saxe's Hypothesis 8 using ethnographic data from 30 societies exhibiting a variety of settlement and subsistence patterns, critical resources, disposal areas, and types of corporate groups. Saxe's (1970:119) original hypothesis stated "to the degree corporate group rights to use and/or control crucial but restricted resources are attained and/or legitimized by means of lineal descent from the dead, such groups will maintain formal disposal areas for the exclusive disposal of their dead, and conversely." Goldstein (1976) found that Saxe's original hypothesis did not work in both directions. She found that not all corporate groups that controlled critical but restricted resources through lineal descent maintained formal, bounded disposal areas for their dead. However, if permanent, formal disposal areas were created and maintained, it is likely that it represents a corporate group that exercised control over restricted resources.

The Saxe/Goldstein Hypothesis was an important contribution to mortuary archaeology. As seen in the previous chapter, it provided a valuable theoretical model used in the archaeological analysis of formal cemeteries and mound construction, placement of these constructs on the landscape, and understanding their links to identity and social organization in Eastern Woodlands prehistory (Benn 1976; Mallam 1979; Buikstra and Charles 1999; Chapman 1981**;** Charles and Buikstra 1983; Charles and Buikstra 2002; Goldstein 1995; Morris 1991).

In general studies belonging to the Saxe-Binford Approach placed substantial emphasis on reconstructing social organization from observed variation in mortuary behavior **(**Carr 1995;

Rakita and Buikstra 2005). Key assumptions underlying the Saxe-Binford Approach were: (1) the social distinctions recognized in life would be reflected in differential mortuary treatment at death; and (2) the form and structure of a community's mortuary practices were conditioned by the social complexity of the society itself (Tainter 1978; Gillespie 2001). As Tainter (1978: 106) stated, "a set of social personae will reflect, and contain information about the organizing principles of a particular society."

Proponents of the Saxe-Binford Approach contended that egalitarian societies generally recognized fewer social distinctions and those that were recognized were age, sex, and personal achievement. Complex societies, on the other hand, recognized social identities beyond age and sex such as inherited status (Saxe 1970; Binford 1971; Brown 1971; Peebles 1971; Tainter 1978). Inherent is all of these studies is the central tenet that social organization was considered *the* principle determinant for any observed variation in mortuary practices between societies (Carr 1995; Gillespie 2001).

The Saxe-Binford Approach was, and still is, a dominant theoretical framework in mortuary archaeology. In fact, most of the recent bioarchaeological analyses of Effigy Mound skeletal and mortuary remains utilized this approach in their interpretations. However, this approach is not without its critics. Much of the criticism stems from the underlying structural determinism of the Saxe-Binford Approach, namely that the social organization of a society is chiefly responsible for observed mortuary patterning with little regard for culture history, religious beliefs, and/or worldviews (Hodder 1984; Gillespie 2001)

Critiques of the Saxe-Binford Approach

Although in agreement with the Saxe-Binford Approach that mortuary practices reflected different social personae within a society and offered insight into prehistoric social organization, Goldstein (1981) also offered an early critique of much of the mortuary archaeology of the day. According to Goldstein, a particular shortcoming of these studies was the emphasis on identifying social inequality and subsequently categorization of mortuary behavior into various evolutionary levels of social organization without trying to contextualize and explain the variation within the burial program.

Like Tainter (1978), she argued that archaeologists needed to move beyond grave inclusions in order to understand the structure of mortuary sites and the societies that produced them. In particular, archaeologists needed to incorporate the spatial component into their analyses. Using cluster analysis, Goldstein (1981) examined burial positioning, fragments of individuals buried with other individuals, orientation, and artifact associations at the Moss and Schild sites. She found that artifact-only analysis isolated mortuary treatments emphasizing individual identities such as age and sex. The artifact and spatial positioning groupings however,

> isolated the same most highly restrictive groupings, but the remaining types in fact delineated the charnel areas, and reflected group membership over and above individualised treatments. These types are larger and less restrictive; they are not differentiated by age and sex, but represent group..affiliation (Goldstein 1981:63).

A particularly important aspect of Goldstein's (1981) analysis for this study was her illustration of how a truly multidimensional approach which included spatial positioning of bodies, their biology, and burial associations within the mortuary domain reflected the creation of both individual and collective identities within the same site.

Other critiques of the Saxe-Binford Approach centered on its failing to acknowledge culture history and the role that philosophical-religious beliefs and worldviews play in determining the mortuary practices of a society (Carr 1995; Gillespie 2001; Hodder 1982, 1984; Parker Pearson 1982; Shanks and Tilley 1982). These authors stressed that artifacts in graves and burial disposition may have represented social identity of the deceased but they may have also represented the worldviews and/or underlying cosmology of the society that created them (Carr 1995; Williams 2006).

Related to this, many archaeologists contend that the social and symbolic messages encoded in mortuary practices are dependent on the specific cultural-historical context (Hodder 1984; Parker Pearson 1982; Williams 2006). Parker Pearson's (1982) ethnographic account examined the funerals of 270 deceased individuals in 1977 with respect to: occupation of the deceased, religion, ratable value of property, age, sex, notification methods of death, number of hired cars for funeral, type of coffin and fittings, style of dress, and treatment of the corpse, disposal method (inhumation, cremation, disposal of the ashes, and if applicable associated monument). This data was then compared to changing patterns in British mortuary behavior over 150 years. According to Parker Pearson (1982) changes in British mortuary behavior were linked to specific cultural-historical factors like the changes in worldviews regarding public hygiene and health during the Victorian period. These attitudes ultimately became incorporated into the religion and everyday of individuals and eventually reflected in later mortuary practices.

Using examples from Victorian to modern England, historic New England Iroquoian groups, and pre-Classic Greece, Cannon (1989) argued that only in the context of historical developments is it possible to explain variability and elaboration of particular archaeological burial assemblages or patterns of ethnographically observed mortuary behavior. Specifically Cannon (1989) argued that historical change in mortuary expression, particularly through cycles of competitive display, is a fundamental context in which ideology and social meaning is established and communicated within society.

Critical to both Parker Pearson's (1982) and Cannon's (1989) studies are notions of active manipulation of the dead and mortuary behavior by mourners to affect their own status rather than the accurate representation of deceased. As Parker Pearson (1982:101) noted, "the dead are consequently susceptible to manipulation by certain groups to maintain or enhance their influence over others." In fact the mortuary treatment and patterning of a society may reflect the identities and social position of the mourners more accurately than those of the deceased. Also important to consider is the fact that mortuary practices may not even accurately reflect the actual social identity of the mourners but rather the social aspirations of participants for enhanced status or conversely, denials of asymmetrical relationships in life (Cannon 1989; Gillespie 2001; Shanks and Tilley 1982). As Silverman (2002:5) noted,

> It can be argued that those who bury the dead are actors with individual and collective strategies, actors who do not necessarily follow normative rules. Not only may such manipulation naturalize, mask, or mark existing differences within society, but also...can provide an important opportunity for negotiation and renegotiation of the existing social order and representation of individual identities.

Adhering to the notion of active manipulation of the dead by the living, James Brown (2003) presented a novel interpretation of the burials in Cahokia Mound 72. Brown (2003:81) argued, "The dead were chosen to enact a public ceremony with a collective, community-wide purpose. This purpose is encoded in the arrangements of burials, treatment of the dead and the kind and placement of artifacts."

In this article, Brown critiqued earlier, Saxe-Binford influenced interpretations of Cahokia Mound 72 which held that the "Beaded Burial" in Submound 1 was an apical burial that represented an elite status. The other burials in Submound 1 were subordinate to this individual and may have been sacrificial retainers. Typical of studies of the Saxe-Binford Approach, Brown argued these interpretations of Mound 72 have emphasized examination of the burials, especially their position in the mound and associated grave furnishings, in terms of hierarchical relationships between individual social identities.

Brown (2003) argued instead that the Submound 1 burials and associated grave inclusions were not reflective of differential individual status. Rather, the human burials themselves were *selected* inclusions along with the exotic material items to represent the collective through public ceremonialism. The burial treatment afforded the majority of burials in Submound 1 are secondary and reflective of community action rather than honoring a chiefly individual. Brown contended that the burial pattern exhibited in Mound 72, Submound 1 represented a cosmological burial plan. The bones were interred as artifacts and the living identities removed through secondary mortuary treatment in a performance that reenacted a cosmological narrative. Brown (2003:97) concluded "the burials have little to do with reaffirming the social and political status of particular, deceased individuals…..What we have on the pre-mound stage of Submound 1 is the use of the dead to enact a public ceremony for a collective, community-wide purpose."

It is the active manipulation of the dead and associated funerary ritual in these interpretations that is in direct contrast to the fundamental tenet of the Saxe-Binford Approach which holds that an individual's social persona in the mortuary domain is a *direct* reflection of their social persona in life (Brown 2003; Cannon 1989; Parker Pearson 1982).

Agency Theory in Mortuary Analysis

Agency theories figure prominently in this dissertation research. "As a theory of social reproduction, agency provides an attractive framework for understanding how material culture relates to everyday social action, to longstanding cultural institutions, and to wholesale culture change" (Dobres and Robb 2005:159). Yet there is little consensus about what agency means and the methodologies employed to investigate it (Dobres and Robb 2000; Joyce and Lopiparo 2005). Most approaches acknowledge "the simultaneously constraining and enabling influence of social symbolic and material structures and institutions, habitations, and beliefs; the importance of the motivations and actions of agents; and the dialectic of structure and agency" (Dobres and Robb 2008:8).

Within these broad similarities, agency in archaeology may take a variety of approaches. This dissertation uses a structured agency approach which emphasizes the necessary connection between agency and structure (Chesson 2007; Gillespie 2001; Dobres and Robb 2005; Owoc 2005; Joyce and Lopiparo 2005; Tuomela 2002). Human agency, particularly in the form of social practices, continually creates, reproduces, and/ or transforms social structures such as customs, traditions, and cultural categories (Gillespie 2001; Tuomela 2002). Yet, actors live and perform in a structured world and are conditioned to act in culturally appropriate ways (Chesson 2007; Dornan 2002; Gillespie 2001; Morris 1992).

In the context of Effigy Mound monumental construction, the structure is the act of mound building which had a longstanding history in the region and likely a fairly socially prescribed method of creation (chaîne opératoire). However, this operational process also offered opportunities for negotiation in new and varied mound forms, internal structuring, and what human burials (if any) to include. As Mizoguchi (1993:223) noted**,**

> People are never free from the consequences of what they did prior to their current action. Repeated action through time is ‘routinized’ and constrains people’s freedom to conduct new actions. Material conditions, such as architectural structures, materialized as the consequences of previous decisions, also limit the range of freedom in the choice of subsequent actions. However, at the same time, these constraining elements can also be manipulated by people as ‘resources’ to conduct their actions.

In this dissertation, the material culture that is of critical significance is the mounds themselves and associated ritual paraphernalia. It is the opinion of the author, that it is the interaction of participants creating and interacting with this material culture and each other that significantly contributed the underlying social structure of Effigy Mound communities.

Following Dornan (2002), this study uses an agency approach that reflexively moves between an examination of structure and patterns of practice. Put into the context of Effigy Mound ceremonialism and mound construction, the routinized action of mound construction created a symbolic structural system that was actively reinforced and/or challenged through the agency of individuals and/or collectives determining what mound forms to build, rituals to perform, individuals to include, if any, and what form those burials should take.

Collective agency in particular is essential in the creation and reproduction of social institutions (i.e structure) (Brown 2003; Dornan 2002; Gillespie 2001; Tuomela 2002). Applying a collective agency framework Tuomela (2002:157) defined social institutions to be “collectively-but not necessarily intentionally-made devices for creating order in human community, typically society, and helping people to satisfy their basic needs” including social power.

Institutions are created through a reflexive process of collective acceptance of social norms and enactment of these norms through collective activity. The norms “confer a special symbolic or social status to the activity or an item involved in the activity” (Tuomela 2002:156).

Applied to Effigy Mound communities, the act of mound construction and associated ritual provides a clear example of a culturally meaningful collective activity that involved a repeated pattern of collective behavior (norms) which likely conferred special religious symbolism and various social statuses to that action.

Susan Gillespie (2001) in her analysis of Mayan mortuary ritual and monumentalism succinctly tied together the concepts of social collectivity, agency, and structure within the mortuary domain and as such, her conceptual framework figures prominently in this dissertation research. Gillespie (2001:75) suggested the use of the term "personhood" as a means of bridging the gap between structure and agency. "Personhood" refers to the purposeful representations of individuals whose identities and actions were shaped by membership in various social units which include: age categories, sex, family units, larger kin-based units, and other socially recognized corporate groups (Gillespie 2001:76). Of critical importance is the relationship between individuals and groups. Persons, in this conceptual framework, are not static entities but rather are determined by their social relationships to others.

The concept of "Personhood" seems especially applicable to this dissertation because it recognizes social and collective components of one's identity. It emphasizes both the person and the collective as agents in a society with the collective ultimately choosing what representation is emphasized in the mortuary context (Budja 2010). As Gillespie (2001:82) noted,

> The social persona is an intersection of different qualities – gender, age, birth order, kind groups of parents and affines, life experiences, and metaphysical essences – but personhood is something more...They preexist those humans who take on these identities, and at certain times it is possible that no human being will embody a specific personnage…Personhood is not an automatic status and often conjoins separate components acquired over a lifetime and beyond.

Gillespie's (2001) definition of personhood is particularly relevant to this study as it is argued that Effigy Mound burial within certain mound forms was reflective of specific personages recognized by members of the community. It will be shown in this dissertation that certain remains were used to create a collective or group personage of the community while other remains may have reflected distinct religious/ritual and/or political positions. Additionally, the presence of empty mounds may reflect specific moments in local culture-histories where no human remains embodied the social personage necessary for certain mound associated ritual.

Stated another way, "ancient burials can be viewed as particularly charged sites where living survivors inscribed the dead into social memory in particular ways, as part of an ongoing process of spinning webs of social relations between themselves and others" (Joyce 2002:13). One way that societies may reify or renegotiate social structure is through the processes of secondary mortuary ritual, cremation, and collective burial, both of which are critical characteristics of Effigy Mound mortuary ritual explored in this research (Chesson 2007; Gillespie 2001; Goldstein 2000; Kuijt 2008).

Secondary Burial and the Creation of Collective Identity

Secondary burial as defined by Schroeder (2001:79) is "the intentional reburial of human remains. In such secondary burials, the body is disposed of in some manner shortly after death, but at a later, culturally determined time, the remains are retrieved and disposed of again."

Due to their separation in time from the actual death of the deceased, secondary mortuary ritual provides opportunities to invent new social memories and identities of the dead through ritualized processes of "remembering and forgetting" and are a critical feature in this research (Chesson 2007:109). Additionally, because secondary mortuary practices are not constrained with respect to time, they may be part of large-scale memorials that involve multiple households, kin, and non-kin participants including inhabitants of several settlements (Chesson 1999; Kuijt 1996).

The emphasis on collective representation through secondary burial was first articulated by Hertz (1960 [original publication 1907]) in "The Collective Representation of Death." Hertz's framework centered on the idea that secondary mortuary ritual served to minimize the individual's death and by extension their unique characteristics whose loss may disrupt the continuity of the society. Additionally, it served to protect the living community from the potentially unhappy and dangerous spirit of the deceased during this liminal stage while the body decomposed. Through the passage of time, the transformation of the physical body into skeletal remains and subsequent reburial permitted the social group as whole to be reaffirmed.

In the process of secondary burial, the human body is the material component that is actively manipulated to exaggerate or minimize personal individuality and create social meaning. As Chesson (2007:115) noted, "we can envision them as part of the distillation process of a dead person into a social memory by the living, and of the transformation of the individual to a member of a different type of collective." This human material when manipulated by agents,

> is not just 'central' to social reproduction, but that material culture actually *constitutes* social relations and meaning making. It is within the tightly woven web of material, symbolic, and social engagement that agency reproduces and transforms society. Social reproduction and culture change, in other words, depend fundamentally on the nexus of agency and materiality (Dobres and Robb 2005:162).

Secondary mortuary practices offer a powerful avenue for communities to construct memories and renegotiate or reify the social community. It is the "process of forgetting the dead," according to Kuijt (2008:174), that is "linked to the decontextualization of the individual – the creation of a collective identity that is shared and experiences by others." He (2008:177) goes on to say, "it is through this process of the intergenerational manipulation of the body that identity and memory were transformed from named persons to a symbolic collective." Brown (2003:82) concurred, "Collective identity is expressed unambiguously in ossuary burial in which all the dead are disarticulated alike. Individual identities are thereby submerged within archetypical ones."

Goldstein (1995:116) noted with reference to Effigy Mound mortuary practices that the presence of disarticulation of human remains and secondary burial likely reflected an emphasis of group identity. Unlike other cases of secondary burial in the ethnographic and archaeological literature where portions of the deceased are repeatedly handled, the creation of collective identity in Effigy Mound practices appeared to be established and commemorated primarily during the time of mound building and ritual. This is evidenced by the lack of re-manipulating the remains following their secondary deposition and capping of the mound. The “examination of how the bones or bodies of deceased persons are manipulated and handled, and…what the osseous remains and corpses symbolize could shed light on such areas as political and social hierarchies" and is the focus of this dissertation research (Schroeder 2011:90).

Cremation

Like secondary burial practices, cremation is another physically and socially transformative mortuary treatment (Goldstein and Myers in press; Williams 2008). As Goldstein and Myers (*in press*) noted,

> Transformation in this case is not only associated directly with fire (and is thus both literal and symbolic) but the result of what that fire can signal: 1) the end of one phase and the beginning of another; 2) the essence of a person as a transformation from one state to another, 3) a community; and/or 4) the distribution of physical remains in ways that are difficult to accomplish with unburnt human bone.

Cremation is a complex multistage mortuary treatment that may take a variety of forms including: complete burning of the body such that the corpse is reduced to ash, partial burning or charring, and/or cooking the remains which may be either left *in situ*, buried elsewhere, or continually handled and referenced by the living (Williams 2008). Two more common forms include cremation-burial and cremation deposition.

Cremation-deposition as defined by Weekes (2008:149) refers to "a funerary sequence involving a cremation, and 'deposition' of the deceased's remains in *exactly the same place*." Cremation-burial, on the other hand, refers to the "deliberate and structured (or formal?) deposits of cremated human remains, with or without other objects or materials, the overriding implication being that such features mark the conclusion of a particular funerary sequence" (Weekes 2008:154).

Regardless of form, most cremation practices involve two components: 1) the actual disposal of the remains through fire, and 2) the rituals associated with the act of cremation. It is important to realize, however, that both portions of the cremation process are ritualized acts (Williams 2008). This ritualized performance of cremation may have been particularly important to participants in Effigy Mound ceremonialism as fire appears to be an important symbol as demonstrated by the wide distribution of fire altars among the mound groups illustrated in both Chapter 6 and Chapter 7. Williams (2008:246) describes these fiery displays as "ephemeral monuments". He noted, "These can be defined as monuments created for temporary display or public destruction…serving as part of a spectacle of the funeral with its conspicuous and spectacular fiery demise" (Williams 2008:246).

The fiery symbolic nature of cremation and potential for total transformation of the body allows it to be understood using multiple theoretical lines of interpretation. Cremation practices have been interpreted in the post-processual paradigm in relation to religious beliefs and worldviews, particularly concepts associated with the afterlife and journey of the soul. Other interpretations have emphasized the physically transformative nature of cremation, especially the potential ‘masking’ nature of the process and end result. Those examining the social transformative aspect of cremation commonly take a Hertzian approach. These interpretations often suggest cremation operated to transform the dead into an ancestral state (Williams 2008).

Particularly important for this research is Williams (2008) application of agency theory to the process of cremation. Specifically, “The meaningful nature of cremation will never have existed in a power vacuum…the cremation process can be considered as a ‘field of discourse’ in which power relations and social identities are negotiated through ritual performance” (Williams 2008:251). Intimately related to this is the material aspect of the human body and how the fragmenting of the dead, transforming them through ritual display, and ultimately incorporating them back into the social order in a new form creates new and collectively created identities of the dead (Brűck 2006; Goldstein and Myers in press; Williams 2008). In this light, cremation processes function like previously discussed processes of selective ‘remembering and forgetting of the dead’ by the living community (Chesson 2007; Kuijt 2008; Williams 2008).

Cremation, although somewhat rare among Effigy Mound communities likely provided dramatic spectacles, which may have operated to alter the state not only of the dead but of the living participants directing and watching the funerary activities.

Structuration Theory Applied to Mortuary Practices and Built Environs

As previously noted, this dissertation takes a structured agency approach and thus structuration theory figures prominently in this study as well. Structuration theory contends that there is a duality in the underlying structure of a social system. It proposes that the rules, expected behaviors, resources, traditions, and *constructs* of social systems *are both the instrument and the outcome of the social practices that they organize* (Fisher 2009; Giddens 1984; Lindauer and Blitz 1997; Tilley 1982).

Ian Morris (1992) applied structuration theory to numerous facets of mortuary behavior. Morris acknowledged that individuals are born into a structured world and socialized in its ways. The social structure according to Morris, is the taken-for-granted norms about the roles and rules which make up a society including relationships of power and deference. They vary between individuals according to facets of identity such as age, sex, and social class but also exhibit considerable overlap. Importantly for structuration theorists, however, is the notion that the social structure in practice is not rigid and constant. It is either recreated or challenged in societies through time (Morris 1992).

Morris argued that ritual provides an avenue for creating and modeling the social structure. Symbolic action through ritual, including mortuary ritual, produces symbolic knowledge which creates models or interpretations of the social reality. Ultimately, these interpretations serve to reinforce or elicit change in the social reality. Morris advocated examination of several types of mortuary behavior: disposal methods, skeletal remains, grave goods, and grave markers. He argued that no one feature of a society's burial customs should be given greater importance than the others in mortuary analyses of archaeological remains.

Using change from cremation to inhumation in the Roman Empire and changes in beliefs and practices about cremation in England during the 1800's, Morris (1992) argued that alterations in burial practices concerning body treatment were tied to social, political, economic, religious, and local cultural-historical factors. Morris illustrated that disposal methods may be tied to solidarity of shared beliefs and customs.

Using a structuration approach in his analysis of secondary burials in Iron Age Judah Osborne (2011:51) noted,

> In this case life and death are venues that were both experienced by participants as sharing the same modes of expression. And each time this structure is activated and experienced in practices such as secondary mortuary ritual, the structure becomes proportionately stronger and that much more likely to be reproduced again.

Applied to Effigy Mound mortuary practices, the fairly consistent repetition of certain disposal types more commonly associated with some mound forms over others (e.g. secondary burials with geometric and primary with effigy mound forms) are certainly reflective of broadly shared customs. The distinctions between these types of burials may represent significant social distinctions tied to the creation of solidarity or social differentiation. It is only through careful examination of the multiple disposal methods used by Effigy Mound communities in context that the possible meanings of mound construction and associated ritual may be elucidated.

With regard to skeletal remains, Morris (1992) noted the key to a useful skeletal analysis was the study of large samples with sensitivity to ritual context and formation processes of the archaeological record. It is important to realize that ritual may affect skeletal or demographic evidence. For example, ritual action such as selective burial of certain age groups or sex may hinder accurate demographic reconstruction. However, it may also illustrate age categories that were considered significant for the society responsible for burial. Analysis of osteology in concert with ritual behavior may provide valuable insight into the society that created the mortuary patterning.

Grave goods have commonly been interpreted in a relatively simplistic relationship to social status (e.g. greater number of goods interred or rarity of the source material is often equated to greater status of the deceased). Yet Morris (1992) contended that there are a number of interpretations for grave goods. Morris argued that mortuary archaeologists need to examine grave goods within the larger ritual pattern and ultimately how they operate within the material cultural practices of the society. Grave inclusions may serve multiple functions, such as: a ritual symbol of religious beliefs or worldviews, demonstrate group allegiances, and of course indicate the social status of the deceased. As such, grave inclusions need to be examined within the total ritual context and if applicable in contexts outside of burial in order to gain an idea of their meaning and purpose in burials.

Morris's (1992) chapter on monuments is particularly valuable for the questions posed in this research surrounding the creation of group and individual identities through mortuary monuments and burials. Morris argued that grave structures are intimately tied to the social and political structures. He noted that changes in the form of monuments may reflect alterations in the structure of a society's rituals and as such monuments (mounds in this study) need to be examined in context of their ritual setting.

Morris (1992) argued that it is the difference in monuments, not necessarily the form that monuments take, which is significant when symbols are used to create hierarchies. Understanding social control over access and/or use of certain symbols is critical when examining differential access to ritual. Morris (1992) maintained that group-oriented social structures would be exemplified by unpretentious graves which were accompanied by public displays. Individualizing social structures, on the other hand, would exhibit lavish tombs for a few which would be complimented by more modest communal facilities.

Applied to Effigy Mound monumental construction and mortuary ritual, it follows that the more common geometric mound forms, particularly conical mounds, with their greater number of interments likely represented a group oriented structure. While the rarer effigy mound forms with fewer interments may have operated in a more individualizing fashion.

With regard to monumental construction, this research primarily follows Fisher (2009) in the application of Giddens' structuration theory to built environs. Structuration theory applied to built environs contends that the building and use of monumental constructs and associated ritual provides a means of symbolically communicating social information about identity, power, and social structure (Fisher 2009; Rapoport 1990; Shanks and Tilley 1982). "The built environment structures human actions, and so it is through the repeated activities occurring in these constructed spaces that the spaces themselves are made meaningful" (Blake 2002:125). Applied to Effigy mounds, the locales, mound form type, and ritual staging provided a vehicle for social reproduction and negotiation by demarcating physical and social boundaries within and between mound groups.

To summarize, human burials are just one part of funerary ritual and may in fact not be the most important part. Ritual imposes order on everyday events and events in turn impose order on ritual. The result is that ritual does reflect the social reality, yet it does not perfectly mirror that social reality. Rather, ritual may be structured and perceived differently by different groups participating in the same mortuary program and as such it is important to examine it from a number of social perspectives (Morris 1992).

Discussion

This project incorporates elements of the Saxe-Binford Approach, namely that social persona (although this study uses the concept of personhood rather than personae) and the underlying social organization of a society are reflected in the mortuary domain through regularities and differences in the patterning of features such as tomb construction, especially mound form, disposal methods, spatial patterning, biological variables such as age and sex, and grave goods (Binford 1971; Brown 1971; Carr 1995; Chesson 1999; Goldstein 1981; Peebles 1971; Saxe 1970; Tainter 1978). These are certainly valid avenues of study as indicated by Carr's (1995) review of mortuary practices from 31 nonstate societies surveyed using the Human Relations Area Files. He found that social personae and social organization were key influences in mortuary behavior.

> Significantly, each of the major dimensions of social personae and social organization that archaeologists attempt to reconstruct was frequently reflected in mortuary practices and remains. Six dimensions were commonly associated with several kinds of practices. These dimensions are age, gender, vertical social position, horizontal social position, personal identity, and the circumstantial social classification of the deceased at the time of death. This finding gives empirical credibility to the archaeological investigation of social organization through mortuary practices (Carr 1995:152).

However, this research also acknowledges and accepts certain critiques of the Saxe-Binford Approach, namely the lack of acknowledgment regarding the role that religious and worldviews play in the mortuary domain. Additionally, this research rejects the structural determinism of the Saxe-Binford Approach. It uses an agency-based framework instead which recognizes the role that the community of mourners play in actively shaping and manipulating the mortuary material culture, including the human remains to create collective and individual identities which may be used to reaffirm and/or negotiate relationships between individuals and the group (Brown 2003; Cannon 1989; Carr 1995; Chesson 1999; Gillespie 2001; Kuijt 1996, 2008).

Of particular importance to this study is the agency of the collective. As stated above, this dissertation research utilizes Gillespie's (2001) notion of personhood which incorporates the collective component in an individual's representation in the mortuary domain and is of critical importance in this study.

Closely linked to collective agency is the notion of structuration. To review, structuration theory contends that there is a duality in the underlying structure of a social system. The structure is created through the collective agency of individuals and consists of mutually accepted devices for creating order in human communities. These structures are not only created but also maintained and eventually transformed through a reflexive process of collective acceptance of social norms and enactment of these norms through collective activity.

Ultimately this study uses a fundamental aspect of the theoretical framework of Saxe-Binford, namely that the mortuary behavior reflects the structure of society; yet it also takes a structured agency approach arguing that those practices are not passively determined by the structure, rather they are actively manipulated by actors in the process of continuing the social organization or transforming it.

The use of multiple theoretical frameworks in this dissertation research ignores the polarization of the processual and post-processual dichotomy (Morris 1991:150). In doing so, it recognizes that mortuary practices are very complex and exhibit both regularities cross culturally and also specific cultural historical connections that are intimately linked to social organization, worldviews, and religious beliefs (Carr 1995).

"A specific ritual (e.g. mortuary) can be adopted or shared by different groups participating in a 'regional cult'. However, specific adjustments to such rituals can be made in relation to the individual/s being buried and the underlying social order to which they belonged" (Martinez et al. 2012:222). What follows in the next chapter are the research questions posed in this study which aim to elucidate specifically what "adjustments" in burial were made by Effigy

Mound community members in relation to the identities of the deceased and how they were actively represented in the mortuary domain.

Chapter 4: Research Questions and Expectations

Introduction

As previously noted, while assisting a colleague with data collection for another project, the author noticed some interesting patterns in the skeletal and archaeological material. It was these observations that motivated this research.

The formation of this dissertation's two broad research questions arose after extensive background research on the context of prehistoric Upper Midwestern mound building and a review of relevant mortuary theory. Research Question 1 addresses the possible symbolism of Effigy Mound mortuary and mound building behaviors and their respective role in reflecting and actively constructing the social structure. Research Question 2 was guided by observed patterns of pathology, particularly the low incidence in the MPM collection, and explores possible social explanations for associations between certain pathologies and mortuary treatment.

To answer the research questions posed in the following pages, this study followed Osborne (2011:35) by creating a "series of expectations for practices and beliefs" associated with the Effigy Mound ceremonial and mound building phenomenon. The expectations were founded on the conceptual and theoretical frameworks outlined in Chapter 2 and Chapter 3.

Using the actual biological and cultural datasets, the expectations were explored statistically to delineate patterning within Effigy Mound mortuary characteristics including: mound form, multiple versus single burials, and type of disposal method (primary, secondary, or cremation), and to correlate that with biological data (age, sex, and pathology) (see Chapter 7). The findings were used to create a model for understanding the significance of mound building, its associated ceremonialism, and ultimately, the social structure of Effigy Mound societies (see Chapter 8).

This chapter presents the two research questions posed in this study and the expectations associated with each research question. Each expectation is followed by background information intended to aid the reader's understanding of the significance of the question and its place in the overall research. Additionally, alternative explanations for the mortuary patterning exhibited at Effigy Mound sites are considered and described.

Research Question 1 and Corresponding Expectations

Research Question 1*: *Do the mortuary practices associated with geometric and effigy mound forms serve different and distinct social functions among Effigy Mound communities?

It is widely held that the mounds were constructed during times of the year when multiple households aggregated in particularly rich environs to take advantage of plentiful resources (Benn 1979; Birmingham and Eisenberg 2000; Goldstein 1995; Mallam 1976, 1984; Storck 1974). Community cohesion would be essential during these periods of aggregation. Construction, use, and maintenance of the Effigy Mound groups likely created and enhanced group integration (Hastorf 2003). Specifically, the erection of monuments such as earthen mounds created a ritual landscape that communicated and reaffirmed the relationships between social groups through the shared experience of both mound creation and usage.

Laneri (2007) described two types of memory created by funerary ritual, the singular or individual memory, which is related to the social identity of the dead as they related to the living community, and historical memory, which is related to the social institutions of a society. The act of memorialization of a few selected dead in different and less common styles, particularly effigy forms, may have symbolized distinct social positions or institutions. As Laneri (2007:8-9) noted, "these acts of memorialization are created through the performance of...funerary rituals, as well as the construction of monumental structures dedicated to the memory of elite individuals...who are then historicized and institutionalized."

This dissertation maintains that Effigy mounds were likely created and used in part to communicate messages about diverse social identities within and outside the communities using the mounds (Rapoport 1990; Thomas 1994). Specifically, it is hypothesized that geometric mound forms, particularly conical and oval, had greater accessibility to larger segments of the group, which was reflected by increased opportunity for mound burial. It is actually the lack of exclusion from mortuary ritual that suggests geometric mound forms and the burials interred within them were intended to symbolize collective identity.

Conversely, it is hypothesized that effigy mound forms had reduced access for mound burial and that the mortuary ritual associated with those forms was reflective of distinct social groups or institutions (Goldstein 1995; Laneri 2007; Thomas 1994). Access to these mound forms and their associated rituals may have served to legitimize the social position or even power of certain subsets of the larger aggregate (Goldstein 1995; Laneri 2007; Rosebrough 2010).

If the funerary rituals associated with effigy mound forms symbolized distinct social positions or institutions, it is expected that only portions of the general community will be included and the mode of disposition will be distinct from modes that emphasize group identity. Differential access, along the lines of sex and age, to effigy mound burial likely created and reinforced the socio-religious structure and social divisions. It is the exclusion of certain groups of individuals that belong to a particular sex and/or life-course stages, or combination of the both, that suggests effigy mound burial was reflective of distinct social positions. To address Research Question 1, the following expectations were explored.

***Expectation 1*:** *If geometric mound forms were representative of collective identity and the creation of community cohesion, they will have a higher minimum average minimum number of individuals than effigy mounds.*

If burial in geometric mound forms was more accessible to larger segments of the society, compared to effigy forms, it is expected that geometric forms will more commonly: contain multiple burials, those burials will contain greater number of individuals relative to multiple burials in effigy mound forms, and consequently geometric mounds will exhibit higher minimum number of individuals (MNI). Conversely, if burial in effigy mound forms was less accessible to the larger community, it is expected that effigy mound forms will contain more single burials and consequently lower MNI compared to geometric mound forms.

Expectation 1 was formed jointly through a review of the archaeological literature describing the sites and relevant mortuary theory regarding identity creation through mortuary the mortuary domain. Preliminary assessment of burial practices at Effigy Mound sites from site descriptions suggested that geometric mounds would generally contain greater numbers of individuals interred within them (Barrett and Hawkes 1919; McKern 1928, 1930; Rowe 1956). The pattern described in the site descriptions appeared to be supported during the early phase of skeletal inventory. In general, geometric mounds, conical and oval mounds in particular, consistently contained more individuals than effigy mound forms.

Review of mortuary theory suggests that multiple interments deemphasize the celebration and remembrance of specific individuals and instead create a referential symbol of the collective identity (Kuijt 2008). Consequently, the inclusion of multiple individuals interred within a single corporate structure suggests that these structures reflected the "collective burial space of a community" (Hutschinson and Aragon 2002).

<u>Expectation 2</u>: *If burial within geometric mound forms was representative of collective identity, the mounds will contain a cross-section of the population with no marked differences in mortuary treatment between age and sex groups. Conversely, if burial within effigy mound forms was reflective of distinct social statuses or positions, only selected segments of the population will be interred within these types of mounds.*

<u>Expectation 2a</u>: *It is expected that burial within geometric mound forms will cross-cut age categories (i.e individuals interred within geometric mound forms will exhibit greater diversity in the life-course stages than those interred within effigy mounds) while burial in effigy mound forms will not cross-cut age categories (i.e as a whole individuals interred within effigy mound forms will exhibit a narrower range of age-at-death).*

<u>Expectation 2b</u>: *It is expected that burial within geometric mound forms will cross-cut sex categories (i.e males and females will be equally represented in geometric mound forms) while burial in effigy mound forms will not (i.e it is expected that males and females will not be equally represented in effigy mound forms).*

Like Expectation 1, Expectations 2a and 2b were formed by observations made at the museum and published accounts describing the age and sex characteristics of individuals buried within mounds at Effigy Mound sites. Publications by Ruth (2000), Goldstein (1995), and

Birmingham and Eisenberg (2000), suggest Effigy mounds contain: males and females in roughly equal frequencies, adults, and subadults.

However observations made from the skeletal remains during age-at-death assessment, review of the accession records, and association of skeletal remains with the appropriate mounds, suggested that access may not be equal to all age groups. In fact, it appeared to the author that certain age ranges, namely older children and adolescents, rarely appeared to be buried within effigy mound forms. Alternatively, if burial in geometric mound forms was more accessible to larger segments of the society, compared to effigy forms, it is expected that geometric forms would more commonly exhibit greater diversity in the life-course stages that are included and have equal number of males and females.

The combination of diverse subsets of the broader community (males, females, and a variety of age groups) communally interred within a spatially bounded space likely communicated that these mounds were symbolic of the whole collective where social distinctions were not accentuated (Thomas 1994). This claim is supported by the work of Shanks and Tilley (1982:150) concerning the structuring principles of Neolithic barrow burials which suggest observed patterns may have functioned as, "an assertion of the collective, a denial of the individual and of differences between individuals...an expression of boundedness and thus the exclusiveness and solidarity of the local social group using the tomb." In the context of Effigy Mound ceremonialism, the mounds created bounded spaces that symbolically integrated community members and formed a collective social identity through shared experience and ties to the common ancestors (Hutchinson and Aragon 2008; Mantha 2009).

<u>Expectation 3</u>: *If geometric mound forms were associated with the creation of collective identity, it is expected that they will exhibit higher proportion of secondary burial treatment, including secondary cremation-burial, and large public cremations compared to effigy mound forms. Conversely, if effigy mound forms were representative of distinct social positions which were restricted to selected segments of society, it is expected that the mortuary treatment will be fundamentally different than those symbolic of collective identity (e.g. higher proportion of primary burials).*

Expectation 3 was largely derived from review of mortuary theory. In particular, the large body of theory associated with secondary burial practices described in Chapter 3 formed the basis of this expectation.

Expectation 3 was also shaped by the findings of Rowe (1956). Chandler Rowe (1956: 93-97) tabulated the distribution of burial types (fleshed versus reburial) for the following sites: Diamond Bluff, Green Lake, Heller, Kletzien, Kratz Creek, McClaughry I, Neale, Nitschke, Raisbeck, and Utley and found that secondary burial is more common in non-effigy forms. To review, primary burial refers to the permanent interment of one or more individuals after a relatively short period. Secondary mortuary practice refers to

> the process of intentional (or socially sanctioned) rearrangement of human remains by human action, and it has two components. The first entails the movement of some or all parts of bodies from a temporary place of burial or exposure to their present resting place...The second component of secondary burial entails a period of time between death and final burial (Andrews and Bello 2009:17).

Cremation by comparison was relatively rare across the entire collection. With the exception of two cremations at the Kletzien Mound Group, all the examples of cremation occurred at mound group sites located within the Buffalo Lake vicinity (Kratz Creek, McClaughry, and Neale) (Barrett and Hawkes 1919; McKern 1928, 1930). Cremations in this study were defined in one of two ways. As previously mentioned, cremation-burials refer to the "deliberate and structured (or 'formal'?) deposits of cremated human remains" (Weekes 2008:154). Cremation-deposition, on the other hand, refers to "a funerary sequence involving a cremation and 'deposition' of the deceased's remains in *exactly the same place*" (Weekes 2008:149).

The Kratz Creek Mound Group was fairly unique with regard to cremation. Cremation was observed in several mounds at Kratz Creek. In fact Barrett and Hawkes (1919) noted that the first line of conical mounds along the lakeshore appear to have been devoted to cremation (Figure 6.2). Barrett and Hawkes (1919:54) also described what they call "crematory mounds" which were two large conical mounds that contained cremated human bones along with many fire strata. The cremations associated with these "crematory mounds" were classified as cremation-deposition since there is no evidence of secondary interments associated with the cremation; rather the remains according to the description provided by Barrett and Hawkes (1919) appeared to have been cremated in situ and then capped by the mound. The cremation-deposition sequence at Kratz Creek appeared to be unique to that site and may be reflective of a specific local culture-historical event.

The numbers suggested that the disparity in burial treatments in different mound forms, particularly between primary and secondary bundle reburial, may have reflected differential use of bodies for varied symbolic representations. Using the theoretical framework regarding secondary burial outlined in Chapter Three, this research presumed that the nature of secondary burial operated in the creation of collective social identity (Chesson 2007; Goldstein 1995, 2008; Kuijt 2008; Martinez et al. 2012; Osborne 2011**;** Robb 2007; Schroeder 2001**;** Shanks and Tilley 1982).

Consequently, it was hypothesized that geometric mound burials, particularly those in conical and oval mound forms, would exhibit a higher frequency of secondary burial treatment (including secondary cremation-burial) than effigy mound forms and that this burial disposition was reflective of the creation of a collective identity (Chesson 2007; Goldstein 1995; Hastorf 2003; Robb 2007). This assertion is supported by Goldstein (1995:116) who noted,

> if group identity is the focus, one should find:(1) some form of group facility; (2) that the treatment follows a primary form of disposal that results in disarticulation; and/or (3) there is ancestor worship represented by the handling and marking of remains. If only a particular group is afforded secondary treatment, these individuals most likely represent specific statuses or ancestors of a particular category.

Conversely, the predominance of primary burials in effigy mound forms suggested that the funerary ritual associated with effigy mounds may symbolize something distinct from geometric mound forms.

The difference in timing between primary and secondary burial is likely socially significant. As Goldstein (2008:189) noted, "in contrast to primary burial, secondary burial may have little to do with death per se. The rite may come a year or even several years later, and it is triggered not by the death of the individual being afforded the treatment but by some other event." If effigy mound forms consistently contained greater frequencies of primary burials, it is reasonable to suggest that the mound building cycle, particularly effigy mound construction and ritual, may have originally initiated with the death of a particular individual.

<u>Expectation 4</u>: *It is expected that if broader cross sections of the community (multiple age-ranges, both sexes, and perhaps multiple households, lineages etc.) were afforded burial in geometric mound forms, the types of ritual activities (fire hearths, cists, rock altars etc.) associated with these mound forms will exhibit higher frequencies of multiple types of activities within the same mound. Conversely, if effigy mound forms were individualizing in nature, the ritual activities associated with these mound forms may reflect a single ceremony and/or social position. Consequently, it is expected that ritual paraphernalia in effigy mound forms will exhibit lower frequencies of multiple ritual activities.*

This expectation was formed largely from a review of the Effigy Mound literature, notably the distinct variation in the described types of ritual paraphernalia which suggested that different specialists were performing the associated rituals (Barrett and Hawkes 1919; Goldstein 1995; McKern 1928, 1930; Rowe 1956). The literature on ritual and religion, particularly the nature of shamanism figured prominently in the formation of this expectation.

Specific characteristics of Effigy mound ceremonialism that were consistent with shamanistic religion and ritual include the selection of effigy forms and internal features such as colored soils, pipes, and altars (Van Pool 2009). The stylistic variation of internal features at mound sites likely reflected local community level ritual traditions in the context of a larger mound-building ceremonial movement and belief system (Kuijt 2008:172). The fairly unique combinations of paraphernalia across and even within Effigy Mound sites are suggestive of shamanistic ritual events with individual shamans performing their own particularized specific rituals (Beck and Brown 2011; VanPool 2009).

Expectation 4 was also built upon the preceding expectations, particularly Expectation 3. Following Chesson's (1999) assertion that the practice of secondary burial may allow for greater number of households, kin groups, and non-kin groups to participate in mortuary ritual, it is reasonable to expect the variation in ritual evidenced observed in mounds containing several individuals may be related to differences between interred individuals (i.e from different households or kin groups) or the presence of multiple ritual specialists performing ceremonies associated with larger collective burials.

Since geometric mounds may contain greater number of individuals, it is expected that ritual activities will exhibit a greater diversity of ritual inclusions due to the more diverse groups afforded geometric mound burial. For example, ritual activities in conical and oval forms may have reflected the ritual staging of multiple households, lineages, or ritual specialists of the broader community

Expectation 5: *If effigy mound forms were representative of distinct individuals and/or social positions within the community, the number of grave goods per individual will be greater than in geometric mound forms.*

Before describing the basis of Expectation 5, the definition of grave goods utilized in this study needs to be presented. Grave goods are only those items that were described in the archaeological reports as being in direct association with a specific set of human remains. Following that definition, grave goods were quite rare in burials classified as Effigy Mound as few were directly associated with individuals but rather appeared to be associated with the mound (Goldstein 1995). The presence of grave goods with specific individuals may have indicated the memorialization of distinct individuals or social roles in the Effigy Mound ceremonialism.

Expectation 5 was based in part on the findings of Rosebrough (2010). As previously noted, Rosebrough (2010) concluded that mound construction and maintenance of mounds was the purview of particular subsets of the larger aggregated Effigy Mound community. According to Rosebrough (2010), these subsets were generally responsible for the construction of mounds regardless of form within a mound group and these segments remained within the territory of their respective mound groups while other segments seasonally dispersed.

Based on the stylistic findings of Rosebrough (2010) and postulates of VanPool (2009), it is hypothesized that Effigy Mound construction and burial was directed by ritual specialists or shamans that held distinct social positions within the wider Effigy Mound community. VanPool (2009:178) noted that ritual sacra of shamans such as pipes, animal fetishes, stones, and ornaments were typically individually owned and may be buried with their owner. It is therefore expected that if individuals interred within effigy mound forms were shamans, they would exhibit a higher frequency of grave goods owing to their position in life than individuals interred within geometric mound forms.

Research Question 2 and Corresponding Expectation

Research Question 2: Does the frequency and types of skeletal pathology exhibited by individuals differ between effigy and geometric mound forms?

The term disease refers to: any abnormal condition, improperly functioning organ or body structure, or interruption in physiologic processes. It is typically perceived bioarchaeologically as lesions in human tissue (Fay 2009). Yet disease is also a cultural concept recognized through differential treatment in life and in death. As Buikstra (1981:126) noted, “human groups [often] structure their burial programmes according to sex, age, or circumstances of death, including chronic disease states. Such structuring frequently includes burial and cemetery locus as well as burial disposition.”

Diseases, particularly disfiguring diseases that would have been recognizable to the community were likely experienced by individuals socially in a variety of manners. Some individuals may have received short or long term care by the community (Tilley and Oxenham 2001). Other diseased individuals, however, may have been shunned or ostracized (Fay 2009; Little and Papadopoulos 1998). Glencross (2011:393) emphasized the relevance of examining skeletal trauma in bioarchaeological analyses, "paleopathology and particularly skeletal injury provide another source of biological evidence that when combined with other contextual information has the ability to make significant contributions to explorations of social identity."

It is not simply the presence or absence of pathology that is informative in bioarchaeological studies but the evaluation of pathology in “context of the body as a social entity” (Fay 2009:192). As Knusel (1999:35) notes, "in order to assess social reaction to physical impairment, the archaeological context of the human remains becomes of fundamental importance. Since individuals do not bury themselves, such individuals should serve to monitor group reaction to their condition." Bioarchaeologically, this is accomplished through careful examination of diseased bodies in their funerary context to determine what the societal response was in life and death.

For example, physical impairment appeared to be a discriminating factor regarding midden burial at the Koster site (Late Archaic) in Illinois (Buikstra 1981; Buikstra and Charles

1999; Charles and Buikstra 2002). Fay (2009) found a similar pattern among some historic Late Medieval and Tudor mortuary practices in Norwich, England. Fay found that some individuals were haphazardly or even consciously deposed in non-normative mass graves. She argued that "the point of interment was used to make spiritual or social statements about the dead" (Fry 2009:202). Other diseased individuals, however, were buried in line with the common traditions and cultural standards of the time and place. Both cases illustrate that it was not just the disease state that determined the location and manner of burial treatment but also their spiritual and economic status within the community. To address Research Question 2, the following expectation was explored.

Expectation 6: *If geometric mound forms were involved in the creation of collective identity and cross-cut multiple segments of the society, it is expected that they will exhibit higher rates of pathology than effigy mound forms related to the wider age-ranges of included individuals, greater number of individuals included, and differences in the lived experiences of those interred.*

This expectation was based on the observations made during data collection, notably the very low rates of pathology in the collection and the clustering of certain types with geometric mound forms. Additionally, this expectation was grounded in the assertions of Robb et al. (2001:214) that the relationship between "social status" and "biological status" can be explored bioarchaeologically. The specific forms of pathology included for consideration in this study were limited to those that were grossly disfiguring and/or would have severely affected mobility. The expectation that severe skeletal defects which were visible externally and/ or significantly limited mobility restricted access to effigy mound burial is supported by the published findings of Ruth (2000) and unpublished reports by Bradley (2005), Handwerk (2007), Lackey-Cornelison and Cornelison (2012) and Smith (2008).

Mortuary rituals represent a "complicated interplay between peoples' experience, desires, social structures, and the use of material culture" (Chesson 1999). It is therefore expected that the emphasis on community identity associated with geometric forms and the resultant broader age ranges exhibited within them will result in geometric mound forms displaying higher frequencies of degenerative changes as a consequence of older individuals afforded geometric mound burial.

Further, if burial in effigy forms was reserved for specific social positions, possible ritual leaders, it is expected that the incidence of trauma-related pathologies will be lower in effigy mound forms due to the possible elevated status these individual held during life. It is plausible that the mound-building and ritual practitioners of Effigy Mound ceremonialism may have been part-time specialists and freed from some subsistence activities in return for their spiritual knowledge and leadership (Hollimon 2004).

An interesting exception to this was the burial of an individual recovered from Mound 41 of the Kratz Creek Mound Group. Barrett and Hawkes (1919:89) noted,

> The curious pathological conditions of the skeleton, and the position of the mound, aloof from the rest of the group, together with the apparent lack of the careful ceremonial stratification usually afforded a burial, suggests that the builders of the mound considered this individual a monstrosity, who should be set apart from the other burials, and not accorded the usual honors paid the dead. Nevertheless, they reared this panther effigy over it, and built the usual large surface, fire, perhaps out of respect to the family or clan to which he belonged.

It is clear from Barrett and Hawkes (1919) description that pathology, particularly deformity, may have been an important social consideration with regard to effigy mound burial.

An alternative interpretation, however, should also be considered. It is equally plausible that this individual was not socially excluded by the community since he or she was afforded effigy mound burial. Perhaps this deformity was instrumental in the creation of a distinct social position held by this unique individual.

The preceding paragraphs illustrate the importance of considering the social implications of pathology in the mortuary context. The presence of pathology may have served to limit access to mound burial. Conversely, it is possible that the presence of certain anomalies (e.g. congenital deformations) and/or survival of illnesses or traumatic events may have actually conferred a special status for individuals and provided enhanced opportunities for mound burial.

Alternative Explanations for Patterning of Effigy Mound Mortuary Behavior

The various mound forms built by Effigy Mound communities have been previously interpreted as symbols of clan affiliation (Benn 1979; Radin 1911; Stout 1911). It is possible that the differences in mound form, the type of burial treatment afforded individuals, and the rituals performed reflected differences between the burial practices of kin groups and not internal segmentation of communities outside of descent group affiliation.

Radiocarbon dates and fine course chronology are generally lacking from Effigy Mound sites. As such, an alternative explanation for the variation in mound forms and associated burial practices at Effigy Mound sites may be related to temporal transitions. It is important to consider the possibility that geometric mound forms, particularly conical and oval may predate effigy mound forms or vice versa. As such, it is possible that the patterning described by Rowe (1956) of greater secondary treatment in geometric mound forms and primary interments in effigy mound forms may be reflective of a temporal transition in burial treatment rather than representing distinction between segments within communities. Similarly, the pattern of greater number of individuals interred within geometric mounds compared to effigy mounds may also reflect a temporal transition in mortuary practices rather than internal distinctions within the community structure.

With regard to the presence of pathology, specifically the low incidence of pathology in the collection, two alternative explanations need to be considered. It is quite possible that the low incidence of pathology in the collection did not reflect any type of social selection but rather reflected a biological reality (i.e the population experienced low incidence of pathology in life). Another possible explanation for the low incidence may simply be related to poor preservation of the remains. Elements that were from pathological individuals may simply not have survived the archaeological record.

Discussion

This project adopted an exploratory approach which was aimed at illuminating the patterning in Effigy Mound mortuary behavior. Following Osborne (2011:37), it used a "systematic approach of model building and testing intended to make the interpretive process as transparent as possible." Contextualizing the observed patterns in accepted archaeological and social theoretical interpretations allowed one "to compile a number of practices and beliefs a researcher would reasonably expect to find in a society" engaging in particular types of mortuary behaviors (Osborne 2011:37).

In addition, this study used the approach of Aldenderfer (2011) which emphasized context, contrasts, and combination. Applied to the analysis of Effigy Mound ceremonialism, the context was the Late Woodland mound-building landscape which was shaped by numerous historical, ecological, and social features which are discussed in greater detail in Chapter Two. The mortuary behaviors as evidenced by the skeletal and archaeological datasets were examined within the theoretical context outlined in Chapter Three. The approach moved reflexively back and forth between cultural and biological data to explore contrasts within the mortuary program of Effigy Mound communities. In fact, the *contrasts* were of principal interest in this research and include contrasts between mound forms (geometric or effigy) and: the number of human burials interred, disposition of those burials (primary, secondary, or cremation), age, sex, pathology, ritual paraphernalia, and the number of grave goods associated with individuals. Finally, combination in this study referred to studying the context of Effigy Mound ceremonialism and contrasts in mound building and mortuary behavior within the theoretical frameworks. Although, "it would be a mistake to proceed to data with the *a priori* assumption that the discovery of a certain number of these features is necessarily indicative" of the creation of collective and/or individualizing identities; the expectations presented in this chapter do present a culturally and theoretically informed starting point to explore the significance of Effigy Mound mortuary behavior and mound building in the larger ceremonial and social systems (Osborne 2011:39). The examination of differences and regularities in biological and cultural groupings in Effigy Mound mortuary behaviors with respect to the expectations stated above may ultimately be helpful in creating a more complete model of Effigy Mound social structure.

Chapter 5: Materials and Methods

Introduction

It is imperative to have theoretically informed bioarchaeology, yet the theory cannot stand alone. Quality research must also develop explicit methodologies which provide bioarchaeologists with an interpretive bridge for moving between material analysis and social theory (Dobres and Robb 2005). This chapter aims to do just that by describing the basic research design of the analysis, the skeletal and cultural materials examined, and the specific methodologies employed to collect the data.

As mentioned in the preceding chapter, this dissertation has two key goals, both of which are fundamentally descriptive and exploratory in nature. The immediate goal is to delineate possible patterning in Effigy Mound mortuary behavior and correlate that with data derived from the skeletal remains, specifically age, sex, and pathology. Delineating these patterns and associations between the Effigy Mound biological and cultural datasets is fundamental for any bioarchaeological investigation of Effigy Mound mortuary behaviors.

The ultimate goal is to explain the significance of any observed patterns by considering what they may indicate about Effigy Mound social structure. To accomplish these goals, this study used two datasets, a biological dataset composed of the human skeletal remains and a cultural dataset derived from previous excavations of Effigy Mound sites. The cultural dataset included the published site reports, unpublished field notes, and photographs from excavations headed by Barrett (Barrett and Hawkes 1919) and McKern (1928, 1930 unpublished field notes).

All the material selected for this research was derived from archaeological excavations carried out by the Milwaukee Public Museum (MPM) during the first three decades of the twentieth century. These datasets were examined using an interpretive approach which analyzed the mortuary behaviors and skeletal elements within their cultural context. The approach moved back and forth between the cultural and biological datasets to evaluate the selection criteria associated with the various burial behaviors, their resultant patterning, and possible symbolic connotations and meaning in the Effigy Mound social structure.

The Skeletal Dataset: Materials

The biological dataset consisted of the human skeletal remains recovered from the excavated mounds which are currently curated at the MPM. The minimum number of individuals (MNI) represented by the inventoried skeletal material housed at the MPM from the sites mentioned above was determined to be 329. Of the 329, 249 were adults (16+) and 80 were subadults (15 and younger) (Table 5.1).

An important note must be made with regard to the skeletal materials analyzed as part of this dissertation research. As evident from Table 5.1, the Kratz Creek sample contains 37% of all the skeletal material examined in this research potentially biasing certain aspects of the analysis. Further, based on examination of MPM accession records, it is believed that the vast majority of the skeletal material from the Kratz Creek Mound Group is from the mass burial (45 bundles) recovered from Mound 1. This assumption is supported by the published site report of Barrett and Hawkes (1919) which describes the post-depositional quality of the skeletal remains. With the exception of the mass burial in Mound 1, the skeletal remains were characterized as being in an exceptionally poor state of preservation. Consequently, much of the analysis of Kratz Creek mortuary practices, outside of Mound 1, was based on "report only" data. Similarly, the poor preservation of skeletal elements at many mounds of the Kratz Creek, Raisbeck, and Neale Mound Groups required that "report only" skeletal data be used.

Table 5.1 Distribution of Inventoried Skeletal Remains by Mound Group

Mound Group	MNI	Total Adults	Subadults
Kratz Creek	111	79	32
Neale	7	5	2
McClaughry	78	62	16
Nitschke	49	36	13
Kletzien	14	13	1
Raisbeck	51	35	16
Trowbridge	19	19	0
Total	329	249	80

Mortuary Context of the Skeletal Remains

Effigy Mound burials are typically bundle reburial or primary flexed interments. Other forms of mortuary treatment include cremations and primary extended burials (Barrett and Hawkes 1919; Goldstein 1995; McKern 1928, 1930, and unpublished field notes). In conical and oval mound forms burials were regularly situated in the center of the mound. In effigy mound forms, human burials tended to be located in the head, heart, and/or midpoint area between the front and back appendages of the effigy form (Barrett and Hawkes 1919; Birmingham and Eisenberg 2000; Goldstein 1995; McKern 1928, 1930). Within the mounds, burials were often placed in circular or oval subfloor pits. In other instances, they were placed directly on the mound floor or slightly above the mound floor in the mound fill (Barrett and Hawkes 1919; Goldstein 1995; McKern 1928, 1930).

Mounds may contain a single human burial or multiple burials. Multiple burials may be of all the same type or may include a combination of burial dispositions. Some mounds do not contain human burials at all. A few sites have mounds that contain what has been termed "mass burials" of numerous individuals (Birmingham and Eisenberg 2000; Goldstein 1995). Examples of mass burials include: Kratz Creek Mound 1 which contained 45 bundle reburials of over one hundred individuals, Raisbeck Mound 66 which contained secondary bundle reburials of 31 individuals, and McClaughry Mound 28 which contained a combination of primary flexed and bundle reburials of 29 individuals. An example of one of these "mass burials" can be seen in Figure 5.1.

Figure 5.1 Burials in Mound 66 at the Raisbeck Mound Group (Courtesy of MPM Negative #409013) from McKern, W.C. (1928) *The Neal and McClaughry Mound Groups*. Bulletin of the Public Museum of the City of Milwaukee Vol.3 No.3. Aetna Press, Milwaukee Wisconsin.

Skeletal Data Collection: Methods

All available skeletal material from each mound group included in the analysis was inventoried. Although the material had been previously inventoried and described by Ruth (1998, 2000), the limited sexing techniques applied to the collection and demographic categorization of the data (e.g subadult age category defined as 1 to 17 years of age) required that the entire collection be reassessed for age-at-death estimates and sex determination.

The inventory process included documentation of skeletal element, side, measurement of cranial and postcranial elements, and evidence of pathology. A large proportion of the collection is fragmentary; therefore a description of completeness of each element was also specified. Measurement of both cranial and postcranial elements followed the guidelines outlined in *Standards for Data Collection from Human Skeletal Remains* (Buikstra and Ubelaker 1994). All possible measurements, depending on the element and its completeness, were taken and recorded.

The material was also compared against the description in the accession records and published archaeological reports or field notes. Specifically, the material was documented with respect to mound group, mound form, body disposition (extended, flexed, bundle reburial, cremation), and type of burial (single or multiple individuals).

Minimum Number of Individuals (MNI)

To determine MNI, the skeletal remains were examined at the mound level whenever possible and, when applicable, at the burial level if more than one burial was present within a mound. Specifically, all skeletal elements that had catalog numbers and accession records indicating they were from the same mound were examined together. Because some burials consisted as bundle reburials of several individuals within the same bundle and others were part of larger commingled mass burials (Figure 5.1), techniques were employed to segregate remains into specific individuals.

In burials that contained multiple burials, especially those containing mass burials, commingling was significant. To best address the problem of commingling, the material was inventoried and analyzed mound by mound. When possible, grouping skeletal elements by individual was performed through size comparison, seriation by age, and articulating elements. Additionally, whenever possible, the skeletal material was also compared to the site photographs to try and confirm accurate association of the skeletal elements to the mound number and understand the placement of the elements in situ.

Determination of MNI for the skeletal remains involved a multistep process. Since many of the skeletal elements were fragmentary, detailed inventories of the elements and remaining portions were created. When possible, broken fragments of the same skeletal element were reunited. Specific bones were then sorted by element and side. Visual pair-matching was employed to match left and right skeletal elements based on size and similarities in gross morphology. Additionally, elements were compared according to age criteria, particularly subadult, young adult, and older adults that showed similar degrees of growth and development, or conversely, degenerative changes. Similarly, maxillae and mandibles were evaluated for tooth eruption and/or wear and were visually age pair-matched.

The first step in determining the MNI for each mound was establishing the most frequently occurring sorted (by side) bone present. If applicable, age differences were incorporated into the analysis to estimate MNI. For example, a mound may have contained five left adult femora and one left subadult femur (e.g 15-19 year-old) and six right adult femora.

The MNI estimate generated for the mound from these skeletal remains would be seven based on femora (six sided femora from adults and one from a subadult). Other bones from the same mound exhibiting evidence of age which were not the most frequently occurring element were also considered if they clearly indicated the presence of additional individuals. For instance, if maxillae with dental ages of a 2-5 year-old and a 5-10 year-old respectively were present, the MNI would be increased to nine in this example.

The estimate of MNI generated using this method incorporated both the frequency of skeletal elements and the age of the individuals from which the elements originated. The incorporation of age criteria often increased the MNI determined by using only the most frequently occurring element. Unfortunately, many of the human remains currently housed at the MPM are fragmentary which made the identification of specific individuals impossible. Additionally, the remains described in many of the archaeological accounts did not survive excavation and could not be inventoried and analyzed. For example, none of the skeletal remains recovered from the effigy mounds at Raisbeck were available for study at the MPM. However, they were included in the final analysis and denoted as “report only”.

To address the research questions posed in this study, the skeletal remains were assessed for age-at-death, sex, and pathological conditions that would have resulted in considerable gross deformation or limited mobility. What follows is a description of the various methods used to: determine sex, estimate age-at-death, and identify and describe various pathological conditions.

Estimation of Age-at-death

Age-at-death and its relationship to the mortuary context are key elements of this research. To review, it is expected that mounds and mortuary behaviors that were symbolic of collective group identity will exhibit a wider range of subadult and adult age ranges/life-course stages. Further, it is expected that mounds and mortuary behavior that symbolized distinct social positions and/or persona in the community will exhibit a narrower age range/life-course stage. To determine age-at-death, multiple indicators were examined to assure the most accurate estimate.

The estimation of age at death was accomplished using anthroposcopic techniques. The application of a specific technique used was dependent upon whether the specimen was from an adult or subadult, as well as the post-depositional quality of the bones

The techniques used to determine the age at death of subadult specimens fell into the following categories: tooth development and eruption, stage of bone development, epiphyseal closure, and length of long bones without epiphyses. Age determination based on dental development and eruption followed Ubelaker (1989). Subadult bones were also examined for morphologic changes associated with various stages of bone development according to Scheuer and Black (2004). For older subadults to early adults, the degree of epiphyseal union was used to estimate age (Bass 1995; Scheuer and Black 2004**).** Subadult long bones without epiphyses were measured to obtain an age-at-death estimate following Bass (1995).

The methods used for the determination of adult age-at-death included: sternal rib end phase analysis (Iscan et al. 1984), auricular surface aging (Lovejoy et al. 1985), pubic symphysis aging (Suchey and Katz 1998) and dental wear (Brothwell 1981; Lovejoy 1985; Miles 1963). With the exception of auricular surface aging, the fragmentary and generally poor nature of the remains made the application of non-dental aging techniques problematic. The dentition often provided the best or only source of information for age-at-death estimation in adults.

Consequently, an accurate assessment of the rate of dental wear in this skeletal collection was critical for this research.

To determine the rate of wear in this collection a modified Miles (1963) method was developed. Because subadult material was uncommon in this collection, the full Miles method could not be used; instead a general rate of wear was established for the population and individuals were assigned to an appropriate life-course stage. This modified Miles (1963) method involved carefully evaluating for rate of wear subadult material exhibiting first and second molar eruption (generally around 6 and 12 years respectively) to establish a general population specific rate of wear which could then be applied to adult material. When possible, the degree of epiphyseal union and rate of dental wear were also correlated. Correlation of dental wear and epiphyseal closure in these subadults and young adults provided valuable insight about the general rate of tooth wear in the population. This information was then applied to isolated adult crania where dental wear was the sole indicator of age.

Mandibular and maxillary teeth were then seriated with regard to wear in both children and adult specimens for each site. Dental wear of the molars was scored following the guidelines outlined by Scott (1979). The incisors, canines, and premolars were scored using the descriptions outlined by Smith (1984:45-46). Based on both the seriation and correlation of wear with epiphyseal union in young adults, the rate of wear was compared to both the age estimates developed by Lovejoy (1985) for the Libben site and the dental wear chart developed by Brothwell (1981). Although the material from Libben collection is representative of a Late Woodland group from the Great Lakes region who likely had a similar diet based largely on wild food resources, it was determined that the dental wear chart developed by Brothwell corresponded better to the observed rates of wear in this collection (Brothwell 1981:72).

Joint surfaces of isolated long bones that could not be associated with other skeletal elements were evaluated to determine whether an individual was categorized as young adult (absent to slight osteophytic activity and little porosity) or a middle adult to older adult (moderate to marked osteophytic activity and porosity). Whenever possible, a "summary" age estimate was prepared based on seriation of the material and the application of all relevant methods to the skeletal elements (Lovejoy et al. 1985).

Once age-at-death was determined, the material was placed into one of the following life-course stages which corresponded generally with the respective skeletal ages: infant to (0-2), young child (2-4), child (5-9), older child (9-12), adolescent (12-15), young adult (16-25), middle adult (26-35), and old adult (35+). These categories were eventually collapsed for statistical analysis as follows: infant to young child (0-4 years), juvenile (5-9 years), adolescent (9-15 years), young adult (16-25 years), middle adult (25-35 years), and old adult (35+). If the age estimate of elements spanned two life-course stages, the individual was placed in the category that contained the larger proportion of the years-of-age estimate. For example, a 10-12 year-old estimate would be classified as an adolescent. A 15-17 year-old would be classified as a young adult.

Determination of Sex

The methods used for the determination of sex of the skeletal remains fell into two categories, morphologic and metric**.** With regard to sex, it is well established that the innominate provides the most reliable indication. The Phenice method, which has a high degree of accuracy, was used when pubic bones were present (Phenice 1969). Unfortunately, the pervasive absence of this skeletal element due to the fragmentary nature of the collection rarely allowed for the application of this method. Other features of the innominate such as the greater sciatic notch and the presence of a preauricular sulcus were used to determine sex when possible (Bass 1995). Morphologic features of the skull were also commonly utilized to determine sex (Bass 1995; Buikstra and Ubelaker 1994; France 1998).

Metric data for the postcranium was collected and used to determine sex in cases where pelvic and skull elements were not available for observation (France 1998). Because documented metric data for this collection was not available and complete skeletons were a rarity, this study follows (Weiss and Wobst 1973:58) "If there is no sufficiently large pool of similar skeletal data, and if the population under study cannot be sexed adequately by multivariate methods, then one should apply the sex cutoff criteria developed for other skeletal series." The addition of this metric data for sex determination greatly increased the number of sexed individuals compared to Ruth's (1998, 2000) data.

Before applying metric indices derived from other skeletal collections, specimens that contained both morphological indicators of sex and intact long bones were used to create reference specimens for sex determination. Once the data was collected, long bone measurements were compared to the reference samples to determine the range of measurements exhibited in the collection. Based on the reference specimens, the indices provided by France (1998) for the Arikara, Libben collection, and prehistoric Central California were selected as most appropriate. However, one measurement deviated considerably from France's (1998) indices. The femoral midshaft circumference exhibited a range from 75 mm. to 110 mm. which was considerably larger than France's 81 mm. cutoff. Because femoral midshaft circumference measurements were generally quite large for this specific collection, femora at the cutoff were classified as female. The cutoff for the MPM collection for femoral midshaft circumference was set at 87.00 mm. (Table 5.2).

The key metric indices that were considered for determining sex are listed in Table 5.2. These measurements, particularly those associated with the humerus and femur, were used because many of the specimens in the collection presented as isolated long-bone elements that were part of bundle reburials, and could not be sexed using the multivariate morphologic features described above. However, whenever possible, multivariate methods were used in combination with metric data to determine the final sex estimate for any one individual.

Table 5.2 Metric Indexes used to Determine Sex from Postcranium

Bone	Skeletal Region Measured	Cut-offs used derived from Arikara, Central California (2500BC-500BC), and Libben Site (Late Woodland, Ohio) (France 1998)
Humerus	Maximum vertical diameter head	43.9 mm. - Arikara, 44.3mm. - Central CA
Humerus	Maximum. biepicondylar width	58.2 mm. - Arikara, 59.3 mm. - Central CA
Femur	Maximum diameter femoral head	44.6 mm. - Central CA
Femur	Bicondylar width	77.49 mm. - Central CA
Femur	Midshaft anterior-posterior diameter	28.01mm. – Central CA
Femur	Physiologic length	430.20mm. – Central CA
Femur	Maximum length	445mm. – Libben Site, Ohio
Femur	Midshaft circumference	81.00 mm. – Libben Site, Ohio; 87.00 mm – MPM*

Because the cut-offs used were derived from populations that were separated in time and space from the MPM skeletal material, they were applied very conservatively. When isolated long-bone elements were evaluated metrically, several measurements were used in combination to estimate sex. Fragmentary skeletal elements where only one measurement could be obtained were automatically classified as indeterminate. With the exception of femoral midshaft circumference, skeletal elements that did not exhibit at least two measurements that were one or more millimeters larger or smaller than the cut-offs were also classified as indeterminate. Additionally, skeletal elements that exhibited conflicting cut-off criteria were classified as indeterminate.

As will be demonstrated in Chapter 7, the assignment of sex to the skeletal remains took a decidedly conservative approach. In fact, 29.1% of the MPM collection was ultimately classified as 'Indeterminate Sex Adult'.

Once the material was assessed for sex, it was placed into one of the following categories: female, probable female, male, probable male, indeterminate adult (determination could not be made because skeletal element was ambiguous or missing indicative features), and indeterminate juvenile.

Paleopathology

The evaluation of paleopathology in this study was solely to assess its role in observed mortuary behavior rather than to determine the skeletal health of individuals within the collection. As previously noted, this research was focused on societal attitudes toward disease and disability and its subsequent treatment in the mortuary practices of Effigy Mound communities. Accordingly, only certain types of pathology were recorded for the study. Specifically, the skeletal material was carefully examined for lesions that would have likely resulted in observable deformities or behavioral differences such as limited mobility.

All paleopathological skeletal material was documented with respect to type of abnormality or lesion, stage of degeneration, and/or conversely healing (fractures and dislocations). Following the guidelines outlined in *Standards for Data Collection from Human Skeletal Remains* (Buikstra and Ubelaker 1994) these conditions were categorized as follows:

abnormalities of bone shape or size, trauma (fractures and dislocations), and degenerative changes.

Abnormalities of bone shape and size

Abnormalities in shape were recorded for the skull, vertebral column and long bones (Buikstra and Ubelaker 1994),. Although not listed within the skeletal pathology key code, cranial deformation such as occiput flattening was included as an abnormality in skull shape. Abnormalities of the vertebral column were classified by type: kyphosis (abnormal anterior curvature) or scoliosis (abnormal lateral curvature), the form of the abnormality (angular or gradual) and whether ankylosis (fusion of bony elements) was present or absent. Ankylosis was one of the more frequently encountered vertebral pathologies.

Examination for abnormalities in size included: hydrocephaly, achondroplastic dwarfism, proportional dwarfism, and specific skeletal pathological disproportions in size. Although there is a reported account of an abnormally small skeleton in the Kratz Creek Mound Group, the remains matching the description were not observed at the MPM (Barrett and Hawkes 1919).

Abnormalities in long bone shape included: bowed, angulated, and alterations in external outline. The degree of abnormality was recorded as barely discernible or clearly discernible. Only specimens with clearly discernible abnormalities in shape were included in the final analysis. Much of the abnormalities in shape encountered during data collection were posttraumatic deformities that were the result of healed fractures.

Trauma: fractures and dislocations

Some of the more frequently encountered pathologies in the collection were fractures and dislocations. Fractures (Table 5.4) were assessed with regard to type as described by Buikstra and Ubelaker (1994), Lovell (1997), and Ortner (2003). Once identified, all appropriate aspects of fracture type were indicated. The type categories considered were: complete, greenstick, simple, comminuted, spiral, compression, depressed (outer table only), depressed (outer and inner tables), penetrating, impacted, burst, and secondarily pathological (Buikstra and Ubelaker 1994; Lovell 1997).

Table 5.3 Description of Fracture Types

Type of Fracture	Description	Source
complete	fracture permeates entire bone	Buikstra and Ubelaker 1994
greenstick	incomplete transverse break in long bone associated w/ longitudinal splitting; often seen young individuals	Lovell 1997, Ortner 2003
simple	bone broken in two distinct segments	Buikstra and Ubelaker 1994
comminuted	fracture results in multiple bone fragments	Buikstra and Ubelaker 1994
spiral	course obliquely through bone	Buikstra and Ubelaker 1994
compression	crushing force on both sides of bone; often seen in osteoporotic vertebral bone	Buikstra and Ubelaker 1994, Lovell 1997
depressed (outer table only)	compression of cranial vault that fractures the outer table only	Buikstra and Ubelaker 1994
depressed (outer and inner tables)	depressed fractures involving both the outer and inner tables	Buikstra and Ubelaker 1994
penetrating	partial/complete penetration of cortex for example by projectile point, axe blade, or other	Lovell 1997
impacted	bone ends are driven into each other	Lovell 1997
burst	found in spine due to vertebral compression; mild form commonly referred to as "Schmorl's node"	Lovell 1997
secondarily pathological	secondary to localized or systemic disease that has weakened bone	Lovell 1997

Once the fracture type was recorded, the fracture was categorized as postmortem, perimortem, or antemortem. Close examination of the bone near fracture sites was performed to determine if any signs of healing were evident and examine fracture edges for staining differences. If the fracture was determined not to be the result of postmortem taphonomic processes and exhibited no signs of healing, the fracture was classified as perimortem (at or near the time of death). If the bone showed signs of healing, the bone was assessed for the stage of healing. Antemortem fracture sequelae were characterized as follows: callus formation – woven bone only, callus formation – sclerotic reaction, healed/consolidated (solidly united fracture area), malunion (a fracture that heals leaving a deformity, or nonunion (fracture fragments fail to unite).

Prior to the assessment of fracture type and stage of healing, long bones were divided into five segments following the recommendations of Buikstra and Ubelaker (1994). The segments were: proximal third, distal third, middle third, proximal epiphysis, and distal epiphysis. Segments were included for analysis if they were 75% or more complete (Buikstra and Ubelaker 1994, Judd 2002).

Due to the extreme fragmentary nature of much of the Effigy Mound material, the method for analysis recommended by Judd (2002: 1260) for heavily damaged material was used. This method allows "traumatized bones with less than 3 segments that were 75% or more complete" to be included in the analysis and allowed for a "flexible recording system that allows for maximum extraction of data" (Judd 2002: 1255). This flexibility was critical due to the often poor preservation of the skeletal material.

Dislocations were defined as "complete loss of normal contact between the components" (Ortner 2003:159). Identification of a dislocation was based on gross bony modification to the joint surfaces and surrounding areas. Following Buikstra and Ubelaker (1994), whenever possible a determination was made as to the nature of the dislocation, specifically if was traumatic or congenital in nature. The fragmentary nature of the remains rendered most determinations to be recorded as “cause ambiguous” (Buikstra and Ubelaker 1994).

Degenerative Changes: vertebral pathology and osteoarthritis of joints

For this study, the degenerative vertebral pathologies associated with cartilaginous articulations included: intervertebral osteochondrosis, spondylosis deformans, and in the cervical spine, uncovertebral arthrosis. Many of these conditions are associated with the degeneration of the intervertebral disk and have been connected to advancing age (Resnick 1985). Osteoarthrititic changes involving the apophyseal joints, which are synovium-lined joints such as those between superior and inferior articulating processes, are also included in this research. Ligamentous attachments and entheses were also considered, particularly in relation to osteophytes and enthesophytes (Resnick 1985).

Vertebral pathology was categorized following Buikstra and Ubelaker (1994) as follows: Schmorl’s nodes, osteophytes, syndesmoses/enthesophytes, spina bifida, and spondylosis. Schmorl’s nodes were classified as: barely discernible, moderate expression, and marked expression. It is largely believed that Schmorl’s nodes are asymptomatic. However, larger Schmorl’s nodes have been associated clinically with chronic pain (Hamanishi et al. 1994; Stabler et al. 1997). Consequently, only individuals exhibiting marked expression of Schmorl’s nodes were included in the analysis.

Osteophytes (horizontally oriented bony spicules extending from vertebral body) were characterized as barely discernible, elevated ring, curved spicules, and fusion present. As previously noted, only pathologies that would be visible externally (alterations in normal appearance) or those resulting in a marked interruption of mobility were considered for analysis. Subsequently only individuals expressing extreme fusion of the vertebrae were included. Likewise, only syndesmoses/enthesophytes (vertically oriented bony spicules extending from vertebral body) that exhibited fusion were included in the analysis.

Spina bifida was classified as partial or complete. Spondylolysis was classified as: complete fracture no healing, healing evident, or spondylolythesis.

Following the guidelines described in *Standards* (Buikstra and Ubelaker 1994) the maximum expression of arthritic change was recorded for the following features in arthritic appnedicular joints: degree and extent of lipping, degree and extent of surface porosity, and degree and extent of eburnation. Only those specimens that exhibited skeletal morphology that was likely indicative of disrupted mobility were included for analysis; therefore only specimens exhibiting extensive spicule formation and/or ankylosis were included in the analysis. Additionally, the extent of the lipping needed to be greater than 2/3 of the joint surface area to be considered. To be included, surface porosity needed to be coalesced or pinpoint and coalesced and affect greater than 2/3 of the joint surface. Finally eburnation had to be clearly present and extend across much of the joint surface to be included in the analysis.

For all pathologies considered in this study, the individual mean count was determined and is presented in the results section (Chapter 7). The individual mean fracture count was the total number of individuals exhibiting a fracture per the minimum number of directly observed individuals (n=329). The individual mean vertebral column pathology count was determined as the number of individuals exhibiting severe forms of vertebral pathology per the minimum number of observed individuals. Likewise, the individual mean count of appendicular osteoarthritis was calculated as the number of individuals with clearly discernible and severe cases of osteoarthritis of appendicular joints per the minimum number of observed individuals in the sample (Judd 2002).

Additionally, the mean number of pathologies per individual was by summing the total number of observed skeletal elements with pathology and dividing it by the total MNI of the sample (Judd 2002).

As noted earlier in this chapter, the skeletal remains in this collection were often fragmentary and commingled making isolating specific individuals a challenge. Yet, utilizing the individual mean pathology count and mean number of pathologies per individual was important for sociocultural interpretation, particularly in this study where the emphasis was on societal attitudes towards pathology and how it related to inclusion or exclusion in the mortuary program. Thus it was not only important to identify specific individuals with pathology, but also be able to attribute all pathological elements to the same individual when multiple injuries occurred.

When pathological skeletal elements were encountered, they were examined against the accession records at the museum and published archaeological reports to determine what other skeletal elements were recovered from the mound and if they were from a multiple burial. If part of a multiple burial, the pathological elements, particularly appendicular bones, were sorted by side and visually size matched to other bones to segregate individuals. Pathological vertebral elements were articulated with opposing bones to segregate affected and non-affected individuals. When pathological skeletal elements could not be positively associated with other elements, it was treated as a distinct individual with a mean number of pathology per individual of one.

The Cultural Dataset

As previously noted, the cultural dataset for this dissertation research included the published site reports, unpublished field notes, and photographs from excavations headed by Barrett and McKern. Non-skeletal material features of this dataset included mound form, fire hearths, cists, rock altars, and grave goods. The material representation of the human remains within the mounds, particularly location within a mound and disposition (multiple versus single and primary versus secondary) were also important cultural features considered in this study.

The cultural dataset was derived from archaeological investigations initiated by the MPM starting with Samuel Barrett's excavation of the Kratz Creek Mound Group in 1917. William McKern continued the excavation of Effigy mounds across the state during the late 1920's and 1930s. Some of the sites that were thoroughly excavated and documented included: Kletzien, Kratz Creek, McClaughry, Neale, Nitschke, Raisbeck, and Trowbridge. These sites were selected for this study because: they were scientifically excavated by trained archaeologists; the sites had published reports and/or field notes were available for study; the sites had numerous photographs of the human remains in situ; and the skeletal remains were available for study at the MPM. Specifically, this study utilized: the published report regarding the Kratz Creek Mound Group (Barrett and Hawkes 1919); the published reports of McKern (1928, 1930), which described the McClaughry, Neal, Kletzien, and Nitschke Mound Groups; the published report of Rowe (1956) which described McKern's earlier excavation of the Raisbeck site; and finally McKern's unpublished field notes on the Trowbridge site. Detailed descriptions of the mound group sites, mounds within each site and their internal features are in the following chapter (Chapter 6).

Mounds: General

Mounds classified as belonging to the Effigy Mound Tradition encompass a variety of both geometric and effigy forms. Geometric forms can be seen Figure 5.2 and include: conical, oval, biconical, and linear. Effigy mound forms (Figure 5.2) exhibited a greater range in their form; however, the more common types include panther, bear, bird, deer, turtle, buffalo, and canine. In general, both geometric and effigy mounds are low and typically range from one to five feet in height (Goldstein 1995; McKern 1928; Rowe 1956). As previously noted, the length and/or breadth, on the other hand, can be quite large with many effigy forms extending over 200 feet (Rowe 1956).

Mounds tended to be constructed and placed in groups on ridges and bluffs overlooking wetland environments (Birmingham and Eisenberg 2000; Goldstein 1995; Rowe 1956). The number and types of mounds situated within a group fluctuated widely among Effigy Mound sites, but can generally be categorized into 3 groups: less than 10, 25-40 mounds, and 60-80 mounds (Goldstein 1995; Rosebrough 2010; Rowe 19956).

Of the geometric forms, conical mounds are the most numerous. In fact, conical mounds are the most numerous mound type observed among all mounds classified as belonging to the Effigy Mound Tradition (Goldstein 1995; Rowe 1956). Conical mound forms were excavated by McKern (1928) and his team by trenching across the entire expanse of the mound. The trench was "lens-shaped in horizontal outline, narrow at the margins of the mounds and expanding towards the center" (McKern 1928:227). Secondary trenching was performed when interior mound features were uncovered. Linear mounds were the second most common form of geometric mound type observed and were trenched in a similar manner to conicals with the primary trench extending across the maximum length of the mound.

Panther (Figure 5.2) and other long-tailed mounds are the most frequent form of effigy mound observed and have been interpreted as representative of a water spirit (Birmingham and Eisenberg 2000; Hall 1993; Rowe 1956). Other water spirit mound forms include turtle (Figure 5.2) and lizard-shaped mounds. These water-spirit forms tend to occur more frequently in mound groups in eastern Wisconsin where lakes, wetlands, and rivers are abundant (Birmingham and Eisenberg 2000; Goldstein 1995). Bird forms are second in prevalence and tend to be more numerous in central and western Wisconsin (Birmingham 2010; Rowe 1956). Bears are third followed by canine and deer effigy mounds, all of which are considered "earth animals" and more numerous in central and western Wisconsin (Birmingham and Eisenberg 2000:115; Birmingham 2010; Rowe 1956).

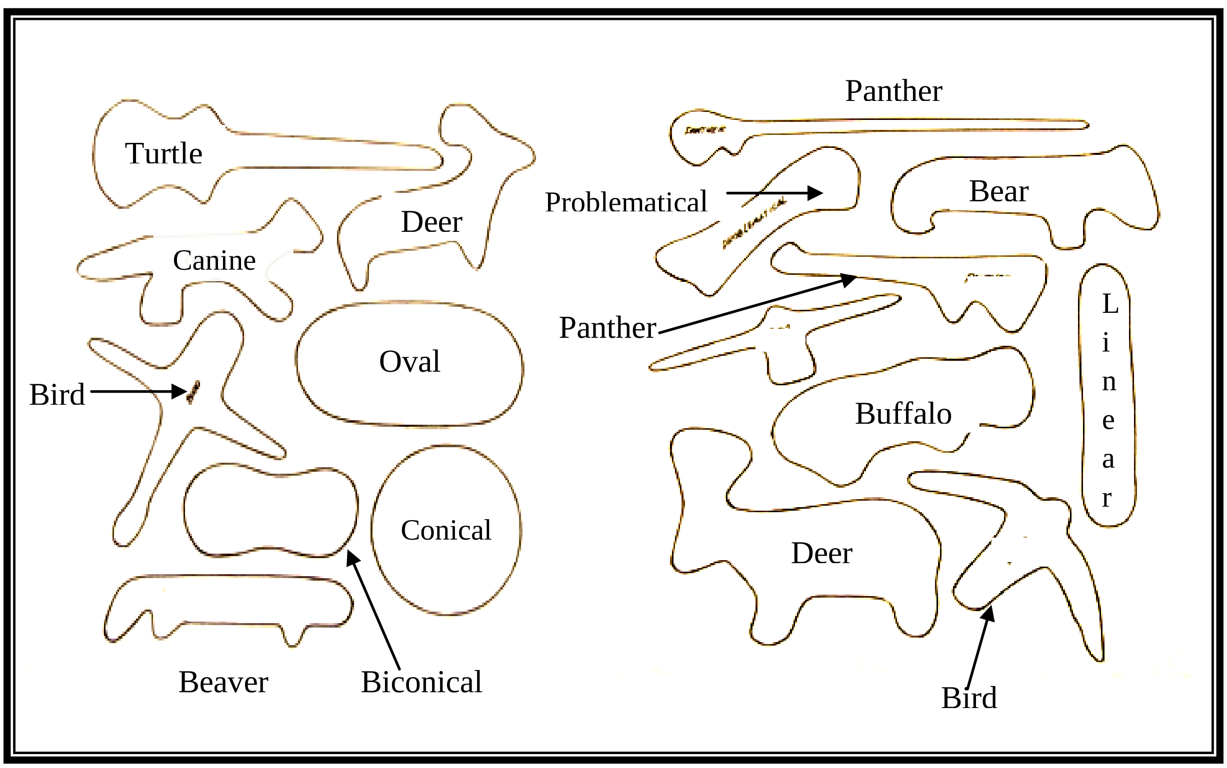

Figure 5.2 Geometric and Effigy Mound Forms from Rowe (1956:70) The Effigy Mound Culture of Wisconsin. *Milwaukee Public Museum Publications in Athropology.* Number 3. Milwaukee: Milwaukee Public Museum.

McKern (1928, 1930) and his team tailored the trenching of effigy mounds to the specific shape of each mound; an example of which can be seen in the schematic of a panther mound (Figure 5.3) from the Nitschke Mound Group. Areas of effigy forms that were regularly trenched included: (1) the head, (2) the intersection of legs or wings with the body of the effigy form, (3) immediately posterior to the shoulder region, and (4) in the center of the body intermediate between the nose and tail of the effigy form (McKern 1928:227).

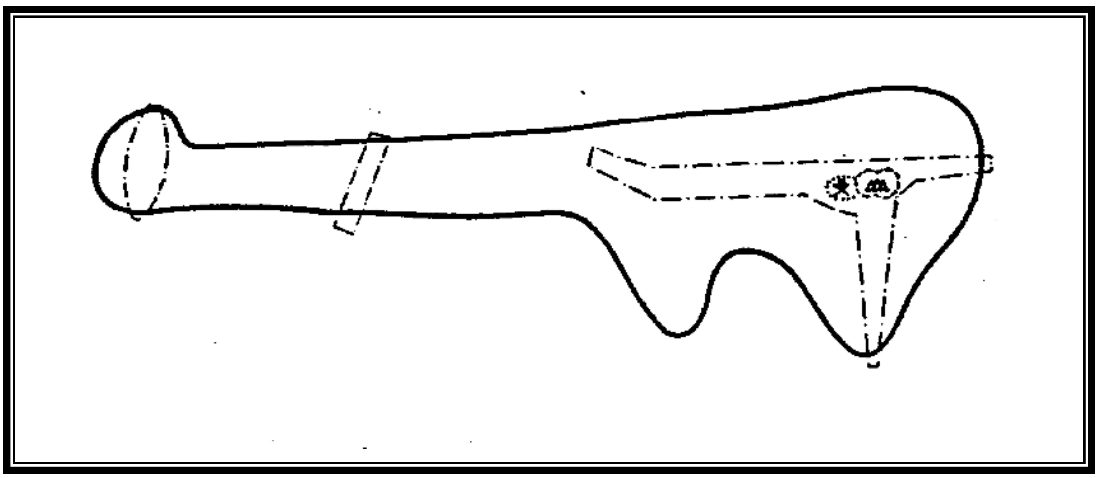

Figure 5.3 Trenching Panther Mound #21 Nitschke Mound Group from McKern (1930:507) *The Kletzien and Nitschke Mound Groups*. Bulletin of the Public Museum of the City of Milwaukee Vol.3, No.4. Aetna Press, Milwaukee Wisconsin.

These areas were selected because they consistently exhibited burials and/or other evidence of ceremonial activity. Additionally, secondary trenches in areas outside those previously mentioned were also dug "as a safeguard against missing features" outside of regularly selected regions (McKern 1928:227). All trenches were dug until undisturbed soil was encountered. Once excavation was completed, all mounds were restored to their original form (McKern 1928).

It is important to note here that the consistency in archaeological methodologies and techniques applied to the mounds at the selected sites is one of the distinct advantages of this dataset. The choice to include only those sites excavated by Barrett and McKern greatly reduces possible sampling bias originating from differences in archaeological methodology.

Mounds were constructed in a variety of ways. The humus or sod line was commonly removed in the shape and area where the eventual mound would be constructed. In other cases, an intaglio of the mound was dug into the soil, eventually filled in, and covered by the mound. Finally, some mounds were built directly on the ground without any preparation of the pre-existing surface (Goldstein 1995; Rowe 1956). Most mounds appear to have been constructed in a single event using basket loads of local soil (Birmingham and Eisenberg 2000; Goldstein 1995; Rowe 1956). The fill comprising the mounds, with the exception of mounds within the Kratz Creek Mound group, is not stratified (Rowe 1956).

Altars, Cists, and Pottery

Mounds of the Effigy Mound Tradition commonly contained internal features referred to as altars and cists. Altars appear to have occurred more frequently than cists (Goldstein 1995; McKern 1930). Altars are referenced by a number of names in the Effigy Mound literature: sacrificial fires, fireplace altars, earthen altars, stone altars, altars, and fireplaces (Barrett and Hawkes 1919; Goldstein 1995; McKern 1928, 1930; Rowe 1956). Altars may occur singly or in multiples (Goldstein 1995; McKern 1928,1930). They were commonly placed near burials, but may also be present in mounds where there are no burials. Within the mound, they tended to be centrally located in conical and oval mound forms and in the head and heart portions of effigy forms (Goldstein 1995; McKern 1928,1930; Rowe 1956).

McKern (1928:261-262, 1930:455-456) described two types of fireplace altars, earthen fireplace altars and stone fireplaces/altars. Earthen fireplace altars consisted of flat, circular fire-blackened areas roughly one to two feet in diameter on the mound floor surface. They obviously contained bits of charcoal but also occasionally contained fragments of nonhuman bone and potsherds (McKern 1928, 1930). Stone altars, on the other hand, were placed directly on or above the mound floor and consisted of a circle of stones blackened and/or fire fractured (McKern 1928,1930).

Cists (Figure 5.4) were another internal feature found in Effigy Mound Groups. They tended to occur less often than alters (Goldstein 1995; McKern 1928,1930). Cists were described by McKern (1928:263) as a “small bowl-shaped type of structure with more or less vertical walls of red, unbaked clay, reinforced to some extent with pebbles, and with a slightly concave bottom lined with small stones.” They have been found in both effigy and conical forms but with greater frequency in conical forms, particularly at the Neale and McClaughry Mound Groups. In fact, cists were the most characteristic feature of the conical mounds at the Neale Mound Group (McKern 1928).

In conical mound forms, cists may occur singly or in groups of two or three and were generally centrally located within the mound. They also varied significantly in their vertical position within a mound (McKern 1928). Cists constructed within effigy mound forms were often situated in key focal points of the effigy such as the head and shoulder regions.

Cists appeared to vary by group with respect to their association with burials. The cists in the Neale Mound Group for example appeared to be less associated with burials. In fact, many occurred in conical mounds that did not contain burials. In contrast, cists constructed in McClaughry mounds were generally closely associated with burials in all mound forms

(McKern1928). McKern (1928:265) interpreted their function as "patently containers of some sort…(and) that their use involves some ceremonial practice which was closely related to the intended purpose of the mound." The analysis of altars and cists in the study was based solely on in situ photographs, published descriptions, and field notes.

Figure 5.4 Stone Altar and 2 Cists in Conical Mound #42 Neal Mound Group from Rowe (1956**)** *The Effigy Mound Culture of Wisconsin*. Bulletin of the Public Museum of the City of Milwaukee No.3. Aetna Press, Milwaukee Wisconsin.

Pottery occurred in the mounds in a variety of contexts. Most commonly in the form of loosely placed potsherds scattered throughout the mound fill. This pottery context was likely the result of accidental inclusion in the mound material and not considered in the final analysis (McKern 1928). In other instances, it appears that particularly large sherds were located in regions of effigy mounds that were also likely locations of burial placement. Potsherds were also associated with fireplace altars and in some instances potsherds were used in place of stone in the altars (McKern 1928). McKern also noted the presence of "a bit of pottery, modeled to represent a human foot and a portion of the leg" was found in a linear mound (Mound 57) of the McClaughry group. The pottery in these contexts appears to have been purposefully included within the mounds and were likely reflective of past ritual activity

Grave Goods

Material remains classified as grave goods in this dissertation research are quite specific. Grave goods were defined in this study as items in direct association with a specific set of human remains. Following that definition, grave goods were quite rare in burials classified as Effigy Mound Tradition as few were directly associated with individuals but rather appear to be associated with the mound (Goldstein 1995).

Grave goods were categorized into two broad categories, utilitarian and non-utilitarian items. Utilitarian objects were further subcategorized as follows: pottery vessels, projectile points, other non-projectile-point tools (scrapers, awl, copper chisel, celts, net weights), and pipes. Non-utilitarian materials included: personal adornment (copper and shell beads), non-human skeletal remains that lack evidence of consumption (e.g. dog skull, skeleton), decoratively worked stone and shell items, and non-worked shell. Grave goods recovered from the mounds were not examined during data collection at the MPM and so, like altars and cists, the analysis is based solely on in situ photographs, published accounts, and when available field notes.

Research Design

The research design of this project is fairly straightforward. As previously mentioned, the impetus for this study originated from the observation of potential patterning in the Effigy Mound skeletal material. From these observations, two research questions were posed in Chapter Four to further delineate regularities in the Effigy Mound mortuary program. These research questions were intentionally created to be broad enough to encompass a variety of mortuary behaviors that may contribute to the creation of collective and/or individual identities within the mortuary domain. To narrow the range of possibilities, expectations were created for each research question, which were then individually explored using the biological and cultural datasets. The objective was to examine each expectation singly or in combination to ultimately build a culturally and theoretically informed case regarding the significance and role of Effigy Mound ritual and mound building in the creation of identity.

At the core of this study is an exploration of patterns. It is important to realize that not all patterns evident in a dataset are culturally significant. Thus, it is critical that the variables selected for an analysis be appropriate to the research questions. Carr (1995:157) suggested that the following variables commonly reflect social organization: cemetery internal organization, disposition of the body, the number of socially recognized burial types, the number of persons per grave, and the quantity of grave furniture. In addition to these cultural variables, data was collected for the following biological variables: age, sex, and pathology. As previously noted, the approach utilized in this project reflexively moved back and forth between the biological and cultural datasets.

This data was then analyzed using multiple methods, including exploratory data analysis (EDA). EDA is the most appropriate approach for this dissertation research as the fundamental goal was to explore the intuitively derived impressions of the datasets. EDA is primarily about detecting and describing patterns, trends, and relations in data, which are obviously motivated by the research questions and purpose of the study.

Due to the categorical nature of the variables, the predominant non-graphical EDA technique used was cross-tabulation of frequencies. Exploratory analyses of the following variables were performed: mound form, multiple versus single burial, burial disposition (primary inhumation versus secondary reburial including cremation-burial), age and sex distribution by general mound form, sex and age by burial type, the number and types of associated ritual paraphernalia, and the number and types of grave goods in association with individuals interred within specific mound forms. Similarly, analysis of the type of pathology exhibited by an individual in association with the following variables was performed: mound form, multiple versus single burial, burial disposition.

Statistical Analysis

All statistical analyses were performed using SPSS software and versions 19 and 20. To address the research questions presented above, descriptive statistics were calculated for the frequencies of the following variables: mound form (geometric or effigy), burial type (single or multiple), burial disposition (primary, secondary, and mixed), age range, sex, pathological conditions, ritual inclusions (altars, cists, and/or pottery), and grave goods.

To understand the relationships between these biological and cultural variables, the frequencies were cross-tabulated against each other. Specifically, mound form was cross-tabulated against burial type, age range, sex, pathological conditions, ritual inclusions, and grave goods. The Pearson's Chi-square statistic was then calculated for each cross-tabulation to determine whether observed patterns were random or indicative of significant differences. In cases where the expected counts were less than five, Fisher's exact test of statistical significance was used.

As previously noted, if mound construction and associated mortuary ritual functioned to create community integration and collective identity, one would expect to see larger segments of the community afforded mound burial. Increased access to mound burial would be reflected by greater number of individuals interred within mounds. Conversely, if mound construction and mortuary ritual was operating to reinforce social distinctions, one would expect to see limited access and greater number of single burials in mounds.

To determine whether there is differential access to mound forms, mound form (geometric or effigy) was cross tabulated against the number of individuals interred (multiple or single) within a mound. Multiple burials were defined as any burial with a MNI larger than one. A burial was defined as single if the MNI was determined to be one. Additionally, to determine if there was differential access to single or multiple burials along the lines of age and sex, the biological variables were cross-tabulated against single or multiple burial types.

To determine whether certain disposal methods were more prevalent in certain forms than others (effigy versus geometric) the following were calculated for each mound within a group and all mound groups combined: primary burials (flexed and extended), secondary burials (secondary bundle burials and cremations), and mixed burials (combination of burial dispositions). The frequencies of primary and secondary burial disposition and cremations were cross tabulated to mound form and compared between effigy and geometric mound forms. Additionally, to determine if there was differential access to burial disposition, age and sex was cross-tabulated against primary and secondary disposition.

As previously noted, grave goods were fairly rare in Effigy Mound burials. To determine if any consistent patterning exists, descriptive statistics were calculated to determine if individuals buried in effigy mound forms were generally buried with greater numbers of grave goods than individuals buried within geometric mound forms. The cross tabulations described above were then tested for significance using Pearson-Chi square or Fisher's Exact tests for significance.

This research also used logistic regression to examine the effect of age, sex, pathology, burial disposition, and type of burial (multiple versus single) on selection of mound form for burial. This type of analysis is particularly appropriate for this research because application of this type of statistical modeling allowed for the creation of predictive probabilities for each type of burial (geometric or effigy) based on certain sets of predictor variables.

Summary

This chapter described both the biological and cultural datasets used in this dissertation research. Both datasets originate from excavations of Effigy Mound sites conducted by Samuel Barrett and his team in 1917 and William McKern during the late 1920's to mid-1930's. As previously noted, these sites were selected for this study because they were systematically excavated by trained archaeologists, the observations were published or the field notes were available for review, and the skeletal material was available for study at the MPM.

It provided a general overview of Effigy mound forms, internal features, and how they were excavated. Detailed descriptions of the analyzed mound groups, their location within the state of Wisconsin, and their internal features are presented in the following chapter (Chapter 6).

This chapter also detailed the various methods used for the skeletal data collection. Additionally, descriptions of how the skeletal data was characterized by the author according to lifecourse, sex, and types of pathology were also provided. The mortuary variables examined in the analysis and how they were analyzed were also described.

Finally, this chapter describes how the skeletal and mortuary datasets were then combined to address whether differential access to effigy mound burial existed and if so was it based on age, sex, and/or severe pathology. The results from these analyses will be presented in Chapter 7.

The data analysis of this project was performed with the purpose of illuminating the role that mounds served in creating sacred spaces where associated rituals acted to integrate Effigy Mound community members, while simultaneously reinforcing social distinctions based on differential access to mound burial and ritual. The mounds, burials, and associated mortuary treatment were treated as products of social labor exercised to create representations of community identity and/or social structure. The goal of the analysis was to determine if patterned asymmetries existed between mound burials along the lines of sex, life-course, and pathology. To accomplish this goal, the biological variables (sex, age, and pathology) were examined against the following Effigy Mound mortuary and ritual variables: mound form, single versus multiple burial, body disposition (primary, secondary, or cremation), internal features associated with the mounds, and grave goods.

Chapter 6: Mound Group Site Descriptions

Introduction

This chapter will provide detailed descriptions of the mound groups selected for the study and their location within the state of Wisconsin. It will also provide descriptions in tabular form of the mounds that were excavated within each mound group including their dimensions and inclusions.

Effigy mound groups were quite common across much of southern Wisconsin by the end of the Late Woodland. Birmingham and Eisenberg (2000:109) suggest that more than 900 effigy mound groups existed and may have contained as many as 15,000 mounds. Most mound group sites tended to be located by major water sources such as lakes, rivers, and/or large wetland areas (Figure 6.1) (Birmingham and Eisenberg 2000; Goldstein 1995). These locations offered abundant natural resources (Birmingham and Eisenberg 2000; Goldstein 1995; Mallam 1976). It has been suggested that mound groups, particularly with respect to their proximity to abundant resources, may have "functioned as multipurpose institutions to coordinate and integrate the social, religious, economic, and political needs of the larger social groups" (Mallam 1976:38).

Additionally, effigy mound groups were frequently constructed in locations that contained earlier Middle Woodland conical mounds. The reuse and transformation of mound group location has been interpreted by some as suggesting that effigy mound builders shared a cultural understanding of these sacred Middle Woodland landscapes (Birmingham and Eisenberg 2000). Both interpretations regarding the placement of mound groups need not be mutually exclusive and likely played a role in the selection of sites for mound construction and associated ceremonialism.

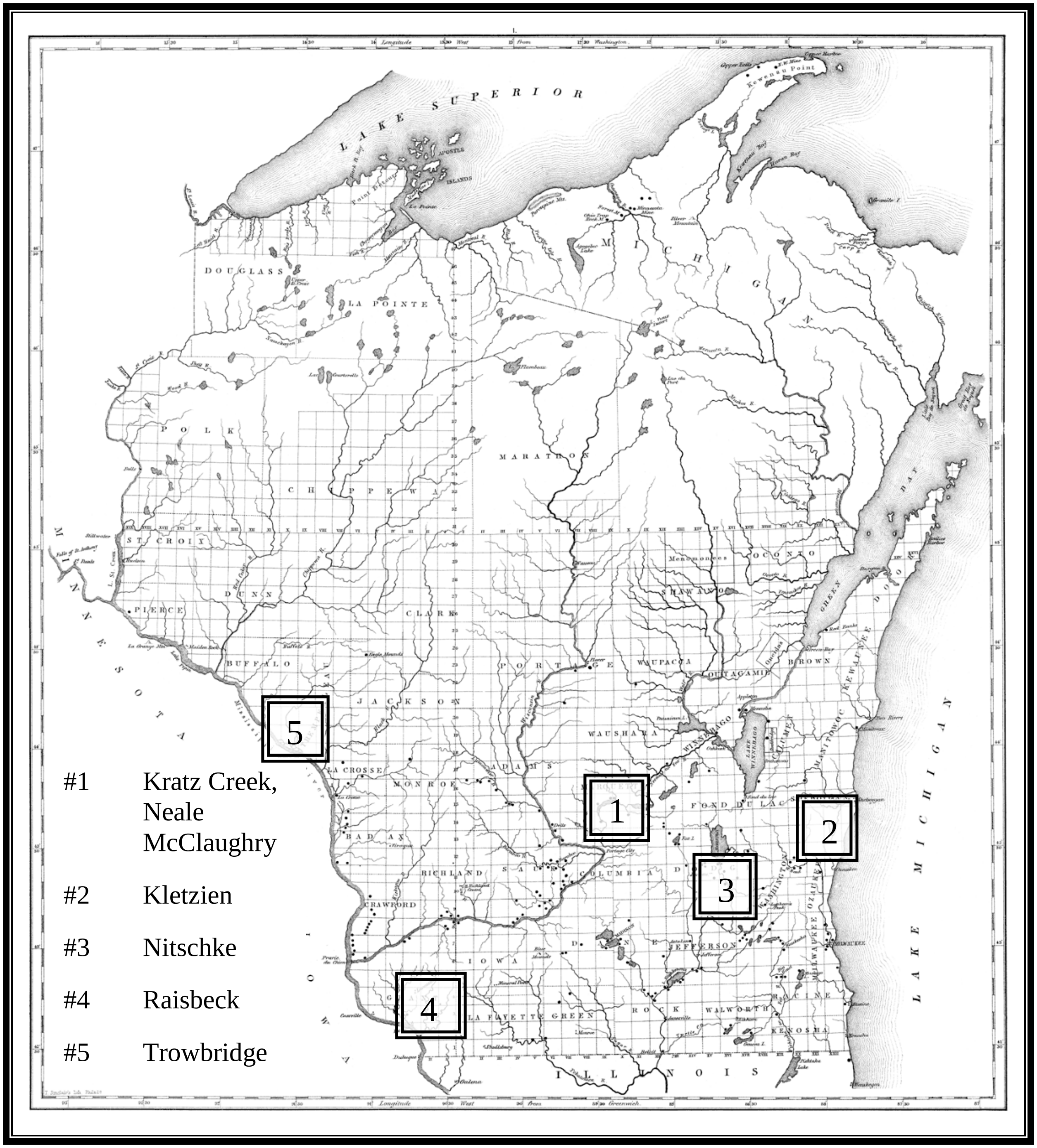

Figure 6.1 Location of Sites Included in this Dissertation Research from Lapham, Increase (1855) *The Antiquities of Wisconsin.* Smithsonian Institution, Washington. Text in the figure, other than the numbers on the map and corresponding site names, is not meant to be readable, but is for visual reference only.

What follows is a detailed description of the mound sites that were included in the analysis. For ease of comparison within and between sites, the various mound features (dimensions, burials, and other internal features) of excavated mounds are presented in tabular form by mound type. Although dimensions were not considered in the final analysis, they were included to illustrate the variety in size of mounds regardless of form across and within mound groups.

Kratz Creek Mound Group

The Kratz Creek Mound Group (Figure 6.2) is located in Marquette County which is in the south central portion of Wisconsin. The site contained 51 mounds: 31 conical, two linear, and 18 effigy forms, including problematic. The mounds are located along Buffalo Lake and are arranged in lines roughly parallel to the lakeshore and across both banks of Kratz Creek. A large portion of the mound group is clustered on a prominent projection east of the creek. During the Late Woodland, the natural habitat of the site was a wetland, rice marsh with a small stream running through the middle (Barrett and Hawkes 1919).

The mound complex was excavated by Samuel A Barrett and his team in 1917. The team excavated thirty-six of the fifty-one mounds and observed a unique pattern of mound construction not seen elsewhere in Wisconsin Effigy Mound sites. The mounds of the Kratz Creek Mound Group are particularly anomalous with regard to their stratified construction of what Barrett and Hawkes (1919) refer to as "sacred earths". Four types of nonlocal soils were incorporated into various strata among various mounds: a fine, light yellow, sandy loam; golden sand; brick red sand; and red clay (Figure 6.3). Some mounds, particularly those "devoted to cremation and burial", also show strata of fire blackened earth, charcoal, and ash, (Barrett and

Hawkes 1919:16). The soil stratification present in mounds appeared to be varied according to the function of the mound. Some mounds contained virtually nothing but a thick fire stratum, which Barrett and Hawkes (1919:17) interpret as crematory mounds.

Additionally, many of the mounds at Kratz Creek Mound Group were constructed using an intaglio base. Barrett and Hawkes (1919:18-19), describe the construction of the intaglio base as follows. The shapes of several mounds, both conical and effigy forms, were constructed first by the excavation of the eventual form of the mound well into the clay subsoil. The intaglio base was then filled in and built upon with various layers of soils and/or fire strata

Human remains appear to be disposed of in the following manners at Kratz Creek: flexed burial in the flesh, bundle reburial, partial cremation, and complete cremation (Barrett and Hawkes 1919: 24-25). Cremation, although rare in most Effigy Mound sites appears to occur in several mounds at Kratz Creek. Barrett and Hawkes (1919:54) cite the many fire strata in mounds, crematory offers with nonhuman remains, and the two large crematory conical mounds with cremated human bones as their main evidence that fire and cremation were important ceremonial procedures that attended the construction of mounds as well as the disposition of the dead contained in them (Barrett and Hawkes 1919).

There are several interesting aspects of the Kratz Creek burial data, particularly those associated with Mound 1 (Table 6.1). Mound #1 was a very large conical mound (70 foot diameter and 4.5 feet height) and includes the largest example of a mass burial in the Effigy

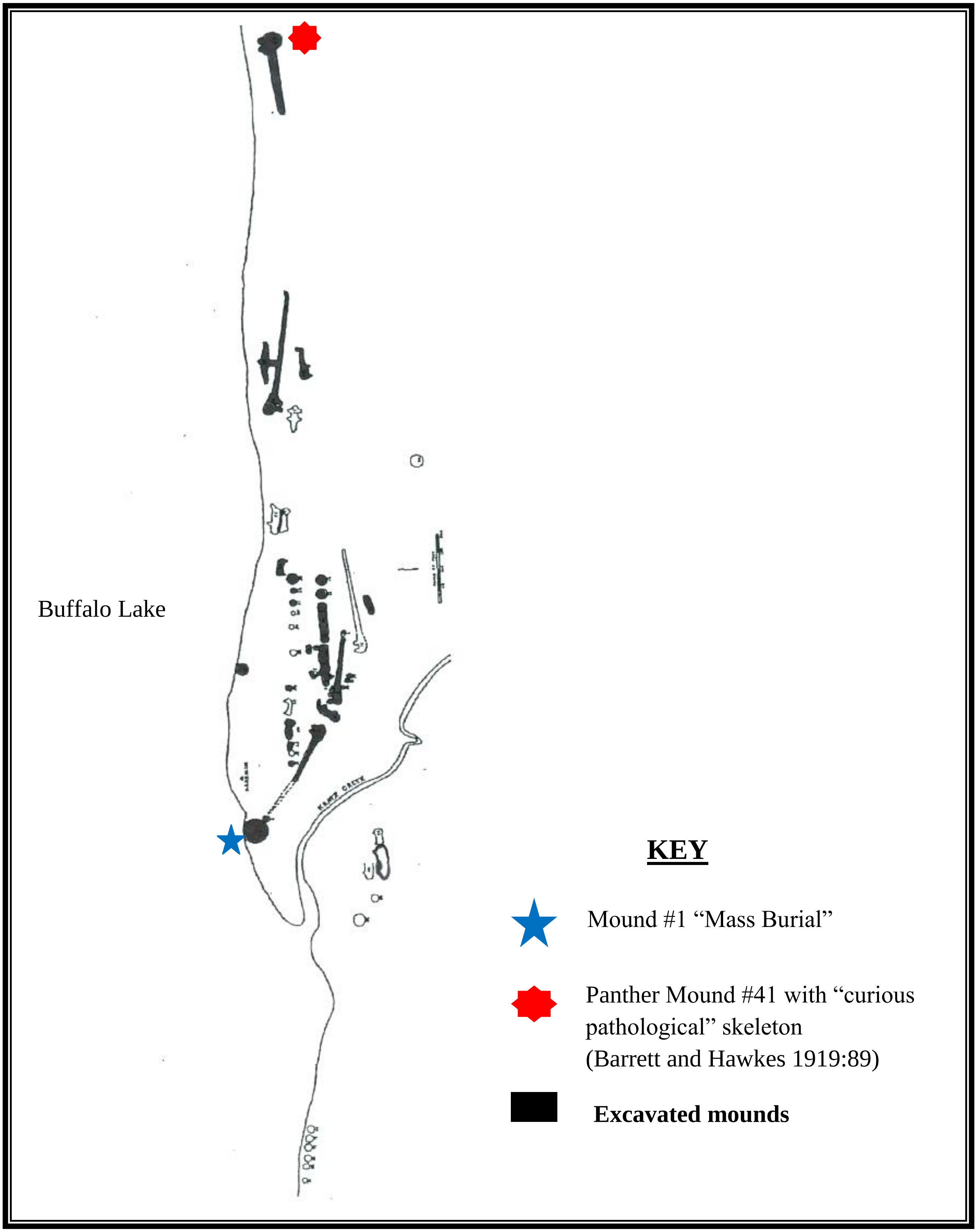

Figure 6.2 Excavated Mounds at Kratz Creek Mound Group (Barrett and Hawkes 1919)
Text in the figure other than the key is not meant to be readable, but is for visual reference only.

Mound material under study. According to Barrett and Hawkes (1919), the mound contained 45 bundle reburials with each bundle consisting of two to four individuals. This is the largest number of individuals within one mound at any of the mound sites under study. It also contained human remains that according to Barrett and Hawkes (1919:41) description appear to have been burned in situ. As can be seen (Figure 6.3), the mound also exhibited elaborate stratigraphy consisting of local and "sacred earths" interspersed with fire strata. The other nine mounds that contained skeletal material contained on average three or less individuals, with most averaging one burial per mound.

Table 6.1 Conical Mound No.1 at Kratz Creek Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
1	conical	70'diameter Height = 4.5	Large mass of bundle reburials on floor of intaglio; each bundle reburial contained 2-4 individuals Cremations on altars 3 flexed burials #1 located in deepest yellow stratum above bundle reburials #2 in deepest yellow stratum east of bundle reburials #3 intrusive burial in the flesh located above the strata of colored soils	111	stratified soils (see Fig. 4.7) 3 earthen fireplaces (altars) 7 altars described as: 4 repository altars – collections of stones (#1-3 no evidence of buring; #4 signs of burning) crematory altar with cremated human remains shell altar /evidence of fire and human jaw (no burning)

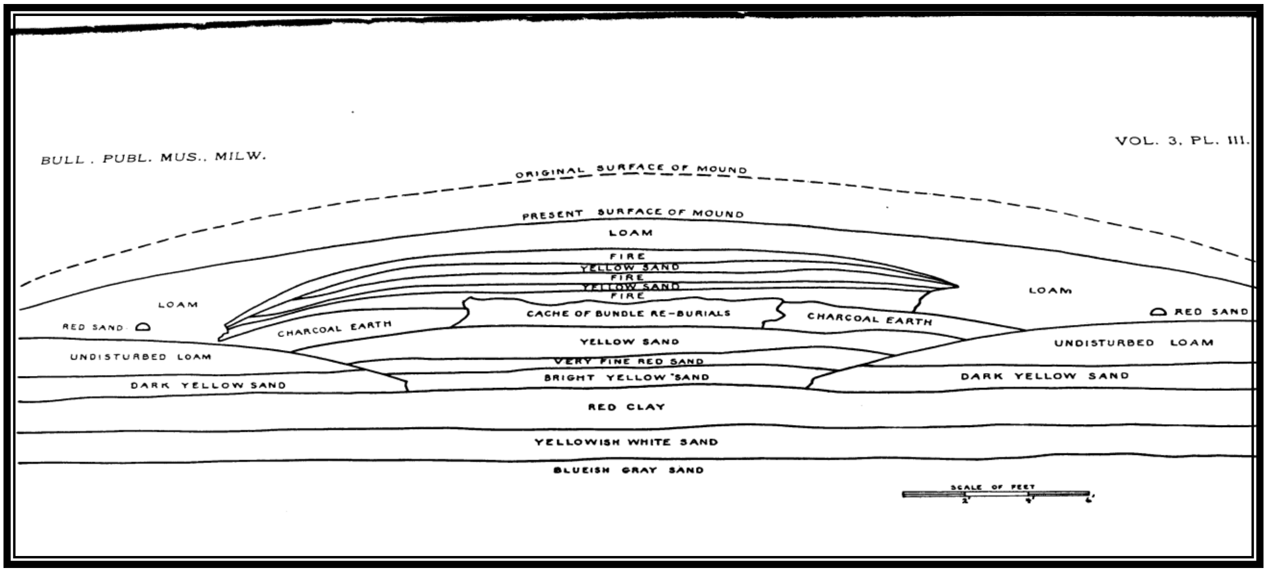

Figure 6.3 Stratification of "sacred earths" in Kratz Creek Mound #1 (Barrett and Hawkes 1919) Text in the figure is not meant to be readable, but is for visual reference only.

Unfortunately the skeletal material housed at the MPM does not show record of the mound the material came from. Based on the catalog entries and comparison of the published report it is believed that the vast majority of the skeletal material examined at the MPM was from Mound #1. Analyses of the remaining materials from Kratz Creek were dependent on descriptions in the Barrett and Hawkes (1919) account and photographs.

The completeness of mound descriptions provided by Barrett and Hawkes (1919) for the mounds excavated at Kratz Creek were not equal. Several were missing complete dimensional data (Mound 25, bear) or had been so severely damaged through plowing that although report data exists the quality of the information is not sufficient for this analysis. Mound #18, a probable panther effigy mound, had been built upon by the landowners. Although the landowners reported removing a skeleton when the cellar was dug, no verification or burial data could be obtained. Mounds #10 and 11, both rectangular (short linear) mounds were eliminated because there was no data regarding dimensions other than height and Mound #11 had been plowed. According to Barrett and Hawkes (1919), they both showed simple stratification of only two or three strata like the larger linear (Table 6.2).

The features of the mounds of the Kratz Creek Mound Group are summarized as follows. Conical mounds (Table 6.3, other than Mound #1 (Table 6.1) contain few burials. The one biconical mound (Table 6.4) appeared to contain a burial, although preservation was very poor, and soil stratification.

Most panther mounds (Table 6.5) appear to contain burials. This includes mound #40 which is listed as problematic (Table 6.7) by Barrett and Hawkes (1919) but is likely a panther mound. Particularly interesting is panther Mound #41 which seems isolated from the rest of the group and according to Barrett and Hawkes (1919:89) contained the burial of a deformed individual. Unfortunately, the remains of this individual were not observed at the MPM.

Bear mounds (Table 6.6) did not contain human burials but did each contain several fireplace altars and "sacred earth" stratification. Problematic effigy forms (Table 6.7) exhibited significant variety in their inclusions. Mounds #8, rabbit-like form, and Mound #40 (probable panther) contained burials, fire strata, and soil stratification. While the other two problematic forms exhibited simple stratification only. The one bird mound, Mound #39 (Table 6.8) did not contain human burials or other internal features except for a simple soil stratification.

Table 6.2 Linear Mound at Kratz Creek Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
19	linear	length = 60' width = 20' height = 1.8	none	0	simple stratification

* denotes “Report Only” data

Table 6.3 Conical Mounds at Kratz Creek Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI.	Other Internal Features
2	conical	17' diam. Ht = 1.'	none	0	none
6	conical	14' diam. Ht = 1.1'	none	0	soil stratification
7	conical	?' diam. Ht = 1.8'	none	0	conglomerate mass of animal bone and charcoal
8	conical	17' diam. Ht = 1.7'	bundle reburial in subfloor pit	1*	soil stratification, fireplace filled w/ shells; large pot at feet of remains
13	conical	30’ diam. Ht = 3.6'	disturbed		soil stratification & burned animal remains
14	conical	33' diam. Ht = 3.5	disturbed		soil stratification & burned animal remains
15	conical	12' diam. Ht = 0.36'	none	0	simple stratification
16	conical	14' diam. Ht = 0.94'	none	0	simple stratification
17	conical	17' diam. Ht = 1.14'	none	0	simple stratification
21	conical	18' diam. Ht = >0.5'	none	0	simple stratification
26	conical	15' diam. Ht = 1.17'	none	0	simple stratification
27	conical	36' diam. Ht = 3.5'	possible cremation	0	fire stratum 4' thick; crematory altar
31	conical	18' diam. Ht = 1.1'	none	0	animal remains in mass of charcoal
32	conical	18' diam. Ht = 1.3'	none	0	stone fireplace altar; simple stratification
33	conical	30' diam. Ht = 3.6'	possible cremation	0	crematory altar; thick fire strata

* denotes “Report Only” data

Table 6.3 (cont'd)

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
50	conical	22' diam. Ht = 2.48'	? disposition, poor preservation child	1*	simple stratification, large pot at head of child; stone altar; projectile points placed on altar
51	conical	15' diam. Ht = 0.95'	none	0	disturbed

* denotes "Report Only" data

Table 6.4 Biconical Mound at Kratz Creek Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
12	conical-ended linear (biconical)	East conical 25' diam. West conical 28' diam. Ht=2'	disturbed burial	0	soil stratification, altar

Table 6.5 Panther Mounds at Kratz Creek Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
3	panther	Length = 315' Width = 25' Height = 3.04'	3 burials in shoulder: #1 flexed flesh #2 secondary bundle reburial #3 secondary flexed flesh	1* 1* 1*	intaglio base, soil stratification; crematory altar with human bone; 2 red pottery vessels; circle of 8 small fire altars
5	panther	Length = 197' Width = 20' Height = 3.48'	burial pit, 2 fleshed infants in each others' arms	2*	simple stratification
38	panther	Length = 372' Width = 25' Height = 2.66'	no burial	0	soil and fire stratification; shell altar
41	panther	Length = 167' Width = 35' Height = 2.6'	burial of abnormal indv.; infant/child with abnormal large head	1*	no soil stratification but evidence of fire over surface

* denotes "Report Only" data

Table 6.6 Bear Mounds at Kratz Creek Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
4	bear	Length = 70' Width = 20' Height = 2.0'	none	0	3 fireplaces; soil stratification
34	bear	Length = 52' Width = 19' Height = 1.4	none	0	2 lg. fireplaces, shoulder and hip; 3 smaller fireplaces along body; soil stratification

Table 6.7 Problematic Mounds at Kratz Creek Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
9	problematic/ rabbit	Length = 108' Width = 25' Height = 2.24'	burial of partial cremation in hip region of effigy; cremation at shoulder region of effigy	1*	fireplaces & fire circle at burials, soil stratification assoc. with cremains; intaglio base; conical built w/in mound in area of burials w/ different stratification than rest of mound
23	problematic/ arrowhead	Height = 0.5'	none	0	simple stratification
24	problematic	Length = 58' Width = 20' Height = 0.9'	none	0	simple stratification
40	problematic/ panther	Length = 57' Width = 22' Height = 2.66'	burial in head region;? disposition poor preservation	0	soil and fire stratification

* denotes "Report Only" data

6.8 Bird Mound at Kratz Creek

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
39	bird	Length = 127' wing to wing Width = 52' head to tail Height = 1.5	none	0	simple stratification

McClaughry Mound Group

The McClaughry Mound Group was also located in Marquette County (Figure.6.1) and was situated on the shores of Buffalo Lake. The mound group is dominated by geometric forms, particularly conical mounds. The group was divided into two separate sites, Site I and Site II which were excavated by McKern (1928). Site I (Figure 6.4) consisted of 55 geometric and five effigy mounds, of which thirty-six were excavated. The mounds were grouped compactly in a flat area bordering the lake. Site II consists of twenty-two conical mound forms, only three of which were excavated. These mounds were situated on semi-marshy land. Due to the poor preservation of skeletal material at Site II which inhibited positive identification of burials in situ and the absence of remains from this site at the MPM, Site II was eliminated from analysis.

According to McKern (1928), the conical mounds at McClaughry produced 46 burials which represented 62 individuals. The effigy mounds, with the exception of Mound #49, a fish mound containing 10 individuals, generally contained between one and three burials, while the geometric forms contained between one and six individuals. A notable exception is Mound 28.

Mound #28 (Table 6.9) was an egg-shaped mound that contained 21 individuals. As can be seen in Figure 6.4, Mound 28 appears to be significantly larger than the other conical and oval mounds and fairly isolated from the main mound group.

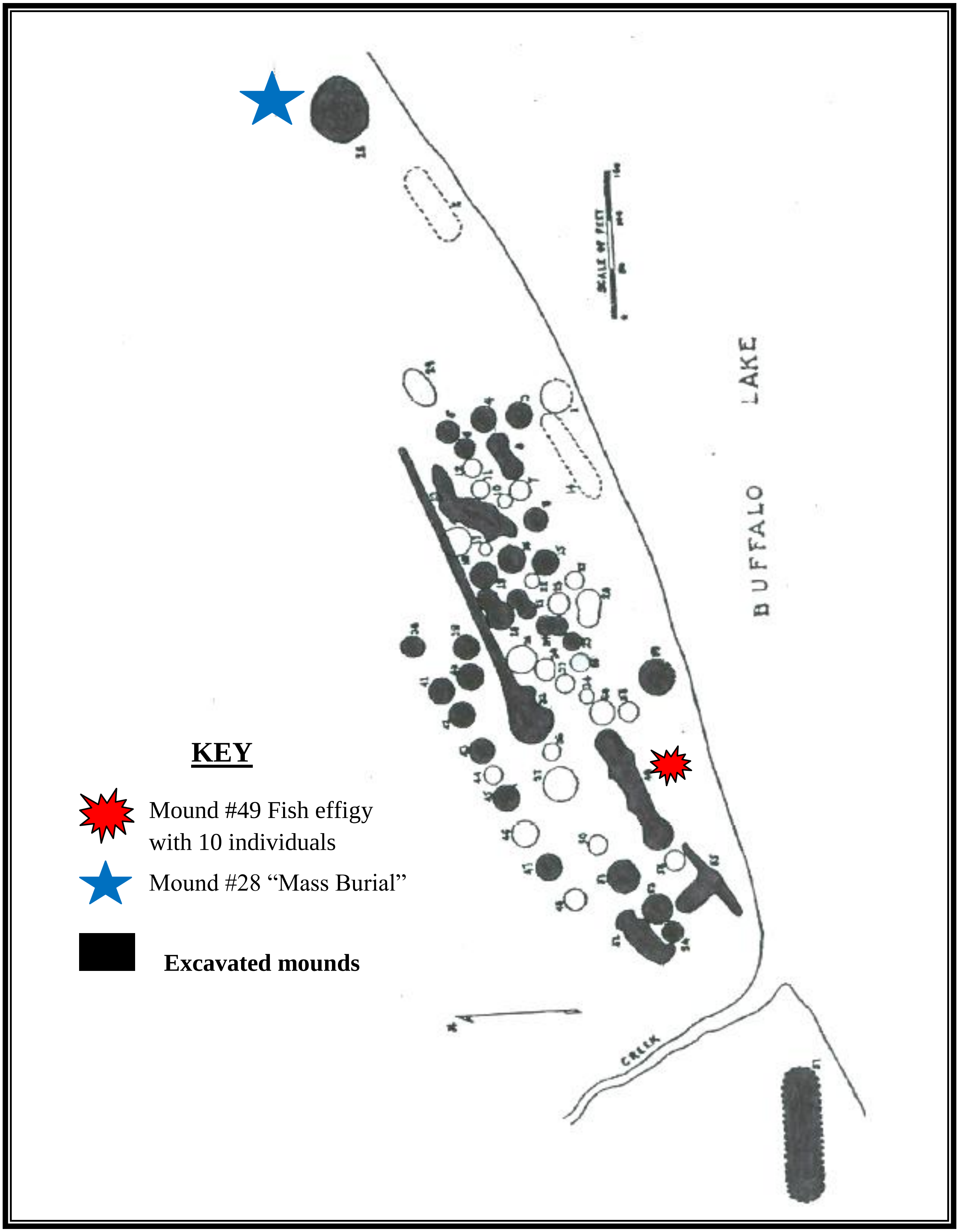

Figure 6.4 McClaughry Mound Group (McKern 1928) Text in the figure other than the key is not meant to be readable, but is for visual reference only.

The majority of burials in the McClaughry group were disposed as primary flexed or secondary bundle reburials. A compound flexed adult with a secondary bundle reburial of a child placed at the feet was recovered in Mound #53. McKern (1928: 256) also noted the presence of two "partial burials in the flesh" in a problematical effigy mound (Mound #13) and a conical mound (#47). These partial burials consisted of the bones of a single, articulated leg. Flexed burials exhibited no apparent orientation preferences. There was also no consistency regarding the depth of burials. Most were placed on the mound floor or in subfloor pits. A few burials were located in the mound fill (McKern 1928).

There were two forms of bundle reburial observed at the McClaughry Mound Group. McKern (1928) noted six instances of a peculiar type of bundle reburial that involved human bones imbedded within a matrix of small, charred fragments of animal, bird, and fish bones and scales in a large cohesive mass. The human bones exhibited no signs of burning. Other similar masses, minus human remains, have been described as food altars. Other simpler bundle reburials, consisted of a single bundle of leg and arm bones, disposed closely parallel to each other and independent of other skeletal material.

There were several instances of grave goods reported at the McClaughry Mound Group. A few items appear to be decorative in nature. For example, a smooth red sandstone object with incisions was associated with the skull of a flexed burial in Mound 49. However, most appear to be utilitarian objects.

Table 6.9 Mound 28 at McClaughry Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
28	egg-shaped	68'x57' Ht = 5.34'	3 burial strata: #1 (a)flexed flesh, (b) disassoc.skull parts child, (c) disturbed flexed flesh #2 deep to #1, (a) flex flesh, arm & leg bones (b) flex flesh, scattered arm & leg bones (c) flex flesh, arm & leg bones (d) bundle reburial, (e) bundle reburial, (f) bundle reburial, arm & leg bones (g) fragmentary child crania #3 subfloor pit, lg. bundle reburial	27 total 3 13 11	Two chipped chert points, 14 potsherds in mound fill Float copper assoc. with skull in bundle reburial (d), vertebrae and bones of small animal mixed in bundle reburial (f) Facial portion of dog skull included with human bones

Virtually all of the mounds of the McClaughry Mound Group contain burials regardless of form. As previously mentioned, the site is clearly dominated, however, by geometric mound forms (Figure 6.4). Conical forms are clearly the most numerous (Table 6.11) at the site. With the exception of four mounds, every excavated conical contained at least one individual. More than half of those contained more than one individual. Twenty-one of the 26 conical mounds contained burials (Table 6.11). Two of the four biconical mounds (Table 6.13) contained burials and another burial was located in an oblong (Table 6.12) mound. The other internal features were extremely varied between mounds exhibiting a wide variety of altars, cists, and grave goods.

Four of the five effigy mounds excavated contained burials (Table 6.10). The exception was Mound #52, a bear form. The other internal features observed in effigy mounds also exhibited a fair degree of variety. Three contained altars and two contained clay and pebble cists

Table 6.10 Effigy Mounds at McClaughry Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
13	problem	Length= 101' Width = 34' Height = 2.35'	#1 single bone in mound fill #2 subfloor pit with fragment of long bone #3 in mound fill, partial in flesh leg	3*	3 stone altars, fireplace, and 3 deposits of potsherds in center of body; chipped chert point loose in fill non local red sand circle under burial #3,
32	panther	Length = 575' Width = 45' Height = 3.06'	#1 flexed flesh on mound floor in gut region #2 flexed flesh in subfloor pit rear hip region	2*	Stone altar, earthen altar, 2 chipped chert points, 7 potsherds in fill
49	fish	Length =140' Width = 38' Height = 2.92'	#1 flexed flesh btwn. on mound floor, btwn fins #2 on floor head, bundle reburial #3 subfloor pit head, skull parts #4 in tail, skull & long bone	2 2* 3* 3*	Fine red sandstone with incising assoc. w/ #1 Point of copper awl among bones #2 Lg, flatly rounded limestone w/water worn surface surrounded by small stones; clay & pebble cist
52	bear	Length =72' Width = 33' Height = 2.5'	No burials	0	3 stone altars on mound floor; #1 head, #2 heart, and #3 gut
55	bird	Length =98' Width = 20' Height = 3'	Bundle reburial above floor in fill	1*	Clay and pebble cist, empty pit

* denotes "Report Only" data

Table 6.11 Conical Mounds at McClaughry Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
3	conical	29'x27' Ht = 1.91'	#1 bundle reburial in subfloor pit in conglomerate mass #2 bundle reburial in mound fill	4* 1	canine skull, fire altar, potsherds of at least two separate pots, broken chipped arrowpoint
4	conical	28'x26' Ht = 2.42'	bundle reburial on floor in conglomerate mass	8	beaver teeth, deer antler, & bony plats from fish heads in mass; fire altar, broken pottery vessel, empty pit
5	conical	32'x33' Ht = 2.95'	#1 bundle reburial of scattered clusters of bones in fill #2 bundle reburial in fill	2* 1	2 clay and pebble cists
6	conical	26'x25' Ht = 1.25'	bundle reburial	1*	
9	conical	37'x27' Ht = 2.41	bundle reburial in subfloor pit in conglomerate mass	3	single potsherd and a chipped quartzite point in fill
11	conical	24' diameter Ht = 2.22'	bundle reburial on mound floor	4	empty pit, 3 chipped chert points, 2 potsherds in fill
15	conical	36'x31' Ht = 3'	#1 bundle reburial in fill #2 bundle reburial in subfloor pit	2*	fireplace, two chipped chert arrowpoints, 11 potsherds in fill
16	conical	30'x29' Ht = 1.84'	none	0	two pottery pipes, larger broken in pieces, smaller intact; 2 chipped quartzite arrowpoints, 42 potsherds loose in fill

* denotes "Report Only" data

Table 6.11 (cont'd)

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
19	conical	32'x29' Ht = 3.05	bundle reburial above mound floor in conglomerate mass	1*	empty pit below burial, 1 chipped chert point, & 2 potsherds in fill
23	conical	29'x27' Ht = 2.57'	bundle reburial arm & leg bones; single broken humerus separate from other bones	1*	chipped chert point & 10 potsherds loose in fill
25	conical	23'x22' Ht = 1.86'	flexed burial on mound floor	1	2 altars
37	conical	40'x38' Ht = 3.26'	flexed flesh in subfloor pit in	1*	single potsherd and a chipped quartzite point in fill
38	conical	24'x22' Ht = 1.76'	bundle reburial on mound floor in conglomerate mass	1	none
39	conical	28'x27' Ht = 2.28"	disturbed burial insubfloor pit	1*	intrusive
40	conical	28'x27' Ht = 2.16'	#1 teeth in subfloor pit #2 bundle reburial in oval subfloor pit	2*	none
41	conical	23'x21' Ht = 1.89	bundle reburial in oval subfloor pit	4	6 potsherds in fill
42	conical	26x23' Ht = 2.09'	No burial	0	cluster of potsherds from # vessels on mound floor
43	conical	27'x24'	No burial	0	2 potsherds in fill
45	conical	30'x29' Ht = 2.91'	Bundle reburial on floor	2	2 clay & pebble cists, stone altar w/lg potsherd in place of stone
46	conical	28'x26' Ht = 2.27'	Bundle reburial in oval subfloor pit	7	Chipped chert point and 1 potsherd in fill

* denotes "Report Only" data

Table 6.11 (cont'd)

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
47	conical	27'x26' Ht = 1.31'	Partial burial in flesh of part of pelvis and one leg	1*	2 clay and pebble cists
53	conical	31' diameter Ht = 1.6'	Compound burial in oval subfloor pit, #1 flex in flesh female #2 Bundle reburial at feet	2	2 arrow points, one each almost in contact with frontal bone of each skull
54	conical	23' diameter Ht = 1.2'	No burial	0	Earthen altar
59	conical	41' diameter Ht = 1.5'	? disposition in oval subfloor pit	1*	Earthen altar

* denotes "Report Only" data

Table 6.12 Oval Mound at McClaughry Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
51	oval	43'x31' Ht = 3'	#1 bundle reburial #2 bundle reburial	4	Clay & pebble cist above Burial #1 Pottery pipe broken assoc. with Burial #2 Clay & pebble cist above Burial #2

Table 6.13 Biconical Mounds at McClaughry Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
8	biconical	Length=56’ Width = 26' Height = 2.65	#1 flexed subfloor pit #2 bundle reburial on mound floor #3 bundle reburial in subfloor pit #4 disturbed, ? disp. subfloor pit	1 2 2 1*	2 stone altars; 2 collection of potsherds, collection #1 contained 30 potsherds, #2 contained 25 potsherds
20	biconical	Length=50’ Width= 30' Height = 2.65	none	0	no features except 2 potsherds loose in fill
21	biconical	Length=33’ Width= 24' Height= 1.99	none	0	3 potsherds of a pot rim, 3 chipped stone artifacts, 1 chipped chert point & 40 potsherds loose in fill
24	biconical	Length=36’ Width= 23' Height= 1.95	bundle reburial in conglomerate mass subfloor pit	1 child	irreg. plat of small stones in bowl-shaped pit

* denotes “Report Only” data

Table 6.14 Linear Mound at McClaughry Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
57	linear	Length 145’ Width = 42’ Height = 1.7’	#1 bundle reburial on mound floor #2 flexed flesh on floor	2 2	Dog skull floor, earthen altar, plat red clay, cluster sherds above empty pit, cluster of sherds on floor, 2 granite stones, 6 flat pieces burnt limestone, 2nd empty pit, stone altar; pottery in shape of bones

Neale Mound Group

The Neale Mound Group (Fig. 6.5) is also located in Marquette County within the Buffalo Lake region. The group consisted of 88 mounds: 47 conical, 28 effigy, and 13 indeterminate (McKern 1928:229). The mound group extended along the lakeshore for roughly two miles and was situated between the lake and steep hills. The eastern portion is situated on a "gentle sloping shelf of low elevation" which eventually rises to meet the higher rolling contour of the western portion (McKern 1928:231). Interestingly, as the physiography changes so do the proportion of mound types. As can be seen in Figure 6.5, conical and oval mound forms appear to cluster in the western portion of the mound group while effigy forms predominate the eastern half of the mound group.

Twenty-four (15 effigy and nine conical mound forms) of the 88 mounds were excavated. As can be seen from Tables 6.15 through 6.19, the Neale Mound Group exhibited considerable variety in the shape and size of both conical and effigy mound forms. Additionally, the internal features appeared to show considerable variation. McKern (1928) noted one generality that can be made regarding the conical and effigy mound forms of the group; conical mounds were constructed of considerably darker, almost blackish, soil compared to the effigy mounds (McKern 1928:295).

What is striking about the Neale mound group is that human burials were not encountered in 14 of the 24 mounds excavated. All of the conical mounds (Table 6.19), with the exception of Mound #64 completely lacked human burials. The burial within Mound #64 was a disturbed burial and may have been intrusive.

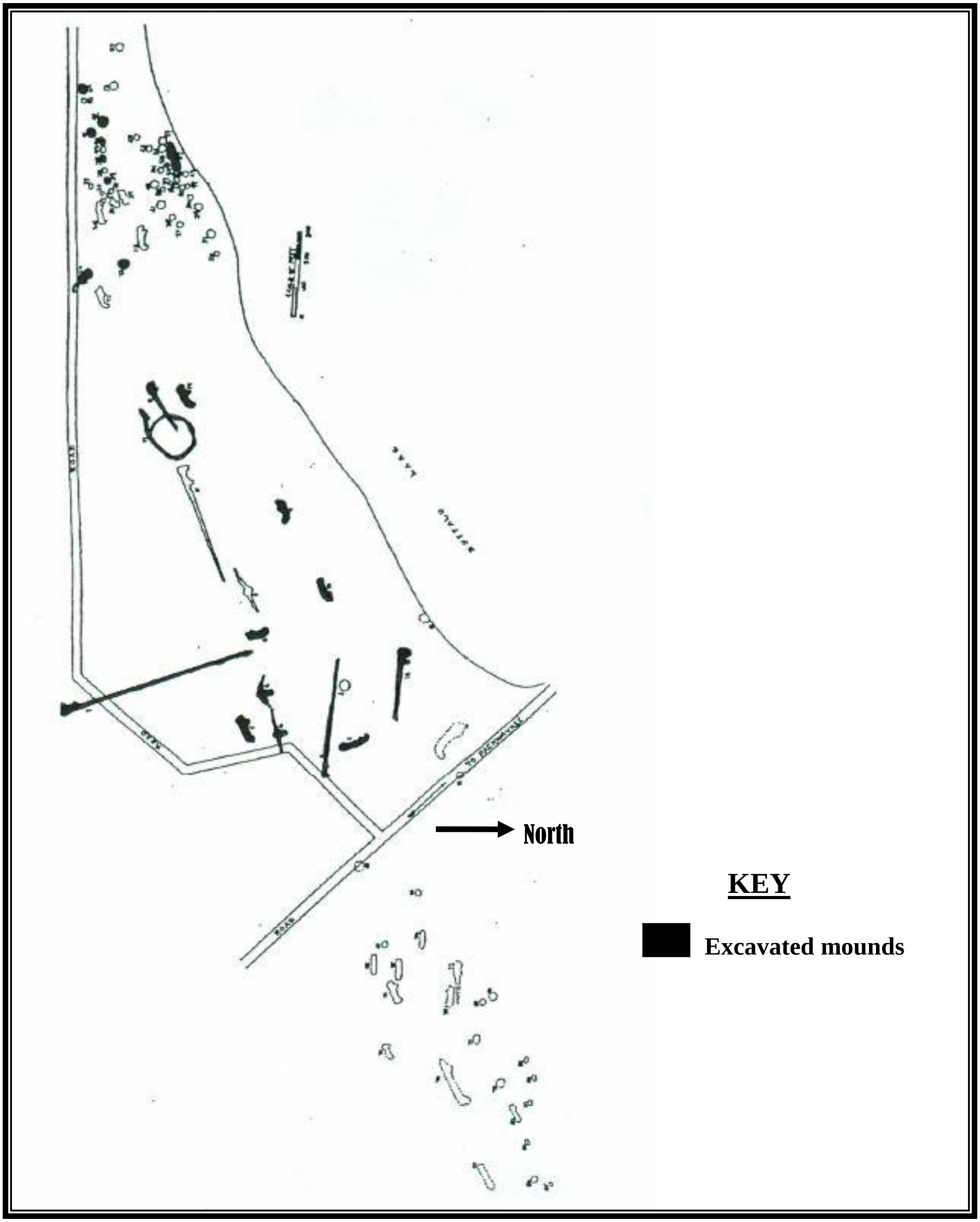

Figure 6.5 Neale Mound Group (McKern 1928) Text in the figure is not meant to be readable, but is for visual reference only.

Human burials were the most characteristic feature of effigy mound forms, however. Nine burials were recovered from eight of the fifteen effigy mounds excavated. Each mound contained just one burial with the exception of Mound #6, a bird form, where two individuals were buried. Two other effigy mounds contained pits that may have burials but the remains were in too poor a state to confirm suggesting that perhaps 10 of 15 excavated effigy mounds contained burials.

The burials interred within effigy mounds at Neale (Tables 6.15, 6.16. 6.17. and 6.18) were generally placed in circular or oval subfloor pits below the mound floor with the mound built over it. The burials were located in one of two positions in the mound, in the heart region or the midpoint between the appendages of the effigy. Bodies were disposed in either secondary bundle reburials or as primary flexed interments. The bundle reburials were described by McKern (1928:249) as "long bones were closely packed parallel to each other and the other bones included in intervals between or collected about these." Those interred as primary flexed burials exhibited no consistency with regard to orientation within the mounds. Unfortunately, bone preservation was very poor at the Neal site and very few of the human skeletal remains described in the report survived excavation.

There were virtually no grave goods associated with any of the burials in the Neale Mound Group with the exception of Mound #1, a beaver mound. A lump of chalky material, believed to be the remains of a large shell or shell ornament was observed between body and knees of a flexed body (McKern 1928). In addition to altars, cists, and pottery, several mound associated artifacts were also recovered. These included: an oblong piece of slate with serrated edges, two serrated scrapers, and a cache of oval plaques of sandstone.

Table 6.15 Bird Mounds at Neale Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
4	bird	Length = 190' (wing to wing) Width = 50' (head to tail) Height = 1.3'	In subfloor pit in heart region, poor pres. ? disposition	1*	Earthen fireplace in body possible wooden pole burned in prone position
6	bird	Length = 121' (wing to wing) Width = 63' (head to tail) Height = 2.47	#1 bundle reburial in subfloor pit in heart area #2 intrusive, flexed flesh in left wing	1*	Empty pit

* denotes "Report Only" data

Table 6.16 Panther Mounds at Neale Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
2	panther	Length = 436' Width = 25' Height = ?	unknown	0	2 empty burial pits #1 rear shoulder #2 mid-body
7	panther	Length = 575' Width = 45' Height = 3.06'	Flexed flesh in subfloor pit in heart	1	3 cists center of mound
12	panther	Length = 228' Width = 42' Height = 2.6	none	0	None except for accidentally included pot sherds
18	panther	Length = 187' Width = 30' Height = 2.34'	none	0	none

* denotes "Report Only" data

Table 6.17 Other Effigy Mounds at Neale Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
1	beaver	Length = 114' Width = 29' Height = 1.78'	Flexed in subfloor pit located in heart	1 Poor pres.	2 empty burial pits lg.shell placed between body and knees of burial
17	problemat	Length = 230' Width = 18' Height = 1.33'	none	0	No internal features
20	problemat	Length = 78' Width = 32' Height = 1.82'	none	0	No internal features
47	mocassin	Length = 97' Width = 32' Height = 2.22'	Circular subfloor pit; poor pres ? disposition	1*	2 stone altars in heel; 1 cist in heel

* denotes "Report Only" data

Table 6.18 Bear Mounds at Neale Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
5	bear	Length = 90’ Width = 29’ Height = 2.4’	subfloor pit in center of body, poor pres. ? disposition	1*	none
8	bear	Length = 82’ Width = 32’ Height = 2.7’	none	0	Cache of 6 stones (net sinker type)
10	bear	Length = 88’ Width = 26.5’ Height = 2.06	circular subfloor pit in center of body; poor pres. ? disposition	?	Circular area 3’ in diameter of treated soil in heart region
11	bear	Length = 69' Width = 26.5’ Height = 1.37’	Oval subfloor pit in shoulder; flexed flesh	1	1. scattered limestone w/burial 2. two earthen firelplaces, #1 in head, #2 in center of body 3. pot sherds in small fire blackened area
19	bear	Length = 89’ Width = 34’ Height = 2.05’	Oval subfloor pit in shoulder; flexed flesh	2	2 fire altars - both center of bod; 2 clay and pebble cists - #1 in head, #2 shoulder

* denotes “Report Only” data

Table 6.19 Conical and Oval Mounds at Neale Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
3	conical	35'x38' Height = 4'	none	0	None
22	oval	37'x30' Height = 2.1'	none	0	Flat oblong serrated piece of slate
34	conical	22'x18 ' Height = 1.37'	none	0	Cist center of mound below mound floor
39	conical	24'x19' Height = 1.25'	none	0	2 cists center of mound
40	conical	18' diameter Height = 1.18'	none	0	3 cists clustered near southeastern edge of mound
41	conical	25' diameter Height = 1.54'	none	0	3 cists center of mound
42	conical	43' diameter Height = 2.37'	none	1*	Stone altar center, earthen fireplace southeast margin; cluster six flat stones and 2 cists (See Fig.4.4)
50	conical	21' diameter Height = 1.6'	none	0	Stone altar center, rectangular sandstone slab on earthen fireplace; cist at center; 2 stone artifacts - flat stone with serrated edge made of (1. Pink granite 2. Greenstone)
64	Conical/ oval	27'x23' Height = 1.28'	Disturbed burial flexed in flesh in sublfloor pit	1	none

* denotes "Report Only" data

Kletzien Mound Group

The Kletzien Mound Group is located in Sheboygan County (Figure 6.1) and was excavated by McKern in 1927. It consists of a group of 33 mounds (22 effigy, five short linear, two oval, and four conical mounds) and one panther intaglio. As can been seen in Figure 6.6, effigy mound forms predominate in this mound group and include seven deer, six panther, and nine problematic effigy forms. The mounds are situated along the north side of a stream on a high bank. The mounds generally follow the orientation of the stream such that most of the linears, ovals, and effigies parallel the stream. A major exception is Mound #34 (not pictured). Conical mound #34 is located on the opposite side of the creek approximately 175 yards south of the main group (McKern 1930:427).

The various mound forms in the Kletzien group tend to cluster (Fig. 6.6). Deer effigies with one exception tend to be closely associated with the northwest end of the group. Conical and oval forms tend to be aligned at the center of the mound group. Two panther mound appear to be closely associated in the southeast end, while the other two appear to similarly associated in the northwest end.

Four of the excavated mounds (Deer #6, Panther #7, Linear #8, and Oval #25) at Kletzien have what McKern described as “basal stratification.” According to McKern (1927:442) the mound floor was cleared of all surface soils and covered with a several inches of gray-white sand of local origin. The sand appeared to have been deposited while wet. The layer was then covered with a layer of flammable material which was burnt to produce a black, charcoal impregnated layer several inches thick.

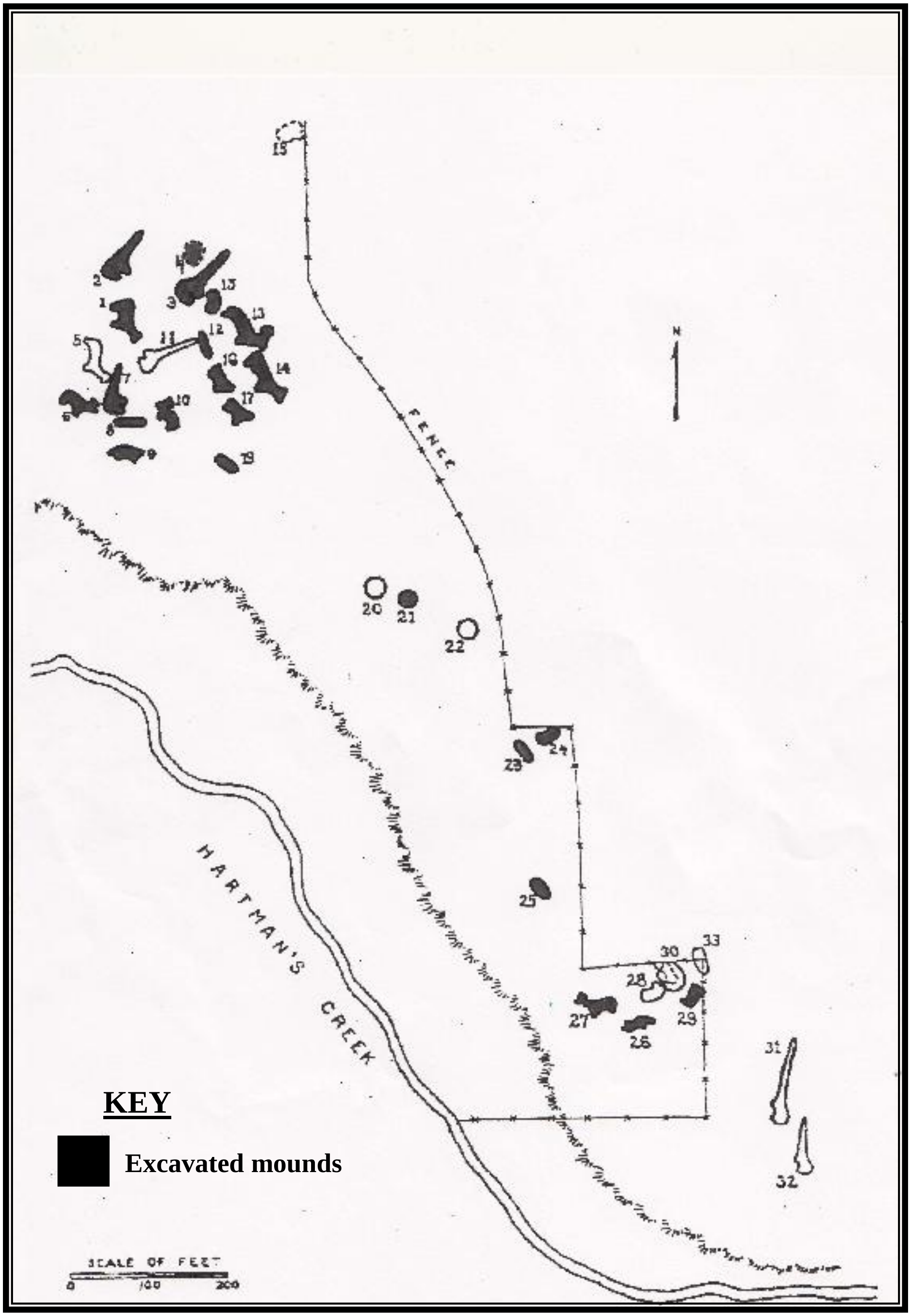

Figure 6.6 Kletzien Mound Group (McKern 1930) Text in the figure, other than the key, is not meant to be readable, but is for visual reference only.

Burials within the Kletzien mounds were either flexed in the flesh or secondary bundle reburials. Both forms of body disposition did not appear to exhibit any consistency with regard to orientation or patterning within the mound. Virtually all the burials at the site occur as single interments. A few exceptions include: panther mound (Mound #2) which contained two separate flexed flesh burials, Mound #19, an oval contained three individuals, and a deer mound (Mound #27) that contained two individuals. Unfortunately, much of the skeletal remains at the site were poorly preserved. In addition, mounds #9, 15-18, and 24 were excluded from the analysis due to either extensive erosion or disturbance by amateur excavations resulting in obscuring of the effigy form or severe disruption of burial contents.

Grave goods, including potsherds were rarely encountered at the Kletzien Mound Group. It should be noted, however, that many of the mounds in the group appear to have been disturbed by amateur excavations.

As noted previously, effigy mound forms dominate the Kletzien Mound Group. Of the effigy forms, deer mounds predominate (Table 6.25). Burials were observed in half of the deer mounds excavated at the site. Panther forms (Table 6.23) are also quite numerous at the site. Two of the three panther mounds exhibited burials. All the conical and oval mounds excavated (Tables 6.20 and 6.21) show evidence of human interments. Linear mound forms (Table 6.22), on the other hand, rarely include human burials. There appears to be no consistency in the other internal features of any of the mounds (Tables 6.20-6.25) in the Kletzien Mound Group.

Table 6.20 Conical Mounds at Kletzien Mound Group

Mound #	Form	Dimensions	Body Disposition	MNI	Internal Features
21	conical	24’ diameter Height= 2.4’	Disturbed burial evidenced by scattered human bones	1*	Disturbed, none
34	conical	30’ diameter Height = 3.5’	Disturbed burial, flex. flesh	1	Disturbed, none

* denotes “Report Only” data

Table 6.21 Oval Mounds at Kletzien Mound Group

Mound #	Form	Dimensions	Body Disposition	MNI	Internal Features
4	Probable oval	32’x21’ Height= ? badly eroded	Disturbed burial evidenced by scattered human bones	1	Earthen altar
19	oval	28’x14’ Height = 1.1’	flexed flesh in oval subfloor pit	3	none
25	oval	29'x17' Height = 2.7'	disturbed burial	?	

Table 6.22 Linear Mounds at Kletzien Mound Group

Mound #	Form	Dimensions	Body Disposition	MNI	Internal Features
8	linear	Length = 38’ Width = 14’ Height = 1.7’	Bundle reburial on mound floor in center position	1	Basal stratification Small cluster potsherds
12	linear	Length = 39’ Width = 16.5’ Height = 1.7’	none	0	Granite stone centrally on floor in center
23	linear	Length = 32’ Width = 15’ Height = 1.6’	none	0	Earthen altar
33	linear	Length = 23’ Width = 14’ Height = 2.2	none	0	none

Table 6.23 Panther Mounds at Kletzien Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
2	panther	Max length = 73’ max width = 28’ max height = 2.2’	#1 flex.flesh in oval subfloor pit located in shoulder region #2 flex.flesh in oval subfloor pit located in hip region of effigy	1 1	Oval area impregnated with red pigment adjoining burial #2 Earthen altar
3	panther	Length = 84’ Width = 31’ Height = 2.1’	Bundle reburial in circular subfloor pit in shoulder region	1	2 antler points assoc. with bundle Earthen altar
7	panther	Length = 67’ Width = 21.5’ Height = 1.6’	none	0	Basal stratification

Table 6.24 Problematic Effigy Mounds at Kletzien Mound Group

Mound #	Form	Dimensions	Burial Disposition	MNI	Other Internal Features
9	problematic	Length = 44' Width = 21' Height = ?	disturbed burial	?	
15	problematic	Length = 32' Width = 16' Height = ? eroded	none	0	none
16	problematic	Length = 37' Width = 23' Height = 1.7 eroded	none	0	none
17	problematic	Length = 38' Width = 26' Height = 1.4	none	0	none
24	problematic	Length = 33' Width = 18' Height = 1.0'	disturbed burial	?	large piece of limestone, fireplace
26	problematic	Length = 46’ Width = 16.5’ Height = 2.2'	none	0	Earthen altar with burnt nonhuman skeletal remains
29	problematic	Length = 32' Width = 19' Height = 1.8'	none	0	none

Table 6.25 Deer Mounds at Kletzien Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
1	deer	Length = 51' Width = 26' Height = 1.5'	none	0	none
6	deer	Length = 49' Width = 29' Height = 1.8'	#1 Flex.flesh on mound floor in heart #2 burnt human bone fragments in oval subfloor pit	1 1	Basal stratification
10	deer	Length = 36.5' Width = 19' Height = 1.8'	Flex.flesh in oval subfloor pit in gut region	1	none
13	deer	Length = 72' Width = 27' Height = 1.8'	none	0	none
14	deer	Length = 70' Width = 27' Height = 1.6'	none	0	none
27	deer	Length = 47' Width = 20' Height = 1.5'	Burial in rectilinear pit in shoulder of 2 individuals #1 flex flesh #2 bundle reburial	2	Burnt limestone fragments Earthen altar with nonhuman bones Flat piece of sandstone

Nitschke Mound Group

The Nitschke Mound Group (Figure 6.7) is located in Dodge County (Figure 6.1). It was excavated by McKern during the 1927 field season. It consisted of 62 mounds (effigy, linear, oval, and conical) that were distinguished as Group I, which included 46 mounds, and Group II which contained of 16 mounds (McKern 1930). Thirty of the 60 mounds in the Nitschke Mound Group were effigy forms: three turtle, five panther, six canine, one buffalo, three deer, five bird, two gourd-like, and five indeterminate.

The mounds are disposed along the tops of two adjoining low ridges. Group I mounds are arranged in long rows parallel to the ridge. The majority of Group I consists of effigy forms and several tumuli of considerable size. A spring is located at the foot of a low ridge east of Group I. Group II is situated on an oval hill in open pasture land. The mounds appear to exhibit no orientation relative to the landform. Springs are located on the side of the hill east of Group II.

The primary features of the Nitschke mounds are burials. Burials occurred in 16 of the 22 effigy forms and 10 of the 12 conical mounds excavated. Mounds that did not contain burials commonly lacked internal mound features completely. Burials when they were encountered were either flexed in the flesh or secondary bundle reburials. Three mounds (Mound #9, buffalo effigy; Mound 44, oval; and Mound #52 problematic effigy) exhibited "peculiarities not previously reported from Wisconsin effigy mounds" (McKern 1930:447). Each contained the remains of a flexed female superimposed on those of a flexed male.

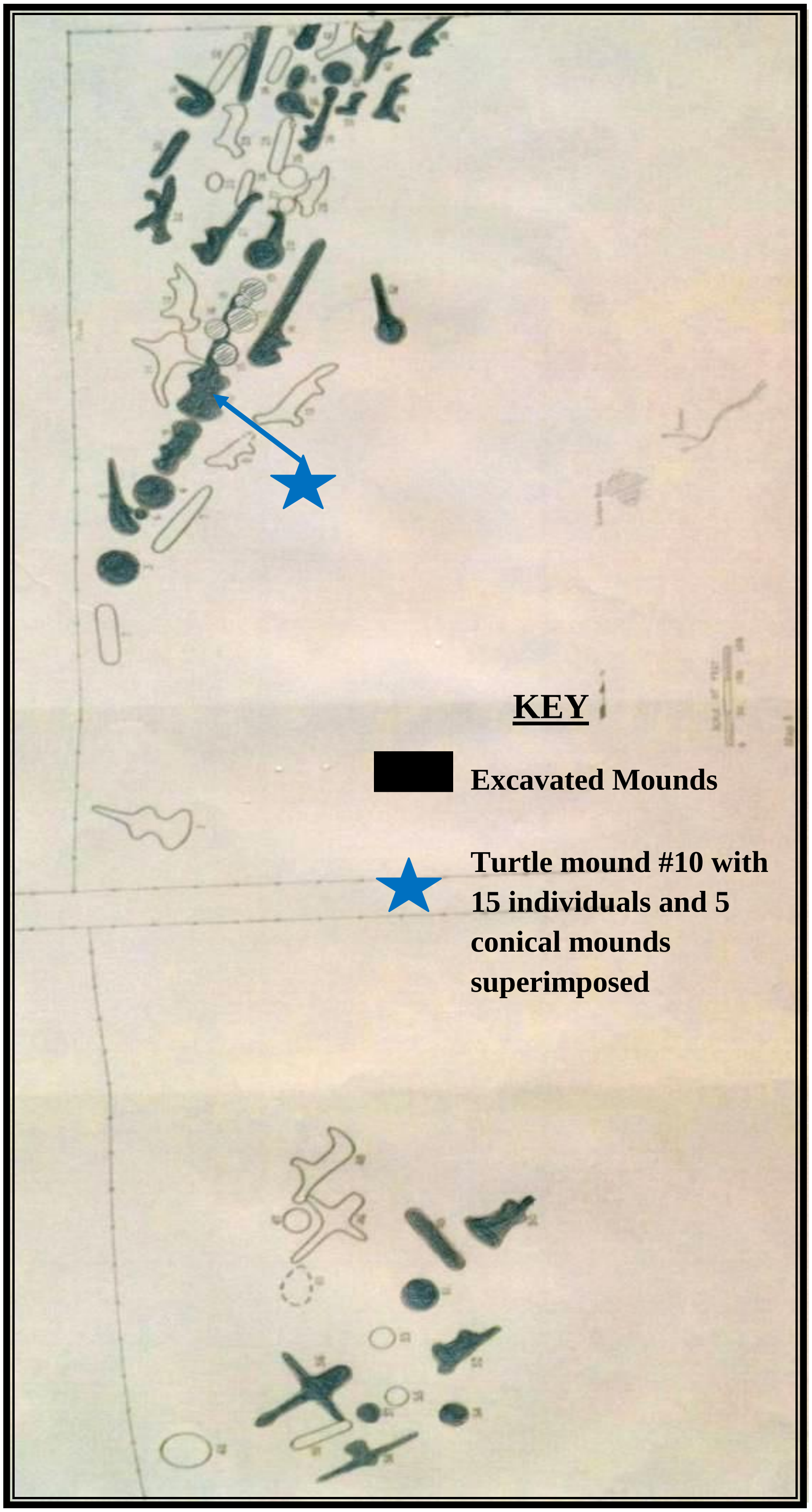

Figure 6.7 Nitschke Mound Group (McKern 1930) Text in the figure other than the key is not meant to be readable, but is for visual reference only.

The large turtle mound, Mound #10 (Table 6.26), is unique in several regards. It is one of the largest mounds within the site. It has several smaller conical superimposed along the tail of the effigy (Table 6.27). It is also one of the few effigy mounds at the site that contained plural burials. The minimum number of individuals calculated for the mound is 15 which is one of the largest recorded for any effigy mound among the mound groups included in the analysis.

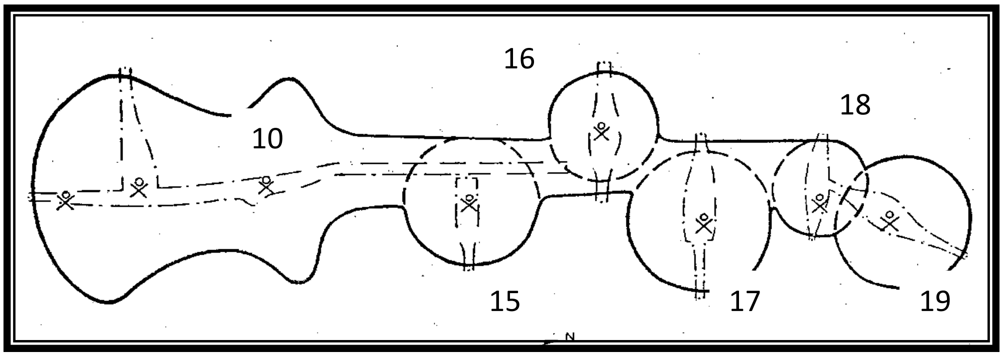

Figure 6.8 Turtle Effigy Mound #10, Nitschke Mound Group (McKern 1930:502).

Table 6.26 Turtle Effigy Mound (No.10) at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
10	turtle	Length = 200' Width = 57' Height = 4' Partly adjoin and partly superimposed are small conicals: 15, 16, 17, 18, & 19	3 burials #1 bundle reburial in oval subfloor pit located at intersection body & rear legs #2 bundle reburial in oval subfloor pit at intersection body & front legs #3 small fragments of scattered bone in fill in head of effigy	15 8 7	Assoc. w/ Burial #1 polished & decorated bone awl, fragmentary polished awls Assoc w/ child Burial #2 bone harpoon, 2 shell beads, & small worked gastropod shells # potsherds

Table 6.27 Conical Mounds Associated with Turtle Effigy Mound (No.10)

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
15	conical	33'diameter Height = 2'	Bundle reburial subfloor pit	1*	none
16	conical	28'diameter Height = 1.3'	Disturbed burial mound floor, ? disposition	1*	none
17	conical	32'diameter Height = 2.3'	Bundle reburial oval subfloor pit	2	none
18	conical	24'diameter Height = 1.1'	Bundle reburial on mound floor	1*	none
19	conical	32'diameter Height = 2.3'	Bundle reburial oval subfloor pit	1	none

* denotes "Report Only" data

Many of the effigy mounds at the Nitschke Mound Group contain multiple burials (Tables 6.26, 6.32, 6.33, 6.34). Bird forms (Table 6.30) contained single burials. Likewise, most panthers (Table 6.28) with the exception of Mounds #5 and #21, contained a single burial. Canine mounds (Table 6.31) contained no internal features.

The conical forms associated with Turtle Mound #10 (Table 6.27) each contained single burials but no other internal features. The other conical mounds in the Nitschke Mound Group (Table 6.36) contain a variety of features: multiple burials, single burials, and no internal features. Linears (Table 6.35), with the exception of #30 contain multiple burials.

A limited amount of altars were encountered at the Nitschke Mound Group. Grave goods, however, were encountered. The Nitschke Mound Group is somewhat remarkable compared to other Effigy Mound sites with regard to grave goods. Several instances of grave goods were reported. Several stone artifacts were recorded in association with burials.

Projectile points were found associated with burials in eight effigy mounds. A small stone celt was also observed in association with a burial in an effigy mound.

Numerous "locally rare" bone implements were recovered from the burial located in the buffalo effigy (Mound #9). They include: 2 bone scrapers, a heavy bone awl, a modified deer calcaneum (McKern 1930:454). They were situated beside and partly under the skull. Turtle effigy mound (Mound #10) also produced grave goods that were made from bone. These included a highly polished and decorated double pointed bone awl (burial #1) and a bone harpoon points (burial #2). A second bone harpoon point was recovered from Mound #20, a gourd-like effigy mound. Both harpoon points were recovered in association with child burials. Shell beads and modified gastropod shells were found associated with portions of skull of a small child in Mound #10, turtle effigy mound. Clay pipe remains were found in association with a flexed burial interred within a linear mound (Mound #33).

Table 6.28 Panther Mounds at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
5	panther	Length = 119’ Width = 32’ Height = 1.9’	none	NA	none
14	panther	Length = 208’ Width = 39’ Height = 2.1’	Flexed flesh burial on mound floor in shoulder region	1	Pottery vessel associated w/ mound on floor
21	panther	Length = 128’ Width = 39’ Height = 2.1	Bundle reburial in oval subfloor pit in shoulder region	3	Stone altar situated over burial, small chipped stone point on altar, floor of burial pit contained potsherds from lg. vessels, 3 points, & part of dog skull
36	panther	Length = 102’ Width = 25’ Height = 1.9’	Flexed flesh burial on mound floor in shoulder region	1	none
39	panther	Length = 69’ Width = 28’ Height = 0.9’	Flexed flesh on mound floor in shoulder region	1	none

Table 6.29 Turtle Mound No.50 at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
50	turtle	Length = ? eroded Width = 54’ Height = 2’	2 burials #1 subfloor rectangular pit, in mid-body region, ? disposition, poor preservation #2 subfloor rectangular pit, ? disposition, poor preservation	2*	Earthen altar

* denotes “Report Only” data

Table 6.30 Bird Mounds at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
40	bird	Length = 93' head to tail Width = 58' wing to wing Height = 1.7'	Flexed flesh on mound floor	1*	none
56	bird	Length = 132' head to tail Width = 126' wing to wing Height = 2.1'	Mound floor, ? disposition, poor preservation	1*	none
58	bird	Length = 40' head to tail Width = 140' wing to wing	none	0	none

* denotes "Report Only" data

Table 6.31 Canine Mounds at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
22	canine	Length = 102' Width = 47' Height = 1.8'	none	0	none
38	canine	Length = 76' Width = 33' Height = 0.8'	none	0	none

* denotes "Report Only" data

Table 6.32 Buffalo Mound at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
9	buffalo	Length = 89' Width = 57' Height = 4'	3 burials #1 Flexed flesh male w/ female superimposed, additional remains of female, indeterminate adult, & child in hip region #2 flexed flesh burial on floor of child in heart region #3 bundle reburial	6	Chipped flint point by arm of male, 2 bone scrapers under skull of male, bone awl, & worked deer calcaneum; point near chin of female 2 leg bones of fawn, crusted deposit of lime and ash near skull Stone altar directly above Burial #3

Table 6.33 Problematic Gourd-like Mounds at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
20	Gourd-like	Length = 90' Conical = 46' diam. Height = 3.5	2 burials #1 on mound floor, disturbed, ? disposition #2 bundle reburial in subfloor pit	7	Harpoon point associated with one of children in bundle
45	Gourd-like	Length = 52' Conical = 37' diam. Height = 2.1'	Flexed flesh in oval subfloor pit	2	none
62	Gourd-like	no dimensions	none	0	none

Table 6.34 Problematic Mounds at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
31	Problematic	Length = 65’ Width = 44’ Height = 2.3’	#1 Bundle reburial on mound floor #2 flexed flesh on mound floor	3	none
52	Problematic	Length = 90’ Width = 37’ Height = 2.7’	#1 Flexed flesh superimposed male and female on mound floor in heart region #2 flexed flesh on mound floor in hip region	2 1	Pottery vessel with mussel shell inside

Table 6.35 Linear Mounds at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
30	linear	Length = 81’ Width = 17’ Height = 1.7’	none	0	none
33	linear	Length = 118’ Width = 15’ Height = 1.8’	#1 Flexed flesh on mound floor in heart #2 flexed flesh on mound floor #3 flexed flesh in subfloor pit	1 1 1	Circular plat of fragmentary animal bone and broken clay pipe & projectile point above Burial #2 Crushed pottery vessel directly over Burial #3
49	linear	Length = 100’ Width = 19’ Height = 1.2’	Flexed flesh in oval subfloor pit	2	none

Table 6.36 Conical and Oval Mounds at Nitschke Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
3	conical	50' diameter Height = 2.2'	#1 disturbed, ? disposition #2 flexed flesh on floor	6	Fragments of yellow limestone with each burial
4	conical	56' diameter Height = 3.8'	# 1bundle reburial above floor #2bundle reburial on floor	1	none
6	conical	20'diameter Height = 1.4'	none	0	none
35	oval	34'x32' Height= 1.9'	none	0	none
43	conical	38' diameter Height = 2'	Disturbed burial, ? disposition	2*	none
44	oval	38'x20' Height= 1.5'	Flexed flesh in oval subfloor pit; female skeleton superimposed on male skeleton	3	none
51	conical	43' diameter Height = 2.7'	Mound floor, ? disposition, poor preservation	1*	none
54	conical	32' diameter Height = ?	Flexed flesh, oval subfloor pit	1	none
57	conical	29' diameter Height = 2.4	none	0	none

* denotes "Report Only" data

Raisbeck Mound Group

The Raisbeck Mound Group is located in the southwestern portion of Wisconsin in Grant County (Figure 6.1). The mound group consists of 80 mounds total and is believed to be the second largest with respect to number of mounds (Rowe 1956). The 80 mounds can be classified as follows: 38 conical mounds, three ovals, 14 linear, 13 bird, 11 canine and one problematic. McKern directed the excavation of the Raisbeck mound group in1932 but the results were never published until Chandler Rowe (1956) presented the data in his summary of the Effigy Mound Tradition.

Raisbeck is like many mound groups with conical mound forms dominating. The majority of the excavated conical forms in the Raisbeck group are remarkably similar in their dimensions, burials, and ritual inclusions as can be seen in Tables 6.37 and 6.38. In general, the conical mounds in the Raisbeck Mound Group have a maximum diameter between 25 and 30 feet and a maximum height between one and four feet (Rowe 1956). Mounds 24, 65, and 66 are exceptions to this generality. Although the height of Mound 24 is typical of the conical mounds of this group, the maximum diameter is nearly double most of the other mounds. While both mounds 65 and 66 exhibit maximum diameters of 37 and 35 feet respectively. The height of mound 65 is also notable at five feet.

The number of individuals buried within the conical mounds at the Raisbeck Mound Group commonly ranges between two and six individuals (Table 6.37). Mound 66 is clearly an exception and represents one of the few "mass burials" referred to in the Effigy Mound literature (Goldstein 1995, Birmingham and Eisenberg 2000). The burials within this mound were organized into two groups. Burial 1 was a large multiple bundle reburial. The skeletal elements appear to have been deposited above the mound floor in a single episode. Burial 2 was also a bundle reburial. It was located in an oblong subfloor pit and showed evidence of burning (Rowe 1956).

Table 6.37 Conical Mounds at Raisbeck Mound Group

Mound #	Diameter	Height	Body Disposition	MNI
1	26'	4'	bundle reburial	4*
2	25'	2.5'	flexed in flesh	4*
3	28'	1.6'	bundle reburial	3
4	25'	2'	flexed in flesh	1
8	27'	3.5'	flexed in flesh	2*
24	55'	2.3'	bundle reburial	4
38	26'	>1'	bundle reburial	2*
39	27'.	>1'	bundle reburial	1*
40	25'	>1'	bundle reburial	2*
42	30'	3.9'	unknown	0
64	25'	1.6'	bundle reburial	5
65	37'	5'	bundle reburial	7
66	35'	2.6'	bundle reburial	31

* denotes "Report Only" data

Likewise, the inclusions observed in the conical mounds (Table 6.38) share certain commonalities in materials. The majority of conical mounds contained earthen and/or stone altars composed of limestone and sandstone rocks and many exhibited evidence of fire.

Table 6.38 Internal Features of Conical Mounds at Raisbeck Mound Group

Mound #	Internal Features
1	4 altars (3 sandstone altars, 1 earthen altar); all altars exposed to fire; grit tempered, cord impressed pot sherds associated with a stone altar
2	1 burned sandstone altar & scattered unburned limestone & sandstone rocks throughout fill; stones encircling burial pit
3	1 burned sandstone altar contain charcoal & burned bone on mound floor.; cluster hearth stones above mound floor.& scattered sandstone & limestone in fill
4	earthen altar directly above burial; 2 other earthen altars of burned limestone north and east of burial; broken pottery vessel
8	1 small altar of sandstone and limestone pieces
24	group limestone rocks place over burial
38	small earthen altar consisting of charcoal and ash mixed in soil of a circular area 1 foot diameter
39	two earthen altars near center of mound
40	stones scattered throughout fill
42	irregular dome of burned clay that was between 1 and 2 feet deep and extended 7 feet by 8 feet; within clay were black cross-sections of charcoal indicating possible charred posts; limestone layer under clay; burned charcoal and animal bones scattered throughout feature;
64	circle of limestone fragments around burial
65	complete dog skeleton; small stone altar
66	two pottery pipes; squared turtle-plastron "mesh-spreader" associated with Burial 1

Table 6.39 Effigy Mounds at Raisbeck Mound Group

Mound #	Form	Dimensions	Body Disposition	MNI	Internal Features
10	bird	Length = 130' wing to wing Width = 55' body length Height = 3.5'	Poorly pres. burial subfloor pit in heart location; ? disposition	1*	sm. stone altar in head area
11	canine	Length = 110' nose to tail Width = 43' Height = 1.2'	Poorly pres. burial in subfloor pit in heart location; & 2nd poorly pres. burial in subfloor pit in head location	1*	unburned stones throughout fill in areas of heart, shoulder, hips,& tail
23	bird	Length = 138' wing to wing ft Width = 63' body length Height = 1.2'	bundle reburial in oblong subfloor pit located in body	1*	earthen altar above mound flr 12 feet from tail end
31	bird	Length = 150' wing to wing Width = 68' body length Height = 2.7'	bundle reburial on mound floor	2*	earthen altar in heart &stone altar in left wing

* denotes "Report Only" data

Only four effigy mounds (Table 6.39), three bird and one canine, were excavated. In comparison to relative uniformity of the conical forms, the bird forms exhibited greater variety in their dimensions as can be seen in Table 6.39. The location of burials within effigy forms in the Raisbeck group, however, was fairly consistent. The burials were placed in either the head or heart regions of the effigy mounds. Altars, both earthen and stone, were present in all the bird effigy mounds. In contrast, the canine effigy mound did not contain any altars but instead exhibited scattered stones throughout the fill (Rowe 1956).

Trowbridge Mound Group

The Trowbridge Mound Group is located in Trempealeau County (Figure 6.1) and consists of 33 mounds (30 conical, one linear, and two fox-like effigy forms). It is part of the Trempealeau Bay Mound Groups which include: Shrake I, Shrake II, Schwert Mound Groups, and Nicholls Mound, all Middle Woodland mounds that commonly influence Illinois Havana Hopewellian influence. The Trempealeau area also exhibits Upper Mississippian platform mounds. The area clearly has a long history of mound construction suggesting both its probable environmental and culture-historical significance to the inhabitants of the region.

The Trowbridge Mound Group (Figure 6.9) was excavated by McKern during the 1928 field season. Data from the Trowbridge Mound Group is derived from McKern's unpublished field forms, photographs, and maps. McKern excavated 14 of 33 mounds (12 conical and both effigy forms). Like many other mound groups in the Effigy Mound Ritual Complex, the conical mound forms (Table 6.42) contain many more individuals than effigy mound forms (Table 6.43).

The burials in the Trowbridge Mound Group were: primary extended, secondary bundle reburial, and flexed in the flesh. The disposition of the bodies with the mounds shared numerous similarities with earlier Middle Woodland mound burials in the same area (McKern's 1928 field notes). A number of of the burials also contained a range of copper grave goods (Tables 6.40 and 6.41). The disposition of the bodies and presence of copper items appear to share many commonalities with Middle Woodland burials in the Trempealeau area (McKern's field notes 1928).

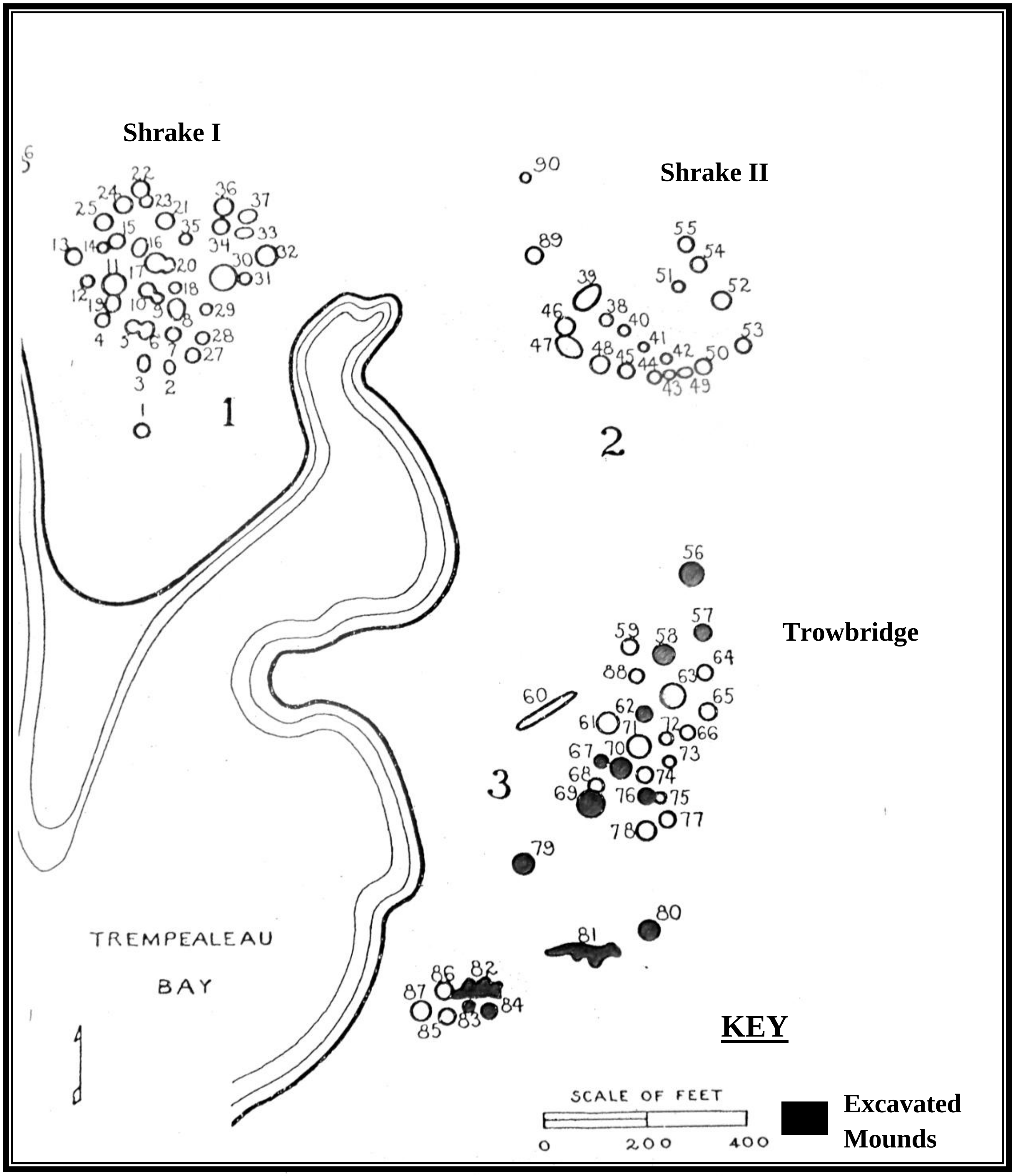

Figure 6.9 Trowbridge Mound Group (McKern 1931) Text is not meant to be readable but is for visual purposes only.

Table 6.40 Conical Mounds at Trowbridge Mound Group

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
56	conical	55 diameter' Height = 4.8'	3 bundle reburials all 3 in fill above floor, poor pres.	3* (1 in each bundle)	potsherds loose in fill
57	conical	40' diameter Height = 2.5'	bundle reburial in oval pit, poor pres.	1*	none
58	conical	42' diameter Height = 2.5'	#1 ? disposition, in fill poor pres. #2 ?disposition, in oval pit, poor pres.	1*	Burial #1 copper celt, copper celt and ? copper item on body, perforated shell bead above #2 was thin layer of black sand impreg. w/charcoal fireplace; bone object assoc. #2
62	conical	40' diameter Height = 1.75'	#1 ? disposition on mound floor, poor pres. #2 flexed flesh in subfloor pit, poor pres.	2*	#1 on artificial placed circular area of gravel directly above #2 #2 two projectile points
67	conical	35' diameter Height = 2.5	#1 ?disposition, on mound floor #2 flexed flesh in subfloor pit	2*	artificial placed 3' diameter circle of course gravel btwn. burials #1 & 2
69	conical	Missing data	bundle reburial and extended	7	projectile point, carbonized wood, 4 copper fragments.
70	conical	45 diameter' Height = 2.5'	#1 bundle reburial in fill above floor #2 ?disposition, in subfloor pit, poor pres. #3 extended flesh & bundle reburial on mound floor	3 1 5 total = 9	#3 immediately below #1, potsherd over face extended male burial

* denotes "Report Only" data

Table 6.40 (cont'd)

Mound #	Form	Dimensions	Burial Body Disposition	MNI	Other Internal Features
76	conical	28' diameter	none	0	none
79	conical/ oval	40' x 33'	8 extended in flesh 2 bundle reburials 1 ? disposition	11	pit with potsherds
80	conical	25' diameter Height = 2.5'	bundle reburial in pit	11	none
83	conical	23' diameter Height = 4.36'	flexed flesh burial on mound floor	1	none
84	conical	22' diameter Height = 5.0'	bundle reburial on mound floor	2	none

Table 6.41 Effigy Mounds at Trowbridge Mound Group

Mound #	Form	Dimensions	Body Disposition	MNI	Internal Features
81	canine fox-like	Length = 50' Width = 20' Height = 2.5'	#1 flexed flesh #2 ?disposition in subfloor pit, poor preservation	1 1	bed of clam shells 3 feet diameter & 4 inches thick copper awl loose in fill
82	canine fox-like	Length = 90' Width = 30' Height = 3.0'	? disposition above mound floor fleshed flexed and bundle reburial on mound floor	? 5	1 small stone celt in pit below burial lg., deep pit under burial with pottery at bottom

Summary of Mound Groups

From the descriptions above, one can see that there are some general trends regarding Effigy Mound ceremonialism and mound construction. Conical mound forms are the most numerous type of mound form, occurring at every site under study. Effigy mound forms tend to follow the features of the natural landscape. With the exception of Kratz Creek, most mounds appear to be constructed in a single episode using local soils (Barrett and Hawkes 1919; Birmingham and Eisenberg 2000; Goldstein 1995; McKern 1928, 1930, unpublished field notes; Rowe 1956).

Burials within mound forms were disposed as: flexed inhumations, secondary bundle-reburials, fully fleshed extended, cremations and combinations of disposal types. Most burials within the mounds were typically disposed as either flexed inhumations or secondary bundle reburials. Cremation across the state appears to have been fairly rare with the exception of the Buffalo Lake Area which included the Kratz Creek, McClaughry, and Neal Mound Groups. Among the sites considered for the study, fleshed extended burials were only observed at the Trowbridge Mound Group (Barrett and Hawkes 1919; Goldstein 1995; McKern 1928, 1930; Rowe 1956).

Burials within in the mounds were generally few in number. Conical and oval mounds commonly had greater number of individuals interred within them. It was not uncommon to have between three and six individuals buried within a conical mound. Some sites such as McClaughry and Trowbridge had conical mounds which contained as many as six to 12 individuals. There were three reported cases of "mass burials" within conical or oval mounds. Mound #1 at the Kratz Creek Mound Group (Figure 6. 2) contained over 100 individuals interred as 45 bundle reburials. The Raisbeck Mound Group had at least 31 individuals interred as bundle reburials in Mound #66. And Mound #28 at the McClaughry Mound Group (Figure 6.4) contained at least 29 individuals in a combination of flexed flesh and bundle reburials.

Generally, effigy mounds contained fewer individuals than conical and oval forms. Most contained one to three individuals, although several at the Nitschke Mound Group contained more than six individuals. Some mounds have no burials (Barrett and Hawkes 1919; Birmingham and Eisenberg 2000; Goldstein 1995; McKern 1928, 1930; Rowe 1956).

Most mounds contained some evidence of ritual activity in the form of altars (fireplaces, earthen altars, and stone altars), cists, potter, special soils, and the inclusion of grave goods. While there are several broad generalizations regarding Effigy Mound ceremonialism and mound construction that can be made, there is also tremendous variation in disposal methods and internal features both within and between mound groups. The various differences and similarities were examined at both an intrasite and intersite level of analysis level to illuminate the role that effigy mound construction and associated ritual played in integrating groups of individuals while at the same time reinforcing distinctions between socio-ideological groups based on differential access to ritual and ritual facilities. The following chapters present the results of these examinations.

Chapter 7: Results

This chapter describes the results of the analyses performed as part of this dissertation research. The chapter first details the basic descriptive statistics for both the cultural and skeletal datasets. Following the descriptive statistics section, this chapter presents the results associated with each research question and its expectations.

Basic Descriptive Statistics of the Datasets

As noted in Chapter 5, this study utilized two datasets, a cultural dataset and a skeletal dataset. The cultural dataset included: mound form, the type of burial (single or multiple), disposition of the human remains, ritual paraphernalia (altars, cists, and pottery), and grave goods. Variables that were examined in the skeletal dataset included: age, sex, and disfiguring pathologies and/or pathologies that would have severely limited mobility. See Chapter 5 for detailed descriptions of all variables.

Mound Form

A total of 197 excavated mounds were included in the cultural dataset. The frequencies of all mound types are displayed in Table 7.1. Conical mounds are the most numerous, comprising nearly half (48.2%) of the sample. This is not surprising since it is well documented that conical mounds were the most frequently encountered mound forms at most of the Effigy Mound sites (Goldstein 1995; Rowe 1956).

Table 7.1 Frequencies of Mound Forms

Mound Form	Number of Mounds	Percent of Sample
Arrowhead	1	.5
Bear	9	4.6
Beaver	1	.5
Biconical	4	2.0
Bird	9	4.6
Canine	3	1.5
Conical	95	48.2
Conical with tail	1	.5
Conical-ended linear	1	.5
Deer	8	4.1
Duck or Goose	1	.5
Egg Shaped	1	.5
Fish	1	.5
Fox	2	1
Gourd-like	1	.5
Horse-shoe shape	1	.5
Indeterminate	2	1.0
Linear	11	5.6
Lizard	1	.5
Moccasin	1	.5
Oval	7	3.6
Panther	18	9.1
Problematical Effigy	8	4.0
Rabbit	1	.5
Rectangular	2	1.0
Squirrel	1	.5
Turtle	2	1.0
Unclassified Effigy	4	2.0
Total number of mounds	**197**	**100.0**

Also apparent in Table 7.1 is the wide variety in classification of mound types. For statistical purposes, this study reclassified all mound forms into one of two broader categories: effigy or geometric. Geometric mound forms included: conical, conical-ended linear, biconical, rectangular, oval, egg, and linear mounds. Effigy mounds included: arrowhead, bear, beaver, bird, canine, duck/goose, fish, fox, gourd-like, horse-shoe shape, indeterminate, lizard, moccasin, panther, problematical effigy, turtle, and unclassified shapes. Indeterminate, unclassified shapes, and problematical effigy mounds were all classified as effigy mounds after examination of site maps because, although they could not be described as a particular effigy form, they clearly were not consistent in appearance with mounds described as geometric in the published record or unpublished field notes. The frequencies of geometric and effigy mounds and percentage of the mound sample are displayed in Table 7.2. Geometric mounds comprised 60% of the sample, while effigy mounds made up the remaining 40%.

Table 7.2 Frequencies of Reclassified Mound Forms (Geometric and Effigy)

Mound Form	Frequency	Percent
Geometric mounds	119	60.4
Effigy mounds	78	39.6
Total number of mounds	**197**	**100.0**

Number of Individuals Interred within Single Mounds

Despite being described as primarily burial tumuli by Rowe (1956) in his review of Effigy Mound data from Wisconsin, a large portion of the mounds in the dataset (38.6%) did not contain burials (Table 7.3). Those that contained burials generally contained only one or two individuals (Figure 7.1). It was not unusual for mounds within the dataset to contain three to four individuals (10.5% of sample). However, mounds could contain anywhere from one to over 100 individuals, but these larger interments were much less common (Table 7.3). The three mounds with unusually large minimum number of individuals (MNI) of 27, 31 and 111 corresponded to the mass burials at McClaughry, Raisbeck, and Kratz Creek Mound Groups respectively.

Table 7.3 Frequencies of the Minimum Number of Individuals Interred within a Single Mound

Number of Individuals	Number of Mounds Exhibiting each MNI	Percent
0	76	38.6
1	57	29.0
2	24	12.2
3	11	5.6
4	8	4.1
5	3	1.5
6	3	1.5
7	4	2.0
8	1	.5
9	1	.5
10	1	.5
11	2	1.0
15	1	.5
27*	1	.5
31**	1	.5
111***	1	.5
Total	**197**	**100.0**

* MNI from Mound #28 McClaughry Mound Group
** MNI from Mound #66 Raisbeck Mound Group
*** MNI from Mound #1 Kratz Creek Mound Group

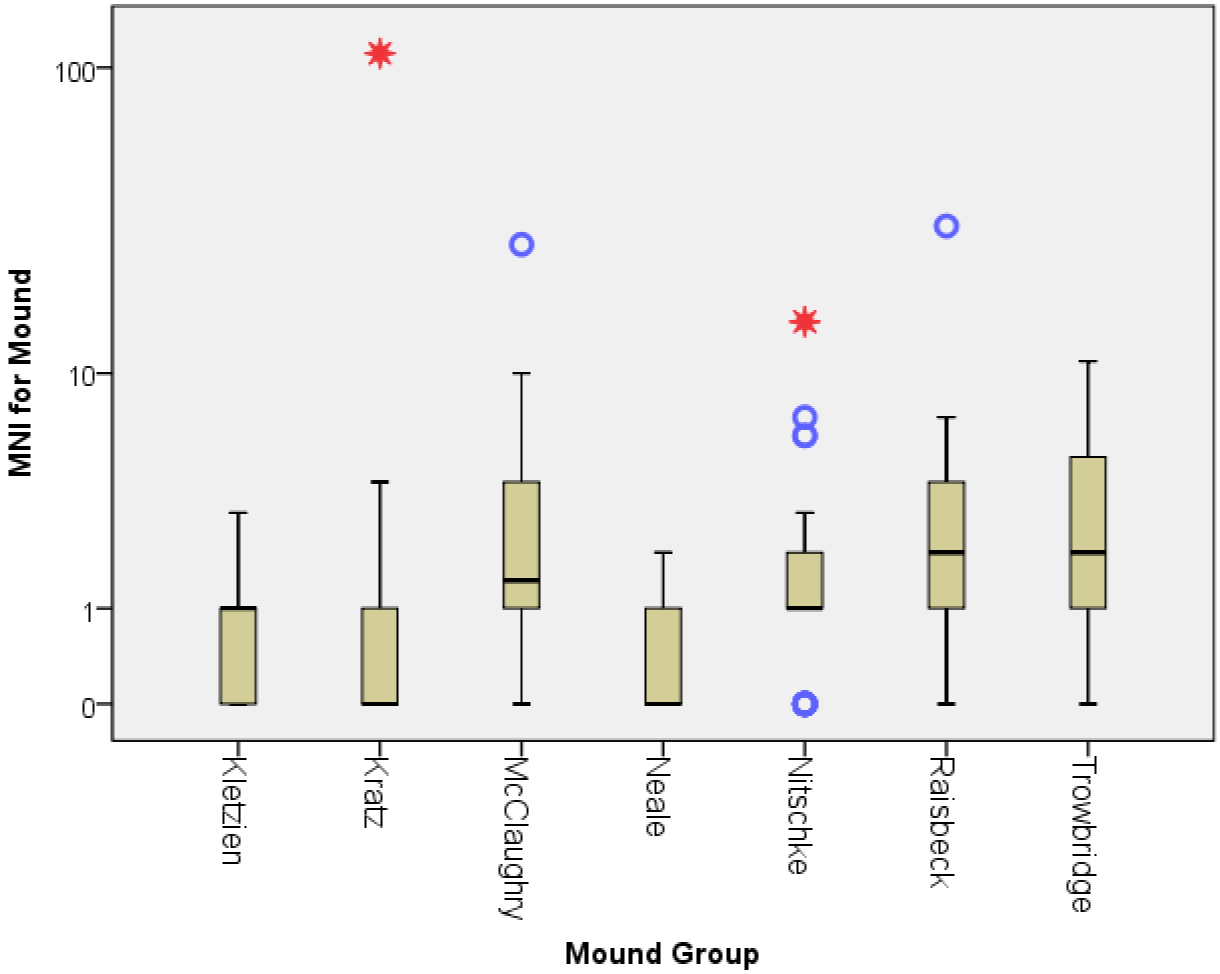

Figure 7.1 **Boxplot of MNI for Single Mounds at each Mound Group**

Figure 7.1 summarizes the MNI interred within single mounds at each mound group. Each tan box represents the upper and lower quartiles of MNI interred within a single mound at each site, while the black line within each box denotes the median. The median MNI at Kratz Creek and Neale Mound Groups was zero. At both the Kletzien and Nitschke Mound Groups, the median MNI was one individual. The median at McClaughry was 1.5. At the Raisbeck and Trowbridge Mound Groups, the median MNI within a mound was 2. The whiskers in this boxplot represent the range of MNI within a single mound at each mound group exclusive of outliers which are represented by blue circles and red stars when extreme.

Some interesting points need to be made regarding the information in this boxplot. First this boxplot plainly illustrates how the numbers of individuals interred within *most* mounds belonging to the Effigy Mound Tradition in Wisconsin were considerably low. However, with the exception of the Neale and Kletzien Mound Groups, most mound groups appeared to have at least one mound with a larger multiple burial (5+ individuals) (Figure 7.1, Table 7.4). Virtually all the mounds at Kletzien were either empty or contained a single burial, which is interesting because the mound group is fairly unique in its predominance of effigy mound forms. An additional point needs to be made here regarding the Neale Mound Group. To review, human burials were not encountered in 14 of the 24 mounds excavated. This may be a consequence of the extremely poor bone preservation at the site where very few of the human skeletal remains described in the report survived excavation. Additionally, it should be noted that these mounds groups may have a mound that contained a larger multiple burial but it was simply not excavated.

Outliers represented by small blue circles in the boxplot include Mound #28 (conical/ egg-shaped) at McClaughry which contained 27 individuals and Mound #66 (conical) at Raisbeck which contained 31 individuals. Nitschke had two sets of outliers. The smaller outlier represented three mounds that contained no burials. The upper two outliers represented by blue circles represent: Mound #3 (conical) and #9 (buffalo) each containing six individuals and Mound #20 (gourd-like) which contained seven individuals. The extreme outliers are represented by red stars and include: Mound #1 (conical) at Kratz Creek with 111 individuals and Mound #10 (turtle) at Nitschke which contained 15 individuals.

The Nitschke Mound Group is interesting with regard to its numerous outliers, particularly the large number of effigy mounds with several individuals interred within them. Closer examination of these mounds reveals something even more interesting. The turtle mound (Mound #10) at Nitschke had several conical mounds superimposed on it. Each conical also contained a burial. Most contained a single individual; while Mound #17 contained two individuals. The superimposition of one mound form on top of another is a fairly uncommon occurrence at Effigy Mound sites.

Table 7.4 Mounds with Higher MNIs within a Single Mound

MNI within a Single Mound	Mound #	Mound Group	Mound Form	Notes
5	3	McClaughry	conical	
6	8	McClaughry	biconical	
7	46	McClaughry	conical	
8	4	McClaughry	conical	
10	49	McClaughry	fish	See Fig.6.4
27*	28	McClaughry	egg (oval)	
5	64	Raisbeck	conical	
7	65	Raisbeck	conical	
31**	66	Raisbeck	conical	
6	9	Nitschke	buffalo	
6	3	Nitschke	conical	
7	20	Nitschke	gourd-like	
15	10	Nitschke	turtle	See Fig. 6.8
5	82	Trowbridge	canine/fox-like	
7	69	Trowbridge	conical	
9	70	Trowbridge	conical	
11	79	Trowbridge	conical/oval	
11	80	Trowbridge	conical	
111***	1	Kratz Creek	conical	

Demographics of Interred Human Remains

The number of individuals included in this study equaled 470 (N=470) (Table 7.5). This number included both the minimum number of individuals (MNI) determined from direct observation of skeletal remains housed at the MPM and "record only" data from the published site reports and unpublished field notes. As can be seen in Table 7.5, the MNI determined from the inventoried skeletal remains was 329, which comprised 70% of the dataset. The remaining 141 individuals included in this study corresponded to descriptions of excavated human remains in the reports and field notes only.

Table 7.5 Minimum Number of Individuals (MNI) in the Dataset

Source	MNI	Percent of Dataset
Derived from inventoried skeletal remains	329	70.1
Derived from published reports and unpublished field notes	141	29.9
Total	**470**	**100.0**

Age

Individual remains that could be assigned an age-at-death estimate were placed into the following age categories: infant to young child (0-4 years), child (5-9 years), adolescent (9-15 years), young adult (16-25 years), middle adult (25-35 years), old adult (35+ years) and a general adult category when a more exact age could not be determined. The number of individuals where age-at-death could be estimated was 416 (aged subsample n=416). Table 7.6 displays the number of individuals within each age group and the percentage of the total aged sample. Adults compromised the largest portion of the dataset at approximately 78%. Subadults made up the remaining 22% of the dataset. Infants and young children (0-4 years old) and adolescents (9-15 years old) were equally represented in the sample at 6.7%. Young children (5-9 years old) represented a slightly larger proportion of the sample at approximately 8.9%.

Table 7.6 Age Distribution of Individuals

Age Range	Frequency	Percent
Infant to young child (0-4 years)	28	6.7
Young child (5-9 years)	37	8.9
Adolescent (9-15 years)	28	6.7
Young adult (16-25 years)	65	15.6
Middle adult (25-35 years)	58	13.9
Adult	128	30.8
Old adult (35plus year)	72	17.3
Total number of age-assessed individuals	**416**	**100.00**

Figure 7.2 presents the distribution of individuals that could be assigned an age-at-death estimate. The solid black line represents a normal unimodal distribution curve for a sample with the same mean and frequency. The numbers within each bar in the figure represent the number of individuals within each age-range category which is displayed along the x-axis. As can be seen in Figure 7.2, the dataset exhibits a multimodal distribution of age ranges in the skeletal dataset. The two main peaks correspond to the center of the subadult and adult subsamples respectively. It should be noted, however, that the largest peak represents individuals placed into the generalized age category of 'adult' because a more accurate age estimate could not be made for these individuals. It is quite possible that if more accurate age estimates could be made for individuals within the general adult category, the modality would change in the age distribution of the skeletal sample.

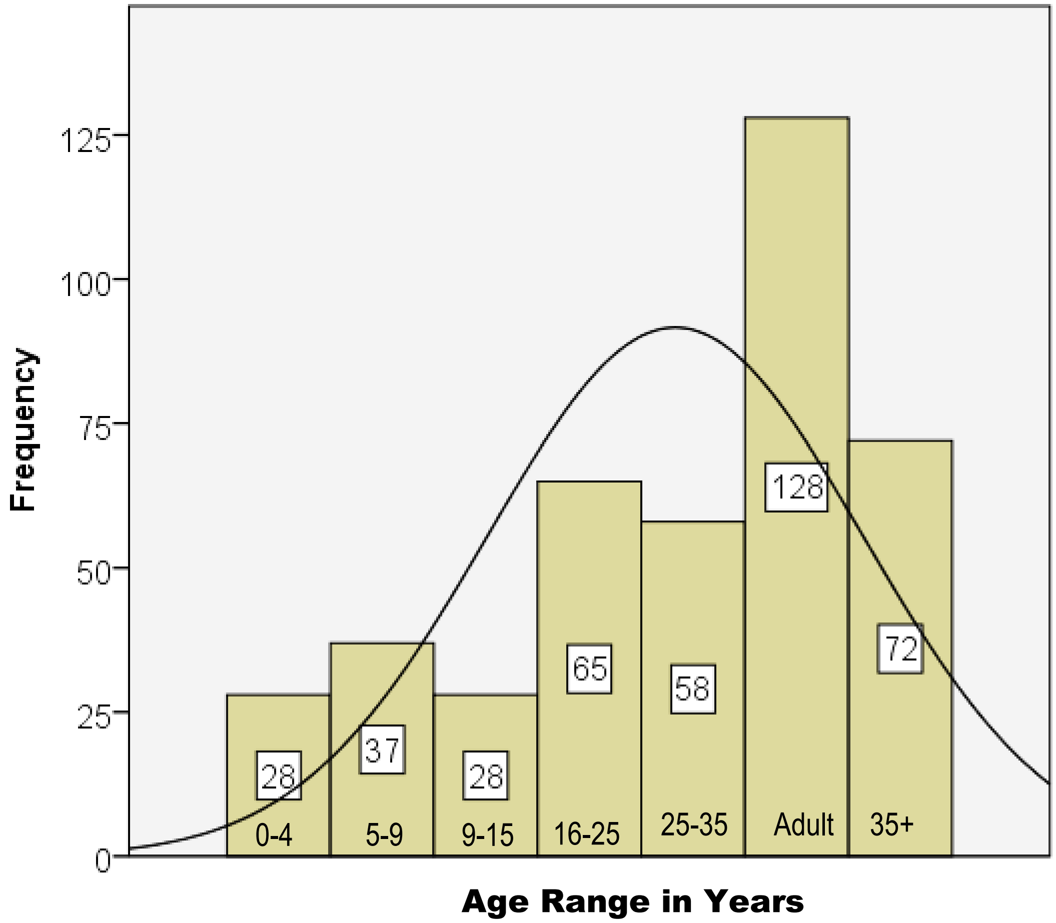

Figure 7.2 Age Distribution of Aged Individuals

Sex

When sex could be determined, the skeletal remains were categorized as: female, probable female, male, probable male, indeterminate adult, and indeterminate juvenile. The number of individuals where sex could be assessed was 419 (sexed subsample n=419). The number of sexed individuals within each category and the percentage of the total sexed sample are displayed in Table 7.7. For statistical analyses, the males and probable males were collapsed into a single category; likewise, females and probable females were collapsed into a single category.

Table 7.7 Sex Distribution of Individuals

Collapsed Sex	Frequency	Percent
Female	113	27.0
Male	96	22.9
Indeterminate Adult	121	28.9
Indeterminate Juvenile	89	21.2
Total	**419**	**100.00**

As can be seen in Figure 7.3, males and females were very nearly equally represented in the dataset. These findings are consistent with other published accounts of Effigy Mound remains (Birmingham and Eisenberg 2000; Goldstein 1995; Ruth 1998). Because the collection is comprised of largely isolated long bones, many of which are damaged, the indeterminate category contains the greatest number of individuals.

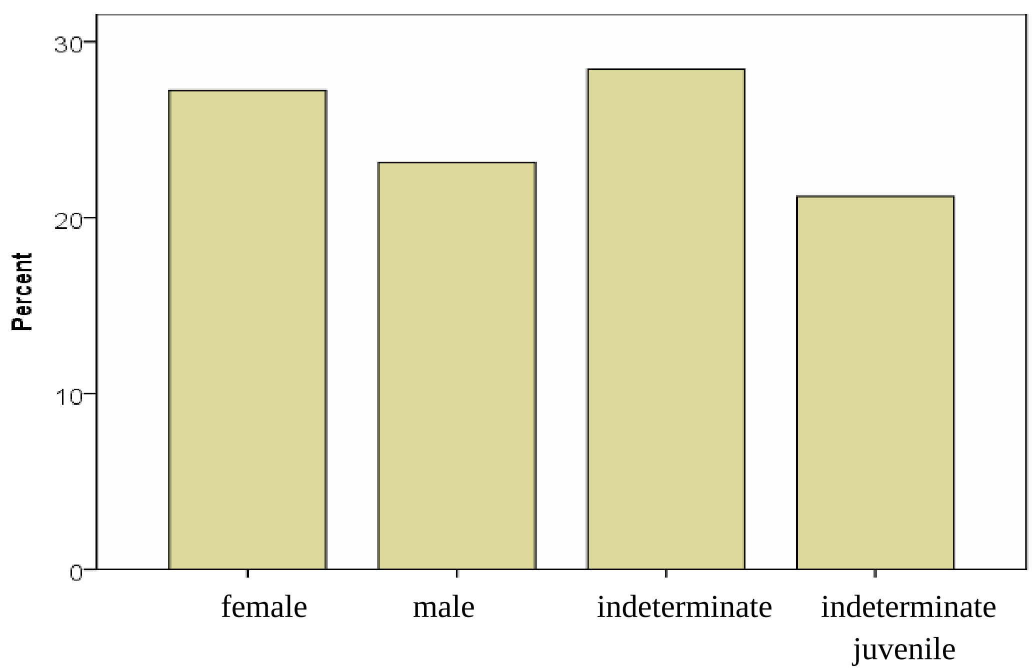

Figure 7.3 Percentages of Males, Females, and Individuals of Indeterminate Sex

Mortuary Treatment

Single versus Multiple Burials

As previously mentioned in this chapter, 38.6% of mounds did not contain burials. When mounds contained human remains, the remains were either interred as a single burial containing just one individual or part of a multiple burial containing two or more individuals. Single interments comprised 28.9% of the mound sample. Multiple interments occurred slightly more frequently and comprised 32.5% of the mound sample (Table 7.8).

Table 7.8 Frequency of Burial Types within Mounds

Burial Type	Number of Individuals	Percent of Sample
Mounds with multiple burials	64	32.5
Mounds with single burials	57	28.9
Mounds with no burials	76	38.6
Total number of mounds	**197**	**100.0**

Although the differences between the proportion of mounds that contained multiple versus single burials was not that large, the proportion of individuals within the collection that were interred within a multiple burial compared to a single burial was appreciably different. The frequencies of individuals buried within multiple and single burials are presented in Table 7.9. The majority of individuals, 87.7% of the total sample, were buried in multiple burials while only 12.3% were buried as single interments. This pronounced difference was due in part to influence of the mass burials, particularly Mound #1 at Kratz Creek. This discrepancy, particularly between the numbers of individuals interred within multiple burials, will be explored in greater detail later in this chapter as part of the statistical testing associated with Expectation 1.

Table 7.9 Frequencies of Individuals Buried within Multiple or Single Burials

Burial Type	Number of Individuals	Percent of Sample
Interred within multiple burials	412	87.7
Interred with single burials	58	12.3
Total number of individuals within dataset	**470**	**100.0**

Burial Disposition

Human remains were generally disposed in Effigy mounds as primary flexed interments or as secondary bundle reburials. Other disposal methods practiced by Effigy Mound groups were primary extended burials and cremation. As previously noted in Chapter 4, two forms of cremation were possibly practiced by Effigy Mound groups. Cremation-burials refer to remains that were originally cremated elsewhere and only the cremated remains were buried within the mounds. Cremation-depositions, on the other hand, refer to cremations and burial that occurred in the exact same location.

The majority of cremations were cremation-burials. Cremation-burials can be described as a form of secondary mortuary treatment and were treated as such in this research. There were two possible cases of cremation-depositions documented for the Effigy Mound material. Barrett and Hawkes (1919:78) described one of the two crematory altars as measuring 25 feet by 17.5 feet and streaked with organic decayed matter. However, there was no mention of human skeletal remains on or within either of those altars in the published account, and as such neither was considered a burial in this study.

Some individuals within the mounds were occasionally interred in combinations of various burial forms, such as: primary flexed and secondary bundle reburial or secondary bundle reburial and cremation. The distribution of different types of burial dispositions observed in the mounds is listed in Table 7.10.

Table 7.10 Frequencies and Percentage of Burial Dispositions in Mounds

Type of Burial Disposition	Number of Mounds Exhibiting Each Type of Disposition	Percent
Unknown	21	10.7
Primary	32	16.2
Primary, Secondary, Cremation-burial	2	1.0
Secondary	35	17.8
Cremation-burial	4	2.0
Secondary and Primary	10	5.1
Secondary and Cremation-burial	7	3.6
Primary and Unknown	2	1.0
Secondary and Unknown	4	2.0
Primary and Cremation-burial	1	0.5
Primary, Secondary, Unknown	3	1.5
Missing/No Burial	76	38.6
Total	**197**	**100.0**

The burial dispositions listed in Table 7.10 were collapsed into the following categories for statistical analyses: unknown, primary, secondary, and mixed. The secondary burial disposition category includes both secondary bundle reburial and cremation-burial. Burials described as primary dispositions include both primary flexed and primary extended. Mixed burials include any burial that exhibited primary and secondary burial dispositions. Table 7.11 presents the frequencies of the collapsed categories at the mound level. In the collapsed dataset unknown burials includes all burials that were combination of a known form and unknown. For example, secondary and unknown categories were collapsed into the unknown category. Table 7.11 presents the *number of mounds* and percentage of all mounds that contained individuals disposed as either: all secondary burials, all primary burials, mixed (primary and secondary burials), or unknown.

Table 7.11 Frequencies and Percentage of Collapsed Burial Disposition Data at Mound Level

Type of Burial Disposition	Number of Mounds Exhibiting Each Type of Disposition	Percent
Secondary	46	23.4
Primary	32	16.2
Mixed primary and secondary	13	6.6
Unknown	30	15.2
Total Burials (any form)	121	61.4
No burials recorded	76	38.6
Total	**197**	**100.0**

Table 7.12, on the other hand, presents the *number of individuals* that were disposed as: secondary, primary, part of a mixed interment, or unknown. The majority of individuals (66.4%) in the collection were disposed in some form of secondary treatment, most as secondary bundle reburials. Only 14.7% of the sample was disposed as primary interments. The percentage of individuals interred within burials containing both primary and secondarily disposed bodies was 9.1%.

Table 7.12 Frequencies and Percentage of Collapsed Burial Disposition Data at Individual Level

Type of Burial Disposition	Number of Individuals Disposed	Percent
Secondary all forms	312	66.4
Primary all forms	69	14.7
Mixed primary and secondary	43	9.1
Unknown burial disposition	46	9.8
Total	**470**	**100.0**

Ritual Paraphernalia Associated with Mounds

Mounds exhibiting evidence of Effigy Mound ceremonialism commonly contained evidence of a variety of ritual paraphernalia. However, most mounds (53.8%) contained no evidence of ritual paraphernalia (Figure 7.4).

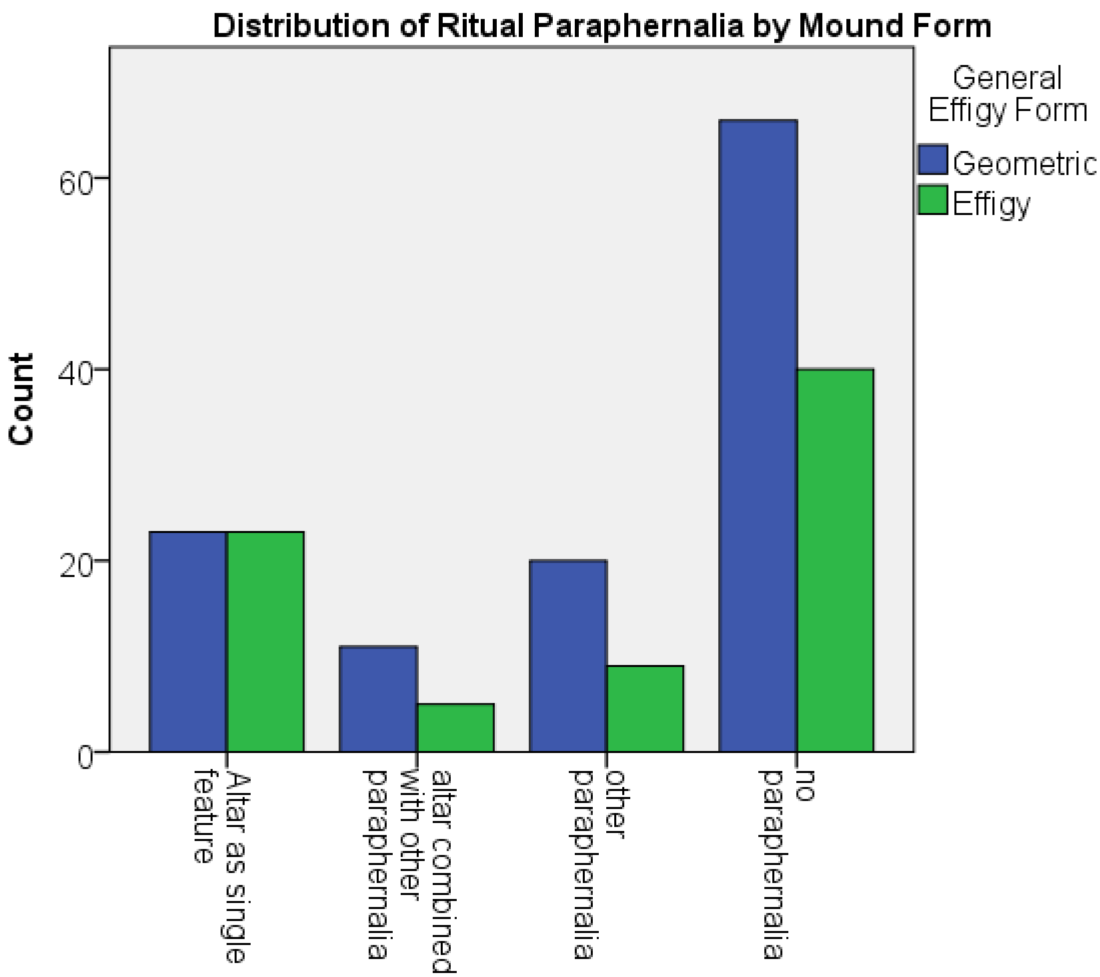

Figure 7.4 Frequencies of Types of Ritual Paraphernalia Observed in Mounds

Some of the more commonly cited examples include altars, clay and pebble cists, pottery, and combinations of the three within the same mound (Goldstein 1995; McKern 1930; Rowe 1956).

To review, altars are referenced by a number of names in the Effigy Mound literature: sacrificial fires, fireplace altars, earthen altars, stone altars, altars, and fireplaces (Barrett and Hawkes 1919; Goldstein 1995; McKern 1928, 1930; Rowe 1956). Altars are the most ubiquitous ritual feature within mounds among the sites study.

This study treated all earthen and rock altars as one type of paraphernalia. Altars occurred singly or in multiples within a single mound (Goldstein 1995; McKern 1928,1930). In this research, multiple altars within the same mound were treated as a single type of paraphernalia when they were not combined with another type of paraphernalia (e.g pottery, cists, or shell/animal remains).

As previously noted, cists were small bowl-shaped type of structures composed of clay and reinforced with pebbles (McKern 1928). Cists were present in both effigy and conical forms. Like altars, multiple cists within the same mound when not combined with other types of ritual paraphernalia were treated as a single type of paraphernalia.

Pottery was considered ritual paraphernalia in this study when it was purposefully interred within the mound. In other words, loosely placed potsherds scattered throughout the mound fill that could have been accidentally included in the mound material were not considered as ritual paraphernalia in this dissertation research. Intact vessels or large sherds that were associated with fireplace altars, or in other instances used in place of stone in the altars, were considered ritual paraphernalia in the final analysis.

Table 7.13 presents the number of mounds that exhibited some form of ritual paraphernalia interred within the mound.

Table 7.13 Number of Ritual Paraphernalia Observed within Mounds

Paraphernalia Type	Number of Mounds Exhibiting Paraphernalia Types		Total
	Geometric	Effigy	
Altar as single feature	23	23	46
Altar combined with other paraphernalia	11	5	16
All other forms of paraphernalia	20	9	29
No paraphernalia	66	40	106
Total	**120**	**77**	**197**

Altars were the most numerous types of paraphernalia observed when all mound sites were combined, comprising 50.5% (46/91) of paraphernalia evidenced in mounds (n=91 mounds exhibiting one or more of paraphernalia listed in Table 7.13) when occurring singly and 72.5% (66/91) when in combination with other forms of paraphernalia. Altars appear to have occurred more frequently than cists, including those in combination with other paraphernalia. Other ritual paraphernalia referenced in the archaeological descriptions, although occurring less frequently, included shell and animal remains (McKern 1928, 1930).

Table 7.14 includes only those mounds that contained ritual paraphernalia. All altars, whether occurring singly or in combination with some other paraphernalia, observed within mounds were combined into an aggregate sample and compared to mound form.

Table 7.14 Number of Altars versus other Ritual Paraphernalia Observed within Mounds

Ritual Paraphernalia	Number of Mounds Exhibiting Type of Ritual Paraphernalia		Total
	Geometric	Effigy	
Altar	34	28	62
All other forms of paraphernalia	20	9	29
Total	**54**	**37**	**91**

Altars, either singly or in combination, are the most common feature and as seen in Chapter 6 are observed across mound group sites with the exception of the Trowbridge Mound Group. The other forms of ritual paraphernalia and combinations do not appear to occur with the same regularity, but tend to be specific to each mound group.

Grave Goods Associated with Individuals

As described in Chapter 5, grave goods in this study were defined as items in direct association with a specific set of human remains. Grave goods were quite uncommon in this collection. As illustrated by Table 7.15, only 62 individuals (13.2%) in the sample were buried with grave goods.

Table 7.15 Frequency and Percentage of Individuals buried with Grave Goods

Grave Goods Present in Burial	Number of Individuals	Percent of Sample
No	408	86.8
Yes	62	13.2
Total	**470**	**100.0**

Grave goods were categorized as either utilitarian or non-utilitarian. Utilitarian items include: pottery vessels, projectile points and other tools, and pipes. Non-utilitarian items include: personal adornment items such as copper and shell beads, non-human skeletal remains that lack evidence of consumption, and decoratively worked stone and shell. Five individuals had

Table 7.16 presents the number of individuals buried with each type of utilitarian grave good and the percentage of the subsample (only individuals buried with utilitarian items). Of the utilitarian grave goods, non-projectile point tools were the most frequently included type of object (n=19), comprising 56% of the subsample.

Table 7.16 Frequency and Percentage of Individuals buried with Utilitarian Grave Goods

Type of Non-utilitarian Items	Number of Individuals	Percent
Pottery vessels	7	20.6
Tools not including projectile points	19	56
Projectile points	5	14.6
Pipes	3	8.8
Total	**34**	**100.0**

Table 7.17 presents the number of individuals buried with each type of non-utilitarian grave goods and the percentage of the subsample. Nonhuman skeletal remains were the most frequently included type of non-utilitarian objects (n=18), comprising 64.2% of the subsample. Most of these remains occurred as skeletal elements including teeth and antler of various animal species, with canine skulls predominating. These elements were often intermixed with the human bones in bundle reburials of several individuals.

Table 7.17 Frequency and Percentage of Individuals buried with Non-utilitarian Grave Goods

Type of Item	Number of Individuals with Item	Percent of Sample
Beads	5	17.9
Nonhuman skeletal remains	18	64.2
Shell	1	3.6
Stone	3	10.7
Copper items	1	3.6
Total	**28**	**100.0**

Table 7.18 presents the number of individuals buried with grave goods at each mound group site and their proportion of the mound site sample. The McClaughry and Nitschke Mound Groups contain the greatest number of grave goods interred with individuals.

Table 7.18 Number of Individuals Buried with Grave Goods at Each Mound Group

Mound Group	Individuals with Grave Goods		Proportion of Mound Site Sample
	No	Yes	
Kletzien	17	2	11.8
KratzCreek	120	3	2.5
McClaughry	83	25	30.1
Neale	12	1	8.3
Nitschke	58	17	29.3
Raisbeck	68	6	8.8
Trowbridge	50	8	16
Total	**408**	**62**	

Results from Research Questions and Associated Expectations

The remaining portion of this chapter will describe the results from various statistical analyses that were performed to answer this study's two research questions and address their associated expectations. The statistics were computed using IBM SPSS Statistics versions 19 and 20. Tests of significance for nominal cross-tabulated data employed Pearson Chi-Square. Fisher's Exact Test was used when expected cell counts were less than five. To determine the probabilities of burial within effigy or geometric mounds based on various predictor variables, logistic regression analyses were used. In the logistic regression analyses, the dependent dichotomous variables in the analyses were: mound form (coded as geometric=0 and effigy=1) and disposition (coded as primary = 0 and secondary = 1). All chi-square tests of significance were 2-tailed and considered statistically significant at the p=0.05 level.

Research Question 1 and Expectations 1-5

To review Research Question 1 asked, "Do the mortuary practices associated with geometric and effigy mound forms serve different and distinct social functions among Effigy Mound communities?"

Expectation 1

Expectation 1 stated that if geometric mound forms were representative of collective identity and the creation of community cohesion, they would more commonly contain multiple burials and consequently exhibit a higher minimum number of interred individuals compared to effigy mound forms.

Crosstab analyses of multiple versus single burials and mound form were run at two levels: the individual level and the mound level. The individual level crosstab analysis compared the observed number of individuals interred singly or as part of a multiple burial (burial containing more than one individual) in effigy and geometric mounds to their expected counts. The mound level crosstab analysis, on the other hand, compared the observed number of geometric and effigy mounds that contained either a single or multiple burial with their expected counts. .

As can be seen in Table 7.19, most individuals (87.7%) were interred within multiple burials; while only 12.3% of the sample was interred within single burials. However, the number of individuals interred within a single burial were equal between geometric and effigy mounds. Geometric mound forms contained considerably more individuals within the multiple burials compared to effigy mound forms.

Table 7.19 Multiple/Single Burial by Mound Form Crosstab at the Individual Level

			Geometric	Effigy	Total	Percent of Sample
Burial Types	Multiple	Number of individuals interred in multiple burials	338	74	412	412/470 87.7%
		% within Burial Types	82.0%	18.0%	100.0%	
	Single	Number of individuals interred in single burials	29	29	58	58/470 12.3%
		% within Burial Types	50.0%	50.0%	100.0%	
Total		**Total number of individuals**	**367**	**103**	**470**	**470**
		% within Burial Types	**78.1%**	**21.9%**	**100.0%**	**100%**

Table 7.20 presents the results from the Pearson Chi-square analysis at the individual level. The results indicate that there was a statistically significant difference *(p*<.001) between the number of individuals buried in multiple or single interments and general mound form.

Table 7.20 Chi-Square Test Multiple/Single Burial * General Mound Form Individual Level

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	30.498	1	.000	.000
N of Valid Cases	470			

It is important to consider the MNI for Kratz Creek Mound #1 (n=111). This single mound represented a significant proportion of the sample which could potentially bias the results of this chi-square analysis. To remove its potential for bias, a second cross-tabulation was performed with Kratz Creek Mound #1 excluded from the analysis (Table 7.21).

Table 7.21 Burial Types * Mound Form Crosstab at Individual Level (Kratz Creek - Mound #1 Excluded)

Burial Type		Geometric	Effigy	Total
Multiple	Number of individuals interred within multiple burials	227	74	301
	% within Burial Types	75.4%	24.6%	100.0%
Single	Number of individuals interred within single burials	29	29	58
	% within Burial Types	50.0%	50.0%	100.0%
Total	**Number of individuals in sample**	**256**	**103**	**359**
	% within Burial Types	**71.3%**	**28.7%**	**100.0%**

The remaining sample included 359 individuals. Pearson Chi-square test of significance of this second cross-tabulation was still statistically significant at $p<.001$ (Table 7.22).

Table 7.22 Chi-Square Test Multiple/Single Burial * General Mound Form (Kratz Creek Mound #1 Excluded)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	15.35	1	.000	.000
N of Valid Cases	359			

To determine the probability that individuals interred within a multiple burial or as a single burial, would be preferentially buried within specific mound forms (coded dichotomously as geometric=0 and effigy=1), a logistic regression at the individual level was performed. The predictor variable was burial type, also coded dichotomously (multiple=0 and single=1). Multiple burial (mounds with more than one individual) served as the baseline for comparison. Table 7.23 presents the logistic regression coefficient, the Wald $\chi 2$ test, significance, and odds ratio for burial type. The Wald $\chi 2$ test indicated that individuals interred in multiple burials were significantly different ($p<.001$) than those interred as single burials. The odds ratio indicated that individuals interred as single burials were 4.6 times more likely to be buried within an effigy mound form.

Table 7.23 Logistic Regression of Burial Type and Mound Form at Individual Level

Predictor	β	S.E.	Wald χ^2	df	Significance *p*	Exp(β) Odds ratio
Burial Types	1.519	.292	27.006	1	.000	4.568
Multiple burial baseline	-1.519	.128	140.073	1	.000	.219

In addition to determining whether geometric or effigies contained more or less individuals relative to each other, the biologic makeup of the individuals within the burials was explored. Specifically, to determine whether certain age ranges were preferentially interred within multiple or single burials, the individual level of analysis also cross-tabulated each age range against multiple or single burial.

Table 7.24 presents the cross-tabulation of age range to burial type. Only those individuals that were assigned to a specific age range were included in the crosstab analysis (n=288). As one can see in the table, all age ranges were interred in both multiple and single burials.

Table 7.24 Age Range * Multiple/Single Burial Type Crosstab

Age Range	Burial Types		Total
	Individuals interred within a multiple burial	Individuals interred within a single burial	
0-4	27	1	28
5-9	34	3	37
9-15	27	1	28
16-25	61	4	65
25-35	56	2	58
35+	68	4	72
Total	**273**	**15**	**288**

The data was further collapsed such that individuals in the 0 to 15 range were classified as juvenile and individuals 16+ were classified as adult. This second cross tabulation presented in Table 7.25 included the additional 128 individuals classified within the general adult category (n=416).

Table 7.25 Collapsed Age Range * Multiple/Single Burial Type Crosstab

Age Category	Burial Types		Total
	Individuals interred within a multiple burial	Individuals interred within a single burial	
Juvenile	88	5	93
Adult	293	30	323
Total	**381**	**35**	**416**

A Pearson Chi-Square test of the collapsed age category crosstab is presented in Table 7.26. The results were not statistically significant (p=.292) suggesting that neither adults nor juveniles were preferentially interred within multiple or single burials.

Table 7.26 Chi-Square of Adult/Juvenile * Multiple/Single Crosstab

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	1.434	1	.231	.292
N of Valid Cases	416			

Sex was also cross-tabulated against multiple or single burial to determine whether males or females were preferentially interred within multiple or single burials. Only adult individuals where sex could be determined were included in the crosstab analysis (n=209). Results from the crosstab are presented in Table 7.27.

Table 7.27 Sex * Multiple/Single Burial Type Crosstab

Sex	Burial Types		Total
	Number of Individuals interred with a multiple burial	Number of Individuals interred with a single burial	
Female	108	5	113
Male	89	7	96
Total	**197**	**12**	**209**

Figure 7.5 shows the fairly equal proportion of males and females interred as part of multiple burials and as single burials.

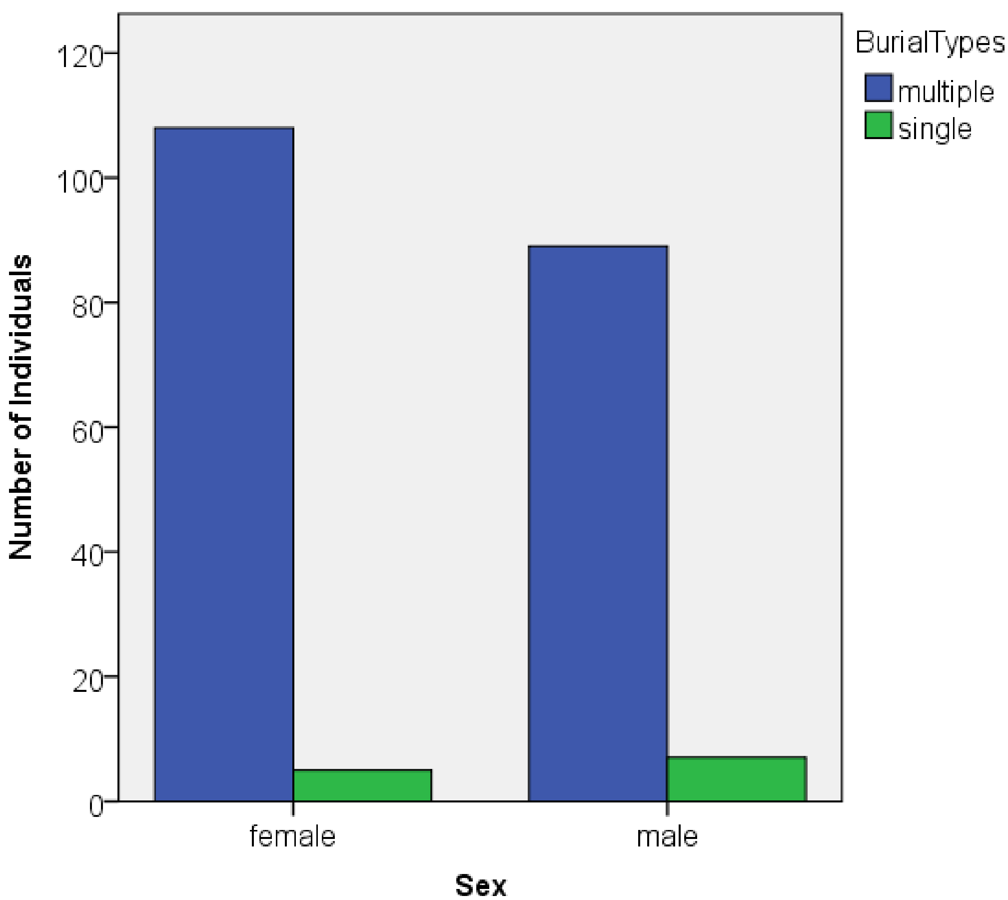

Figure 7.5 Number of Adult Males and Females Interred within Multiple or Single Burials

Results from the Pearson Chi-square test are presented in Table 7.28. The results were not statistically significant (*p*=.553) indicating that males and females were not preferentially interred within one type of burial (multiple or single).

Table 7.28 Chi-Square of Sex * Multiple/Single Crosstab

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	.788	1	.375	.553
N of Valid Cases	209			

When multiple versus single burial type was cross-tabulated against mound form at the *mound level* (Table 7.29), the results were not statistically significant. Forty-four geometric mounds contained multiple burials; while 20 effigy mounds contained multiple burials. Single burials were observed roughly equal between effigy (n=26) and geometric (n=31) mound forms. Similarly, mounds that did not contain burials did not appear to be predominantly associated with a particular mound type.

Table 7.29 Burial Type * Mound Form at Mound Level Crosstab

		Geometric	Effigy	Total
Multiple Burial	Count	44	20	64
	% within Burial Type Multiple or Single	68.8%	31.2%	100.0%
Single Burial	Count	31	26	57
	% within Burial Type Multiple or Single	54.4%	45.6%	100.0%
No Burial	Count	45	31	76
	% within Burial Type Multiple or Single	59.2%	40.8%	100.0%
Total	**Count**	**120**	**77**	**197**
	% within Burial Type Multiple or Single	**60.9%**	**39.1%**	**100.0%**

Table 7.30 presents the results from the Pearson Chi-square test for significance of this cross-tabulation.

Table 7.30 Chi-Square Test Multiple/Single Burial * General Mound Form at the Mound Level

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2.763	2	.251	.251
N of Valid Cases	121			

To determine the probability that certain mound forms (coded dichotomously as geometric=0 and effigy=1) would preferentially contain certain types of burials, a logistic regression at the mound level was performed. The predictor variable was burial type (coded as no burial, single burial, and multiple burial). Multiple burial served as the baseline for comparison. The logistic regression tested each predictor in reference to the baseline in the equation.

Table 7.31 presents the logistic regression coefficient, the Wald $\chi 2$ test, significance, and odds ratio for burial type. The Wald $\chi 2$ test indicated that burial type was not statistically significantly different between mound forms (*p*=.254). The odds ratio indicated that effigy mounds were 1.5 times more likely to not contain burials and 1.8 times more likely to contain single burials than geometric mound forms.

Table 7.31 Logistic Regression of Burial Type and Mound Form at the Mound Level

Predictor	β	S.E.	Wald χ^2	df	Significance *p*	Exp(β) Odds ratio
BurialType			2.738	2	.254	
No burial	.416	.357	1.359	1	.244	1.516
Single burial	.613	.379	2.616	1	.106	1.845
Multiple burial baseline	-.788	.270	8.548	1	.003	.455

The difference in results between the mound level data and individual level data indicates that it was *not* the type of burial (multiple versus single) alone that demarcated difference between burials within geometric or effigy mound forms; rather it was the number of individuals included within the multiple interments that primarily denoted difference. This is consistent with the fact that nearly all multiple burials with greater than five individuals were found within geometric mound forms (Table 7.4).

Expectation 2a

Expectation 2a stated that burial within geometric mound forms would cross-cut age categories. Age range was cross-tabulated against mound form. As can be seen in Table 7.32, all age ranges were represented in both geometric and effigy mound forms.

Table 7.32 Age Range * Mound Form Crosstab

			General Effigy Category		Total
			Geometric	Effigy	
Age Range	0-4 yr. olds	Count	19	9	28
		Expected Count	22.6	5.4	28.0
		% of age group	67.9%	32.1%	100.0%
	5-9 yr. olds	Count	33	4	37
		Expected Count	29.9	7.1	37.0
		% of age group	89.2%	10.8%	100.0%
	9-15 yr. olds	Count	25	3	28
		Expected Count	22.6	5.4	28.0
		% of age group	89.3%	10.7%	100.0%
	16-25 yr. olds	Count	52	13	65
		Expected Count	52.5	12.5	65.0
		% of age group	80.0%	20.0%	100.0%
	35+	Count	58	14	72
		Expected Count	58.2	13.8	72.0
		% of age group	80.6%	19.4%	100.0%
	adult	Count	100	28	128
		Expected Count	103.4	24.6	128.0
		% of age group	78.1%	21.9%	100.0%
	25-35 yr. olds	Count	49	9	58
		Expected Count	46.8	11.2	58.0
		% of age group	84.5%	15.5%	100.0%
Total		**Count**	**336**	**80**	**416**
		% of sample	**80.8%**	**19.2%**	**100.0%**

Results from the Pearson Chi-square test, presented in Table 7.33, were not statistically significant (*p*=.311). The results suggest that individuals within each age range were not preferentially buried within geometric or effigy mound forms.

Table 7.33 Chi-Square Test Age Range * General Mound Form

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	7.120	6	.310	.311
N of Valid Cases	416			

To determine the probability that certain age ranges were preferentially interred within geometric or effigy mound forms, a logistic regression was performed. Only those individuals that could be assigned to a specific age range were included in the logistic regression analysis (n=288).

The predictor variable was age range while the dependent variable was mound form (dichotomously coded as geometric=0 and effigy=1). The 25-35 year-old age range served as the baseline and the logistic regression tested each predictor in the equation to this group. Table 7.34 presents the logistic regression coefficient, the Wald χ^2 test, significance, and odds ratio for each age range.

Table 7.34 Logistic Regression Analysis of Age Range and Mound Form

Predictor	β	S.E.	Wald χ^2	df	Significance *p*	Exp(β) Odds ratio
Age range			6.268	5	.281	
0-4 year-olds	.947	.543	3.040	1	.081	2.579
5-9 year-olds	-.416	.642	.419	1	.517	.660
9-15 year-olds	-.426	.711	.359	1	.549	.653
16-25 year-olds	.308	.477	.417	1	.518	1.361
35 plus	.273	.469	.339	1	.560	1.314
25-35 baseline	-1.695	.363	21.834	1	.000	.184

The Wald χ^2 test indicates that individuals within certain age ranges were not preferentially buried within effigy mound forms (*p*=.281). However, despite that age range was not statistically significantly different between geometric and effigy mound forms, the logistic regression did indicate that the 0-4 year-old age group was markedly different from other age ranges in the sample. Interestingly, the odds ratio for the 0-4 year-old age range indicates that this age group was nearly 2.6 times more likely to be buried within an effigy mound than the 25-35 year-old age group (baseline). In comparison, 16-25 year-olds and 35 plus age group were 1.36 and 1.31 times more likely to be buried in effigy mound forms

Reexamination of the crosstab for age-range and mound form, (Table 7.32), indicates that the actual count of individuals in the 0-4 year-old age range interred within effigy mound forms was considerably more than the expected count. Review of the archaeological reports and skeletal dataset suggests that the Nitschke Mound Group may be the outlier. Indeed, cross-tabulation of the 0-4 year-old age range at all mound groups clearly indicates that the Nitschke Mound Group contained a disproportionate number of the 0-4 year-olds interred within effigy mounds forms at 70% (Table 7.38).

Table 7.35 0-4 Year-olds * Mound Form at Each Mound Group

			Geometric	Effigy	Total
Mound Group	Kratz	Number of 0-4 year-olds	9	2	11
		Expected Count	7.5	3.5	10.0
		% within Mound Group	81.8%	18.2%	100.0%
	McClaughry	Number of 0-4 year-olds	5	0	5
		Expected Count	3.4	1.6	5.0
		% within Mound Group	100.0%	0.0%	100.0%
	Nitschke	Number of 0-4 year-olds	3	7	10
		Expected Count	6.8	3.2	10.0
		% within Mound Group	30.0%	70.0%	100.0%
	Raisbeck	Number of 0-4 year-olds	2	0	2
		Expected Count	1.4	.6	2.0
		% within Mound Group	100.0%	0.0%	100.0%
Total		**Number of 0-4 year-olds**	**19**	**9**	**28**
		% within General Effigy Category	**67.9%**	**32.1%**	**100.0%**

Results from the Fisher's Exact Test (Table 7.36) indicates that differences between the number of 0-4 year-olds interred at the different mound groups was statistically significant (p=.014).

Table 7.36 Fisher's Exact Test 0-4 Year-olds * Mound Form at Each Mound Group

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Fisher's Exact Test	9.290			.014
N of Valid Cases	28			

Outside of the 0-4 year-olds buried within effigy mound forms at the Nitschke Mound Group, age was not significantly associated with either geometric or effigy mound forms. The age distribution of individuals interred within geometric and effigy mound forms appears to be randomly distributed within the Effigy Mound collection at the MPM.

Expectation 2b

Expection 2b stated that burial within geometric mound forms would cross-cut sex categories. Like age, sex was cross-tabulated against mound form (Table 7.37).

Table 7.37 Sex * Mound Form Crosstab

	General Effigy Category		
	Geometric	Effigy	Total
Female	96	17	113
Male	80	16	96
Total	**176**	**33**	**209**

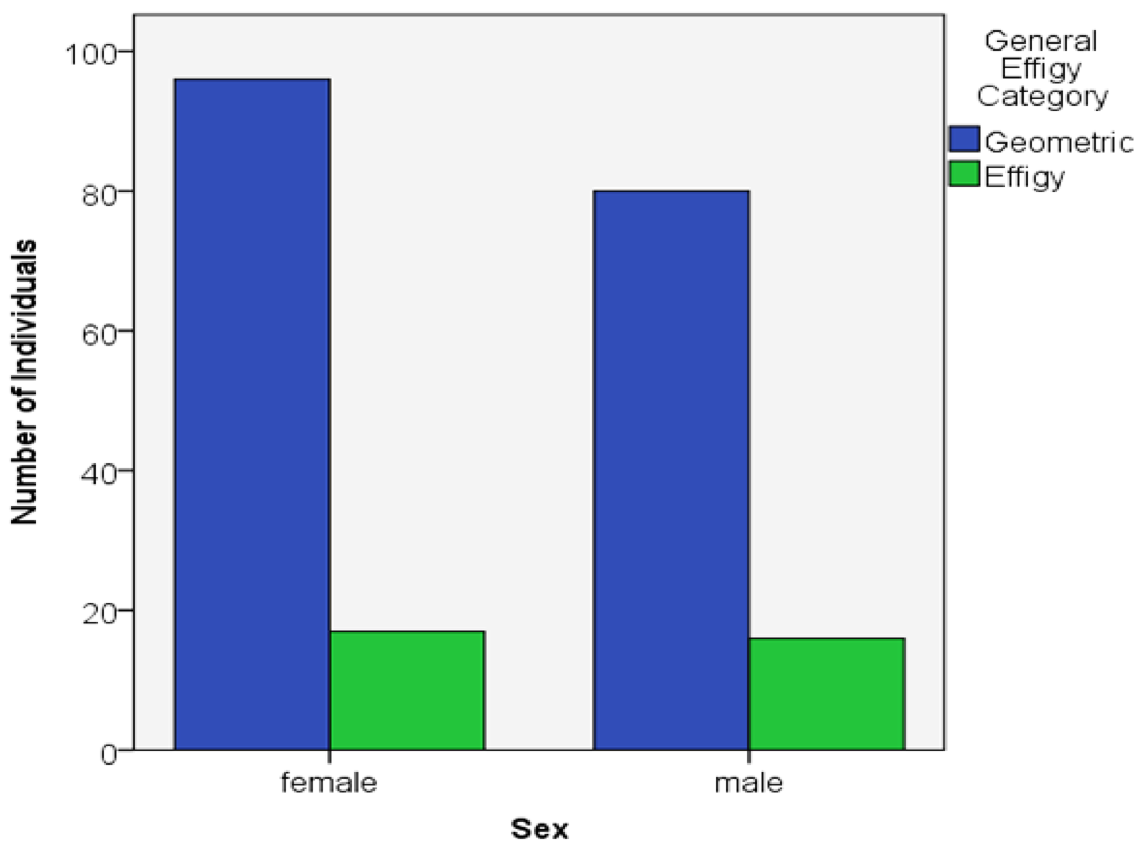

Figure 7.6 Sex * Mound Form Crosstab

As shown in Figure 7.6, males and females were fairly equally distributed in geometric mounds and effigy mounds respectively. Pearson's Chi-square was employed to test for significance and not surprisingly, the results indicate that there were no statistically significant differences between males and females and burial within geometric or effigy mound forms (p=.447, df = 1).

As previously noted in the chapter, results from both the Pearson Chi-Square analyses of age and sex were not statistically significant at p=.311 and p =.447 respectively. However, to determine whether age influenced the effect of sex on burial within specific mound forms, a logistic regression was conducted with the addition of an age and sex interaction. Only individuals that could be assigned sex were included in the analysis which resulted in the exclusion of subadult individuals. Specifically males and females within the following age ranges were included in the logistic regression: 16-25, 25-35, general adult category, and 35 and older.

In this scenario, the predictor variable was a created interaction variable of sex by age in which 25-35 year old females formed the baseline against which other combinations were compared. Once again, the dependent variable was mound form (coded dichotomously as geometric=0 and effigy=1).

Table 7.38 presents the logistic regression coefficient, Wald χ^2 test, significance, and odds ratio for the interaction of sex and each adult age range listed above. Although creating the interaction term of sex and age improved the model, the results from the Wald χ^2 test were not statistically significant (p=.263). The results indicate that the interaction of age and sex did not result in differences in mound burial location.

Table 7.38 Logistic Regression of Sex and Age Interaction and Effect on Mound Burial

Predictor	β	S.E.	Wald χ^2	df	Significance *p*	Exp(β) Odds ratio
Sex by Age			3.986	3	.263	
Sex by 16-25 year-olds	.794	.579	1.877	1	.171	2.212
Sex by 35 plus	.363	.487	.555	1	.456	1.437
Sex by Adult	-1.247	1.053	1.402	1	.236	.288
Sex by 25-35 baseline	-1.749	.242	52.128	1	.000	.174

Expectation 3

Expectation 3 stated that if geometric mound forms were associated with the creation of collective identity, they would exhibit a higher proportion of secondary burial treatment, including secondary cremation-burial, when compared to effigy mound forms. Conversely, if effigy mound forms were representative of distinct social positions which were restricted to selected segments of society, the mortuary treatment associated with them would be fundamentally different than those symbolic of collective identity. Specifically, it was expected that effigy mound forms would contain a greater frequency of primary burials compared to geometric mound forms.

Like multiple versus single burials, the crosstab analyses of burial disposition and mound form were run at two levels: the individual level and the mound level. The individual level analysis included only those individuals where burial disposition was known (n=420). Table 7.35 presents the results of the cross-tabulation of primary versus secondary burial disposition and mound form at the individual level. Secondary burial disposition was by far the most common mortuary treatment afforded individuals in the sample, with 73.3.7% of the sample disposed in some form of secondary treatment (Table 7.39).

Table 7.39 Burial Disposition * Mound Form Crosstab at Individual Level

		Geometric	Effigy	Total	Percent of Total Sample
Secondary all forms	Number of Individuals	257	51	308	308/420
	Expected Count	247.9	60.1	308.0	
	%	83.4%	16.6%	100.0%	73.3%
Primary all forms	Number of Individuals	42	27	69	69/420
	Expected Count	55.5	13.5	69.0	
	%	60.9%	39.1%	100.0%	16.5%
Mixed primary and secondary	Number of Individuals	39	4	43	43/420
	Expected Count	34.6	8.4	43.0	
	%	90.7%	9.3%	100.0%	10.2%
Total	**Number of Individuals**	**338**	**82**	**420**	**420**
	%	**80.5%**	**19.5%**	**100.0%**	**100.0%**

Attention needs to be drawn to the expected versus observed counts of individuals disposed as primary and mixed burials within effigy mound forms. As can be seen in Table 7.39, the observed number of individuals disposed as primary burials is double the expected value within effigy mound forms. Additionally, the observed number of individuals disposed as part of a mixed interment is half the expected value for effigy mounds.

Figure 7.7 illustrates the disproportionate number of individuals disposed as secondary burials and as part of mixed interments placed within geometric mound forms.

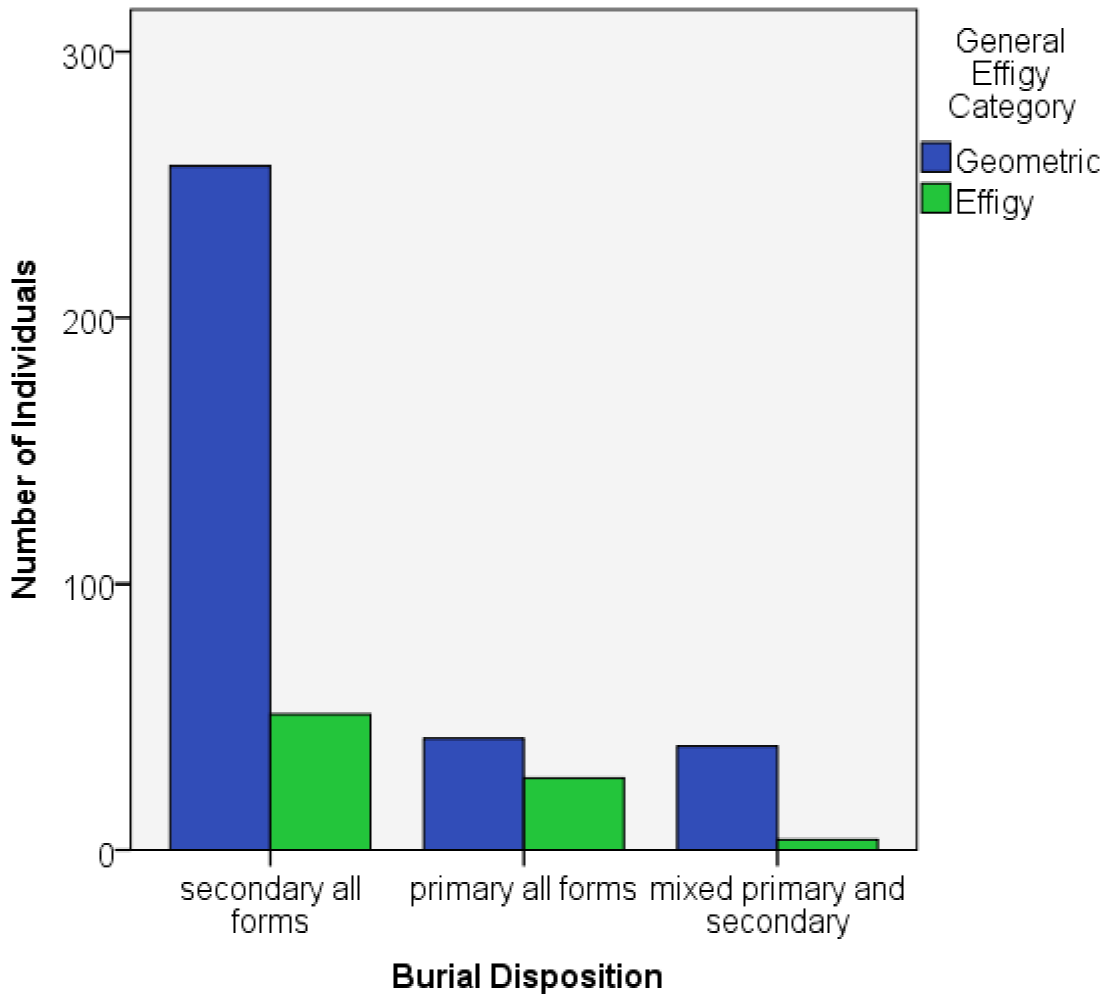

Figure 7.7 Burial Disposition * Mound Form Crosstab at Individual Level

The result from the Pearson Chi-Square test for significance is presented in Table 7.40. The chi-square test indicates that the burial disposition of individuals is statistically different between geometric and effigy mound forms (*p*<.001).

Table 7.40 Chi-Square Test of Burial Disposition*Mound Form at Individual Level

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	21.465	2	.000	.000
N of Valid Cases	420			

In addition to determining whether geometric or effigies preferentially contained primary and secondary burials relative to each other, the biologic makeup of the individuals interred as primary and secondary burials was explored. Specifically, to determine whether certain age ranges were preferentially interred as primary or secondary burials, the individual level of analysis also cross-tabulated each age range against primary and secondary burial disposition.

Table 7.41 presents the cross-tabulation of age range to burial type. Only those individuals that were assigned to a specific age range and were disposed as a primary or secondary burial were included in the crosstab analysis (n=252). As one can see in the table, all age ranges were disposed as both primary and secondary burials.

Table 7.41 Age Range * Burial Disposition Crosstab

Age Range	Burial Disposition		Total
	Number of individuals disposed as secondary all forms	Number of individuals disposed as primary all forms	
0-4	21	3	24
5-9	32	1	33
9-15	23	1	24
16-25	50	9	59
25-35	39	11	50
35+	54	8	62
Total	**219**	**33**	**252**

However, adults (16 years+) appear to be interred as primary burials with much greater frequency than juveniles (Table 7.42). This second crosstab included all the individuals within the generalized adult category with known burial disposition (n=395).

Table 7.42 Juvenile versus Adult Category * Burial Disposition Crosstab

		Disposition			Total
		Primary	Mixed	Secondary	
Juvenile	Count	5	5	76	86
	Expected Count	13.5	9.1	63.4	86.0
	%	5.8%	5.8%	88.4%	100.0%
Adult	Count	57	37	215	309
	Expected Count	48.5	32.9	227.6	309.0
	%	18.4%	12.0%	69.6%	100.0%
Total	**Count**	**62**	**42**	**291**	**395**
	%	**15.7%**	**10.6%**	**73.7%**	**100.0%**

Table 7.43 presents the results from the Pearson Chi-Square test of this second crosstab (juvenile/adult against secondary/primary). The results were statistically significant ($p<.001$) indicating that adults were more likely to be disposed as a primary burial compared to juveniles.

Table 7.43 Chi-Square Test of Age-Category * Burial Disposition

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	12.466	2	.002	.000
N of Valid Cases	395			

To determine the probability that certain age ranges would be disposed as primary or secondary burials, a logistic regression was performed. Only those individuals that could be assigned to a specific age range and had known disposition as either primary or secondary were included in the logistic regression analysis (n=252). In other words, individuals placed within the general adult category, interred as part of a mixed burial, or had an unknown burial disposition were excluded from the analysis because a specific age range and mode of disposition could not be assigned to these individuals.

The predictor variable was age range while the dependent variable was burial disposition (dichotomously coded as primary=0 and secondary=1). The logistic regression tested each predictor in the equation to the 25-35 year old group (set as the baseline). Table 7.44 presents the logistic regression coefficient, the Wald χ^2 test, significance, and odds ratio for each age range.

Table 7.44 Logistic Regression Age and Burial Disposition

Age Range	β	S.E.	Wald χ^2	df	Significance p	Exp(β) Odds Ratio
Age			6.993	5	.221	
0-4	.680	.705	.930	1	.335	1.974
5-9	2.200	1.071	4.217	1	.040	9.026
9-15	1.870	1.077	3.014	1	.083	6.487
16-25	.449	.498	.814	1	.367	1.567
35+	.644	.510	1.594	1	.207	1.904
25-35 baseline	1.266	.341	13.744	1	.000	3.545

Although the Waldχ^2 test indicates that age was not statistically significant (*p*=.221), the logistic regression does illustrate that certain age ranges were significantly different than the 25-35 year-old baseline group. Notably, the 5-9 year-old age range was significantly different (*p*=.04).

The odds ratio indicates that all age ranges were more likely to be disposed as a secondary burial which is not surprising considering that the majority of individuals were disposed as secondary burials. However certain age ranges were much more likely to be disposed as secondary burials compared to primary burials. For example, the 5-9 year-old age range group was 9 times more likely to be disposed as a secondary burial. The 9-15 year-old age range group was nearly 6.5 times more likely to be disposed as a secondary burial.

Sex was cross-tabulated against burial disposition to determine whether males or females were preferentially disposed as primary or secondary burials. Only adult individuals where sex could be determined and who were disposed as either a secondary or primary burial were included in the crosstab analysis (n=179). Results from the crosstab analysis are presented in Table 7.45

Table 7.45 Sex versus Adult Category * Burial Disposition Crosstab

Sex		Recoded Burial Disposition: Number of individuals disposed as secondary all forms	Recoded Burial Disposition: Number of individuals disposed as primary all forms	Total
Female	Count	84	11	95
	%	88.4%	11.6%	100.0%
Male	Count	66	18	84
	%	78.6%	21.4%	100.0%
Total	**Count**	**150**	**29**	**179**
	%	**83.8%**	**16.2%**	**100.0%**

Table 7.46 displays the results from the Pearson Chi-Square test. The results were not statistically significant, however, they approached significance at p=.103, suggesting that sex may influence burial disposition.

Table 7.46 Chi-Square Test of Burial Disposition*Mound Form at Individual Level

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	3.186	1	.074	.103
N of Valid Cases	179			

The *mound level* crosstab analysis first compared the observed number of effigy and geometric mounds containing just secondary or primary burials to expected counts. In other words, mixed primary and secondary interments were not included in the first crosstab analysis. As illustrated in Table 7.47 and Figure 7.8, the numbers of effigy mounds containing primary burials were more numerous than effigy mounds containing secondary burials, which is particularly interesting considering the predominance of secondary burial disposition within the collection. However, the numbers of geometric mounds and effigy mounds that contained primary burials were equal.

Table 7.47 Burial Disposition * Mound Form Crosstab at Mound Level

		Geometric	Effigy	Total
secondary	Number of mounds with secondary burials only	33	10	43
	% within Recoded burial disposition	76.7%	23.3%	100.0%
primary	Number of mounds with primary burials only	16	16	32
	% within Recoded burial disposition	50.0%	50.0%	100.0%
Total	**Count**	**49**	**26**	**75**
	% within Recoded burial disposition	65.3%	34.7%	100.0%

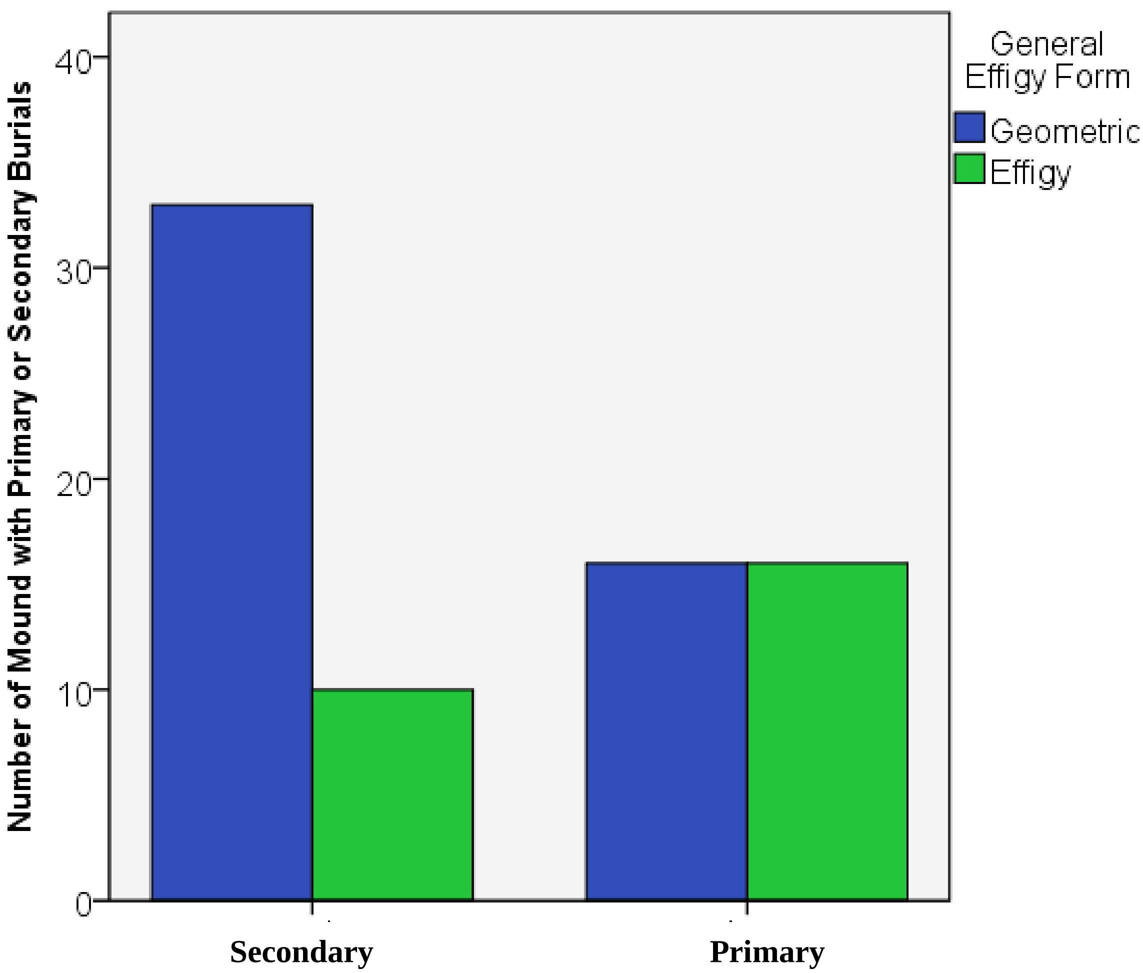

Figure 7.8 Burial Disposition * Mound Form Crosstab at Mound Level

The Pearson Chi-Square test indicates that differences in burial disposition between effigy and geometric mounds at the mound level were statistically significant (*p*=.026) and are presented in Table 7.48.

Table 7.48 Chi-Square Test of Burial Disposition and Mound Form at Mound Level

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	5.794	1	.016	.026
N of Valid Cases	75			

Figure 7.9 illustrates the proportion of each type of disposition within effigy and geometric mound forms. Mixed primary and secondary burials were the least common type in both geometric and effigy mounds. Secondary burial was the most common form of disposition found in geometric mounds, while primary dispositions were most frequently seen in effigy mounds.

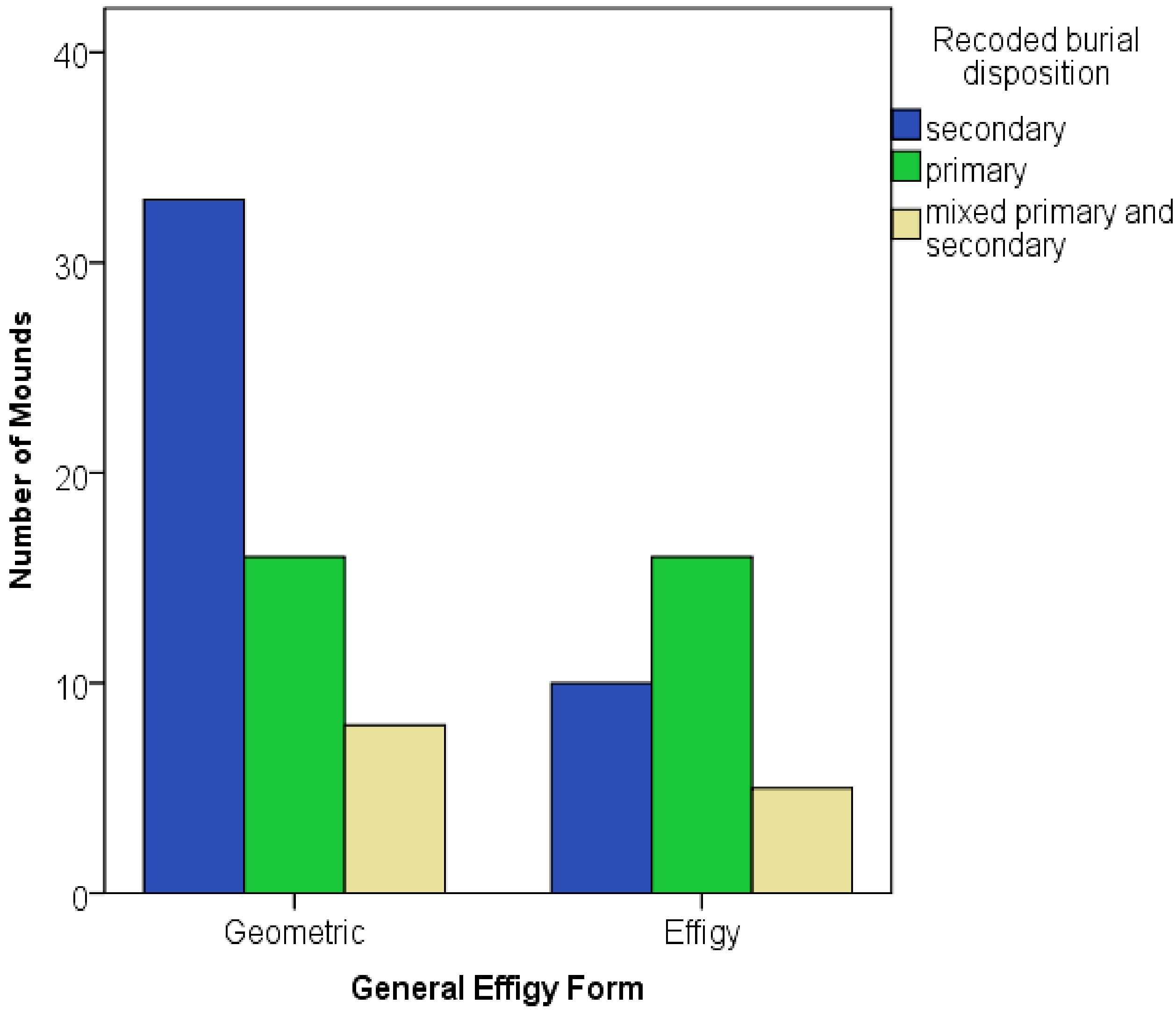

Figure 7.9 All Burial Dispositions * Mound Form Crosstab at Mound Level

A second crosstab analysis at the mound level was performed with the addition of mixed primary and secondary burials. The result from this cross-tabulation is presented in Table 7.52. As can be seen in Table 7.49, mixed burials were fairly uncommon in Effigy Mound groups. However, they tended to occur relatively equally between effigy and geometric mound forms (Figure 7.9).

Table 7.49 Crosstab Burial Disposition Types * Mound Form at the Mound Level

		Geometric	Effigy	Total
secondary	Count	33	10	43
	% within General Effigy Form	57.9%	32.3%	48.9%
primary	Count	16	16	32
	% within General Effigy Form	28.1%	51.6%	36.4%
mixed primary and secondary	Count	8	5	13
	% within General Effigy Form	14.0%	16.1%	14.8%
Total	**Count**		**57**	**88**
	% within General Effigy Form		100.0%	100.0%

The result from the Fisher's Exact test with mixed interments included is also statistically significant at p =.050 (Table 7.50).

Table 7.50 Chi-Square Test of Burial Disposition Types and Mound Form

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Fisher's Exact Test	5.820	2		.050
N of Valid Cases	88			

A logistic regression was performed to determine how well burial disposition predicted whether individuals were buried within geometric or effigy mound forms based on the predictor value of burial disposition. Only individuals with known burial disposition were included in the analysis (n=420). The predictor variables for burial disposition in the logistic regression were an individual's postmortem treatment as either secondary, primary, or mixed.

To remind the reader, geometric or effigy mound form was the dichotomous dependent variable with geometric mounds functioning as the baseline (geometric=0, effigy=1). Secondary burial disposition functioned as the baseline that both primary and mixed interments were compared against. Table 7.51 presents the logistic regression coefficient, Wald χ^2 test, significance, and odds ratio for each of the predictors. The results indicate that differences in burial disposition between geometric and effigy mound forms is statistically different ($p<.001$). Mixed primary and secondary interments, however, were not statistically significantly associated with one mound form versus another. The odds ratio indicated that individuals disposed as primary burials were 3.2 times more likely to be interred within effigy mounds than geometric mound forms.

Table 7.51 Logistic Regression of Individual Burial Disposition and Mound Form

Predictor	β	S.E.	Wald χ^2	df	Significance *p*	Exp(β) Odds ratio
Burial Disposition			19.713	2	.000	
Primary Burial	1.175	.290	16.380	1	.000	3.239
Mixed Primary and Secondary Burial	-.660	.547	1.456	1	.228	.517
Secondary Burial Baseline	-1.617	.153	111.303	1	.000	.198

Additionally, a second logistic regression was employed to predict burial within geometric or effigy mound forms using both predictor values for burial type and disposition. Only individuals with known burial disposition were included in the analysis (n=420). The predictor variable for burial type was multiple or single interment. The predictor variables for burial disposition were an individual's postmortem treatment as either secondary, primary, or mixed. Secondary burial treatment functioned as the baseline for which other treatments were compared against.

Table 7.52 presents the logistic regression coefficient, Wald χ^2 test, significance, and odds ratio for each of the predictors. Both burial type and disposition were statistically significantly different between geometric mound forms and effigy mounds. Individuals disposed within a single burial were nearly 2.5 times more likely to be interred within an effigy mound, while those disposed as a primary burial were 2.6 times more likely to be buried within an effigy mound. Individuals interred within a mixed burial were only .549 times more likely to be buried within an effigy mound.

Table 7.52 Logistic Regression of Burial Type, Individual Burial Disposition and Mound Form

Predictor	β	S.E.	Wald χ^2	df	Significance *p*	Exp(β) Odds ratio
Multiple/Single Burial	.907	.390	5.407	1	.020	2.477
Burial Disposition			11.863	2	.003	
Primary Burial	.960	.309	9.654	1	.002	2.611
Mixed Primary and Secondary Burial Interment	-.599	.548	1.195	1	.274	.549
Secondary Burial baseline	-1.678	.157	113.859	1	.000	.187

Expectation 4

Expectation 4 stated geometric mound forms would exhibit higher frequencies of multiple types of activities within the same mound. Conversely, it was expected that effigy mound forms would exhibit lower frequencies of multiple ritual activities.

The number of occurrences of the various types of ritual paraphernalia observed was cross-tabulated against mound form. The crosstab analysis of ritual paraphernalia to mound form is presented in Table 7.53. Evident in Table 7.53 is that mounds containing no evidence of ritual were the most numerous. Of the numerous types of ritual paraphernalia, altars were the most frequently encountered. They occurred with equal frequency in geometric and effigy mound forms. Altars combined with other types of paraphernalia were also not uncommon.

Table 7.53 Ritual Paraphernalia * Mound Form Crosstab

Type of Ritual Paraphernalia	General Effigy Form		Total
	Number within Geometric Mounds	Number within Effigy Mounds	
Altar	23	23	46
Cist	7	3	10
Pottery	4	2	6
Shell	0	2	2
Animal	5	0	5
Pipes	2	0	2
Altar and pottery	6	2	8
Altar and cist	2	2	4
Altar and animal	2	2	4
More than two types	2	2	4
No paraphernalia	66	40	106
Total	**120**	**77**	**197**

Table 7.54 Ritual Paraphernalia in Geometric Mounds

Type of paraphernalia	Number of Mounds Exhibiting Paraphernalia	Proportion (%)
Altar	23	42.3
Cist	7	13
Pottery	4	7.4
Shell	0	0
Animal bone	5	9.3
Pipes	2	3.7
Altar and pottery	6	11.1
Altar and animal	2	3.7
Altar and cist	3	5.6
More than two types	2	3.7
Total	**54**	**100.0**

Table 7.55 Ritual Paraphernalia in Effigy Mounds

Type of paraphernalia	Number of Mounds Exhibiting Paraphernalia	Proportion (%)
Altar	23	62.2
Cist	3	8.1
Pottery	2	5.4
Shell	2	5.4
Animal bone	0	0
Pipes	0	0
Altar and pottery	2	5.4
Altar and animal	2	5.4
Altar and cist	1	3.7
More than two types	2	5.4
Total	**37**	**100.0**

Tables 7.54 and 7.55 present the frequencies of various types of ritual paraphernalia and their proportions in geometric and effigy mounds respectively. Perhaps, what is most striking is that other than the predominance of altars, there is very little patterning of ritual paraphernalia in either mound form (Figure 7.10).

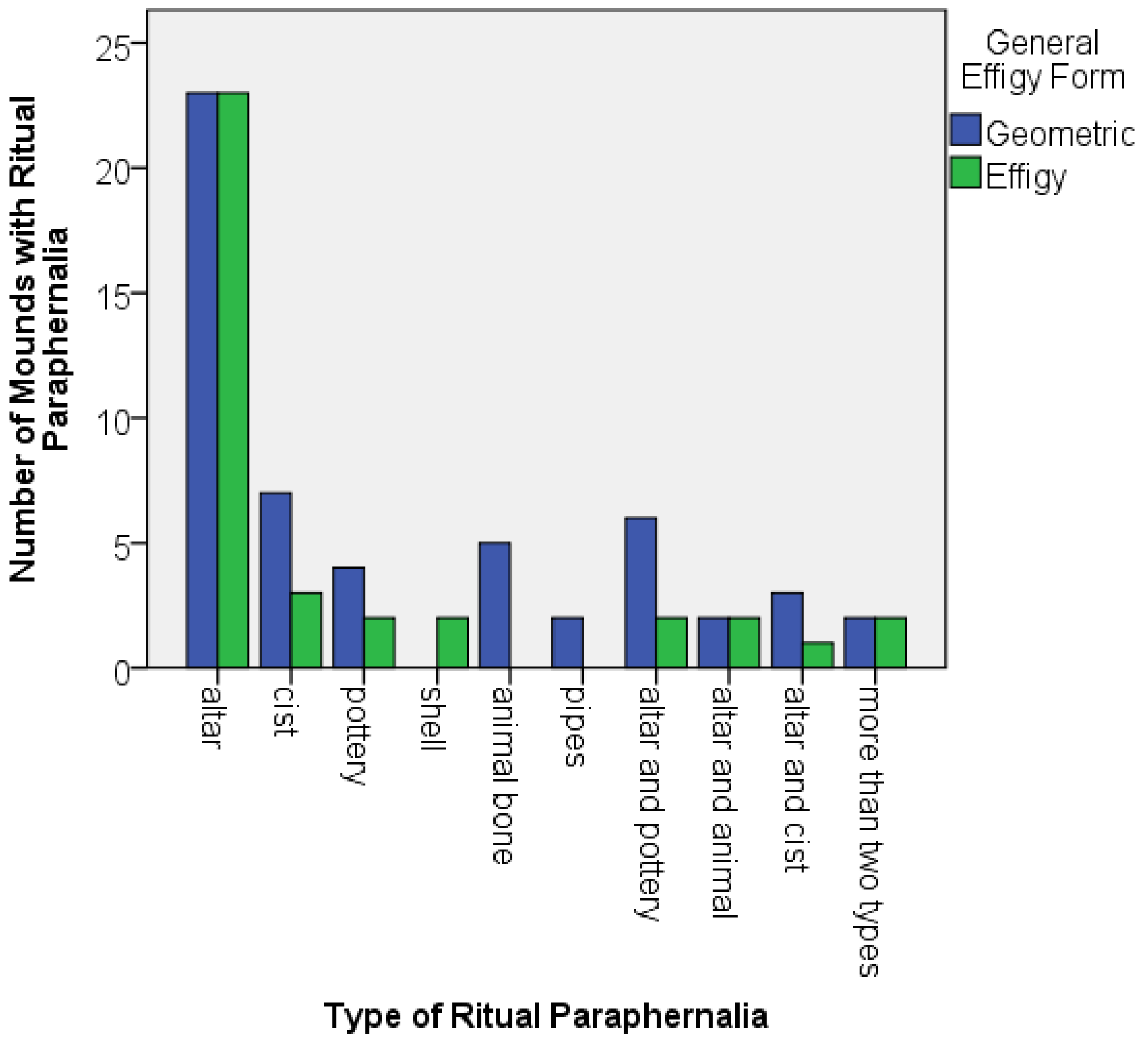

Figure 7.10 Ritual Paraphernalia by Mound Form

The data was collapsed for statistical analyses such that mounds were classified as either containing a single type of ritual paraphernalia or containing multiple types of paraphernalia within a single mound and then cross-tabulated against mound form. Table 7.56 only includes mounds with observed ritual paraphernalia. The table shows that mounds containing a single type of ritual paraphernalia were more than double those containing multiple types of ritual paraphernalia.

Table 7.56 Single versus Multiple Ritual Paraphernalia within a Single Mound * Mound Form Crosstab

	Geometric	Effigy	Total
Number of occurrences where multiple types of ritual paraphernalia was observed within a single mound	16	11	27
Number of occurrences where a single type of ritual paraphernalia was observed within a mound	38	26	64
Total	**54**	**37**	**91**

Pearson Chi-square test of significance for single versus multiple paraphernalia within a single mound and mound form was not significant at $p = 1.0$ (Table 7.57).

Table 7.57 Chi-Square Test Single versus Multiple Ritual Paraphernalia and Mound Form

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	.009	1	.995	1.000
N of Valid Cases	91			

To determine if multiple or single ritual paraphernalia within mounds was characteristic of specific mound groups; multiple/single types of ritual paraphernalia were cross-tabulated against mound group. The results are presented in Table 7.58. As can be clearly seen in Table 7.58, the presence of multiple versus single types of ritual paraphernalia within the mounds is not isolated to certain mound groups. Virtually all mound groups, with the exception of the Trowbridge Mound Group, exhibit both single and multiple types of ritual paraphernalia within the mounds. In all cases, mounds with single ritual types outnumber mounds with multiple forms.

Table 7.58 Single versus Multiple Ritual Paraphernalia within a Single Mound at each Mound Group

Mound Group	Number of Mounds Exhibiting Multiple or Single Types of Ritual Paraphernalia		Total
	Combined ritual paraphernalia objects	Single ritual paraphernalia object	
Kletzien	2	9	11
Kratz	5	13	18
McClaughry	8	13	21
Neale	5	9	14
Nitschke	2	4	6
Raisbeck	5	14	19
Trowbridge	0	2	2
Total	**27**	**64**	**91**

Not surprisingly, the classification table (Table 7.59) from the logistic regression indicated that the presence of multiple versus single ritual paraphernalia was not a good predictor of mound form. As previously noted, the dependent variable for the logistic regression was mound form (geometric mounds=0 and were the baseline effigy forms=1). Multiple paraphernalia in this analysis were considered as the baseline and coded as 0; while the presence of a single type of paraphernalia within a mound was coded as 1.

Table 7.59 Classification Table from Logistic Regression of Multiple/Single Type Ritual Paraphernalia and Mound Form

Observed		Predicted		
		Geometric	Effigy	Total
General Effigy Form	Geometric	54	0	100.0
	Effigy	37	0	.0
Overall Percentage				**59.3**

Table 7.59 indicates that while the model predicted geometric mounds correctly one hundred percent of the time, all effigy mounds were classified as geometric mounds. In other words, the observed geometric mounds (n=54) were correctly predicted as geometric mounds. The effigy mounds (n=37), on the other hand, were all predicted to be geometric mounds using the presence of single ritual paraphernalia as the predictor. The total percentage of mounds correctly classified was only 59.3% indicating that the presence of single types of ritual paraphernalia versus combined types does not distinguish geometric mounds from effigy mound forms.

Table 7.60 presents the logistic regression coefficient, the Wald $\chi 2$ test, significance, and odds ratio for burial type. The Wald $\chi 2$ test and significance indicated that there was no significance difference between multiple types of ritual paraphernalia and single types exhibited by geometric and effigy mounds. The odds ratio indicated that effigy mounds and geometric mounds had an equal likelihood to exhibit single types of ritual paraphernalia than geometric mound forms.

Table 7.60 Logistic Regression of Multiple/Single Type of Ritual Paraphernalia and Mound Form

Predictor	β	S.E.	Wald χ^2	df	Significance *p*	Exp(β) Odds ratio
Single type of ritual paraphernalia	.005	.467	.000	1	.992	1.005
Multiple types of ritual paraphernalia	-.379	.255	2.223	1	.136	.684

Expectation 5

Expectation 5 stated that if effigy mound forms were representative of distinct individuals and/or social positions within the community, the number of grave goods per individual would be greater than in geometric mound forms. Table 7.61 presents a comparison of those interred with and without grave goods by mound form type.

Table 7.61 Number of Individuals Interred with Grave Goods *Mound Form Crosstab

Grave Goods Present		General Effigy Category		Total
		Geometric	Effigy	
No	Number of observed individuals	322	86	408
	Expected Count	318.6	89.4	408.0
	%	78.9%	21.1%	100.0%
Yes	Number of observed individuals	45	17	62
	Expected Count	48.4	13.6	62.0
	%	72.6%	27.4%	100.0%
Total	Number of observed individuals	367	103	470
	Expected Count	367.0	103.0	470.0
	%	78.1%	21.9%	100.0%

Table 7.62 displays the results from the Pearson Chi-Square test. The results were not statistically significant (*p*=.322); indicating that there was there was no statistically significant

difference between those buried with grave goods and those without in effigy and geometric mound forms.

Table 7.62 Fisher's Exact Test of Number of Grave Goods per Individual*Mound Form Crosstab

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	1.265	1	.261	.322
N of Valid Cases	470			

Crosstab analysis of the *number of grave goods interred with a single individual* by mound form is presented in Table 7.63. With the exception of the individual buried with nine items, more individuals buried with grave goods, regardless of the number of items, were interred within geometric mounds than effigy mound forms.

Table 7.63 Number of Grave Goods per Individual *Mound Form Crosstab

		General Effigy Category		Total
		Geometric	Effigy	
1 item	Number of Individuals	20	12	32
	Expected Count	21.3	10.7	32.0
	%	62.5%	37.5%	100.0%
2 items	Number of Individuals	7	1	8
	Expected Count	5.3	2.7	8.0
	%	87.5%	12.5%	100.0%
3 items	Number of Individuals	5	2	7
	Expected Count	4.7	2.3	7.0
	%	71.4%	28.6%	100.0%
9 items	Number of I	0	1	1
	Expected Count	.7	.3	1.0
	%	0.0%	100.0%	100.0%
Total	**Number of Occurrences**	**32**	**16**	**48**
	%	**66.7%**	**33.3%**	**100.0%**

The data was collapsed such that all individuals with two or more grave goods were combined into a single category (Table 7.64). The crosstab only included those individuals buried with grave goods.

Table 7.64 Collapsed Number of Grave Goods per Individual *Mound Form Crosstab

	General Effigy Category		Total
	Geometric	Effigy	
One item	20	12	32
Two or more items	12	4	16
Total	**32**	**16**	**48**

Results from the Pearson Chi-Square are presented in Table 7.65. The results were not statistically significant at p=.527. The results indicate that there is no statistically significant difference between the numbers of grave goods interred with individuals buried in geometric or effigy mound forms.

Table 7.65 Chi-Square Test of Collapsed Number of Grave Goods per Individual * Mound Form Crosstab

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi -Square	.729	1	.393	.527
N of Valid Cases	48			

Figure 7.11 presents the distribution of individuals buried with either one grave good or two or more by mound form. The figure clearly indicates that geometric mounds contained more individuals buried with a single item *and* individuals buried with multiple items compared to effigy mounds.

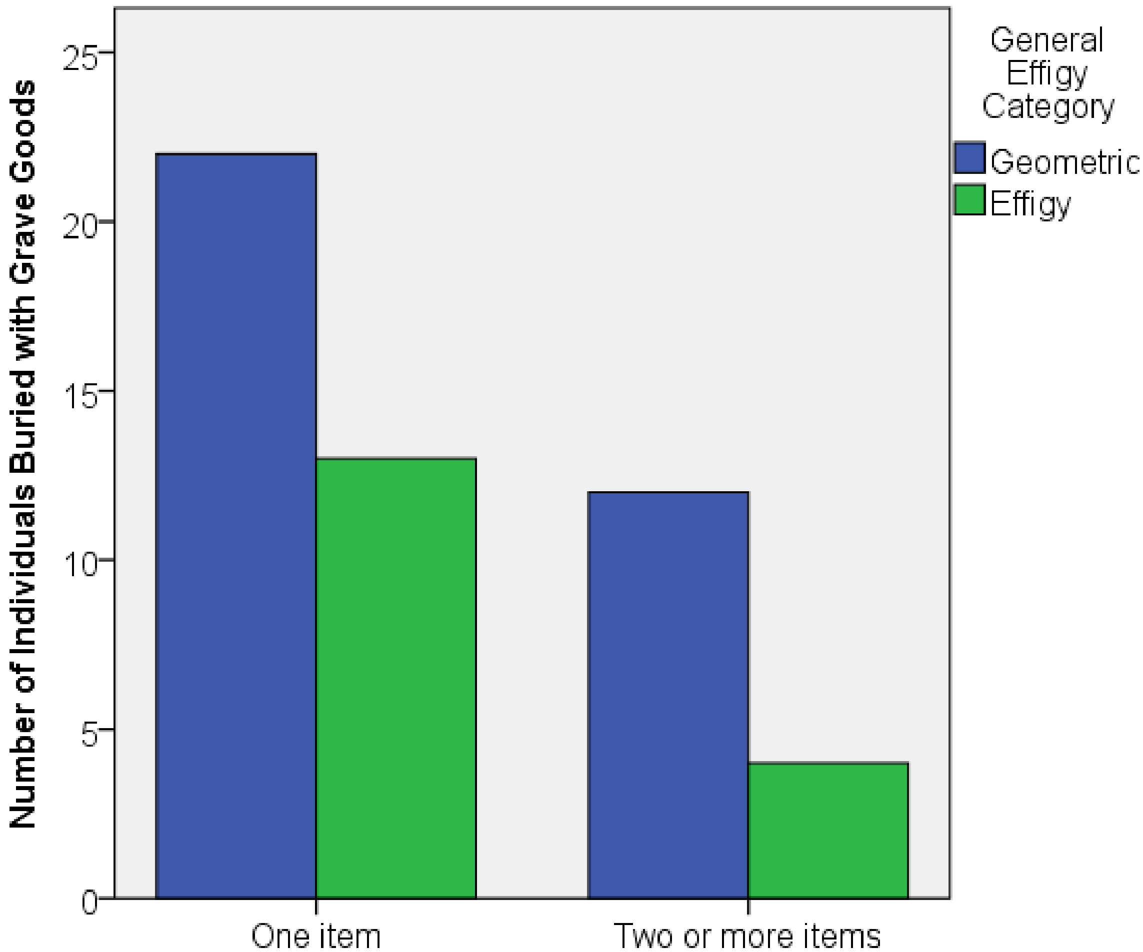

Figure 7.11 Distributions of Grave Goods by Mound Form

Results from Research Question 2 and Corresponding Expectation

To review, Research Question 2 asked, "Does the frequency and type of skeletal pathology exhibited by interred remains differ between effigy and geometric mound forms?" Research Question 2 had just one expectation (Expectation 6) associated with it. However, before presenting the results of the statistical testing employed to address Expectation 6, the basic descriptive statistics of the pathology sample is provided.

Descriptive Statistics of Pathology Sample

The pathology sample analyzed in this dissertation is considerably small (n=38 individuals). Only specimens that were physically observed by the author were included in the final analysis. In other words, pathologies that were referenced in the literature but not directly observed by the author were excluded in this dissertation research. Additionally, as noted in Chapter 5, only those specimens exhibiting features that would have been visible grossly and/or resulting in a severe loss of mobility were considered in the analysis.

To review, the goal of the analysis was not to answer questions regarding the general health of Effigy Mound communities or to determine the frequency of specific types of pathology in the collection. Rather, the goal was to explore societal attitudes towards disease and disability as reflected in the mortuary practices of Effigy Mound communities.

Consequently the only skeletal features that were included in this study include: clearly discernible abnormalities in shape, abnormalities in size, trauma and its associated stage of healing, and degenerative changes, specifically pathology of the vertebral column and appendicular skeleton. Vertebral pathologies included in this study were: marked expression of Schmorl's nodes, marked osteophytes that resulted in fusion of vertebrae, marked enthesophytes that resulted in fusion, spina bifida, and spondylolythesis. Appendicular osteoarthritis was included in this research when: lipping was greater than 2/3 of the joint surface area, spicule formation was extensive and/or ankylosis was present, and eburnation was clearly present and across much of the joint surface.

When only these types of pathology were included, the minimum number of individuals expressing pathology as previously noted was just 38. These individuals represented 11.6% of the sample (n=329 MNI from observed skeletal remains). Table 7.66 presents the frequency and percentage of each type of pathology observed in the pathological sample. Figure 7.12 visually presents the distribution of the different types of pathology. The figure illustrates that fractures and pathologies of the vertebral column were the most frequently encountered pathology.

Table 7.66 Frequency and Percentage of Each Type of Pathology in Pathologic Sample

Type of Pathology	Number of Affected Individuals	Percent of Sample
Dislocation	1	2.6
Osteoarthritis appendicular joints	3	7.9
Abnormal shape	6	15.8
Fracture	13	34.2
Pathologies of the vertebral column	15	39.5
Total	**38**	**100.0**

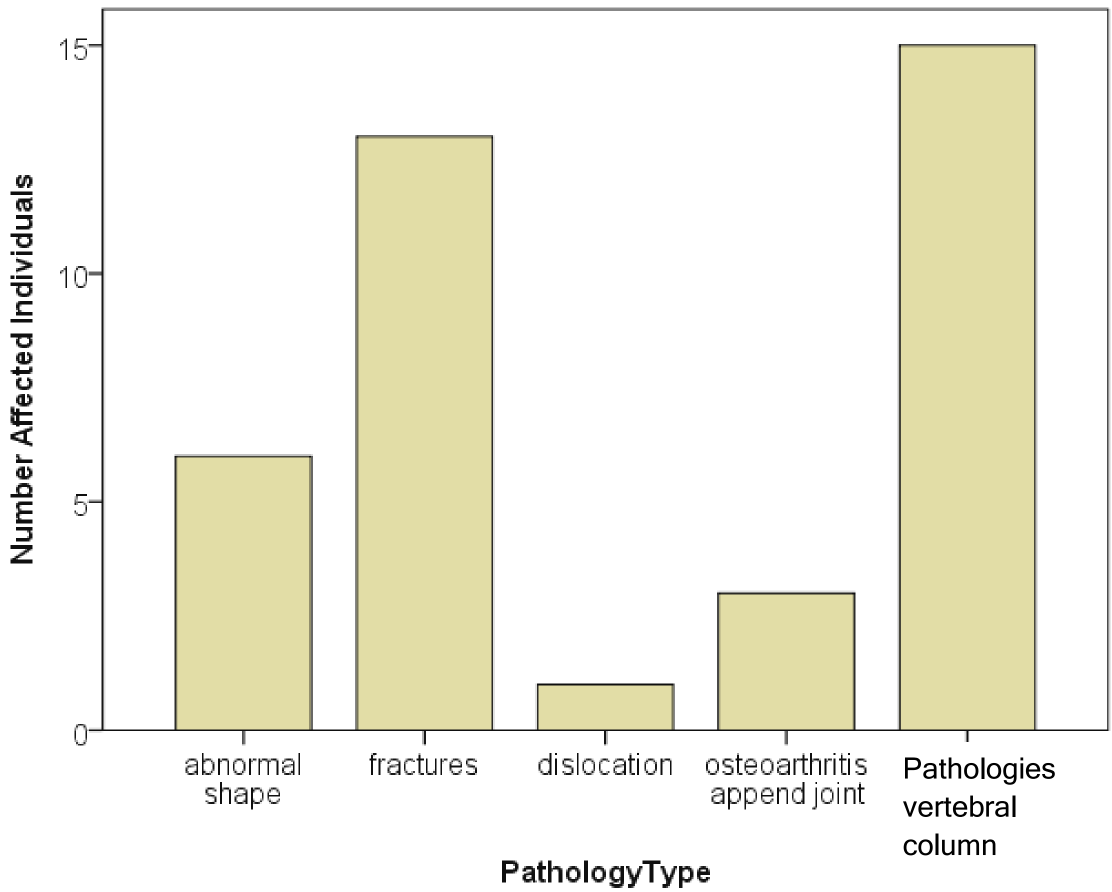

Figure 7.12 Numbers of Individuals Affected with each Type of Pathology

For each type of pathology the mean number of pathologies per individual and the individual mean count of pathological individuals were calculated. The mean number of pathologies per individual was calculated by summing the total number of observed skeletal elements with pathology and dividing it by the total MNI of the sample. The individual mean count for each pathology type was calculated by summing the total number of individuals with observed pathologic skeletal elements and dividing it by the total MNI of the sample (Judd 2002). Table 7.67 summarizes the mean number of pathologies per individual and the individual mean count of pathological individuals within the collection.

Table 7.67 Descriptive Statistics Calculated from Individual Mean Counts for Each Type of Pathology Observed

Observed Pathology Type	# Occurrences observed (n)	# Individuals with Lesions (n')	MNI (I)	Mean # Pathologies Observed per Person (n/I)	Individual Mean Count (n'/I)%
Abnormal Shape	6	6	329	.02	2
Dislocation	1	1	329	.003	0.3
Fracture	16	13	329	.05	4
Osteoarthritis Appendicular Joint	6	3	329	.02	0.9
Pathologies of the Vertebral Column	47	15	329	.14	4.6

Table based on Judd 2002

In the collection housed at the MPM, the mean number of pathologies observed for individuals was in general quite low, ranging between .003 for dislocations up to .14 for pathologies of the vertebral column. The disparity should not be surprising considering that pathologies of the vertebral column are commonly related to degenerative conditions associated with increased age and likely represents a normal physiologic process of older segments of the collection; while traumatic dislocations are rarer. Interestingly the percentage of individuals exhibiting fractures (4%) is nearly as high as those exhibiting pathologies of the vertebral column (4.6%), while the percentage of individuals exhibiting severe osteoarthritis of the

Table based on Judd 2002

Expectation 6

Expectation 6 stated that if geometric mound forms were involved in the creation of collective identity and cross-cut multiple segments of the society, it was expected that they would exhibit higher rates of pathology than effigy mound forms related to the wider age-ranges of included individuals, greater number of individuals included, and differences in the lived experiences of those interred. As can be seen in Figure 7.13, geometric mound forms do in fact contain all forms of pathology observed in the sample and in greater frequency than effigy mound forms.

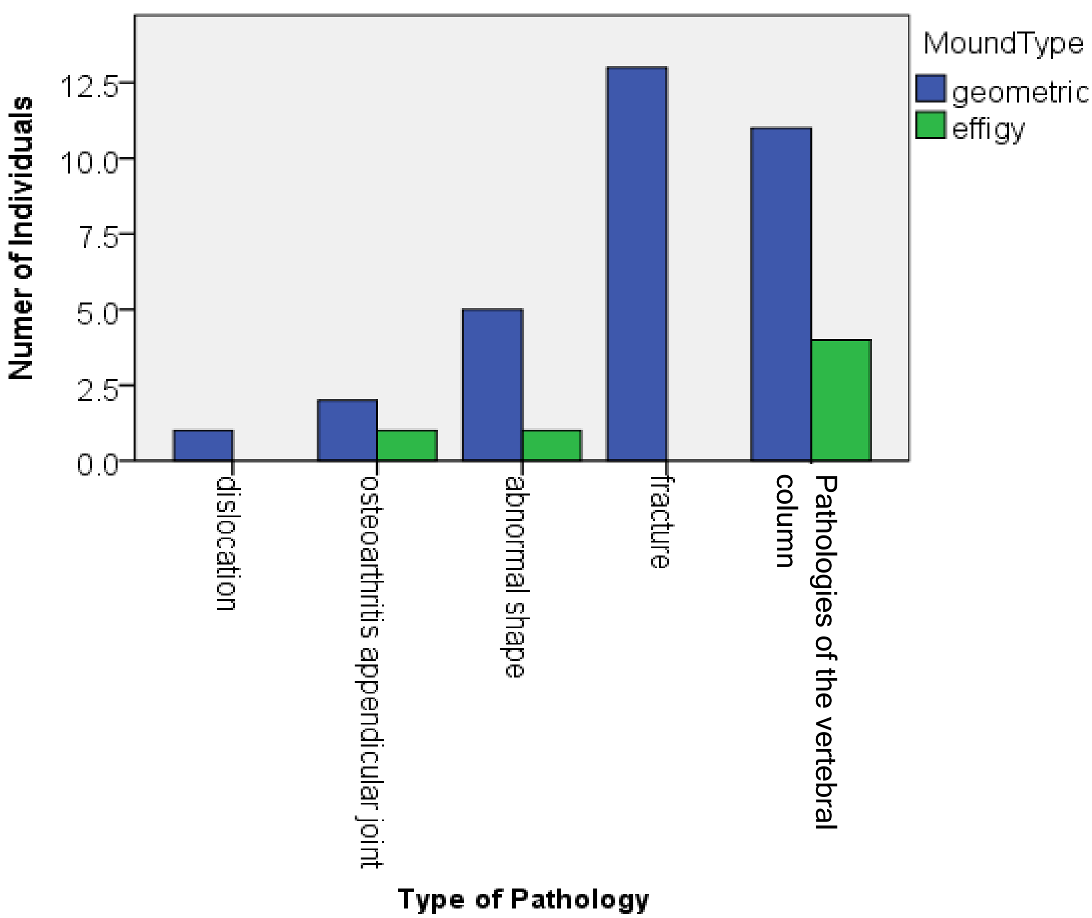

Figure 7.13 Number of Individuals with Pathology by Mound Form

Crosstab analysis of pathology and mound form is presented in Table 7.68. With the exception of fractures and dislocations, all forms of pathology were observed in geometric and effigy mound forms. Of particular interest is the absence of fractures in effigy mound forms especially in light of the fact that the individual mean count percentage of this pathology was second highest in the sample at 4% (Figure 7.13).

Table 7.68 Number of Individuals with each Type of Observed Pathology within Geometric and Effigy Mound Forms

Type of Pathology	Mound Type		Total
	Geometric	Effigy	
Abnormal shape	5	1	6
Fractures	13	0	13
Dislocation	1	0	1
Osteoarthritis append joint	2	1	3
Pathologies vertebral column	11	4	15
Total	**32**	**6**	**38**

Table 7.69 displays the results from the Fisher's Exact Test which indicate that differences between pathology types and burial within geometric or effigy mound forms was not statistically significant (p=.232).

Table 7.69 Fisher's Exact Test of Pathology*Mound Form Crosstab

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Fisher's Exact Test	5.637	4		.232
N of Valid Cases	38			

Summary

This chapter presents the results from the various statistical analyses performed as part of this dissertation research. The first portion of the chapter presented the basic descriptive statistics associated with the cultural and biological datasets. There are a few key observations from the basic descriptive statistics that are worth mentioning. These findings contribute to and/or confirm our understanding of Effigy Mound sites. The first is the confirmation that the mounds, in general, contain considerably low numbers of individuals buried within them. Of all the sites examined, the median MNI per mound was 2 or less. Second, Effigy Mound burials do include all age ranges and both sexes. Another important finding is that most individuals buried within the mounds were interred as part of multiple burials. Additionally, most individuals were disposed as secondary burials within Effigy mounds. Only one feature of Effigy Mound ceremonialism, specifically altars, occurred across the larger Wisconsin Effigy Mound region. The remaining non-burial ceremonial features appear to be more locally centered or even site specific. As has often been noted in the literature, the rarity of grave goods accompanying burials within the mounds was confirmed.

The second portion of the chapter presented the results from the statistical testing of this study's two research questions and associated expectations. To review Research Question 1 addressed the creation of collective identity and/or demarcating select social positions through mound burial in geometric and effigy mound forms. Associated with Research Question 1 was Expectations 1-5.

Expectation 1 posited that if geometric mounds were associated with the creation of collective identity, they exhibit higher MNIs. The results were statistically significant at $p<.001$ and confirmed Expectation 1 that geometric mounds contained more individuals. Results from the logistic regression were also significant at $p<.001$. The odds ratio indicated that individuals interred as single burials were 4.6 times more likely to be buried in effigy mound forms.

All age ranges were present in the multiple and single burials with no statistically significant differences between age groups and access to multiple or single burial types. Both sexes were also equally represented in multiple and single burials.

Differences between multiple and single burials at the mound level were not statistically significant ($p=.251$). In other words, geometric and effigy mounds that contained burials showed no statistically significant differences with respect to whether the burials contained a single person or multiple individuals. However, when a logistic regression analysis was employed, the difference between single and multiple burials and mound form was approaching significance at $p=.106$.

Expectation 2a suggested that geometric mound forms would contain individuals from all ranges; while effigy mound forms would contain fewer age ranges. Results were not statistically significant ($p=.311$) and failed to support this assertion.

A logistic regression analysis was employed to determine the probability that certain age ranges were preferentially interred within geometric or effigy mound forms. Results from the logistic regression indicated that the 0-4 year-old age range was decidedly different ($p=.081$) from the other age ranges. Further exploration of the data revealed that the burial of individuals in the 0-4 age-range in effigy mounds at the Nitschke Mound Group was statistically significantly different than burial treatment for individuals in the same age range at other mound groups. Other than that specific case, geometric and effigy mounds showed no statistically significant differences in the age-ranges of interred individuals.

Expectation 2b held that geometric mound forms would contain equal numbers of males and females; while effigy mounds would not contain equal numbers of males and females. Results (*p*=.447) indicate that Expectation 2b was incorrect. Males and females were distributed relatively equally among geometric and effigy mound forms.

Age and sex were combined in a logistic regression analysis to determine if the interaction of sex and age affected burial in geometric and/or effigy mound forms. The creation of an interaction term (sex by age) improved the model for predicting mound burial. However the results were still not statistically significant at *p*=.263.

Expectation 3 stated that if geometric mounds were associated with the creation of collective identity, they would exhibit a higher proportion of secondary burial treatment; while effigy mound forms would contain higher proportion of primary burials compared to geometric mounds. Results at both the individual level and the mound level were statistically significant.

At the individual level of analysis, the difference between individuals interred as primary or secondary burials in geometric versus effigy mounds was statistically significant at *p*<.001. Primary burials were observed in effigy mounds more than double the expected count (Table 7.42); while the observed number in geometric mounds was less than the expected count. The results should not be surprising, particularly when one remembers that 66.4% of the collection was disposed as a secondary burial, and most of the larger "mass burials" were interred as secondary bundle reburials in geometric mound forms (Table 7.12).

Age, specifically the difference between juveniles and adults, appeared to be a statistically significant (*p*=.002) factor in who was disposed as a primary burial. Juveniles were rarely interred as primary burials (Table 7.42). A logistic regression analysis was performed to determine if specific age ranges were preferentially disposed as secondary or primary. The 5-9 year-old age group and the 9-15 year-old age group were markedly different from other age ranges with regard to burial disposition (*p*=.040 and *p*=.083 respectively). Results from the logistic regression indicated that these age ranges were 9 (5-9 year olds) and 6.5 (9-15) times more likely to be disposed as secondary burial than 25-35 year olds.

Sex and burial disposition, on the other hand, was not statistically significant at *p*=.103. However, the results were approaching statistical significance which suggests that sex may have influenced burial disposition among communities participating in Effigy Mound ceremonialism.

Results from the Pearson Chi-Square test of burial disposition and mound form at the mound level also proved statistically significant (*p*=.026). Of the effigy mounds exhibiting primary only or secondary only burials (n=26), the primary only burials (n=16) comprised 61.5% (16/26) of the effigy mound subsample that contained burials. Conversely, geometric mounds containing primary only disposed burials comprised 32.7% (16/49) of the geometric mound subsample that contained burials. When mixed burials, burials that had individuals disposed as primary and secondary dispositions within the same mound, were included, results from the Fisher's Exact test of burial disposition and mound form was still statistically significant (*p*=.05).

A logistic regression analysis was employed to determine how well individual burial disposition predicted mound form (run at the individual level). The results were statistically significant (*p*<.001). The odds ration indicated that an individual disposed as a primary burial was 3.2 times more likely to be interred within an effigy mound.

Expectation 4 posited that geometric mounds would contain a greater variety of ritual paraphernalia within the same mound; while effigy mounds would more commonly contain single types of ritual paraphernalia. Statistical testing indicated that the Expectation 4 was seriously flawed (*p*=1.0). The proportion of geometric and effigy mounds exhibiting multiple or single types of ritual paraphernalia were nearly identical for each category. The presence of a single or multiple types of ritual paraphernalia was clearly not a good predictor (59.3%) of mound form.

Expectation 5 suggested that the number of grave goods per individual would be greater in effigy mound forms compared to geometric mounds. Results from the Pearson Chi-Square test that differences between the *number of grave goods interred with a single individual* were not statistically significant (p=.527). Individuals interred with grave goods were generally rare and when they did occur, mound form did not appear to play a role. Results from the Pearson Chi-Square of the *number of individuals interred with grave goods and mound form* were also not significant (p=.322).

Research Question 2 asked whether the frequency and types of disfiguring and/or immobilizing pathology differed between individuals interred within geometric and effigy mound forms. Although not all types of pathology were interred within both mound forms, notably the complete absence of fractures in effigy mound forms; results from the Fisher's Exact Test indicated that the frequency and type of pathologies were not statistically significantly different (p=.232) between effigy and geometric mound forms.

Table 7.70 Results Summary

Expectation	Description	Finding
1	Geometric mound forms will more commonly contain multiple burials and consequently exhibit a higher minimum number of interred individuals than effigy mound forms.	Affirmed
2a	Individuals interred within geometric mound forms will exhibit greater diversity in the life-course stages/broader age ranges than those interred within effigy mounds.	Incorrect
2b	Males and females will be equally represented in geometric mound forms; while males and females will not be equally represented in effigy mound forms.	Incorrect
3	Geometric mound forms will exhibit higher proportion of secondary burial treatment; conversely, effigy mound forms will contain a higher proportion of primary burials.	Affirmed
4	Geometric mound forms will exhibit higher frequencies of multiple types of ritual paraphernalia within the same mound; while effigy mound forms will more commonly exhibit singular types of ritual.	Incorrect
5	The number of grave goods per individual will be greater in effigy mound forms than in geometric mound forms.	Incorrect
6	Geometric mound forms will exhibit higher rates of pathology than effigy mound forms related to the wider age-ranges of included individuals, greater number of individuals included, and differences in the lived experiences of those interred.	Incorrect

The results from all six expectations were ultimately reviewed and interpreted within the conceptual and theoretical frameworks outlined earlier in this study to determine what they mean in relation to Effigy Mound social structure. This interpretation forms the basis of the following chapter, Chapter 8 – Discussion.

Chapter 8: Discussion

> "The patterning that we observe in mortuary contexts may reflect several significances at any one time; as archaeologists, we must appreciate, and even enjoy, this complexity as we attempt to interpret and understand the archaeological past of human communities" (Chesson 1999:141).

Introduction

The aim of this chapter is to summarize and discuss the findings of this research and place them within a broader interpretative model of Effigy Mound social organization. Specifically this chapter will: 1) provide an overview of the study, 2) review the contextual and theoretical frameworks used in developing the research questions and expectations, 3) summarize and discuss the specific findings from statistical exploration of the two research questions and six expectations, and 4) present an interpretive model for Effigy Mound monumentalism and mortuary behavior.

Brief Overview of the Research

Effigy Mound communities have been characterized by some authors as egalitarian based on the mortuary remains (Birmingham and Eisenberg 2000; Ruth 2000). Specifically, the relative equal number of males and females afforded mound burial, the inclusion of infants and children, and rarity of exotic and/or prestige grave goods has been used to argue that "social status did not determine access to mound burial" (Birmingham and Eisenberg 2000:128). Conversely, others have argued that access to mound burial itself was not afforded to all members in the community and may delineate a certain status or social position (Goldstein 1995; Rosebrough 2010).

This study explored how mounds and mortuary behavior may have operated to create identities within and between communities participating in Effigy Mound ceremonialism and reaffirm the social structure of Effigy Mound communities. The research had two main goals. The first was to identify the similarities and differences between mortuary practices associated with geometric and effigy mound forms and whether these forms served to: 1) create group cohesion and a broader collective identity; 2) demarcate select segments of the community; or 3) perform both processes simultaneously. Specifically, this research examined whether access to ritual and burial within particular mound forms was equal to all community members or whether it was reserved for social positions that were limited by sex, age, and/or gross physical appearance and/or ability. The second goal of this project was to determine the role that monumental construction and mound burial played in the Effigy Mound ceremonial movement and social structure.

To accomplish this goal, a conceptual framework was constructed based on a diachronic review of mound construction and interpretation in the Upper Midwest and broad mortuary theoretical foundation. These two components, the cultural context of mound construction and mortuary theoretical frameworks, are presented in detail in Chapter 2 and Chapter 3, respectively. However, a brief synopsis of foundational concepts and theoretical approaches are provided in the next section of this chapter.

From this review, two research question were posed along with a series of six expectations to examine the observed patterning of Effigy Mound mortuary behavior including: mound form, burial type, burial disposition, and access along lines of age, sex, and disfiguring and/or immobilizing pathological status. The study's research questions and expectations are detailed in Chapter 4.

These expectations were then examined against the Wisconsin Effigy Mound archaeological and skeletal datasets from the following sites: Kletzien, Kratz Creek, McClaughry, Neale, Nitschke, Raisbeck, and Trowbridge Mound Groups. Detailed descriptions of the sites, specific mounds that were excavated, and their contents are provided in Chapter 6.

The archaeological dataset included: archaeological publications, field notes, and photographs. Within the archaeological dataset, the following cultural features were examined: mound form, type of burial, disposition of the skeletal remains, associated ritual paraphernalia, and grave goods.

The skeletal dataset consisted of the human skeletal remains recovered from the excavated mounds from the seven sites listed above. The minimum number of individuals (MNI) represented by the inventoried skeletal material housed at the MPM was determined to be 329. Of the 329, 249 were adults (16+ years) and 80 were subadults (15 years and younger) (Table 5.1). All the skeletal remains were inventoried and assessed for minimum number of individuals (MNI), age-at-death, and sex determination. For some analyses, 141 'record only' individuals were also included. The remains from these individuals were described in the archaeological reports and sometimes photographed. Details of both datasets and the methodologies used for establishing MNI, age-at-death estimates, and sex determination are provided in Chapter 5.

The approach utilized in this study moved reflexively back and forth between the biological and cultural datasets to answer the research questions and explore the expectations developed for Effigy Mound mortuary behavior and mound construction. Important for this work is the view that the human remains interred within mounds were also carefully chosen material objects selected by Effigy Mound communities to communicate information through their ritual use (Joyce 2005; Shanks and Tilley 1982; Sofaer 2006). As such, this research is distinct from previous studies of Effigy Mound skeletal material in that it also considers the social use of the skeletal remains in the mortuary ritual.

The results from this examination are described in detail in Chapter 7. Interpretation of the findings, which is the focus of this chapter, resulted in the creation of a model for understanding the significance of mound building and mortuary ceremonialism at both an intergroup and intra-group level of analysis.

Effigy Mound Building Context and Mortuary Theoretical Frameworks

Through shared experience of mound building *and* ritual, specifically mortuary ritual, individuals within Effigy Mound societies negotiated the underlying social structure of their respective communities (Dornan 2005; Joyce and Lopiparo 2005; Owoc 2005; Silverman 2002). The conceptual framework that guided this dissertation's expectations for Effigy Mound monumental construction and mortuary behavior has two interconnected components: 1) a comprehensive understanding of key archaeological interpretations of monumental construction among Effigy Mound and other Upper Midwestern groups (see Chapter 2) and 2) a broad mortuary theoretical background (see Chapter 3).

Archaeological Interpretations of Effigy Mound Construction

To review, the term Effigy Mound Culture or Tradition commonly refers to a widespread mound building and ritual phenomenon that spanned geographically across southern Wisconsin, eastern Iowa, northern Illinois, and southeastern Minnesota and temporally from A.D. 600 to A.D. 1200. It is widely held that participants in Effigy Mound ceremonialism practiced a hunting, gathering, fishing subsistence economy with some horticulture. It is believed that these groups likely settled in larger aggregates in locales that offered abundant resources during particular times of the year (Benn 1979; Birmingham 2010; Birmingham and Eisenberg 2000; Goldstein 1995; Mallam 1976, 1984; Storck 1974). It is during these times, that communities built earthen mounds in both geometric and effigy mound forms and participated in various ceremonial activities. In Wisconsin, these mound group sites tended to be located by major water sources such as lakes, rivers, and/or large wetland areas (Birmingham and Eisenberg 2000; Goldstein 1995; Lapham 1855).

Since so few habitation sites have been recorded, the majority of Effigy Mound research centers on the mound sites. The literature regarding Effigy Mound sites is somewhat divided. The early works tended to be descriptive and focused on mound composition, structure, and internal features (Barrett and Hawkes 1919; McKern 1928, 1930; Lapham 1855; Taylor 1838). Later investigations took a decidedly cultural-ecological approach and emphasized the locations of mound groups and how they may have operated within the social structure (Benn 1979; Mallam 1976). More recent works have explored the social and spiritual meaning of the mounds (Goldstein 1995; Birmingham and Eisenberg 2000; Birmingham 2010; Rosebrough 2010).

The placement of mound groups in critical resource areas and consequent creation of sacred landscapes through interment of the ancestors within these mounds is a fundamental concept in this study. The role that rich resource environments played in the placement of mound groups is multifaceted. On one level, the construction of mounds and placement of the dead within those mounds in these critical resource areas suggests that mound construction and burial may have functioned as territorial markers of corporate rites to these resource rich locals (Benn 1979; Goldstein 1995; Mallam 1976; Stout 1911). The construction of mounds and creation of corporate 'cemeteries' likely communicated important information at the intergroup level about territories and/or land tenure (Goldstein 1981).

On another level, it is widely held that the *practice* of mound construction served as an integrative mechanism for coordinating the aggregation and activities necessary for the large seasonal aggregation of multiple households at these prime locals (Benn 1979; Goldstein 1995; Mallam 1976). In this role, mound construction and associated ceremonialism likely operated as symbolic structures at the intra-group level to coordinate and integrate the economic, social, religious, and political needs of larger social groups (Mallam 1976).

The process of mound construction and burial did more than just demarcate territories and unite individuals. As Benn (1979:71) notes, the process of mound building "was multi-dimensional: it necessitated the congregating of several family-bands, it reaffirmed group solidarity, it created a sacred totemic repository for dead members of the group, and the use of the totem reconstituted the social group's ties with mythical ancestors."

The quote by Benn (1979) highlights another key component of mound construction, the inclusion of the dead. Through the passage of time, the repeated interment of the dead in these locations created 'sacred landscapes' where multiple households were integrated through: 1) the practice of mound construction, 2) shared ritual experiences, and 3) mutual interment of the ancestors within the mounds. Yet the mortuary ritual associated with Effigy Mound sites was largely ignored outside of descriptive accounts until Goldstein (1995) summarized the apparent patterning of Effigy Mound mortuary practices.

Goldstein (1995) was the first to move beyond mound form and interpret the mortuary behaviors practiced by Effigy Mound communities and what they may mean within the context of Effigy Mound social structure. Goldstein (1995) made some critical observations regarding the nature of Effigy Mound burials and what those mortuary behaviors may suggest about the nature of Effigy Mound community structure. Goldstein's (1995) review emphasized the placement of mound groups in locations of critical natural resources, and perhaps even more importantly for this work, the predominance of secondary burial disposition in the Effigy Mound mortuary domain.

The predominance of secondary bundle burial among Effigy Mound burials, placement of those burials collectively with little differentiation, and lack of individual grave goods suggests that at least part of the mortuary program of Effigy Mound communities emphasized group identity over individual distinction (Goldstein 1995). Yet the small number of individuals interred within the mounds may indicate differential access to mound burial and that those interred within the mounds may denote a special status (Goldstein 1995; Rosebrough 2010).

An important development for Effigy Mound research was the findings of Rosebrough (2010). Through a stylistic analysis of mound form, she found that the construction of mounds within Effigy Mound groupings was likely the responsibility of particular subsets of the larger aggregated community. Stylistic analysis of the ceramics suggested these segments tended to be less mobile and resided much of the year in the vicinity of the mound group. In comparison, other groups exhibited more residential mobility throughout most of year and returned to the mound group seasonally. Rosebrough (2010) concluded that the control of mound construction by a select few may have functioned as part of a system of 'masked hierarchy' based on differential spiritual knowledge.

Critical to this study is the interpretation proposed by author in Chapter 2 that Effigy Mound monumentalism, particularly the adoption of new and varied effigy mound forms, was part of a broad ceremonial movement. Specifically, this dissertation treated Effigy Mound monumental construction and ritual as a Late Woodland routinized shamanistic religious/ceremonial movement that spread across the Upper Midwest (Beck and Brown 2011). The key feature of that movement was the mounds themselves, particularly the new effigy mound forms (Mallam 1976).

An important feature of routinized religious/ceremonial movements is the construction of cultic centers and some form of economic surplus which is required to support the movement (Beck and Brown 2011). The mounds likely served as cultic centers where shamanistic ritual practitioners and participants enacted various ceremonies. The placement of mound groups on the landscape in environmentally rich locals where economic surpluses could be accumulated also lends support to the idea that Effigy Mound monumentalism and ritual may have functioned as part of a regional ceremonial movement. Emotional and economic connections to these landscapes were likely further strengthened through mound construction, ritual performance, and burial of community members.

Of particular importance for this study is the conclusion of Beck and Brown (2011) that routinized religious movements may exert considerable influence beyond the religious realm and ultimately initiate change in socio-economic and political spheres as well. If only small segments of the community were responsible for constructing the mounds and performing rituals as suggested by Rosebrough (2010), the Effigy Mound ceremonial movement may have participated in the creation of distinct social positions and enhanced status associated with mound construction and ritual.

The archaeological conceptual framework outlined above, particularly those theories associated with: collective identity creation, religious routinization and influence, and masked hierarchy and/or social inequality based on differential access to ritual knowledge were used in conjunction with mortuary theory to develop this dissertation's six expectations and ultimately to construct the model used for interpreting the study's findings (Beck and Brown 2011; Benn 1979; Goldstein 1995; Mallam 1976; Rosebrough 2010).

Key Mortuary Theoretical Frameworks

This project incorporated a broad range of mortuary theory because as succinctly stated by Chesson (1999:141) in the opening quote, mortuary practices are very complex and may signify multiple social structures concurrently. The application of a single mortuary theory or paradigm is, in this author's opinion, insufficient to handle the inherent social and ideological complexity that is involved in the mortuary domain.

Key components of the Saxe-Binford Approach, namely that social persona and the social organization of a society are reflected in the mortuary domain were vital in the development of the theoretical framework used in this study (Binford 1971; Brown 1971; Carr 1995; Chesson 1999; Goldstein 1981; Saxe 1970). Yet this study also recognizes the inherent structural determinism in the Saxe-Binford Approach. Strict adherence to the Saxe-Binford Approach in other bioarchaeological analyses of Wisconsin Effigy Mound material has resulted in a failure to acknowledge local cultural history and the role that philosophico-religious beliefs and worldviews play in the mortuary domain (Handwerk 2007; Ruth 1998, 2000). Also important for this research, is the idea that mortuary practices may also involve the active manipulation of the dead and funerary rituals to enact public ceremonies for "a collective community-wide purpose" (Brown 2003:97).

A structured-agency approach accommodates both the structural component of the Saxe-Binford Approach and the simultaneous manipulation of the dead through mortuary practices. It emphasizes the connection between the actions of individuals and the structured social and physical environments actors live and operate within. It acknowledges that human agents continually create, reproduce, and transform social structures through practice; while at the same time, these actors live and perform in a structured world and are conditioned to make choices within a culturally determined set of options (Chesson 2007; Dornan 2002; Gillespie 2001; Morris 1992).

This research treats mound construction as the structure; while the mortuary process and rituals performed in association with the mounds offered agents opportunities for social negotiation. Specifically, the routinized action of mound construction created a symbolic structural system that reaffirmed or transformed the social order through the agency of what mound forms to construct, which individuals to inter and when, and what rituals to perform. As will be shown in the following sections, the mortuary rituals performed by Effigy Mound community members likely performed two simultaneous functions concurrently, the creation of collective identity and demarcation of distinct segments of the community.

It is the collective action of identity creation through mound construction *and* mound burial that is at the heart of this research. Theories associated with what different types of burial mean and how the body is disposed are of utmost importance in this study. The body is considered as both a material and biological entity which is disposed of in culturally prescribed customs. As Robb (2007:289) states, "disposal thus forms one locus of the agency of dead bodies; the mere presence of a dead body by virtue of what we think it is, triggers and structures often intricate and extended chains of action."

In this research, secondary disposal methods are of critical consideration. Secondary mortuary treatments, particularly secondary bundle-reburial, were by far the most commonly observed mode of disposal for individuals afforded mound burial. Because secondary burial practices are separated in time from the actual death of the individual, they may be part of large-scale memorials that involve multiple kin and non-kin participants (Chesson 1999; Goldstein 1995; Kuijt 1996). Additionally, the material and plastic nature of the body in secondary mortuary processes may lend itself for use as a social construct, particularly in the creation of corporate group identity (Chesson 2007; Hertz 1960; Kuijt 2008). As such, secondary burial practices may result in the interment of multiple individuals together, all similarly disposed and consequently transform individual identities into "archetypical ones" (Brown 2003:82).

The meaning of secondary burial practices among Effigy Mound communities was first raised by Goldstein (1995). She maintained that the predominance of secondary mortuary practices emphasized group identity over the individual. It is important to remember, however, that a portion of the Wisconsin Effigy Mound sample was also interred as primary burials and these burials likely functioned to symbolize something distinct among Wisconsin Effigy Mound communities.

This study included multiple mortuary theories in the conceptual framework developed to explore the differences in the patterning of skeletal and mortuary variables among Effigy mound forms; and how these differences may have operated to integrate groups of individuals while at the same time reinforce distinctions between them based on differential access to ritual and ritual facilities. The next section of this chapter presents a picture of Wisconsin Effigy Mound mortuary practices as revealed from the initial exploration of the archaeological and biological datasets.

General Patterning of Effigy Mound Mortuary Practices

Monumental construction of Effigy Mound communities took a variety of forms at mound group sites. The more commonly observed Effigy mound forms were conical, oval, linear, panther, bird, bear, and deer. Conical mounds were clearly the most dominant form comprising nearly half (48.2%) of the sample (Table 7.3). To compare, panther mounds were the second most frequently observed form, yet only comprised 9.1% of the sample. The findings suggest that the importance of the conical mound form, a form dating to the Terminal Archaic/ Early Woodland, did not dissipate with the introduction of effigy mound forms.

Mounds of the Effigy Mound movement may or may not contain human burials. In fact, 38.6% of the excavated mounds examined in this study did *not* contain human remains (Table 7.3). Unlike mounds from earlier periods, this fairly large percentage suggests that mounds of the Effigy Mound movement were constructed for reasons other than burial alone. When remains were interred within the mounds, the numbers of individuals buried were considerably low relative to the likely population size, with the exception of the three mass burials at the Kratz Creek, Raisbeck, and McClaughry Mound Groups.

As noted by other researchers and supported by this research, the low number of individuals buried within the mounds suggests that not all individuals participating in the Wisconsin Effigy Mound movement were afforded mound burial (Goldstein 1995; Rosebrough 2010). Secondary burials were the dominant burial disposition (73.3%). The inclusion of secondary burials suggests this was a deliberate and important act to the living community members and further supports the contention that those individuals reflected special segments of the population whose remains were gathered and brought to these locations for final interment.

Yet, other individuals (14.7%) were interred as primary burials suggesting that burial occurred close to the time of death. Building on Rosebrough's (2010) assertion that small less mobile segments of the larger community were responsible for determining mound form; it is feasible that individuals disposed as primary burials may represent those segments of the community responsible for mound design and maintenance.

Most mound burials did not include grave goods. Grave goods, when present, were commonly utilitarian objects such as tools, pottery vessels, and projectile points (Table 7.19). Non-utilitarian items were also included with some individuals. Non-human bones, teeth, and antlers were among the most frequently included items (Table 7.20). Interestingly, a large portion of both the utilitarian and non-utilitarian grave goods were intermixed within bundle reburials of multiple individuals. Additionally, unlike the grave goods observed from earlier sites such as the Riverside site (Terminal Archaic) or Hopewellian sites (Middle Woodland) like Shrake, Schwert, and Nicholls Mound, the grave goods seen in Effigy Mound burials did not contain exotic, non-local materials or elaborately worked decorative items.

The general picture of Effigy Mound mortuary practices is interesting and somewhat contradictory. While mound burial is suggestive of a special status evidenced by the low number of individuals afforded mound burial; those interred did not appear to exhibit any sort of differential status based on access to exotic items or other commonly recognized indicators of distinction. As will be shown in the following section, differentiation in Effigy Mound mortuary practices appears to occur along lines of how individuals were interred, particularly whether they were interred singly or as part of a multiple burial, and if they were disposed as a primary or secondary reburial.

Identity and Effigy Mound Mortuary Practices

Research Question 1 explored whether the mound building and mortuary practices of Effigy Mound communities were associated with the creation of collective identity and group cohesion or demarcation of distinct segments of the community. The results presented in Chapter 7 indicate that both processes were operating concurrently at Effigy Mound sites. Certain features of the mortuary program appear to be integral in the creation of collective identity, namely the interment of multiple individuals within the same mound and homogeneous treatment of those remains. While other traits of the mortuary program such as single interments and primary burial disposition seem to be associated with demarcating specific individuals or segments of the community.

Corporate Identity

Corporate identity appeared to be created through the mortuary domain of Effigy Mound communities in two ways: 1) the number of individuals interred within a single mound, and 2) the postmortem treatment of the human remains.

A key finding of this study was the dramatic difference between the number of individuals interred within burials in effigy and geometric mound forms. Geometric mounds by and large contained more individuals buried within them than effigy mound forms. Indeed, the statistical significance of the Pearson Chi-Square was $p<.001$ ($\chi^2 = 30.5$, 1 df).

Comparison at the mound level indicated that burial type, multiple or single, was not significantly associated with either geometric or effigy mound forms. These results suggest that it was not the burial type alone that signified distinction among Effigy Mound communities; rather it was the total number of individuals interred within those burials that was an important symbol created by Effigy Mound communities.

The pattern of interment at Effigy Mound sites is similar to other large collective mound burials from earlier periods and suggests that the larger multiple burials were important symbols of collective identity and part of a system of creating community integration and cohesiveness through shared burial space, ritual experience, and social memory (Birmingham and Eisenberg 2000; Buikstra and Charles 1999; Charles and Buikstra 2002; Hill 2009). As Hutchinson and Aragon (2008:28) note, mortuary remains "form deliberate, planned, sacred spaces that serve to symbolically integrate families and communities and to provide continuity in the deep time of buried descent groups."

It is particularly interesting that these burials (5+ individuals) are predominantly associated with conical and oval mound forms. In light of the earlier quote,"provide continuity in the deep time of buried descent groups," the interment of large numbers of individuals in these mound forms (which have a long history in the area) suggests these burials may have served as an important ceremonial event that tied communities to these sacred landscapes and the ancestors through the continuity of sacred and ancestral mound forms (Wallis 2008).

Age and sex were not factors in determining whether an individual was buried as part of a multiple or single burial. Most individuals, regardless of age and sex, were interred within mounds as part of a multiple burial regardless of mound form (Table 7.3). These findings corroborate Goldstein's assertions that the mortuary program observed at Effigy Mound sites tended to emphasize a corporate identity.

The disposition of human remains particularly in the form of secondary reburial has been closely linked to the creation of collective identity (Chesson 2007; Goldstein 1995; Hertz 1960; Kuijt 2008). As previously noted, secondary burial treatment was the most common form of bodily disposition observed, however it was not the only postmortem treatment afforded individuals. This research found that geometric mound forms exhibited less than expected number of individuals disposed as primary burials; while effigy mound forms actually contained double the expected number individuals disposed in primary burials. These results indicate that burial disposition was remarkably different between geometric and effigy mound forms and may have communicated symbolically the different types identities recognized as important to the community.

Several facets of burial disposition and the significance of these findings deserve further discussion. The first has to do with the relationship between secondary disposal methods and the time of death. As previously noted, secondary burials are not restricted by time (Chesson 1999; 2007; Goldstein 2008; Hertz 1960; Kuijt 1996, 2008; Schroeder 2001). The time delay between the death of the individual and the secondary burial can function to distil individual memories of the dead (Chesson 2007).

During the ritual process of reburial, identities may be transformed physically and socially. Physical transformation occurs as a result of natural alteration in the bodies' material properties such as the loss of soft tissue with scaffolding and burial or total transformation of the body through cremation. Identities can also be transformed socially. Secondary burial offers the greater opportunity for the living to minimize and/or exaggerate certain individualizing features of the dead and invent new social memories and meaning (Chesson 2007; Hertz 1960). The physical and social removal of individualizing features may function to transform the named person into a symbolic collective (Kuijt 2008).

Related to this delay in timing between the death of the individual and the secondary burial ritual is the notion that secondary practices can participate in creation of solidarity through disposal methods (Brown 2003; Chesson 1999). Secondary burial is related to the creation of solidarity on two levels. Because secondary burials are not constrained by time, multiple households, kin groups, and non-kin participants may participate in large-scale memorials, ultimately creating a shared sense of community through public ritual (Chesson 1999). Solidarity can also be expressed by the interment of multiple individuals disarticulated and bundled together. This physical mixing of individuals and in many cases literally tying them together results in the creation of new symbolic communal identities and greater sense of solidarity between the living descendants (Brown 2003).

The burials in Mound #1 at Kratz Creek provide a clear example of a collective burial ceremony for the larger community. Individuals were interred as 45 secondary bundle reburials, with each bundle containing on average between 2 and 4 individuals (Figure 8.1). This mass burial likely performed two functions. At the intra-group level, it created a collective burial that was likely representative of multiple households and kin groups and/or several generations in composition. This large corporate burial emphasized the corporate group and solidified community cohesion at the intra-group level through shared experience and mixing of the remains while simultaneously communicating group solidarity to outsiders at an intergroup level (Hutchinson and Aragon 2008).

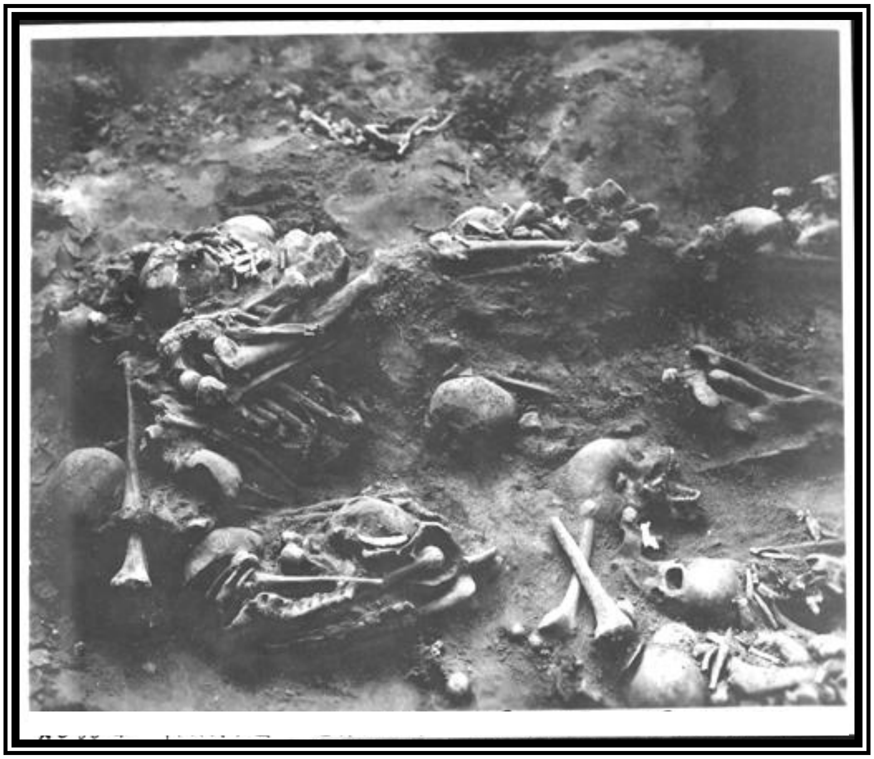

Figure 8.1 Bundle Reburials from Mound #1 Kratz Creek Mound Group. Negative #20354 Courtesy of Milwaukee Public Museum.

Demarcating Distinct Segments of the Community

The pattern of interment at Effigy Mound sites suggests that the larger multiple burials were important symbols of collective identity and perhaps part of a system of creating community integration and cohesiveness through shared ritual and memory; while the single (1 individual) burials operated as part of a system of differentiation based on differential and limited access to burial within mounds. The findings showed that when individuals were interred within single burials, they were more commonly associated with effigy mounds compared to geometric mound forms. Results from the logistic regression indicated that individuals interred as single burials were 4.6 times more likely to be buried within an effigy mound than geometric mound form.

The act of memorializing a single individual suggests that this type of burial may have symbolized something distinctly different than the large multiple burials. In fact, this form of mound ceremonialism and burial likely operated to create intra-group distinction between community members (Laneri 2007).

Perhaps even more important than burial type (single versus multiple) for the demarcation of distinct individuals or social positions among Effigy Mound communities is *body disposition.* Effigy mound forms actually contained double the expected number individuals disposed in primary burials. In fact, the logistic regression indicated that individuals disposed as primary burials were 3.2 times more likely to be disposed in an effigy mound. Analysis at the mound level showed that the numbers of effigy mounds containing primary burials were more numerous than the numbers containing secondary burials. This finding is particularly interesting given the overwhelming predominance of secondary burial in the collection.

The differential modes of corpse disposal observed in geometric and effigy mound forms strongly suggests that the burial program associated with each form reflected different symbolic identities. The primary disposal of individuals interred within effigy mounds suggests that this type of burial may have emphasized individual social positions due to the greater rarity of this mode of treatment and its consistent relationship with singular burials.

Although mound burial was not limited along lines of sex and age, age distinctions appear to be evident according to bodily disposition within the Effigy Mound mortuary domain. Specifically, not all age ranges were afforded primary burial. Results from the logistic regression of age and burial disposition suggest that primary disposal methods were likely not afforded to all age groups. Individuals in the 5-9 year-old age range were 9 times more likely to be disposed within a secondary burial than a primary burial; while individuals 9-15 years-old were 6.5 times more likely to be disposed within a secondary burial than primary burial.

The proximity of burial to the time of death is also important with regard to primary burials. Mound interment of individuals in primary burials at Effigy Mound sites meant that mound construction likely occurred around the time of death of the individual. This assertion is based on the lack of evidence of crypt like structures or other protective features in the mounds at most mound sites. These results indicate that *effigy* mound construction was likely initiated with the death of particular individuals that were ultimately interred as primary burials within those mounds.

These results regarding the disparate nature of bodily disposition between effigy and geometric mound forms are one of the more significant findings of this study. As noted by Goldstein (1995), the secondary nature of many of the Effigy Mound burials suggests an emphasis on corporate identity. The findings definitely support this assertion. However, the disparate nature of bodily disposition, particularly the predominance of primary burials in effigy mounds strongly suggests that another social process is also occurring, one of individual distinction and demarcation of certain segments of the Effigy Mound community.

The predominance of single burials and primary bodily disposition within effigy mounds suggests that individuals disposed within these mounds were symbolically distinct compared to those interred as part of multiple burials and disposed secondarily in geometric mounds. The primary disposed-single burials more commonly associated with effigy mound forms likely reflected the memorialization of distinct individuals within Effigy Mound communities. This type of burial is in direct contrast to the large multiple burials of secondarily disposed individuals which likely denoted a collective identity that was part of a symbolic system of integration.

Age and Sex

Based on the contextual and theoretical framework, it was expected (Expectation 2a) that geometric mounds, if they were associated with the creation of collective identity, would contain individuals from all age ranges; while effigy mound forms would exhibit a narrower range of ages for the individuals afforded this type of burial. The actual archaeological and skeletal data did not agree with the study's expectation.

All age ranges were interred within *both* geometric and effigy mound forms. However, the results from cross-tabulation of age range against burial type and bodily disposition were mixed. As shown in the preceding section, burial type and bodily disposition suggest that differences in these two features and their relationship to mound form played an important role in the creation of collective identity and demarcating distinct individuals. Both juveniles and adults appeared to have access to single burial and multiple burials.

However when the bodily disposition of adults and juveniles and adults were compared, the Pearson Chi-Square results were statistically significant at $p<.001$ ($\chi^2 = 12.47$, 2 df). Figure 8.2 demonstrates the predominance of secondary burial for both adults and juveniles and the disparity between adults and juveniles with regard to primary body disposition.

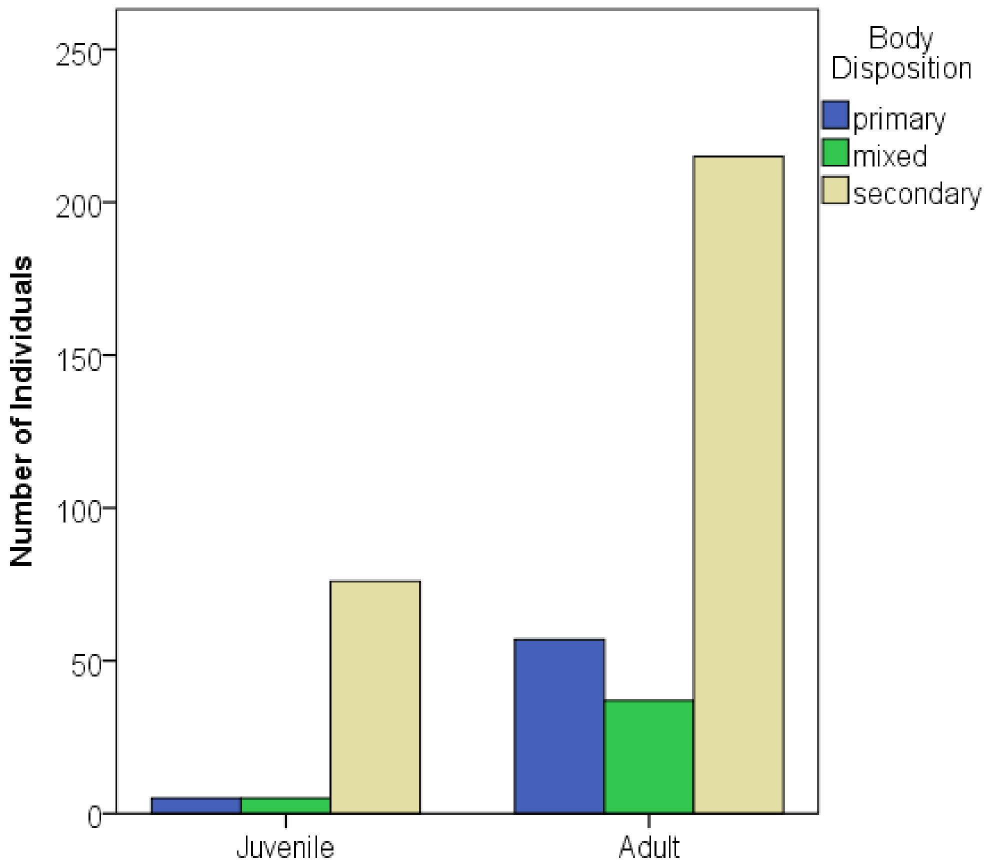

Figure 8.2 Body Disposition and Age

The findings regarding age and Effigy Mound mortuary practices indicate that access to mound burial was available to all age ranges. Additionally, interment in a single burial does not appear to have been limited by age. However, disposal as a primary burial was not generally afforded to juveniles in Effigy Mound communities. It is unclear why so few subadults were afforded this burial treatment. Perhaps, because primary disposal methods and erection of a mound required that this type of disposal occur fairly close to the time of death, this disposal method was reserved primarily for adults of a distinct status.

Sex was not a factor in the burial of adults at Effigy Mound sites. Both geometric and effigy mound forms contained males and females interred within them in roughly equal proportions. These findings contradict Expectation 2b which maintained that the burials within geometric mound forms would cross-cut sex categories, while the burials within effigy mound forms would not contain equal numbers of males and females. However, the results confirm the assertions of Birmingham and Eisenberg (2000) and Goldstein (1995) which stated that access to mound burial was equal between males and females.

Males and females were both interred as part of multiple or single burials. Males and females were also afforded primary and secondary burial treatment. However, proportionally, males received primary burial treatment more often: 21.4% of males (18/66) were disposed of as primary burial; while only 11.6% of females (11/84) received this type of mortuary treatment. This finding is interesting in light of the fact that females outnumbered males in the sample. Although this difference was not statistically significant at the .05 level, it appears to be approaching significance (p=.103, χ^2 = 3.186, 1 df).

The findings suggest that bodily disposition was again one of the more important features in the creation of individual and collective identities within the Effigy Mound mortuary domain. Access to this type of treatment was not open to juveniles and was not equal among males and females, although burial in the various mound forms was. Perhaps primary burial treatment was reflective of certain social positions that were preferentially occupied by males and not accessible to juveniles within the community.

Ritual Performances and Identity

It was argued that the predominance of secondary burial treatment afforded individuals interred within geometric mounds may have allowed for a greater number of households, kin groups, clans and/or sodalities, and non-kin participants to be buried within the mounds.

Additionally, it was expected that if burial in geometric mound forms was associated with the larger collective, burials would cross-cut age and sex categories. If geometric mounds represented "the remains of a collective ceremony of members of a social group that must have spanned multiple local symbolic communities" it was expected they would likely contain multiple types of ritual paraphernalia symbolic of these group distinctions (Carr 208:308). Conversely, if effigy mounds were associated with the memorialization of a distinct individual or social position, it was expected that these mounds would more frequently contain a single type of paraphernalia. However, the results obtained from the actual Effigy Mound cultural material showed that this expectation was incorrect.

Of critical importance for this research is that ritual performances do not appear to be linked to identities, individual or collective. Rather, ritual performance appears to be tied to the mound. This is best exemplified by the mounds that do not contain human burials yet still exhibit evidence of ritual performance and ritual paraphernalia. The pattern suggests that the performance of mound ritual had little to do with the creation of identity; instead it may have operated as important material and experiential feature of world renewal ceremonies (Mallam 1982, 1984).

Grave Goods and Identity

It has been well documented that grave goods were rare among Effigy Mound burials and when they occurred were commonly utilitarian in nature and made from local source materials (Goldstein 1995; Rowe 1956). The findings of this research support this. The frequency of utilitarian and non-utilitarian grave goods was nearly equal at 33 and 34 respectively with nearly all made from local materials such as stone, copper, bone, and antler.

Although the type of burial and bodily disposition associated with effigy mound forms indicates that individuals buried within them formed a select segment of the society, there were no significant differences in the number of grave goods between individuals interred within geometric and effigy mound forms (*p*=.305, $\chi^2 = 3.55$, 3 df). The findings failed to support the expectation that the number of grave goods per individual would be greater in effigy mound forms than geometric mounds. In fact, they were in direct opposition to it. Greater numbers of individuals within geometric mounds were interred with grave compared to effigy mound forms.

Interestingly, in many instances grave goods appeared to be more likely associated with collective burials than demarcating distinct individuals. It was not uncommon for multiple grave goods, particularly nonhuman bones and teeth and non-projectile point tools such as awls, to be included within the bundle reburials of more than one individual. It is possible that the included items were associated with a single individual within the bundle but also possible that the items were symbolic of the collective through their inclusion and intermixing with the remains of multiple individuals.

Grave goods interred within Effigy Mound burials were quite different than the types interred with individuals during earlier periods of mound construction. The pattern of inclusion and type of materials suggests that grave goods were likely not indicative of individual status distinctions but instead were symbols of community and perhaps collective identity (Mallam 1976:39).

Summary Identity and Effigy Mound Mortuary Practices

The location of burials within certain mound forms and on the landscape is a communicative act particularly to those responsible for mound construction (intra-group). As Kuijt (1996:315) noted,

> Mortuary practices are often a communal event, usually controlled and directed by a limited number of individuals and enacted for an audience of individuals present at the event. The power of ritual as a cohesive force is based, in part, on the realization that mortuary practice is a form of public action, a social drama designed and conducted by the living often to elicit community participation.

However, the same act also communicates community cohesion to individuals outside the group (inter-group) (Goldstein 1980, 1981).

Burial patterns more commonly associated with geometric mound forms were likely symbolic of collective identity creation. This patterning even incorporated the inclusion of grave goods interred with and intermixed among the remains of several people bundled together.

Burial patterning associated with effigy mounds, on the other hand, likely denoted something distinctly different compared to geometric mound burial practices. In relation to geometric mound burials, effigy mound interments commonly contained more single burials and individuals disposed as primary burials.

However, it is important to note that mound burial may have represented different things among Effigy Mound communities. For example, burials in the Nitschke Mound Group were remarkably different compared to other mound groups in Wisconsin. Nitschke has several unique features that make it stand out from the other sites studied as part of this dissertation research. Nitschke has a disproportionate number of subadults, (0-4 year-old age range) afforded effigy mound burial compared to other mound groups.

Several Nitshcke effigy mounds contain large multiple burials. Additionally, Nitschke exhibits a large number of grave goods interred with the remains, which is fairly uncharacteristic of the general Effigy Mound mortuary pattern. Further, many of these grave goods were associated with very young subadults.

The uniqueness of the burials at the Nitschke Mound Group is indicative of the complexity of mound construction and mortuary behavior. Mound construction and mortuary treatment were influenced by local culture-histories, individual decisions of ritual specialists, and community preferences.

Despite the uniqueness of ritual and mortuary behavior at sites like Nitschke, some generalities can be made regarding monumentalism and mortuary treatment observed at Effigy Mound sites. Mound construction and burial likely reflected both processes of social integration and differentiation (Lindauer and Blitz 1997). Geometric mound forms, especially conical mounds with large collective burials were likely part of processes of social integration; while effigy mounds containing singly interred, primary-disposed individuals reflected processes of societal differentiation.

Burial by Effigy Mound communities within mounds was not reflective of corporate identity creation *or* demarcation of a special class of individuals. Rather the mortuary practices of Effigy Mound communities were part of a broader mound building and ritual network that performed both processes simultaneously.

This pattern of simultaneous collective burial and individual distinction has a long history across the prehistoric Upper Midwest. Dating back to the Archaic, cemeteries tended to exhibit differences in postmortem treatment that have been interpreted as emphasizing collective identity through large collective burials of individuals disposed as secondary bundle reburials and scarcity of grave goods; while others appeared to accentuate individual identities through primary burial and differential inclusions of grave goods (Hill 2009; Stoltman 1997) . This pattern continued throughout the Terminal Archaic/Early Woodland and Middle Woodland (Hill 2009; Pleger 2000; Overstreet et al. 1996). Communities participating in the Hopewell Interaction Sphere demarcated social distinctions through the inclusion of exotic and elaborately decorated items while simultaneously creating collective burial spaces through the construction of charnel houses and incorporation of several individuals disposed secondarily or as cremations (Birmingham and Eisenberg 2000; Buikstra and Charles 1999; Carr 2008; Milner 2004).

It would be unreasonable to think that this pattern of collective identity creation and demarcation of distinct individuals suddenly changed with the emergence of the Effigy Mound ceremonial movement. The patterns of identity creation seen among Effigy Mound communities were not new innovations; rather they were likely deeply entrenched philosophico-social beliefs about community and how it was represented in the mortuary domain. Certainly the traditions of primary and secondary burial treatment of the body continued to be used in Effigy Mound mortuary practices. What changed, however, was a de-emphasis of exotic and rare items included with burials and an increase in limited access to burial within certain mound forms.

Deformity, Disability, and Effigy Mound Mortuary Ritual

The second research question posed in this study was grounded in the statement by Robb et al. (2001:213) that "comparison of funerary treatment and skeletal biology can be very informative about the interplay of social status and meanings and actual life conditions in ancient communities". The focus of this research was on societal attitudes, as reflected in the mortuary practices of Effigy Mound communities, towards those individuals with physical malformations and/or conditions that may have severely limited mobility and normal function.

Research Question 2 asked whether the frequency and type of skeletal pathology differed between effigy and geometric mound forms. Although fractures were not observed effigy mound forms results from the Fisher's Exact Test of the cross-tabulation of pathology against mound form was not statistically significant (p=.232, χ^2 = 5.637, 4 df).

A particularly interesting finding is the fact that *all* individuals with visible signs of fractures were interred within geometric mounds (Figure 7.12). Additionally, all of these individuals were interred within multiple burials. Furthermore, the state of healing for those individuals was considerably advanced.

Of the 13 cases of fracture just one was perimortem (at or near the time of death). This perimortem fracture was a skull fracture of an individual from Mound #66 at Raisbeck. The remaining fractured skeletal elements showed a significant degree of healing evidenced by a sclerotic bony response to the fracture or were completely united which indicates that the traumatic episode occurred earlier in the individual's life.

Based on comparison with other prehistoric North American groups (Table 8.1), the incidence of long bone fractures in this collection is notably less than other collections (Glencross 2011; Lovejoy and Heiple 1981). It should be noted that the fracture rates for Libben Site data were determined in a dramatically different fashion and so comparisons between the two datasets may be problematic.

Table 8.1 Comparative Fracture Rates with other North American Prehistoric Collections

Long Bone Fractures	Effigy Mound Collection Late Woodland Wisconsin	Libben Late Woodland Ohio	Indian Knoll Late Archaic Kentucky
# Individuals with Fractures	13	450 adjusted for 1000 individuals	75
Individual Mean Trauma Count %	13 Fx /329 indvs 3.9%	450 Fx/ adjusted 1000 indvs. 45%* *Based on est. developed from intact bones only	75 Fx/ 748 indvs 10%

The lower rates of fractures observed at Effigy Mound sites and the advanced stage of healing may indicate that Effigy Mound communities had inclusion criteria associated with burial in specific mound forms along lines of skeletal trauma and disability. Traumatic lesions did not appear to preclude individuals from mound burial, but did appear to limit the mound form and type of burial treatment afforded.

Additionally, it appears that individuals with recent or unhealed fractures were in fact largely excluded from mound burial. These findings suggest that individuals who were recently injured or incapacitated may not have been afforded mound burial. It may be that this injured state was somehow incompatible with world renewal ceremonialism. The absence of incapacitated individuals may indicate that these individuals received a different mortuary treatment that is currently not known archaeologically.

It is not surprising that pathologic and disabled individuals may have been excluded from mound burial. The archaeological record has numerous examples of differential mortuary treatment of the sick and incapacitated (Fay 2009; Little and Papadopoulos 1998). In the Upper Midwest, this pattern of differential disposal for pathological and/or disabled individuals dates back to the Middle Archaic with the midden burials of the very young, very old, and disabled individuals in the Illinois River Valley (Buikstra 1981; Buikstra and Charles 1999; Charles and Buikstra 2002).

These findings suggest certain types of pathology, notably fractures, may not have been as commonly experienced by the segment of population buried in effigy mound forms. If Rosebrough's (2010) assertions are correct, and effigy mound construction was directed by a select few, these ritual specialists may have enjoyed a special status and may have been "freed from some subsistence activities in return for services rendered" to the community for coordinating mound burial and ritual (Holliman 2004:54). This absence of fractures in effigy mound forms may be a product of this freedom from certain subsistence activities related to enhanced 'spiritual status' and leadership roles. Additionally, if Rosebrough (2010) is correct and segments of the Effigy Mound community resided in close proximity to the mound groups year-round, these individuals may have experienced lower instances of fractures as a consequence of reduced mobility. Alternatively, it may be that this type of injury was simply incongruous with the rituals performed in relation to effigy mound forms and exclusion was not related to differential risk rates but rather to symbolism.

Although inconclusive, the focus on pathology as it pertains to mound burial is a particularly significant contribution of this research. This study is the first to examine the social impact of pathology as it relates to mound burial among Effigy Mound communities. The study of skeletal remains in this context adds to a deeper understanding of the Effigy Mound ceremonial movement and the social impact of pathology as it pertains to mound burial.

Summary

Effigy Mound monumentalism and mortuary practices likely played a role in the creation of both corporate identity and celebration of individual identities within the communities. However, this was not the sole purpose of mound construction. Many mounds did not contain burials (38.6%). These findings suggest that mound construction was not necessarily for the burial of individuals; rather mortuary ritual sometimes accompanied mound building. The presence of empty mounds and mounds without burials but evidence of other ritual suggests that mounds were not constructed solely for the burial of the dead; but were likely part of a panregional world renewal ceremonial movement (Birmingham 2010; Mallam 1982, 1984). However, burials were incorporated into some mounds which likely served as an important symbol for communities participating in the Effigy Mound ceremonial movement. These symbols likely played an important role in structuring other aspects of the sociopolitical organization of communities participating in the Effigy Mound ceremonial movement.

An Interpretive Social Model for Effigy Mound Monumentalism and Ritual

The ultimate goal of this project was to create an interpretive model for Effigy Mound monumentalism and mortuary practices based on patterning in the biological and cultural datasets. This chapter presents the model developed to explain: 1) the origin of Effigy Mound ceremonialism and 2) its influence on the social organization within Effigy Mound communities.

This dissertation follows Benn (1979) and Goldstein (1995) in the development of the model by emphasizing three key aspects of Effigy Mound monumentalism and mound burial: 1) why new zoomorphic mound forms were added to the mound building repertoire and built in particular locations; 2) the significance of these varied mound forms; and 3) the differences and regularities in the internal mound features mean in the larger social system.

Investigation of the first facet of mound construction contributes to our understanding of the origin of Effigy Mound ceremonialism and symbolism and its possible link to Hopewellian ceremonialism and broader Eastern Woodland cosmology. Exploration of the second feature of Effigy Mound ceremonialism may add to our understanding of possible meanings of the various mound forms created by Effigy Mound communities. Addressing the third aspect, the influence of mound construction and ritual, provides valuable insight into the social dynamics of the Late Woodland groups that participated in Effigy Mound ceremonialism and how mound construction and mortuary behavior may have operated to demarcate and celebrate distinct social positions and perhaps contribute to a system of masked hierarchy.

Effigy Mound Forms as Symbols of a New Ceremonial Movement

It is asserted in this dissertation that Effigy Mound monumentalism was part of a broad Late Woodland routinized religious/ceremonial movement (see Chapter 2). This movement did not originate in a vacuum but likely had its roots in spiritual-religious concepts of earlier traditions. It seems reasonable to propose that as the Hopewell Interaction Sphere dissipated, new forms of ceremonialism were continually evolving to fill the void left by its dissolution including the Effigy Mound ceremonial movement.

Since ritual practices are generally conservative, it is not surprising that the Effigy Mound ceremonial movement exhibited both innovative qualities while also continuing to retain aspects of earlier Hopewellian ceremonialism (Charles 1992; Hays 2010). Additionally, the placement of Wisconsin Effigy mounds in locals of earlier (Middle Woodland) mound building suggests the possibility that “cultural links between the people of the different mound-building traditions” existed (Birmingham and Eisenberg 2000:109).

An example of this continuity between Hopewellian and Effigy Mound ceremonialism can be seen at the Trowbridge Site in Trempealeau County, Wisconsin (Figures 6.1 and 6.9). The Trowbridge Site is in close proximity to two other Hopewell mound groups Shrake I and Shrake II. The Trempealeau Phase Hopewellian mounds were largely conical and contained burials that were typically placed in the fill, subfloor pits, or rectangular crypts made of bark or stone at the base of the mound (Birmingham and Eisenberg 2000; McKern 1931; Stevenson et al. 1997). Burials were either extended or secondary bundle burials (Birmingham and Eisenberg 2000; McKern 1931).

McKern's field notes' and maps illustrate the continuity between Wisconsin Hopewell and Effigy Mound ceremonialism at the Trowbridge site which is reflected in mound form, treatment of the human remains, contrasting patterns of dark and light soils, and copper items (McKern unpublished field notes).

The vast majority of mounds within the Trowbridge mound group are low conical mounds similar to Shrake I and Shrake II (Figure 6.9). In fact the mound group only contains two mounds that are zoomorphic in shape. The burials at Trowbridge are similar to Hopewellian Trempealeau Phase burials in their location within a mound and were typically placed in the fill or oval subfloor pits. Bodies were disposed as extended (n=15) or secondary bundle burials (n=11) (McKern unpublished field notes).

A particularly illustrative example is Mound 69 (conical) at Trowbridge. The mound contained two separate burials. The first burial (Burial 1) is closer to the surface of the mound (.62’ from the top of the mound and 1.71’ from the mound floor) (Figure 8.3). This secondary bundle reburial was above Burial 2 and appears to have been placed under parallel pieces of wood, possibly oak.

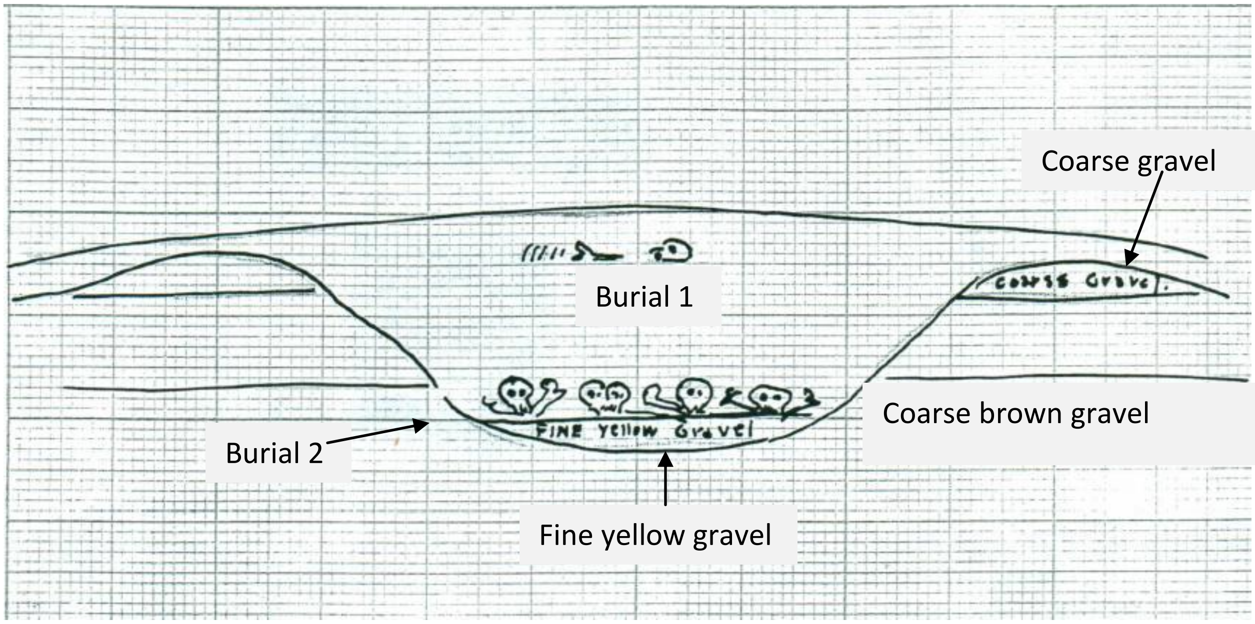

Figure 8.3 Diagram Burials in Mound #69 at Trowbridge Mound Group (McKern unpublished field notes)

Burial 2 was a multiple burial of several individuals (5 primary and 1 unassociated skull) within a subfloor pit (Figure 8.5). The subfloor pit in this mound was lined with what McKern calls "ceremonial gravel" (Figure 8.3) and was exceptionally large (12' by 7' at its base and 15' by 10' at the rim) (Figure 8.4) and (McKern unpublished field notes). Bits of copper were also associated with one of the burials in Burial 2.

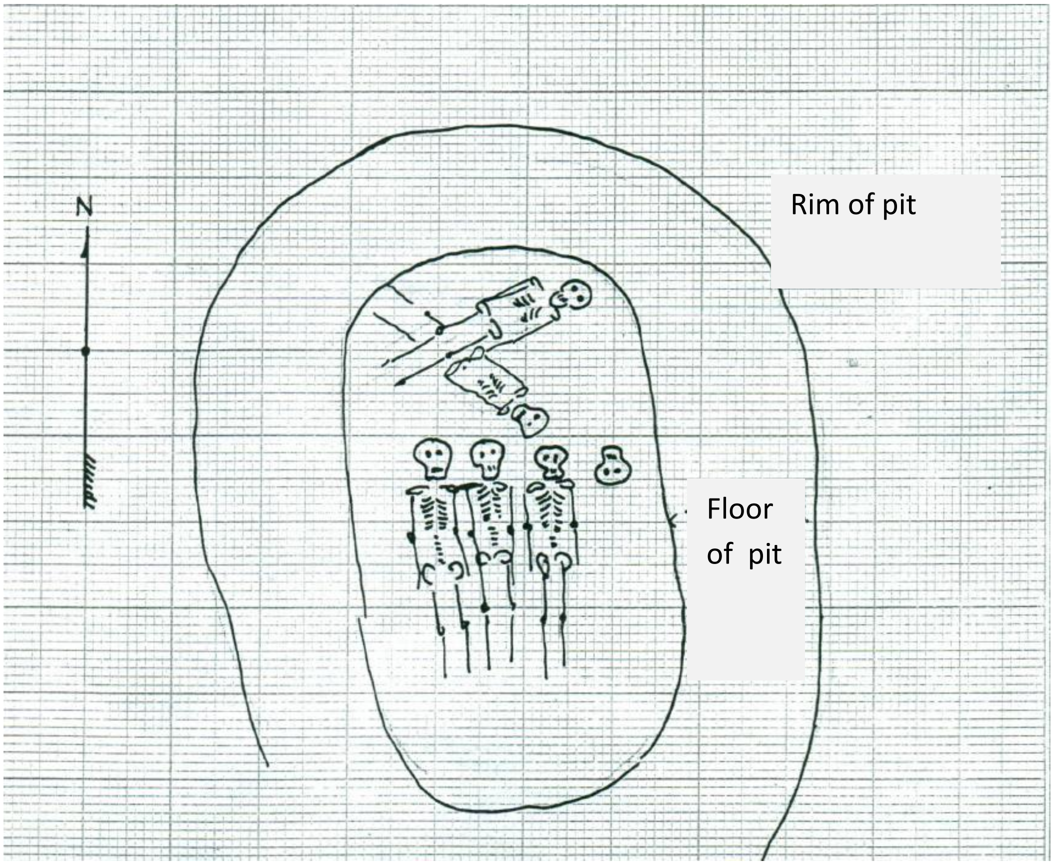

Figure 8.4 Diagram Burial 2, Mound #69 at Trowbridge Mound Group
(McKern unpublished field notes)

Figure 8.5 Burial 2, Mound #69 at Trowbridge Mound Group
(McKern unpublished field notes)

According to McKern's fieldnotes, Burial 1 in Mound 69 was not intrusive. The patterning suggests that perhaps the subfloor pit may have functioned as a crypt for the interment of multiple individuals. At some point the pit was filled and Burial 1, a bundle reburial, was placed on top of it and covered with pieces of wood. This sequence was then finalized by the capping of the mound (Figure 8.3).

Internally, many of the mounds at the Trowbridge site exhibit patterns of soil layering which include: blackish sand resting on pale green or yellow sands which are situated upon brown coarse gravel (McKern unpublished field notes) (Figure 9.1). This patterning of light and dark elements is also a feature observed in Hopewell ceremonialism (Carr 2008: 168). Additionally, several mounds at the Trowbridge Site contain copper items including celts which were also prominent in Hopewell ceremonialism (Carr 2008). Other items included at Trowbridge that have similar ties to Hopewellian mounds included a greenstone spud or celt which was found within Mound 82 (fox-like effigy mound form).

The continuity in earlier period mound forms is not just at the Trowbridge Site. Geometric mound forms, such as conical and oval continued, to figure prominently at most Effigy Mound sites across Wisconsin.

As previously noted, the conical mound form dates to the Terminal Archaic/Early Woodland period in Wisconsin (Henschel Site) and may be symbolic of a fundamental belief in Eastern Woodland cosmology (Carr 2008; Overstreet et al. 1996). The Hopewell phenomenon is largely viewed as a reworking of earlier the Archaic and Early Woodland patterns of interregional exchange and monumental construction (Bolnick and Smith 2007; Buikstra and Charles 1999; Charles and Buikstra 2002; Seeman and Branch 2006; Stevenson et al. 1997). It is likely that the Effigy Mound ceremonial movement was part of this long line of ceremonial transformations and reworking of earlier symbols to accommodate changing social dynamics of participating communities.

The new zoomorphic mound forms of Effigy Mound ceremonialism were certainly a dramatic departure from earlier Middle Woodland conical and oval mound forms; however, the use of animal symbolism was not new to the Effigy Mound ceremonial movement. Pipes in the various effigy forms were a common feature of Hopewellian ceremonialism (Carr 2008).

An important distinction between Hopewell and Effigy Mound ritualism however needs to be made. Effigy Mound ritual exhibited a notable absence of exotic items which likely indicated that emphasis on competitive or cooperative material displays of interred items was not valued among Effigy Mound communities. Instead, community level cooperation to construct large symbolic displays was emphasized. It is not the introduction of new animal symbolism that is significant with the Effigy Mound movement, rather it is the transformation of how that symbolism is handled that is so interesting.

For example, comparing the effigy pipes of Hopewellian ceremonialism to the effigy mounds of the Effigy Mound movement illustrates a dramatic contrast not in symbolism but rather in construction and usage. As Carr notes with regard to Hopewell effigy pipes (2008:165), "The consistent positioning of the effigy animals facing the smoker, and the great diversity of depicted species, each with its own talents, reinforce the identity of the carvings as personal power animals." Effigy mounds, on the other hand, may have been designed by a single individual but were the *constructs* of the larger community. Their construction likely involved several individuals collectively handling the earth to create the symbolic structure as opposed to just one.

As detailed in Chapter 2, the Late Woodland period is marked by major population resettlement outside of core-river valleys particularly in the Illinois and Ohio River Valleys (Birmingham 2010; McElrath et al. 2000). The demographic shifts were more complex than just a simple shift out of the river valleys into upland environments. These shifts may have resulted in major differences in ideologies associated with the social order. As the Hopewell Interaction Sphere waned, households that had previous connections across vast areas may have become more socially isolated. Socially, self-reliance and community level cooperation at the intragroup level would have been even more critical to survival post Hopewell Interaction Sphere.

Emphasis in the Late Woodland was no longer on broad interregional alliances but instead on local social groups. The origin of Effigy Mound ceremonialism likely came out of this local community-based focus. Increasing community cohesiveness was likely accomplished through this ceremonial transformation of having whole communities participate in creating the sacred symbols of ritual rather than a distinct few. As Mallam (1982:62) notes,

> The ongoing practice of mound building dramatized the cosmological conviction and reaffirmed the relationships. To participate in it strengthened human bonds and contributed to order and balance in the universe. Mound building, then functioned as a ritual of lifeway reinforcement and world renewal. To these hunting and gathering peoples, it represented the social means for insuring the continuation of the annual cycle of life, expressed in seasonal regeneration of plants and animals.

The picture presented for the origin of the Effigy Mound ceremonial movement is not one of a dramatic new religion developing from some nonentity and spreading across the Upper Midwest; rather it was the transformation of previous existing cosmological beliefs and Hopewellian symbolism. Importantly, it is the transference of once private symbols of a few to the larger collective through mound construction.

The spread of zoomorphic mounds and panregional internal features like altars across Wisconsin and portions of Iowa, Minnesota, and Illinois indicates that these symbols were communicated across the Upper Midwest and ultimately accepted as a routinized movement just as the Hopewell Interaction Sphere had been. Yet the variability in mound style and internal features such as cists, shells, and animal remains likely reflect the individual preferences of local ritual specialists and a shaman-based religious system (Rosebrough 2010; VanPool 2009). These features in combination with the absence of interregional spiritual networks indicates that the practice of this ceremonial movement was at local level and in accordance with other social-economic transformations observed during the Middle Woodland to Late Woodland transition, particularly the emphasis on local social groups rather than broader interregional connections.

Significance of Mound Forms

Interpretations for the meaning of effigy mound forms have largely centered on two explanations: as emblems of corporate group identity or symbols of world views and cosmology (Benn 1979; Birmingham 2010; Goldstein 1995; Mallam 1976, 1982, 1984; Rosebrough 2010). Yet Birmingham and Eisenberg (2000) and Birmingham (2010) illustrate how effigy mound forms may be linked to both cosmology and corporate group identity simultaneously. Birmingham and Eisenberg (2000:129) note, effigy mound forms "recapitulate the structure of the universe and model the relationship of the social divisions of clans of the effigy mound builders". Birmingham (2010) suggested that effigy mound forms may have operated on two levels: 1) they may have recreated the cosmological order through their construction and formed an integral part of earth renewal rituals; and 2) also played a role in the creation of community identity through the incorporation of both religious and corporate group symbols in this shared ritual.

Of particular interest in this study is the continued use of conical and oval mound forms by Effigy Mound communities. As noted in the preceding section, Effigy Mound ceremonialism had several features in common with earlier mound building traditions including the continued construction of conical and oval mound forms. The use of these forms in Wisconsin dates to the Terminal Archaic/Early Woodland and Middle Woodland periods respectively.

Carr (2008:303), in his analysis of Hopewell mound building, suggested that conical mounds may have symbolized 'the *axis mundi'*. The '*axis mundi*' refers to a "vertical conduit for traveling among layers of the cosmos" in shamanic and shamanic-derived world views (Carr 2008:295). Oval (loaf-shaped) mounds, according to Carr (2008) were added to the Middle Woodland mound-building repertoire to symbolize communities participating in Hopewellian ritual. The explanations proposed by Carr (2008) for mound form symbolism are just one of many possibilities of what the forms may have meant to communities participating in Hopewellian ceremonialism. The meaning of mound construction and associated ceremonialism likely varied by location and changed through time (Bradley 1993).

Regardless whether conical mounds were symbolic of the *axis mundi* and/or oval forms were reflective of community symbolism, these two mound forms were a visible presence on the landscape and likely deeply entrenched within the world views of Late Woodland Wisconsin communities. As Wallis (2008: 238) notes, "the monuments and other materials of the Archaic period that were encountered by later Woodland populations were engaged in particular ways that reinforced locally distinctive relationships to the past." He goes on to note, "spatially and temporally distinctive features of a constructed landscape, such as a particular type of monument, therefore emerge through the process of dwelling within and reworking the existing landscape" (Wallis 2008:241).

It is the opinion of the author that conical and oval mound forms likely represented ancestral or sacred mound forms which operated in concert with sacred landscapes for Late Woodland communities. Individuals would have seen and experienced these mound forms during their life and likely acknowledge that these mound forms contained the ancestors. As such, these conical and oval mound forms may have served as way for Late Woodland Effigy Mound communities to "connect" with the ancestors through the reuse 'ancestral' symbolism.

Internal Features

The shared experience of mortuary ritual and interment of the ancestors in mounds created shared identity through symbolic structures and acts (Benn 1979; Mallam 1976). This collective identity was communicated at both the intra-group and intergroup levels, and was reinforced through *both* processes of mound construction, ritual performance, and burial of community members.

As previously mentioned, internal features outside of human burials within Effigy Mounds appear to be varied within and across Effigy Mound sites suggesting that rituals performed were the stylized prerogatives of individual shamans (Barrett and Hawkes 1919; Beck and Brown 2011: McKern 1928, 1930; Rosebrough 2010; Rowe 1956; VanPool 2009). In shamanistic ritual, these features are generally performed in individualized manner that is highly reflective of the shaman performing the ritual. The significant variability in internal ritual features observed within Effigy Mounds is consistent with stylistic variability of a shaman-based religious system (Rosebrough 2010; VanPool 2009).

However, whether Effigy Mound ceremonialism was a shamanistic religion or what the specific ritual features mean is not of critical concern in this analysis. What is important is how these Effigy Mound ceremonial practices may have operated in the sociopolitical organization of Effigy Mound communities.

Ritual paraphernalia such as mound form, fire hearths, cists, rock altars, stone and pottery caches, special soils, and bones likely communicated meaning both transregionally and locally

(Anderson 2011). Certain aspects of Effigy Mound ceremonialism exhibited greater transregional communication, particularly specific mound forms such as conical, oval, bird, panther, and bear which appear regularly across Wisconsin sites. Internal ritual features, on the other hand, tend to exhibit significant variability and likely transmitted meaning on a more local level.

As Birmingham and Eisenberg (2000:134) note, "the similarity of mound forms, mound arrangements, and other customs attending to mound construction found throughout the large effigy mound area argues for a shared sacred knowledge that may have been controlled by a society…of religious specialists…who directed the mound-building ceremonials." Rosebrough (2010:567) adds,

> It is not difficult to understand why shamans or other ritual specialists would be heavily involved in mound ritual, suffused as it was with spiritual and cosmological overtones. Their influence over political and economic systems is less obvious, but germane to studies of effigy mound building populations.

Ceremonialism and ritual are commonly recognized activities that often serve to legitimize authority (Flanagan 1989; Johnson 1982; Holliman 2004). If Rosebrough's inferences, based on ceramic and mound stylistic variation, are correct and small sub-populations of ritual specialists controlled mound construction and world renewal ritual, they may have been afforded greater social prestige based on sacred ritual knowledge (Aldenderfer 1993; Holliman 2004; Rosebrough 2010).

It is well recognized that inequality does not necessary have to be limited to economic disparities and/or differences in political authority (Feinman et al. 2000; Flanagan 1989; Holliman 2004: Rosebrough 2010; Trinkaus 1995). As Aldenderfer (1993:9) notes,

> *Hierarchy*…refers to the existence of inequalities between persons, and pertains more to social organization than social structure. Under this definition, it is obvious that while

> hierarchy can exist within stratified societies (those so defined by social formations such as classes or 'elites'), societies need not be stratified in order for hierarchy to exist. *Inequality* is clear difference in access to, some commodity, position, or resource. Some individuals have access to the resource while others do not. It is important to here stress that it is not necessary to identify this resource as a subsistence or other economically valuable good.

The burial features examined as part of this research are in line with Aldenderfer's (1993) definition of inequality and support Rosebrough's (2010) claims that Effigy Mound monumentalism and mortuary ritual may have participated in a masked hierarchical system. Certainly, economic distinction does not seem to be apparent among Effigy Mound burials based on: the low incidence of grave goods, the local source material that most items are made of, and the general utilitarian nature of the grave goods (Birmingham and Eisenberg 2000; Goldstein 1995; Rosebrough 2010: Rowe 1956). Additionally, the presence of relatively equal numbers of males and females interred within mounds and the inclusion of both adults and children have been suggested as demonstrating the egalitarian nature of the mortuary program (Birmingham and Eisenberg 2000; Goldstein 1995).

However, the general low number of individuals interred within mounds across the Effigy Mound region and the differential mortuary treatment afforded to those mound burials suggests that a system of differentiation is present within the Effigy Mound mortuary domain. These numbers suggest that burial within a mound may have demarcated a special status among Effigy Mound communities (Birmingham and Eisenberg 2000; Goldstein 1995; Rosebrough 2010). Additionally, the differential treatment of those buried in the mounds is perhaps the strongest support for ranking within Effigy Mound communities. The dramatic differences seen in primary and secondary mortuary treatment according to mound form suggests that burial within effigy mound forms symbolized something distinct from geometric mound forms. The number of individuals interred as single or multiple burials also supports the notion that effigy mound burial (with higher likelihood of containing individuals buried singly) may have operated as a symbol of individual distinction while geometric mound burial may have reflected corporate identity.

Unfortunately, the use of the term ‘hierarchy’ and/or ‘rank’ commonly conjures images of stratified societies and inequalities in economic resources, power, and authority. Rather than classifying Effigy Mound social organization as a masked hierarchy, perhaps phrasing the distinctions in mortuary treatment using Gillespie’s (2001:82) concept of ‘personhood’ may be more appropriate. As Gillespie (2001:82) noted, ‘personhood’

> is often encompassed by a title or name and materialized by insignia, totemic crests, or badges of office... Personhood has rank or status implications vis-a-vis other persons and may also be associated with estate/caste/class, religion, ethnicity or ancestral group, and occupation

Differential mortuary treatment and unequal access to primary mortuary treatment and effigy mound burial may have demarcated social positions that were not open to all members of the community. Specifically, it is possible that differential mortuary treatment may have symbolized ritual specialists responsible for mound construction and ritual. This position was likely not open to juveniles, as evidenced by the low incidence of primary burial and single interment for juveniles. What is observed in the Effigy Mound mortuary record may be the symbolic representation of particular social positions or offices rather than distinct classes of individuals that were held in higher regard than other community members.

Chapter 9: Conclusions and Future Research

Introduction

This dissertation presented a bioarchaeological examination of Effigy Mound monumentalism and mortuary ritual. Fundamental to the research presented was the creation of a conceptual framework that was based on an extensive review of archaeological interpretations of prehistoric Upper Midwestern earthen construction and a broad based mortuary theoretical background.

An important contribution of this study is, in fact, the conceptual framework developed for the analysis. Too often bioarchaeological studies frame their analyses in the specific geographic and temporal archaeological context of the skeletal material under study. This narrow focus ignores the fact that the human remains under study generally originate from mortuary contexts that have their roots in the past. The conceptual framework developed for this study includes a diachronic analysis of mound and mortuary behavior spanning thousands of years which may serve as a model for future Eastern Woodland research.

Specifically, this study examined whether the mound building and mortuary practices of Effigy Mound communities were associated with the creation of collective identity and group cohesion or demarcation of distinct segments of the community. The results indicate that mound building and mortuary practices were associated with both processes simultaneously.

This research presents a solid case for considering mound building and ritual practices as features of a broader panregional ceremonial movement. The presence of empty mounds and mounds exhibiting ritual sans burials suggests that mound construction was the primary focus of this ceremonial (Birmingham 2010; Mallam 1982, 1984).

It is argued that this movement likely developed from earlier Terminal Archaic/ Early Woodland and Hopewellian ceremonial predecessors. Certainly symbolic structures such as conical and oval mound forms were continually used along with animal symbolism. However, the Effigy Mound ceremonial movement marked a dramatic shift away from interregional spiritual and trade networks and appeared to stress local cohesion. This emphasis at local level was likely associated with the dissolution of interregional networks that were so prominent during the Middle Woodland. As connections between households waned, self reliance and community cohesion would have been vital to survival. This cohesion was likely reinforced through mound construction and mutual participation in ritual experiences.

Owing to the importance of mound construction and ritual to these societies, it is argued here that these ritual specialists may have occupied a special social position or office through differential spiritual knowledge that was not open to all community members. It seems reasonable to consider that individuals occupying these offices likely received distinct mortuary treatment based on the position they held in life.

This study found that burial within certain mound forms was likely a communicative act to those responsible for mound construction and burial treatment. Burial patterns more commonly associated with geometric mound forms were likely symbolic of collective identity creation; while burial patterning associated with effigy may have been reserved for those ritual specialists who designed the mounds and performed the rituals.

This study followed Morris' (1992) suggestion that mortuary analyses look at several factors to understand the underlying social organization of the communities that created the mortuary remains. Specifically this dissertation explored biologic traits including age, sex, and disfiguring/disabling pathology, burial type (multiple versus single), body disposition, and mound form. Placing these specific differential burial practices within the broader social context of Effigy Mound religion and social organization is another important contribution of this project. Specifically, the findings from this research created a more thorough bioarchaeological picture of Effigy Mound mortuary practices and social structure compared to previous analyses.

Assumptions and Limitations of this Project

The limitations for this study are largely material, temporal, and interpretive. Sampling bias potentially impacts this study on several levels. The skeletal and archaeological materials in the cultural and skeletal datasets are derived solely from mound exploration. The collection at the MPM only contains remains from individuals recovered from mound excavation. As previously noted in Chapter 7, and in this chapter, the number of individuals recovered from the mounds clearly indicates that not everyone in the community was afforded mound burial (Goldstein 1995; Rosebrough 2010). Therefore, although the collection is quite large, it is clearly a biased sample (Goldstein 1981).

Another type of bias in this study stems from the thoroughness of the archaeological excavations of the mound sites themselves. As can be seen in Chapter 6, not all Effigy Mound sites were excavated equally, some sites like Kletzien, Kratz Creek, McClaughry I and Nitschke have a high proportion of the mound group excavated; while other sites such as McClaughry II, Neale, and Raisbeck have significantly lower percentage of the total site excavated.

A third material limitation relates to the nature of the skeletal remains which are very fragmentary and in fair to poor condition, making determination of key categories such as age and sex of analysis potentially problematic

Temporal control is another major concern. Effigy Mound ceremonialism spanned roughly a 600 year period (A.D. 600- A.D. 1200). Unfortunately, radiocarbon dates for sites included in the study are rare (Bender et al. 1967) and fine-scale chronologies based on material remains are problematic (Rosebrough 2010). Interpretation of differential patterning in mortuary practices without good chronologies is problematic. An alternative explanation for the variation in mound forms and associated burial practices at Effigy Mound sites may be related to temporal transitions.

Like Rosebrough (2010), this study treated the remains as an aggregate sample of Wisconsin Effigy Mound sites which likely span several hundred years. Unfortunately, this required an assumption that all variation in mortuary and ritual behavior is the consequence of social decisions rather than shifting temporal trends. It is important to consider the possibility that geometric mound forms, particularly conical and oval may predate effigy mound forms or vice versa. Additionally, it is possible that the patterning described by Rowe (1956) of greater secondary treatment in geometric mound forms and primary interments in effigy mound forms may be reflective of a temporal transition in burial treatment rather than representing distinction between segments within communities. Similarly, the pattern of a greater number of individuals interred within geometric mounds compared to effigy mounds may also reflect a temporal transition in mortuary practices rather than internal distinctions within the community structure.

The final set of limitations concerns interpretive issues that are a direct consequence of the Effigy Mound mortuary practices. For example, the observed differential patterning in primary and secondary body disposition among mound burials may simply be due to the timing of death of an individual rather than social position; the practice of secondary burials may have created the possibility that pathological skeletal elements may have been excluded from the record while the individual was not. Also related to secondary burial is the possibility that key skeletal elements for certain age classes or sex were excluded from mound burial while other less informative elements were included.

Future Research

This project illustrates the value of reexamining museum collections with new and varied approaches and methodologies. Through this contextualized and theoretically grounded work, this study has generated greater understanding of Effigy Mound ceremonialism and mortuary practices. Yet, future research is still needed to fully understand the purpose of Effigy Mound monumentalism and how it may have functioned at the community and larger regional levels.

Based on the high number and concentration of Effigy Mound sites across the state of Wisconsin, it is reasonable to assume that the movement likely originated there. As noted earlier in this chapter, Effigy Mound ceremonialism likely developed as a response to the dissolution of the Hopewell Interaction Sphere and the suite of social changes that accompanied the Middle Woodland to Late Woodland transition. Further research is needed to explore why communities in this region of the Upper Midwest responded to these social dynamics with another, albeit altered, broad-scale regional ceremonial movement.

To understand this, future research needs to explore the transformation in mound building in Wisconsin diachronically. Broad scale comparisons need to be made between mound building behaviors, cultural-ecological adaptation, and socio-religious features particularly at multicomponent sites such as Trowbridge. Comparisons need to be made between Hopewellian mounds (Schrake I and II, Schwert, and Nicholls), early Late Woodland sites (Milville Phase

Rehbein I Mound Group) and later Late Woodland sites to see how religious practices may have changed and what that may tell us about social dynamics and their transformations through time.

Future research is also needed with regard to mounded burials and non-mounded burials from Wisconsin sites. To determine whether the individuals interred within geometric and effigy mound forms do in fact represent a special class simply by their inclusion in a mound, data from non-mounded skeletal remains must be examined. Additionally, it was suggested that individuals interred within effigy mounds may have represented distinct subgroups of the community (households and/or lineages) responsible for mound construction and ritual. Future research should aim to confirm this assertion.

One area of future research that may address this question is a mitochondrial DNA (mtDNA) analysis of the skeletal material. Specifically comparison of mtDNA from individuals interred within effigy mound forms to individuals from geometric mound forms may provide valuable insight into the nature of mound burial among Effigy Mound communities. Specifically, it may answer whether kin groups were responsible for the construction of certain mound forms.

Another aspect that may be addressed with mtDNA analysis relates to the peculiarities at Nitschke. Nitschke has a radiocarbon date of A.D. 1040 (Bender 2006). Dates from the Aztalan site, a site which exhibits considerable Middle Mississippian influence, range from A.D 1030 to A.D. 1140 (Bender 2006). Nitschke and Aztalan were contemporaneous with each and relatively close geographically (Figure 9.1). Future research needs to be performed to determine whether individuals afforded large collective effigy mound burial at Nitshcke were all related. If these individuals were of different kin groups, it may suggest that access to effigy mound burial was enlarged to accommodate a greater proportion of the community versus just those responsible for mound design and construction. If Nitschke was is in direct competition with Aztalan for community membership, one avenue for recruiting and keeping members is to provide greater access to once limited mortuary treatments.

Additionally, research is needed to determine whether the very young subadults (0-4 year olds) afforded effigy mound burial with numerous grave goods at Nitschke were all from the same kin-group. If these individuals were all from the same kin-group, it may suggest that access to special ritual status may have been ascribed. If so, this appears to be a dramatic departure from other Effigy Mound group sites and may reflect Mississippian influence from Aztalan.

Figure 9.1 Location of Aztalan and Nitschke Mound Groups
Map from US Census website http://www.census.gov/#

Concluding Thoughts

This dissertation research demonstrated the value of a thoroughly contextualized bioarchaeological reexamination of museum collections. The analysis illustrated the complexity of Effigy Mound monumentalism and mortuary ritual and confirmed the necessity to move beyond characterizing these Late Woodland societies as “The Good Gray Cultures”. As bioarchaeologists and archaeologists, we do a disservice to these remarkable societies describing them largely in relation to their Middle Woodland predecessors and later Middle Mississippian populations. Effigy Mound ceremonialism and social structure was spectacular and dynamic in its own right; hopefully this exploration of this fascinating time in prehistory, its peoples, and their mortuary practices is just the beginning.

APPENDIX

Appendix
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Figure 1 Plan of the Kratz Creek Mound Group (no page number associated with fold out map)

Plate III Cross Section of the large conical burial mound No. 1, showing stratification (pg.7)

McKern, W.C.(1928) *The Neal and McClaughry Mound Groups*. Bulletin of the Public Museum of the City of Milwaukee Vol.3 No.3. Aetna Press, Milwaukee Wisconsin.

Map 1 Plan of the Neale Mound Group (no page number associated with fold out map)

Map 2 Plan of the McClaughry Mound Group (pg. 230)

McKern, W.C. (1930) *The Kletzien and Nitschke Mound Groups*. Bulletin of the Public Museum of the City of Milwaukee Vol.3 No4. Aetna Press, Milwaukee Wisconsin.

Map 4 Plan of the Kletzien Mound Group

Map 5 Plan of the Nitschke Mound Group (no page number associated with fold out map)

Figure 79 Plan of Turtle Effigy Mound #10 Nitschke Mound Group

Figure 81 Plan of Panther Mound #21 Nitshcke Mound Group (p.507)

McKern, W.C. (1931) *A Wisconsin Variant of the Hopewell Culture.* Bulletin of the Public Museum of the City of Milwaukee Vol.10. No2. Aetna Press, Milwaukee Wisconsin

Map 3 Trempealeau Bay Mound Groups (no page number associated with map insert)

Rowe, C. W. (1956) *The Effigy Mound Culture of Wisconsin.* Bulletin of the Public Museum of the City of Milwaukee No.3. Order of the Board of Truetees, Milwaukee Wisconsin.

Figure 1 Map of Effigy Mound Distribution (p.11)

Figure 19 Multiple Burial, Mound 66 (pg.42)

Figure 34 Typical Cists, Effigy Mound Culture (pg.67)

Figure 35 Mound Types of the Effigy Mound Culture (p.70)

Figure 36 Mound Types of the Effigy Mound Culture (p.71)

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