THE MIDDLE WOODLAND OCCUPATIONS
OF THE
KANKAKEE RIVER VALLEY AND BEYOND

The Goodall Tradition Revisited and Reinterpreted

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Submitted to the faculty of the University Graduate School
in partial fulfillment of the requirements
for the degree
Doctor of Philosophy
in the Department of Anthropology
Indiana University
September 2009

Accepted by the Graduate Faculty, Indiana University, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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March 6, 2009

ACKNOWLEDGMENTS

Only in sports and politics is a single person credited for the success of an endeavor, even though that individual may have contributed only a small portion of what was needed. A relief pitcher may be called in at the start of the ninth inning and pitch one inning but is credited with the win. In football, the credit goes to the winning quarterback, even though there were at least several dozen other players that contributed everything from simply doing their job to intercepting what could have been a game winning touchdown.

Considering the amount of time that has been devoted to this project, the list of individuals who contributed to its completion could actually run longer than the dissertation itself. While it is not possible to name them all, it does not mean that their help was unappreciated or unimportant. From the field school students and avocational archaeologists, especially those of the Northwest Indiana Archaeological Association, to all my colleagues who provided insights and prodded me to think beyond the boundaries, I am very grateful.

Several individuals must, however, be singled out. First of all, my committee of Chris Peebles (Chair); Anya Royce; Karen Vitelli; Dennis Conway, all of Indiana University, and Mark Schurr of the University of Notre Dame deserves a great deal of thanks for steering this work towards a successful completion. Mark should especially receive a larger share of the pie. We spent a lot of time together in the fields along the Kankakee River and in the archaeology lab at Notre Dame. He was also always there, at the other end of cyber space, with guidance on a great number of concerns.

Three people who were instrumental in its theoretical development and regional focus, but not members of my committee, were Elizabeth Garland, Janet Brashler and Ken Farnsworth. Betsy, Jan, and Ken, with their own research into the Middle Woodland and Hopewell, could always be counted on to encourage or restrain my new lines of thought.

Larry Binn and his family of Wilmington, Illinois allowed me access to his collections and extensive knowledge of the archaeology of the lower Kankakee River valley. Without his help, the lower “K3” would still be *terra incognita*.

Various museums, universities, government agencies, and institutions graciously provided access to their collections and records. The Glenn A. Black Laboratory of Archaeology, Indiana University, the Center for American Archaeology, and the Illinois State Museum allowed destructive analyses on ceramic sherds from various sites throughout the upper Illinois and Kankakee river valleys. Without this information, the degree of research on intersite relationships would not have been as complete. Dr. James Mills of DePauw University, Geology and Geography Department, conducted the physical processing of the ceramic thin sections and shared his knowledge of their contents. The Illinois Transportation Archaeological Research Program (ITARP) and the Spurlock Museum at the University of Illinois, Urbana-Champaign, allowed access to the archaeological materials from the Utica mound group. The U. S. Department of the Interior, Midwest Archaeological Center in Lincoln, Nebraska, shared important data on the archaeological investigations conducted at the Indiana Dunes National Lakeshore. The numerous members and attendees of the Midwest Archaeological Conference shared their ideas, concerns, and suggestions freely over the long life of this project.

Then, there are the members of the Archaeology Section of the Indiana Division of Historic Preservation and Archaeology. Rick Jones, Amy Johnson, and all the others helped to hammer out the various theoretical problems with pointed debates over the dividers of our office cubicles.

My brother Don spent many days with me in the vast number of fields we surveyed for potential sites. His knowledge of land surveying; outdoor skills, and his companionship were very valuable, then and now.

The axiom of "Behind every great man, there is a great woman" could not be any more correct than in this instance. Over the years, my wife Kathleen was always there to encourage me when my resolve waivered and to put me back on track. She also accepted my absences for classes and field work. The typing and editing of the final text is the product of her skills. The completion of this work is as much her success as it is mine. Thanks, Hon.

At the very beginning of this journey was my father Gordon. He encouraged my interests in ethnography and archaeology at a young age. Dad also supported my decision to enter graduate school to pursue those interests at a time in most men's lives when major career changes were not encouraged. I wish that he had been alive to share in all that led up to this.

Even with the help of all these great people, the theories and conclusions presented here, and any errors they may contain, are the sole responsibility of the author.

ABSTRACT

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THE MIDDLE WOODLAND OCCUPATIONS OF THE KANKAKEE RIVER VALLEY AND BEYOND

The Goodall Tradition Revisited and Reinterpreted

The Middle Woodland period in the Midwest with its mysterious earthen mounds and highly-crafted artifacts has drawn the interest of collectors and archaeologists for centuries. One of the described Middle Woodland cultures in Michigan and Indiana was the Goodall focus, which was redefined into the Goodall tradition. However, additional questions remain. This research addresses such issues as subsistence and settlement patterns, internal and external social relationships, and if the Goodall traditional can be areally delineated. The Goodall tradition is a much smaller cultural expression than those found in the Illinois River valley. Its study, therefore, could shed insight into the activities of the larger Middle Woodland regional expressions.

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CHAPTER 1

THE PROJECT AND ITS BACKGROUND

> While regional differences within Hopewell were recognized in passing, these were never defined nor did they become the basis for asking historic or processual questions . . . . Significantly, artifacts associated with subsistence activity [specifically, projectile points and storage and cooking pottery] differ stylistically between regional expressions that share in common diagnostic Hopewell artifact forms . . . which are used to define local expressions. (Struever and Houart 1972:47–48)

> The regional tradition [of Havana] is made up of distinct local traditions which have not been formally established . . . and are poorly understood . . . including the local complexes of the Kankakee and Upper Illinois [river valleys]. (Brown 1991:208)

The purpose of this dissertation is to do exactly what Brown, Struever, and Houart proposed—to define one of the local traditions associated with Hopewell Havana. Mangold and Schurr (2000, 2006) have proposed the Goodall "tradition" to replace the former Goodall "focus" (Quimby 1941a, 1943, 1944). This project goes beyond that designation to define the Goodall tradition as a unique development related to but separate from the Havana tradition found throughout the Illinois River valley and elsewhere.

The relationships between various Middle Woodland occupations of the Midwest United States have been the focus of much contemplation. For many years, the Goodall tradition of northwestern Indiana and southwestern Michigan has been considered representative of a northeastern extension of Illinois Havana (Brown 1964). Binford (1964) stated that a regional approach is best in designing research programs. The isolation and definition of the content range and structure of a cultural system with its ecological relationships would characterize these.

The main hypotheses of this dissertation are as follows:

1. The western delineation of the Goodall tradition is the western edge of the Kankakee Marsh and east of the limestone obstruction at the current city of Momence, Illinois;
2. The Goodall tradition is sufficiently unique in its material culture, its utilization of the environment, and its social interactions to separate it from the Havana cultures occurring elsewhere;
3. Within the Goodall tradition,
   A. The earliest settlements occurred in the western portion of the marsh region;
   B. The society consisted of interacting groups, each with its own mound locations;
   C. Strong interregional trade occurred between the Middle Woodland peoples of the Kankakee River valley and those of western Michigan, southern Wisconsin, and the middle and lower Illinois River valley.

Background of the Project

Researchers have been studying the Middle Woodland occupations in southwestern Michigan, northwestern Indiana, and to a lesser degree, northeastern Illinois for over 150 years. Foster (1878) discussed the group of a minimum of 12 mounds "about 12 miles from LaPorte, on the banks of a small tributary of the Kankakee" (p.143). It was the first known publication to describe the earthworks and illustrate some of the artifacts, but related little of what would be expected today regarding cultural aspects.

The Goodall focus, as seen by George Quimby (1941a), included the river valleys from the Kankakee northward to the Muskegon, and nine mound groups in Michigan and one in Indiana. Within two years after George Quimby published his findings regarding the Middle Woodland occupations of western Michigan and northwestern Indiana, he realized that there were errors in his analyses and attempted to correct them (Quimby 1943, 1944). Quimby's definition of the focus, for example, was highly selective and ignored other known and published Hopewellian sites in the same region. The Upp-Wark mounds in Porter County (McAllister 1932), the Union Mills mounds in LaPorte County (Lilly 1937; Robinson 1875), and the Bellinger/Litchfield mound in St. Joseph County had been investigated, and the findings were made public prior to Quimby's establishment of his Goodall focus.

I have identified two major sub-areas of Middle Woodland occupation within its original cultural borders (Mangold 1981a). The southern area consists of the middle and upper portions of the Kankakee and St. Joseph river valleys. The northern area includes the Grand and Muskegon river valleys. The northern Middle Woodland occupations have been chronologically designated Norton and Converse phases after the Norton (20KT1) and Converse (20KT2) sites (Griffin et al*.* 1970). More recent research (Brashler 2002), consistent with this terminology, sees little or no difference between the two sites. Between the St. Joseph River valley and the Grand River valley lies the Kalamazoo River basin, which appears to be devoid of significant Middle Woodland occupations. The paucity of excavated data in northwestern Indiana and southwestern Michigan had hampered attempts at my reinterpretation, but new excavation data has emerged within the last 15 years that has opened doors to new insights as well as clouded previous ideas.

The Goodall Tradition

Joseph Caldwell, in his *Trend and Tradition in the Prehistory of the Eastern United States* (1958:3), provided a useful definition of tradition:

> The concept of tradition, becoming increasingly useful in Americanist archaeology, is in the present view [a] specific kind of pattern. In a general sense, any culturally transmitted pattern of action seen through time is a tradition, with or without an archaeologically preserved product, or it may be action with no material product at all. In our special use of this term we shall regard a culture-historical tradition as a mainline, areally based continuity of what would theoretically be a cultural whole. In some cases one horizon within a tradition might represent the culture of a single people or ethnic group. More often, it would include several ethnic groups which were culturally pretty much alike. What is always true of the tradition as we here consider it, however, is that its space-time limits mark the effective contrast with neighboring traditions. In other words, the boundaries are drawn to represent the maximum usefulness in studying traditions in terms of each other.

Caldwell used this theoretical basis to define the Havana tradition. Its application became widespread among archaeologists working in the Midwest, especially in Illinois (i.e., Cantwell 1977; Griffin et al.1970; Munson and Harn 1971).

Dr. Mark Schurr of the University of Notre Dame and I authored a paper in which we followed a path similar to that established by Caldwell in stating the need for "recognition of a distinctive Goodall *tradition*, in the sense of a regionally distinctive archaeological culture with continuity over time" (Mangold and Schurr 2000:2). The original definition of the former Goodall focus had several defects that this new approach remedies. It spanned a very large geographic area, with a linear distance of 300 km between the Goodall component at the southern end and the Brooks component at the northern limit. The former Goodall focus encompassed the Kankakee, St. Joseph, Kalamazoo, Grand, and Muskegon river basins.

> From a more contemporary phase-based perspective, which generally seeks to define archaeological phases with much more limited geographic extent (usually confined to a river valley or a segment thereof), this is an uncomfortably large region. (Mangold and Schurr 2000:3)

Fortunately, the work done in the Kankakee River valley is neither unique nor isolated. Additional investigations in other areas, including the Grand, Kalamazoo, St. Joseph, and Illinois river valleys have contributed significantly to a broader, more regional attempt at understanding the Middle Woodland period.

Theoretical Background

Most archaeologists would probably agree with Lewis Binford (Binford and Binford 1968:25–26) that the goals of the discipline are to: (1) reconstruct cultural history, (2) reconstruct extinct life ways, and (3) delineate the cultural process. This was also echoed by Michael Schiffer (1995) who stated that the goal of archaeologists is to describe and explain the multifarious relationships between human behavior and material culture in all times and places.

Culture is not a univariate phenomenon. Its functioning should not be understood in terms of a single variable. Culture is seen in terms of many causally relevant variables, which may function independently or together in varying combinations. Culture should be studied in terms of physical, biological, and social components. The work of the archaeologist is to isolate causal factors and look for regular, stable, and predictable relationships between them (Binford 1972:199). Binford (1972) also stated that culture may be read in the quantitatively variable spatial clustering of formal classes of artifacts.

Steward (1949:3) suggested that the comparative study of distribution of cultural forms in space and through time will reveal certain trends, regularities, or patterns for which historic or generic interpretations are appropriate. These trends or patterns then truly reflect cultural processes. Albert Spaulding (1960:439) echoed this view, stating that archaeology could minimally be defined as the study of the relationships of form, temporal locus, and spatial locus exhibited by the artifacts. Time and space defined the loci of the activity, while artifacts that were then seen as concrete manifestations of human behavior formally expressed the activities themselves. Time and space were also continuous, while the cultural phenomena were characterized by their tendency to cluster in time and space (Spaulding 1957:86–87).

Geographical Boundaries of the Goodall Tradition

I will discuss the physiographic regions of the research area in greater detail in Chapter 2. However, a brief presentation will provide a better understanding of this project. The research area has already been identified as the drainage of the Kankakee River, which includes southwestern Michigan, northwestern Indiana, and a portion of northeastern Illinois (Figure 1). A closer look reveals that the area also encompasses or abuts another major drainage. The St. Joseph of the Miami of the Lake, or simply the St. Joseph River, several lesser drainages (the Galien, Yellow, Iroquois, Grand Calumet, and Little Calumet river valleys), and various creek systems are considered part of the research area.

Within the research area, four major physiographic units are present (Figure 2). The first is Lake Michigan with its actions, presence, and resources. Moving inland, the second is the lake border and lacustrine plain containing numerous fossil beaches, large stretches of various types of sand dunes with interdunal lakes, marshes, and bogs. The third morainal region exhibits the strongest topography with associated forests and "kettle hole" lakes. Outside the moraines, the glacial outwash and lacustrine plains form the fourth main physiographic unit. This unit also contains the river valley, its tributaries, and its numerous related resources. The physical feature that probably had the greatest effect on prehistoric settlement was the Grand Kankakee Marsh. The Goodall tradition occurs in all the terrestrial units but rarely in the moraines.

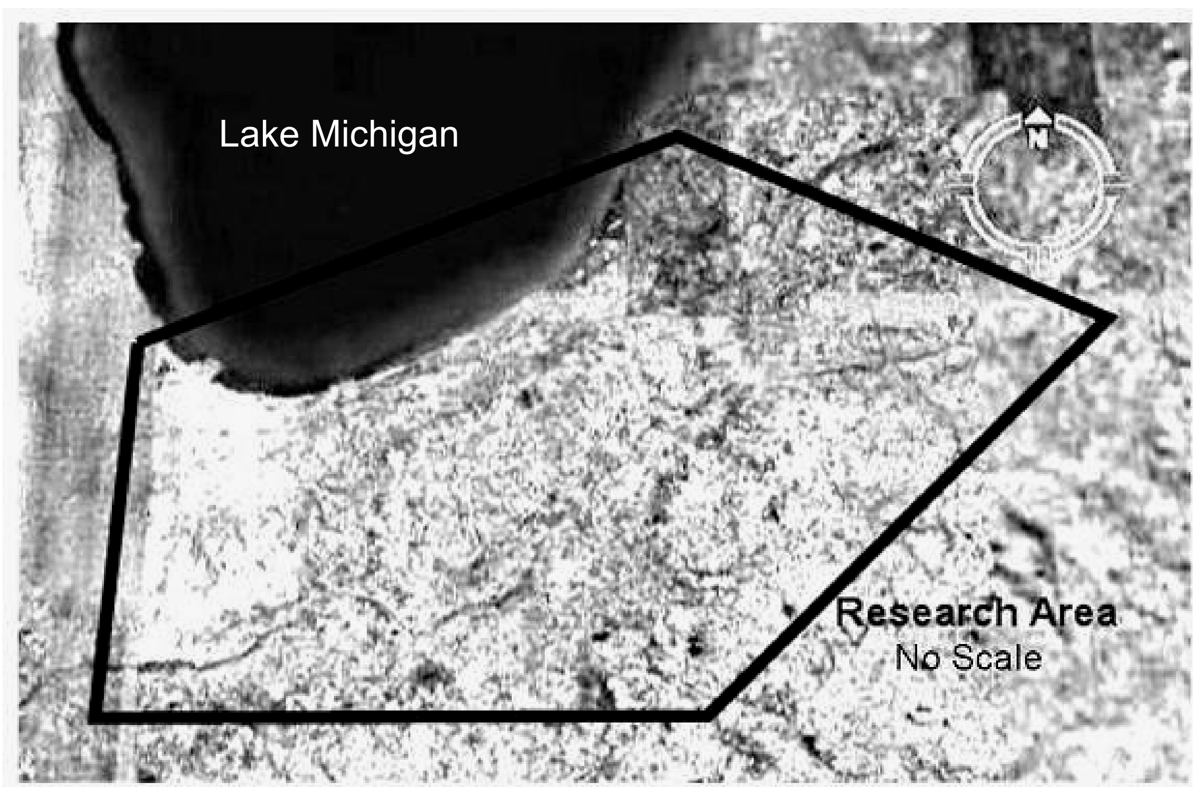


Figure 1. The Research Area

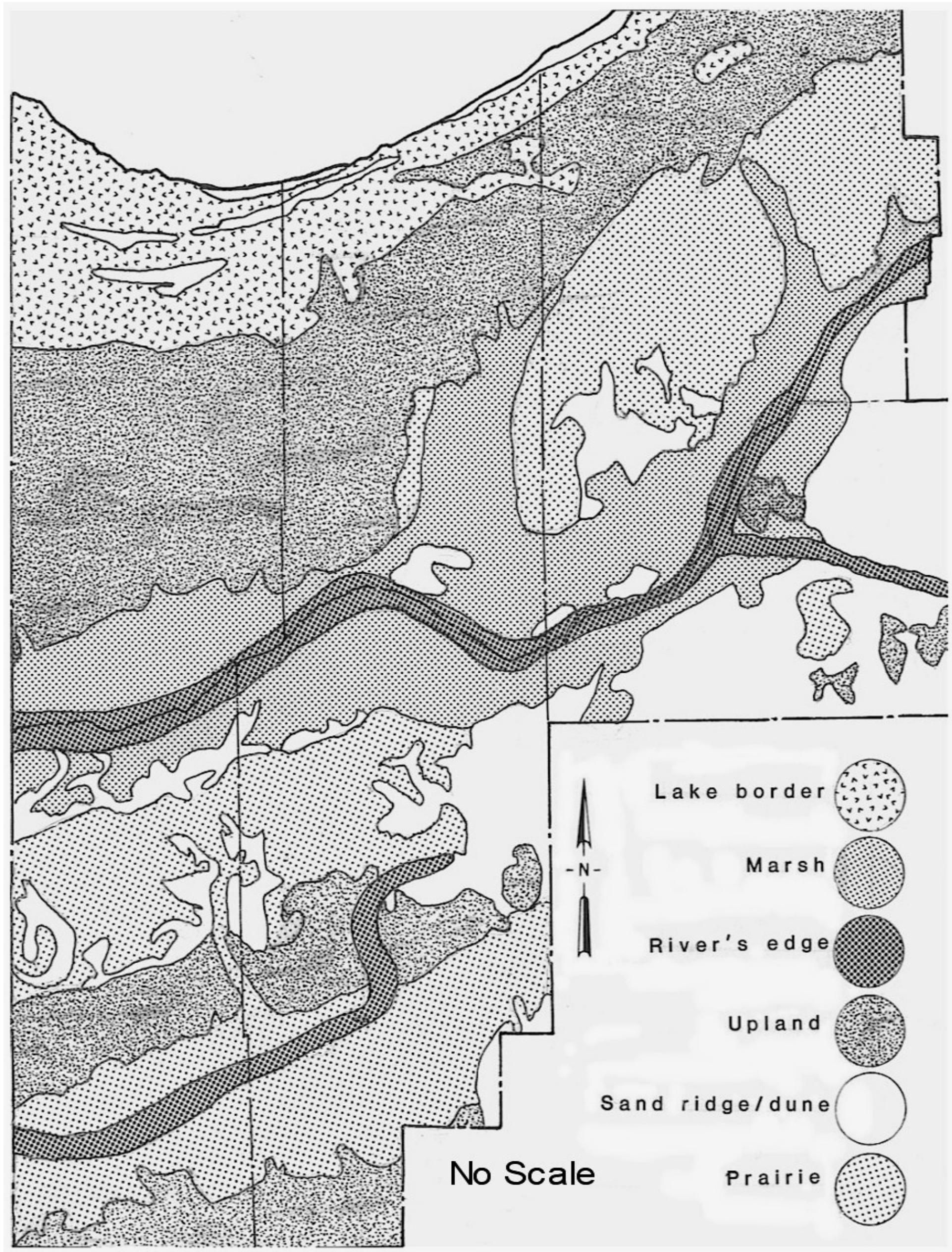


Figure 2. Environmental Zones in the Research Area

Why is the environmental setting so important in this research? The Middle Woodland people are known to have favored specific environmental settings. The Kankakee Marsh fits the criteria stipulated by Struever (1968:305–306) for biomes in which “intensive harvest collecting” is feasible. Those criteria are the availability of (1) nuts and acorns; (2) seeds of commensal plants such as *Iva, Polygonum,* and *Chenopodium*; (3) white-tail deer; (4) migratory waterfowl; and (5) certain species of fish, particularly those found in slow-moving waters. This exploitation of selected, high-yielding natural foods, according to Struever, was the favored subsistence base for the Middle Woodland populations of the lower Illinois River valley.

In the Illinois River valley, however, these environmental settings occur primarily on the floodplain of the river. Does this difference matter? My investigation indicates that it does. Middle Woodland subsistence in northwestern Indiana and southwestern Michigan appears to be marsh orientated.

Social and Cultural Identities

Anthropologists worldwide are devoted to investigating how groups of people establish an identity, increase in size, fission, migrate and adapt to new areas, and even establish new identities. Identity is multifaceted. Self-identity, identity within a family, and identity within a group are the most quickly named. The perception of a person can vary from one group to another. Human self-identity and social identity manifest themselves in forms of territoriality expressed through human behaviors such as the definition, marking, communication, and regulation of territory. Ethnicity involves self-conscious identification, and does not simply exist but is something in which people actively participate (Bentley 1987; Erickson 1991). As a human construct, territory is defined by natural or cultural boundaries and markings (Malmberg 1980:7-8).

Artifacts express identity. Humans are unique in that we cannot be studied apart from our material culture and that those objects have both physical (material) and metaphysical existence (Skibo 1999:2). "Both individual and cultural identities include a spatial element based on spatial memories, images, and activities" (Friedl 1963:156). In some socioeconomic strategies, reciprocity requires emphasizing similarities among groups when the environment is unpredictable; hence, social differences are emphasized when and where resources are reliable and easily obtained (Lewis 1988:82). Archaeology focuses specifically on the relationship between people and their artifacts.

Archaeologists have assumed that sociopolitical territories would show up in the archaeological record as restricted distributions of stylistic elements on the landscape. Interest in this issue first developed during the period when archaeologists began to abandon the construction of artifact typologies linked to a unilinear evolutionary model as the primary goal of the discipline. They then moved instead toward the exploration of regional diversity (cf. Dietler and Herbich 1998:232; Trigger 1989; Willey and Sabloff 1993). Style theory can provide a vehicle for delineating territorial boundaries from the archaeological record if there is enough suitable data in a large enough study area (Sampson 1988).

From an archaeological standpoint, spatial distribution and form are the two most fundamental aspects of variation in material culture (Schiffer with Miller 1999). These aspects are essential in order to describe, analyze, and classify the contents of the archaeological record. They are also the primary data used to identify and interpret the archaeological record, whether for reconstructing or writing about the past. Formal variation in material culture over space has traditionally been used to distinguish specific past social groups, to define the chronological position of those groups, and to reconstruct their ideas, their behaviors, and their organization at specific periods in time (Carr and Neitzel 1995; Stark 1998).

However, spatial proximity can result from at least four causes:

1. Artifacts may be close together because of accidental proximity of two entirely different depositional events;
2. Unrelated artifacts may be found in close proximity because of their common relationship to a third environmental factor that conditioned cultural depositions for both objects;
3. Earlier depositions of artifacts may create environmental factors that create foci for later artifact deposition (tells, mounds, etc.); and
4. Artifacts may be found together because they were deposited by the same group and are historically related. (Dancey and Pacheco 1997:91)

The attempt to study social groups and their boundaries requires a coordinated, self-conscious attention to both the conceptual tools through which archaeologists define patterns and how and why the patterns that are defined may be related to the social and cultural identity (Dietler and Herbich 1998:233–234). Differences or variations in aspects of cultural material, which include stylistic aspects, decoration, and choice, vary from group to group depending upon a number of factors. Contact, either direct or indirect, with differing material culture or behavior may result in changes to aspects of the original group's cultural expressions. Independent invention or differing combinations of existing attributes in the formation/construction, decoration, or use of a particular item can cause variation. An invention may be the result of either planned or accidental combinations.

Invention also may occur due to duress at a time when resources are unavailable, a substitute craftsperson, or internal or external conflict. It may take place during periods of peace and tranquility when individuals have more time and energy to assess current methods, which then might result in modifications.

Choice may also play a factor in cultural change. If a new raw material becomes available and is of a quality equal to or greater than what was used previously, its adoption and use may result in change. If specific resources are not available, alternates may be chosen. If contact is made with a different culture, choices could be made regarding what traits/attributes may or may not be adopted.

This does not mean, however, that each Middle Woodland group in any one area was a cookie-cutter copy of another group. Change is a major factor that must be considered. Plog (1977:16–19) has presented possible rationales for the existence of variation in human behavior. These include

1. Individuals are differentially motivated to act on perceptions and carry their responses;
2. Individuals have learned to employ different decision-making processes for the evaluation and selection of responses to their perceptions;
3. Individuals are variably capable of carrying out those responses in terms of both their own physiological equipment and the social and natural materials available to them;
4. Individuals find themselves in different *situations* (defined over a wide range of social and natural variables); and
5. Individuals perceive the situations in which they find themselves differently.

Perception refers to differences in the physiological equipment for interpreting any differences in the “symbolic screens” acquired in past interaction.

Change can spread by emulation, competition, innovation, discovery, and through marriage, as well as other agreements from one group or extended family to another. The differences from the ordinary may be passed through speech as one individual describes the object or behavior to another. With each adoption, the object or idea may be modified to a greater or lesser degree before it is passed through other contexts. Muller (1999:23), who states that position, then expands upon this viewpoint:

> [A]rchaeologists do not deal with behavior but with the <u>results</u> of behavior. Similarity in artifacts usually does result from high degrees of social interaction. The underlying patterning of an artistic system can be thought of as a *style.* Styles are usually, but not always, restricted to either one medium or to a few closely related media. (Muller 1999:24 – 25)

Individual and small group variations are considered to be microstyles.

For each specific setting, however, there may only be a limited number of possibilities for cultural response. "[L]imitation in number and character of cultural traits, when compared to the multiplicity of possible historical and psychological sources, constitutes a limitation in the possibilities of development . . ." (Erasmus 1950:384). Much of prehistoric culture contains elements that lead to somewhat similar forms in other areas when used either in combination or singly. Therefore, even though many consider that Y represents a development out of X, we must not close our eyes to other possibilities.

A prehistoric boundary established through material culture may be indicative of some kind of social boundary, but we cannot automatically equate it with an ethnic boundary unless further information is available regarding these social processes. The one possible correlate of ethnicity found in archaeological context may be that it persists intergenerationally (Hegmon 1998:273).

> The very concept of social boundaries has come under increasing scrutiny, especially when it is applied to non-stratified societies. . . . Archaeologists need to be able to discover the material culture correlates of social boundaries when such exist and to make convincing cases against their existence for times and places where they were not developed. (Goodby 1998:162)

I will use the distinctions found between artifacts from numerous locations in the Kankakee River valley and those found elsewhere to establish probable social boundaries between the groups. In order to identify these social boundaries, it is first necessary to define at least one group's material culture (and preferably that of all groups), including technical choices made in the construction of those items, icons, and symbols. According to Sampson (1988:171),

> it should by now be reasonably apparent that stylistic boundaries among mobile hunters and foragers can be detected in the archaeological record, given enough data in a large enough study area. A few areas can be further subdivided with specific motifs' attributes concentrated in the sub area."

Specific bowl decorations characterize most of these attributes.

Methods

The majority of my hypotheses can be investigated by a thorough analysis of the material culture found on the Middle Woodland sites of the region, and the context in which the items were found. These sites include Wilson (12LA46), Brown/Brown Ranch (12LA35), Schoon (12LA55), Wunderick (12LA41), Hajek I (12LE28), Hajek II (12LE29), Hajek III (12LE37), Goodall (12LE9), Mud Lake (12LE14), Bellinger (12SJ6), Sinner Pardee (20BE224), Behner (20BE255), Bobinski (20BE282), Union Mills (12LE10), Upp-Wark (12PR17–27), La Count (12PR15), Moccasin Bluff (20BE8), Sumnerville (20CS6), Goods Ford (12LE7), and Calhoun. In some instances, state site numbers, e.g. 12LE10, have never been published, are not available from the state archaeologist, have never been recorded, or are known only by name to collectors. In such cases, I use no formal site number. I reviewed the material culture recovered from numerous sites in the Illinois River valley in order to have a good understanding of Havana Middle Woodland. Among those sites were Smiling Dan (11ST123), Elizabeth (11PK512), Steuben (11MA2), Napoleon Hollow (11PK500), Sister Creeks (11F15), Hannah, and He-3.

The main approach to investigating the material recovered from the various sites is comparative analysis, which “aims at better analyzing or presenting certain events, settings or epochs through a systematic comparison of two or more units” (Valezuela 1998:237). The use of this qualitative form of comparison can be very illuminating and rewarding. The comparison can lead the analyst to find and describe facets of the material culture that might otherwise be missed, especially when the focus of the investigation is solely a general review of the artifacts from a site. It also tries to explain the characteristics of the various artifacts by looking at large numbers of elements and their attributes, and by paying particular attention to their context.

The comparative analysis is at a disadvantage with regard to statistical analysis because of the need to sort out many variables, often from a small universe. However, this problem may not be as incapacitating as it may seem at first because “the comparisons can be grounded on case studies to an extent that has no parallel in the statistical approach” (Valezuela 1998:239). Other common problems of comparative analysis are reaching conclusions without examining the full range of variation in the artifacts and, conversely, the attempt to treat too many cases (Valezuela 1998).

Significant quantities of new data from excavated Middle Woodland sites in the St. Joseph and Kankakee river valleys have been gathered since the original definition of the Goodall focus in 1941 (Quimby 1941a; 1941b; 1943) and Brown's (1964) assessment. Much of it comes from the University of Notre Dame's archaeological field schools at the Goodall site (12Le9) and other Middle Woodland sites in the Kankakee River valley. I have closely examined Ernest Young's 50-year collection from numerous sites in the Kankakee Valley, including the Goodall site and Mud Lake site (Mangold 1998). I have also examined collections from Middle Woodland sites in the Glenn A. Black Laboratory of Archaeology, Indiana University; the Fort St. Joseph Museum, Niles, Michigan; the University of Notre Dame, Notre Dame, Indiana; the Illinois State Museum, Springfield, Illinois; the Center for American Archaeology, Kampsville, Illinois; and the University of Illinois Museum, Urbana-Champaign. I also examined numerous private collections. Excavations in the St. Joseph River valley by Garland (1984; 1986) and O'Gorman (2003) have provided additional data. While questions still remain, a better definition is now possible through these new data: Betteral and Smith (1973), Brashler et al. (1994), Faulkner (1972), Garland (1984, 1986), Garland and DesJardins (2000), Griffin et al. (1970), Kingsley (1981), Mangold (1981a,b, 1994, 1995, 1996, 1997b, 1998, 1999, 2001a,b, 2003), Mangold and Schurr (2000), Munson (1986), Schurr (1992, 1993 1997, 1998, 1999), and Schurr and Mangold (1997, 2003).

I question Brown's (1964) assessment regarding his mound sites/village sites relationships. Brown contends that there were paired relationships between habitation sites and mortuary sites. He theorized that a large village site was associated with each mound group when, in reality, such a pairing appears to not have existed. An additional reason for this questioning is that no true large-scale Middle Woodland village sites have been found or excavated within the Kankakee River valley as of this date. While Middle Woodland artifacts occur in surface collections or as minor occupations in multicomponent sites, no definitive, single (or largely so) component habitation site has been discovered.

Brown (1964:120–121) also states that the occurrence of Middle Woodland sites is “largely co-extensive with the Prairie Peninsula” and concludes, from the distribution of Havana sites in and around the marsh, that the marsh had only a “limited place in the subsistence activities of this group” (Brown 1964:120). If one looks outside the Kankakee Marsh area, the majority of Middle Woodland sites in the research area are associated with marsh environments. This continued relationship would seem to indicate that marsh resources were highly important to the Middle Woodland occupants.

I must briefly address two other aspects of my research. The artifacts used in this study range from surface collections by non-professional archaeologists and items looted from sites for monetary gain to artifacts recovered under strict archaeological techniques and methods. In most states, including Indiana, the surface collecting of artifacts is legal, with the permission of the landowner. Granted, some non-professionals like Ernest Young kept records, which were probably better than some kept by early professional archaeologists. The problem, however, remains – Can all these artifacts be treated equally? (Dancey 1998; Dunnell 1985; Dunnell and Dancey 1983; Hawkins 1998; Sullivan 1994; Tainter 1991)

As stated in my master thesis (Mangold 1981a), collectors often gather with different agendas than do professionals. They may only collect complete artifacts. They may collect only large fragments of decorated pottery or just rim sherds, or they may ignore all pottery. One collector in the region collects primarily pottery and easily identified and complete projectile points.

Pottery can also be difficult to identify in the field, even by professionals, under certain conditions. Decorated ceramics stand out as differing from the ground surface or a piece of shale. Collectors rarely pick up debitage; some just pick up large flakes or unusually colored pieces.

Problems always arise when using collections gathered by avocational archaeologists and artifact collectors, and even those gathered many years ago by professionals (Mangold 1981a). For example, looking at Ernest Young's collection gathered at the Goodall site, cord-marked sherds are very few in number (Mangold 1997b). Was this a result of biased collecting or a true reflection of the material culture used at the site?

It is also disconcerting to see museum collections shrink due to mismanagement and theft. The review of Brown's (1964) analyses focused on the Ernest Young collection. The collection had been donated to the Illinois State Museum and was loaned to the University of Notre Dame for additional analysis by Dr. Schurr and me. Unfortunately, a number of rim sherds that had been lost or misplaced since Brown's analysis 40 years ago hampered the examination. The lack of sufficient documentation has caused several other, and potentially critical, collections to be unusable in this research.

The fact that looters and cultivation during the past 150 years have severely damaged almost all of the known mound sites presents some serious concerns. In some instances, disturbance has been extensive, almost to the point of total destruction. This condition has deterred many archaeologists from doing additional research. Surprisingly, however, even disturbed sites have yielded valuable data. Artifacts missed by looters are in context, if not *in situ.* Data regarding mound construction are present in wall profiles. Archaeologists recently found an intact tomb with burial goods in caches still present. This occurred in a mound that supposedly had been looted, bulldozed, and cultivated for almost a century. Therefore, the possibility exists that many of the reportedly "destroyed" mounds still have important data and cannot just be written off as having no value.

Characteristics of the Goodall Material Culture

I will use the material characteristics from the upper Kankakee River valley to compare with those from the lower Kankakee River valley to aid in the determination of the western cultural boundary of the Goodall tradition. Do the artifacts and other data support a widespread Havana occupation throughout the Kankakee River valley? Or is there a strong distinction between items and behavior in one area in relation to those in a different region? Where can the line be drawn? I propose that the incidents of the Goodall tradition remain present to its western limit. Beyond that, sites may be more widely spread and may be different in environmental settings. Different ceramics may be present, and the number of mound groups may decrease sharply, although isolated mounds that may be either Middle or Late Woodland continue to occur.

Lithics. The discussion of stone tools will focus primarily on projectile point styles and prismatic blades, the latter a hallmark of Middle Woodland lithic assemblages. In northwestern Indiana, the preference for Burlington chert probably has a cultural explanation as it is much more difficult to work than Wyandotte chert (James Mohow, personal communication 2002). That preference changes to Flint Ridge chert in the St. Joseph River valley. This may be due to shifting trade routes or just a preference of local artisans. Perhaps the use of Burlington was a connection to the "homeland" in the Illinois River valley or perhaps the material had assumed traditional or ritual standing. Color symbolism could explain the preferences. The Hopewell culture preferred colors are red, black, white, and possibly yellow (Buikstra et al. 1998). Burlington chert changes color from white to nearly red when heat treated. Flint Ridge chert occurs in multicolored arrays, varying from red to white to blue to black.

Ceramics. Pottery was crucial in the original definition of the Goodall focus, and its analyses still play important roles in archaeological interpretations. "Pottery is then a unique and ideal artifact. Pottery is made frequently, broken often, has excellent preservation and it can be made into endless varieties to meet various social or economic needs" (Skibo 1999:1). However, pottery is also more complex than most other material items, and tends to incorporate a high number of techno-cultural data and decisions. The perception of the potter is directed toward creating objects, the results of his/her actions, and the possibilities of new combinations. All are future orientated. On the other hand, the researcher's perspective is concerned with finding explanations for the phenomena that have previously occurred, which is past orientated (van der Leeuw 1984, 1991; Vitelli 1984, 1989, 1996). The choices made by the prehistoric potter should be at the foundation of archaeological analyses (Roe 1995:31; Vitelli 1989:184).

I bring a unique insight into the analysis of pottery as, like Sander van der Leeuw, I am also a trained potter. However, many difficulties arise in translating the language of the potter into terminology that is both acceptable and understood in scientific discourse (van der Leeuw 1984:11). I have also conducted replication studies in the attempt to gain insights into the processes and difficulties that may have a bearing on pottery production and decoration during the Middle Woodland era (Mangold 2001a).

The analyses of the ceramics will consist of both visual assessments and identification, often employing examinations of a vessel's surface, decoration, construction, and composition using a 10x hand lens. Petrological investigations will reveal the temper type, size, and density found in the clay body (Blome et al. 2004; Bronitsky 1989; Chayes 1956; Hutchison 1974; Kempe and Harvey 1983; Neff 1992; Orton et al. 1991; Skibo and Schiffer 1996; Van Der Plas and Tobi 1965; Williams 1983). Examination of thin-sectioned vessel walls has allowed me to compare ceramic construction and tempering throughout the region. I visually inspected all sherds from the known and collected sites in the research area that are used in this study. I identified attributes such as rim thickness, rim profile, and exterior and interior surface treatments, and conducted a detailed decorative treatment analysis.

The presence of certain ceramic types within the subject area may indicate interactions with outside areas, as well as support the geographical delineation of the Goodall tradition. Ceramic wares such as Brangenberg occur in small numbers in the Goodall area, but rarely anywhere else outside the Illinois River valley (Kenneth Farnsworth, personal communication 1997). Havana ceramics like the Naples and Hummel wares occur on almost every Middle Woodland site in the Kankakee Valley;

however, they rarely occur beyond the St. Joseph River drainage. The earlier Havana wares such as Fettie and Neteler as well as Black Sand and Sister Creeks occur in a restricted area of northwestern Indiana, possibly indicating the first contact into the region. The large-toothed dentate decorated ceramics with sharply interior-beveled rims, thought to originate in the Goodall area (Mangold 1994), have strong parallels at the Kuhne site, which is located near the "Big Bend" of the Illinois River (Farnsworth 2003; Loy 1968). However, the use of ware designations in the early records may be misleading. Definitions of what constitutes a specific ware in terms of temper, paste, form, and decoration vary over time. These designations also rely on personal interpretations. Two of the wares that are most frequently misidentified are Black Sand and Sister Creeks. Unfortunately, in many cases with early site forms, the recorders do not provide any basis for their determinations of the ceramic wares. Illustrations or photographs rarely accompany the forms.

Braun's (1977) chronological breakdown of ceramics by rim thickness can be misleading. For most potters, the thickness of hand-built vessels is difficult to evenly maintain from one portion of the vessel to another. One section of a vessel might be considered Middle Woodland while another area may be interpreted as *late* Middle Woodland. I propose that the use of dentate tooth size is better for determining chronological placement. My experiments found that thinner-walled ceramics could not withstand the forces needed to impress large dentate stamps. The pressures caused the vessel wall to either crack or distort. However, the vessel's surface accepted small-toothed dentate stamps without cracking or distorting the form. As vessel walls became thinner to better facilitate cooking, the size of the individual dentate tooth also decreased in size (Mangold 2003).

The decorative motifs and their combination in the Goodall tradition strongly approach the symmetry found in ceramics of other regions, such as the Southwest (Shepard 1948). The use of alternating filled/empty zones on the vessel body in both Havana and Hopewell ceramic wares has been long noted. The fragmentary condition of many vessels often left gaps in the physical information, especially in the rims.

Social Relationships

In this investigation, I attempt to establish what these artifacts, both portable and non-portable, can tell us about the people who inhabited the area. For example, within the Goodall tradition mound groups, there appear to be differing constructions and grave offerings in different locales. The mounds at the Goodall site have a slightly larger tomb size and a higher number of grave offerings that include exotic trade items, such as mica, galena, and imported pottery vessels—much different from those at the Mud Lake site. Mud Lake mounds have smaller tombs and more locally produced grave goods. The Goodall site also has a larger number of mounds (about 22) while Mud Lake has less (possibly eight or more).

I will discuss the possibility that this differentiation between sites and mounds may indicate a social stratification or possibly the interaction of sodalities within the Kankakee Basin. A sodality has been described as "a territorial and sociopolitical entity with more than one level of settlement hierarchy marked by sites with public architecture" (Fish 1999:46). The public architecture consisted of a ritual or political edifice thought to serve a group larger than residents of the settlement at which the feature is located. A sodality can also be the sum of political relationships, but it has a spatial expression that generally coincides with the extent of the territory the members claim. Sodalities have additional tangible claims in the remains of interactive institutions and symbols of affiliation. The ritual or ceremonial complexes claimed by each sodality could be considered similar to what is called rituality in the Southwest. A rituality is a site specifically intended for ritual activity and has very few or no people living at the site when ceremonies are not being held (Neitzel and Anderson 1999:246; Yoffee et al.1999:266). This seems to fit the evidence found within the Hopewell mound groups.

Interregional Interactions

The Goodall cultural interactions certainly extended beyond their own geographical area, and I examined evidence in an attempt to explain the relationships. The number and range of exotic materials can assess the degree of participation in regional exchange by the Goodall tradition. The Goodall site has produced the largest number of copper artifacts found in the region (Mangold 1997b). I will discuss the possibility that the Goodall site was a distribution site for the copper that was then traded into other areas. The Goodall area also appears to be the northern limit for the trading of other exotics such as galena, obsidian, ceramic vessels with the raptor motif, modified human mandibles, earspools, and Knife River flint.

Settlement Patterns

I will establish the settlement patterns of the Goodall tradition using the known Middle Woodland site locations in the research area. Clusters of those sites within environmental areas determine the Goodall tradition settlement system and resource procurement. Because the acidity of the soils in the research area severely inhibits the preservation of all organic material, I will evaluate all resources available in those particular locations. Historic records will be especially useful in this regard. I will compare my conclusions with other Middle Woodland subsistence and settlement patterns within the region.

The Goodall Cultural Origins

After the Goodall tradition is described in terms of its material culture, I will make a cultural comparison with sites from the northern Illinois River valley to determine if evidence is present that might indicate strong similarities. If close relationships are found, it could mean any one of the following:

1. The two groups had the same cultural parent group with a fairly recent fissioning;
2. A fissioning took place much earlier but contacts between the people in the two geographical areas continued to be strong, possibly including marriage between members of the various groups and other specialized exchanges; or
3. If the comparison shows little in common between the two areas beyond the exotic Hopewellian artifacts, the fissioning probably took place at a much earlier time, allowing the two areas to develop cultural traits unique to each region.

What would cause such fissioning and/or migration? Ester Boserup and others provide insights into the causes for these movements. Population pressure, resource depletion, internal friction and fission, and invasion by others are all situations that could trigger a migration, as would be the drive to find something “better” for family, clan, or economic advancement (Boserup 1981; Brookfield 1980; Plog 1980).

Earlier archaeologists such as Griffin (1952b) proposed a physical migration of peoples from one locale to another, but later scholars (Brown 1964; Faulkner 1972; Schurr 1997) saw an interaction and sharing of cultural traits with subsistence activities favoring similar environmental settings. My contention is that if a migration did occur, it would have had to occur either very early in the Middle Woodland period or late in the Early Woodland period. This migration would have then been followed by interregional exchanges of cultural traits and evolving regional ideas over time, which allowed for both similarities and differences between the Illinois River valley occupations and those of the Kankakee River valley.

Another possible method of tracking these similarities and differences would be to use Billington’s (1988) comparison of mound construction (including tombs) in the middle and lower Illinois River valley found in the report on the Elizabeth site (Charles et al. 1988) to evaluate mound structures found thus far in the Goodall tradition. The number of known Middle Woodland sites in northwestern Indiana and extreme southwestern Michigan has increased since Brown’s (1964) assessment of site patterning. This additional information reflects differing choices with respect to the favored environmental settings.

Following the logic of Miriam Stark (1998) and others, technical choices made in the creation of objects, both ritual and everyday, can both define and reflect social boundaries. Decorative style, in certain contexts, may be less indicative of social identities than are technical traditions (Gosselain 1992; Pfaffenberger 1992; Stark 1998). Archaeologists have used the study of ceramic and artifact styles to identify social or cultural boundaries and discrete social or ethnic groups in the past. Wobst (1977) states that style is not a passive reflection of social identity and that some styles served as mediums of communication. Style occurs in many levels of material culture and surpasses form and decoration. Therefore, choices such as quantity and type of non-plastic tempering agents will be included in the analyses.

Plog (1980) proposes that population growth and the colonization of areas not previously used reduces the mobility of each group. With the reduction in mobility, activities were more localized. The ceramic products (or their debris) were not widely distributed and resulted in a more localized distribution of ceramics. If ceramic styles are widely distributed in the upper Illinois/Kankakee River area, the reverse of Plog's proposal could be used to state that the population of the area may <u>not</u> have been large.

Basis of Results

My findings will be based on evidence found in the Kankakee Valley as well as parts of the St. Joseph River valley and will be compared to the lower Kankakee Valley area. The presence of Middle Woodland artifacts that are solely related to domestic activities will constitute a habitation site. I will consider the occurrence of prestige items and high instances of lamellar blades and fragments, as well as the physical location of artificial tumuli (either in the field or identified in records), as indicative of a mound or ceremonial site. I will compare the number and location of these sites in the mid to upper Kankakee

Valley with those in the lower Kankakee Valley and will use the data to establish the areal boundary of the Goodall tradition.

A comparison of material culture found on these sites will either support or contest my hypotheses. Archaeologically, ceramics currently have the strongest power to establish the chronology of an occupation, and I will use them to more closely limit the period(s) of occupation. I will use the type, frequency, and possible chronological aspects of prestige items to support the differences between the lower and upper Kankakee River valley. Possible interactions can be established by determining the closest occurrences of exotic ceramics, such as Brangenberg wares, found in the middle to upper Kankakee Valley. These interactions can also apply to other aspects of material culture. For example, a lamellar blade found at the Goodall site, with an end that had been modified to resemble the profile of a raptor, matches another one found at the Steuben site along the Illinois River. The similarity may indicate that a single artisan at either the Goodall site or the Steuben site created both items, which were subsequently separated by exchange activities.

Site Formation Processes

Other aspects that must be considered are the physical formation of the sites involved and the condition of the archaeological deposits. The majority of the Middle Woodland sites investigated are situated on sandy soils, from sandy loams to dunal sands. Sand sites, in general, are very fragile. Until an occupation is sealed through vegetative growth, aeroturbation, hydrologic forces, and/or animal or human activities can affect its surface (Schiffer 1987). Even after gaining a vegetative cover, any disturbance to that protective shield can lead to erosional conditions that could either quickly or eventually damage a large portion, if not the entire, evidence of habitation.

Wind erosion removes the lighter sand and causes the heavier artifacts to mix with artifacts that had been in lower levels. Frequently on heavily eroded sites, the entire artifact assemblage may exist in one level or artifacts may be deposited across areas according to their weight. The heavier objects would not move far from their original placements, and the lighter objects would tend to move greater distances from their origins (Schiffer 1987:217, 268–269). In areas where winds have “dished out” the sand to depths sometimes greater than a meter, the majority of the artifacts are usually found at the bottom of the eroded area as they tumbled down from the edges to the lowest point.

Beginning with settlement of the region in the 1830s, the majority of the research area was put into cultivation. Cultivation meant little or no protective cover, which led to large-scale wind erosion. Sand and sandy soils are especially susceptible to wind damage. Many people living in the research area have described times when the blowing sand was as severe as any Saharan dust storm. In my younger days, I collected from all my known sites after a strong wind, even if I had been to the site the previous day. The artifacts visible on my return visit were often as numerous as they had been the previous day.

Plowing also causes a lateral displacement of artifacts, which brings larger objects to the surface more quickly (Schiffer 1987:131). With today’s widely employed “no-till” farming practices, deep plowing is not the problem that it was 20 or more years ago. However, it does create a different problem. Because artifacts occur on the surface less frequently, the identification of sites, both previously recorded and previously unknown, is more difficult.

Water can also remove considerable portions of a site through sheet and channel erosion. If the site adjoins a creek or river, the cutting and re-depositing caused by fast-flowing waters can destroy a site in a relatively short period of time. At the Goodall site, water action of an adjacent stream undercut one 6-meter-high mound so much that the earthen work partially collapsed into the stream and was washed away (Lilly 1937:91).

Conclusions

This dissertation uses the preceding data and theories to form the platform from which the project was launched. The following chapters will present the natural environment in which the Goodall tradition was found, and what cultural remains were found prior to and with the advent of modern archaeological methods and theories. The final chapter interprets those findings and presents new insights into the Goodall tradition.

CHAPTER 2

PHYSIOGRAPHY OF THE STUDY AREA

To understand a culture, it is necessary to know the environment in which its occupation occurs. Therefore, it is essential to research and present the resources that were available to the early Native American inhabitants of the area. "The [physical environment] must be recognized and analyzed by anyone trying to describe and explain the patterns of circulation and settlement patterns of both aboriginals and later societies" (Meyer 1950:180).

The research area contains a major drainage system covering most of northwestern Indiana and part of northeastern Illinois (Figure 1). The waterway consists of the Kankakee River, two large tributaries (the Iroquois and Yellow rivers), various creeks, and other smaller branches. I provide a more detailed description of the Kankakee River below.

Most of the dimensional data for the physiographic and other discussions found in the references are in English measurements. To relate them to the modern use of metric, I have shown the English measurements in parentheses following metric data. However, I have not converted English measurements occurring in a quoted section to metric, to preserve the integrity of the passage. Metric measurements related to modern research do not have English equivalents. All fractional metric units are limited to one decimal point.

The Kankakee River Valley

The results of the interactions of a variety of factors beyond the river itself contribute to conditions within the area of the river valley. It is necessary to discuss these conditions, which include such variables as climate and physical terrain, to familiarize the reader with the overall environment of the valley. Cultural modifications and specific settlement patterns can be the result of weather variations. These adaptations in subsistence choices and occupational areas rely on seasonal availability in a particular environment (Ruby et al. 2005).

A rather unique environmental situation occurs in the portion of the Kankakee Valley bordering Lake Michigan. The presence of Lake Michigan and the predominately northwestern to western winds crossing its surface create changes in the weather patterns. A large body of water stays warmer in the cold season and cooler in the warm season. The winds then push these modified temperatures inland. The amelioration of temperatures creates unique microclimates and extends the growing period for all botanical species. These microclimates are a product of the interaction of heat exchanges between the major physical components that make up any given environment (Newman 1966:175).

Lake Michigan also affects the area's precipitation by providing additional moisture to the atmosphere. The increased rainfall is greatest in the spring and summer, with dry spells occurring frequently in the fall (Lynott et al.1993). However, the greatest effects occur during the colder periods. The presence of Lake Michigan and the winds crossing its surface create "lake-effect snow." This phenomenon takes place when the cold air collides with warmer air given off by the lake. The eastern and southeastern shores of the lake receive the greatest impact, often exceeding the highest snowfalls recorded anywhere else in the region. This aggravated snowfall area can extend inland as far as 32 km (20 mi), often in near blizzard conditions. Therefore, the lower valley would have been hotter and drier in the summer, colder in the winter with less snow, and would have had a shorter growing season. These conditions would have undoubtedly made the western portions of the Kankakee Valley less appealing for settlement.

Glaciation formed the vast majority of the topographic features of the area. These features exhibit great diversity from low lacustrine plains to high moraines. The Lake Michigan and Huron-Saginaw lobes of the Laurentian ice sheet, which advanced following the stagnation in central Indiana of the East White Sublobe of the Ontario-Erie Lobe affected the research area (Nevers et al.2000:5; Wayne 1966:36). One of the junctions of these northern glacial lobes occurred in the extreme upper portion of the research area. The junction impacted an area between the modern towns of Three Oaks and Galien, Michigan. A broad glacial outwash plain called the Elm Valley Outwash Plain emanated from that point and extended into the Kankakee River drainage area.

The Huron-Saginaw Lobe created the Maxinkuckee and Packerton moraines and established a varied topography of outwash plains, kettle lakes, kames, and other smaller moraines at the eastern edge of the research area. It also created the large number of lakes that are scattered through this region (Wayne 1966:36). The Lake Michigan Lobe continued to plow southward through the Lake Michigan basin. At its maximum extent, the lobe deposited additional till onto previously existing ridges to create the Valparaiso Moraine (Wayne 1966). Beneath the glacier, the melt waters drained into the early Kankakee River channel. As the glacier melted and retreated, Lake Chicago formed between the Valparaiso Moraine and the glacier, with the former acting as a dike to keep the waters contained. The lake was not a static entity but changed in overall size and depth based upon the available water from the glaciers. Old beaches and stable dunes mark the former levels of Lake Chicago (Wayne 1966:36).

The Kankakee River

> The river Seignelay [Kankakee] is navigable for canoes to within one hundred paces of its source and it increases to such an extent in a short time than [sic] it is almost as broad [as] and deeper than the Marne. It takes its course through vast marshes, where it winds about so, though its current is pretty strong that after sailing it for a whole day, we sometimes found that we had not advanced more than two leagues in a straight line. (Baker 1899, translated from the writings of Father Louis Hennepin)

The word *Kankakee* came from one of two Native American possibilities. One is the Potawatomi *Teh-yak-ki-ii* meaning "swampy country." The second is from the Miami *M'wha-ki-ki* meaning "wolf country" (Simons 1985:182). During the early French explorations, either the *Seignelay* or the *Teatiki* was the name most often encountered for the Kankakee River (Angle 1968:14, 31). In 1698, Jean Francois Buisson de St. Cosme called the *Teatiki* "the true river of the Illinois" (Angle 1968:31).

The river that Hennepin saw actually had the characteristics of two dissimilar rivers. The water flow of the Kankakee River differs significantly between its upper and lower portions. These differences could have had an important bearing upon the Middle Woodland settlement and subsistence patterns found in the Kankakee valley. The upper part of the Kankakee River in northwestern Indiana formed after the glacial lakes had almost completely drained. The smaller volume of water, still occurring as a result of the retreating glaciers, found its way to a gap between the Valparaiso and Maxinkuckee moraines. Once through this barrier, the water began its journey to link with the newly formed lower part of the river to the west southwest. The sluggish, uncontrolled flow of the upper Kankakee River, caused by a gradient of approximately 10 cm (8 in) per 1 km (0.6 mi), did not allow the river to entrench a bed. Instead, any obstacle would change the course of the river. Even after the river crosses into present-day Illinois, it still flows as a naturally meandering stream.

In various places, the Kankakee River widened significantly, forming large, open ponds. Two such areas are English Lake and Mud Lake, both along the southern border of La Porte County, Indiana (Ball 1900:12–13). English Lake's relatively large size was due to the confluence of the Kankakee and Yellow rivers (Simons 1985:182). The lake was approximately 11.3 km (7 mi) long by a maximum of 4.8 km (3 mi) wide and, at its junction with the Kankakee River, was 648 m (748 yd) wide (Simons 1985:184, 201).

From the current Indiana state line to the town of Momence, Illinois, the area along the Kankakee River is called the Momence Wetlands (Mitsch et al. 1979). However, these wetlands were probably part of the main Kankakee Marsh. Based upon topographic elevations, the wetlands appear to be more restricted than the main marsh farther east. Therefore, the drainage of the marsh funneled into a smaller area. This constriction was primarily responsible for keeping the greater portion of the waters of the Kankakee River in its upper reaches. It also intensified the effects of the low gradient of the river's flow.

An exposed section of Silurian dolomite or dolostone (a non-mineral form of dolomite) bedrock near the present-day town of Momence, Illinois, crosses the course of the Kankakee River. The exposed rock is not an obstruction or dam. The river actually flows over the naturally exposed bedrock. West of Momence, the bedrock again drops well below the surface and the flow of the water increases (Gross and Berg 1981:34, 64, 73).

The Kankakee River below or west of the exposed dolomite bedrock is significantly different from its upstream portion (Figure 3). From Momence to its merging with the Iroquois River, the river drops almost 7.6 m (25 ft) and, from that point to its joining with the Des Plaines River to form the Illinois River, the Kankakee drops an additional 33.2 m (109 ft) or an average of almost 91.4 cm (36 in) per 1 km (0.6 mi). In this last portion, rapids mark two sudden descents of approximately 6.1 m (20 ft) each (Nichols 1965:4). Within the lower 99.8 km (62 mi) of the Kankakee River are environmental settings that differ in many ways from that of the upper 286.5 km (178 mi). In the lower portion of the river, marshy areas exist primarily in sloughs, former oxbows, or in areas removed from the river where shallow lakes have been nearly filled with silt. Short-term breaks in the natural levees as well as possible springs or high water tables probably caused these lakes. A lower, heavy clay stratum kept waters from draining quickly. Many catfish occur in the "backland" marshes that contained waters up to 1.2 m (4 ft) deep, even in recent memory (L. Binns, personal communication April 2005).

The differences found in this portion of the Kankakee River valley are the result of a single glacial event. When waters breached the Minooka and Tinley moraines in Illinois near the present town of Palos Hills, a massive flood called the Kankakee Torrent quickly drained portions of Lake Chicago and the melt-water lakes created through the actions of Saginaw and Erie-Huron lobes (Ekblaw and Athy 1925). The Kankakee Torrent contained such a massive quantity of water, flowing with such tremendous velocity and for an extended period of time that it cut through the dolomite and created the Kankakee River bed in northeastern Illinois. This action virtually carved the upper Illinois River valley. The extent of the torrent varied in width from 8 km (5 mi) to more than 19.3 km (12 mi). The depth of cutting by the main current was approximately 9.1 m (30 ft) (Simons 1985:183; Weston 1977:9). It also rearranged much of the glacial debris deposited during earlier periods.

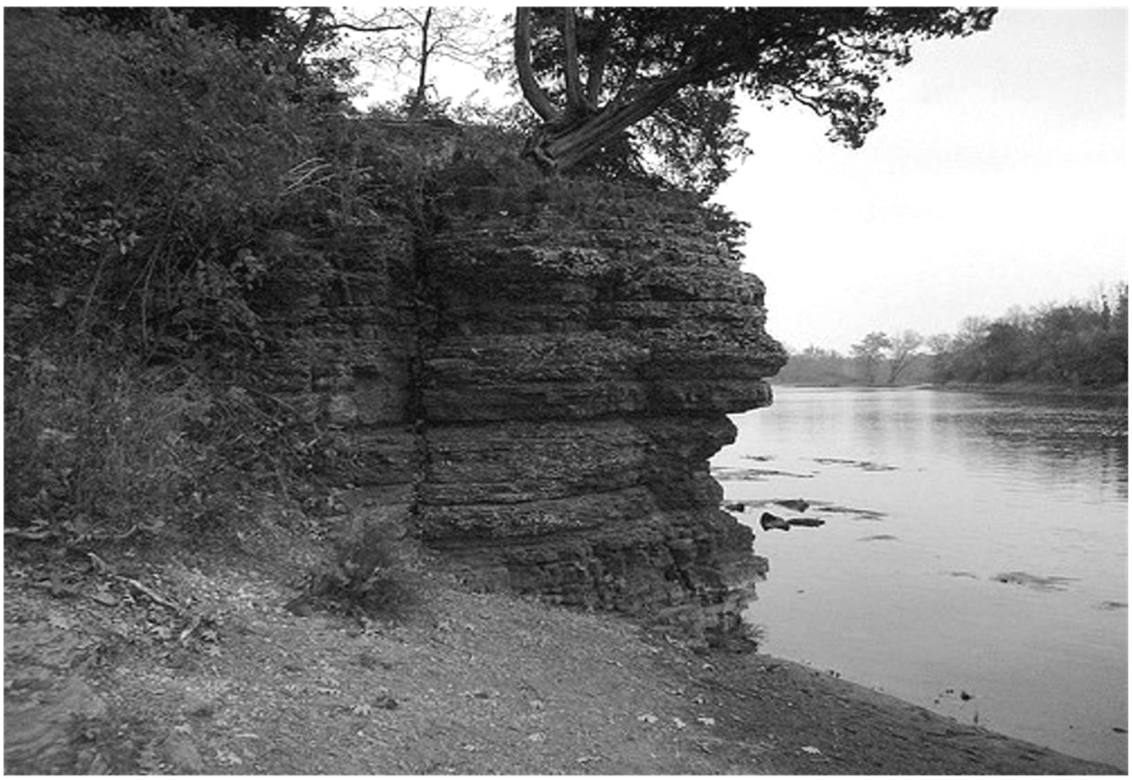


Figure 3. Entrenched Kankakee River Bed near Wilmington, Illinois

The waters of the Kankakee Torrent also carried tremendous amounts of sand and gravel downstream to the Big Bend of the Illinois River, at the current town of Hennepin, Illinois. At that point, the early Illinois Valley narrowed, and when hit by this great flood, the waters widened, entrenched, and modified the valley downstream from the Big Bend. This action was also responsible for forming a series of interconnected glacial lakes within the outwash plain. These lakes included the Watseka (located within the modern Iroquois River valley), the Waupansee, and the Pontiac (Angle 1968; Farrand 1988; Willman and Frye 1970). These glacial lakes slowly developed into wide marshes that became offshoots of the Kankakee Marsh, but not before a series of sand dunes formed along their shores.

The St. Joseph River

After Lake Chicago's water level dropped following its escape through the Chicago Outlet, a period of stream robbing occurred. The lowered water blocked the drainage of Lake Dowagiac, causing the waters to reverse direction and cut a new channel, which finally reached Lake Chicago. Because lower elevations occurred inland, waters from Lake Chicago began cutting a new inlet, which then began moving deeper and deeper into the land. At about the same time, the upper portion of the Kankakee River worked its way into the old channel of the Lake Dowagiac outlet, which was lower in elevation. Eventually, the two merged and cut that portion of the Kankakee River from its lower valley. The two segments then formed a new river, the St. Joseph (of the Miami) (Montgomery 1928). When the St. Joseph River broke through the moraines near its current mid-valley, the floodplains became more fully developed and contained oxbows, sloughs and other former river fragments.

The St. Joseph River is included in this study for several reasons: First, only a short portage separates it from the Kankakee River. Second, its physical development is closely tied to that of the Kankakee River. Third, portions of the St. Joseph River valley and the Kankakee River valley contain similar Middle Woodland expressions, which may be linked to each other.

The Ecological Zones within the Research Area

The research area has numerous, diverse, and often quite localized ecological zones that could have provided a large variety of foodstuffs and other materials to the prehistoric inhabitants (Figure 2). Among these zones are Lake Michigan, the Kankakee Marsh, the lacustrine plain (including the dunal and interdunal areas), the moraine complex, the outwash plains, and the prairies. Continuous use of these zones, such as subsistence hunting or fishing, or targeted use for specific resources available at certain periods during the year, is possible. In the context of this research, the common names of the various species of floral and faunal resources are used. The species are given with their scientific names in Table 1 for faunal species and Table 2 for floral species.

Table 1. Faunal Resources

COMMON NAME	SCIENTIFIC NAME
Whitetail deer	*Odocoileus virginiannus*
Elk	*Cervus elaphus*
Black bear	*Urus americanus*
Mountain lion	*Puma concolor*
Bobcat	*Lynx rufus*
Lynx	*Lynx canadensis*
Muskrat	*Ondatra Zibethicus*
Gray wolf	*Canis lupus*
Beaver	*Castor canadensis*
Mink	*Neovison vison*
Red fox	*Vulpes vulpes*
Grey fox	*Urocyon cinereoargenteus*
Opossum	*Didelphis marsupialis*
River otter	*Lutra canadensis*

Continued on next page

COMMON NAME	SCIENTIFIC NAME
Raccoon	*Procyon lotor*
Coyote	*Canis spp.*
Mallard	*Anas platyrhynchos*
Wood duck	*Aix sponsa*
Teal	*Anas spp.*
Geese	*Branta spp.*
Swans	*Cygnus spp.*
Passenger pigeon	*Ectopistes migratorius*
Woodcock	*Scolopax minor*
Greater prairie chicken	*Tympanuchus cupido*
Turkey	*Meleagaris gallopavo*
Ruffed grouse	*Bonasa umbellus*
Sharptail grouse	*Tympanuchus phasianellus*
Bobwhite quail	*Colinus virginianus*
Great blue heron	*Ardea Herodias*
Green heron	*Butorides viescens*
Black-crowned night heron	*Nycticorax nycticorax*
Least bittern	*Ixobrychus exilis*
American bittern	*Botaurus lentiginosus*
Bald eagle	*Haliaeetus leucocephalus*
Turkey vulture	*Cathartes aura*
Owls	*Otus spp.*
Peregrine falcon	*Falco peregrinus*
Kestrals	*Falco spp.*
Hawks	*Butro spp. / Accipiter spp.*
American coot	*Fulicia Americana*
Bufflehead	*Bucephala albeola*
Bowfin	*Amia calva*
Catfish	*Ictaluprus spp.*
Gar	*Lepisosteus spp.*
Drum	*Aplodinotus grunniens*
Turtle	*Chelydra spp.*
	Emydoidea spp.
	Chrysemys spp.

Table 2. Floral Resources

COMMON NAME	SCIENTIFIC NAME
Jack pine	*Pinus blanksiana*
White pine	*R. strobus*
Red oak	*Quercus ruba*
White oak	*Q. alba*
Black oak	*Q. veluntina*
Red maple	*Acer rubrum*
Silver maple	*A. saccharinum*
Box elder	*A. negundo*
Bitterroot hickory	*Carya Cordiformis*
Shagbark hickory	*C. ovata*
Willow	*Salix spp.*
Alder	*Alnus spp.*
Yellow poplar / tulip poplar	*Librodendron tulipfera*
Ironwood	*Ostrya virginiana*
Black cherry	*Prunus serotina*
Choke cherry	*P. besseyi*
Sand cherry	*P. virginiana*
Black ash	*Fraxinus nigra*
American elm	*Ulmus americana*
Butternut	*Juglans cinerea*
Walnut	*J. nigra*
Dogwood	*Cornus florida*
Red-osier dogwood	*C. sericea*
Sassafras	*Sassafras albidum*
Hop hornbeam	*Ptelea trifoliate*
Sycamore	*Plantas occidentalis*
Hackberry	*Celtis occidentalis*
American beech	*Fagus grandifolia*
Basswood	*Tilia americana*
Hazelnut	*Corylus americana*
Persimmon	*Diospyros virginiana*
White birch	*Betula papyrifera*
Sumac	*Rhus spp.*
Thornapple / black hawthorn	*Crataegus douglasii*
Locust	*Gleditsia spp.*
Tamarack	*Larix laricina*
Hemlock	*Cicuta spp.*
Cottonwood	*Populus deltoides*
Pawpaw	*Asimina triloba*
Red mulberry	*Morus rubda*
White mulberry	*M. alba*

Continued on next page

COMMON NAME	SCIENTIFIC NAME
Witch hazel	*Hamanelis virginiana*
Spicebush	*Lindera benzoin*
Bearberry	*Arctostaphylos uva-ursi*
Blueberry	*Vaccinium spp.*
Buckleberry	*Symphoricarpos orbiculatus*
Snowberry	*S. albus*
Nannyberry	*Viburnum lentago*
Gooseberry	*Ribes hirtellum*
Partridge berry	*Mitchella repens*
Huckleberry	*Gaylussacia spp.*
Blackberry	*Rubus spp.*
Wild strawberry	*Fragaria virginiana*
Wild rice	*Zizania aquateca*
Prickly pear	*Opuntia spp.*
Wild grape	*Vitis labrusca*
American lotus	*Nelumbo lutea*
Yellow pond lily	*Nuphar lutea*
White water lily	*Nymphaea odorata*
Cattail	*Typha latifolia*
Bulrush	*Scirpus fluviatilis*
Duck Potato	*Sagittaria latifolia*
Giant yellow hyssop	*Agastache nepetoides*
Blue wild indigo	*Baptisia australis*
Coneflower	*Echinacea purpurea*
Prairie dock	*Silphium terebinthinaceum*
Blue-eyed grass	*Sisyrinchium augustifolium*
Dotted mint/horsemint	*Monarda punctata*
False boneset	*Kuhnia eupatoroides*
Little bluestem	*Andropogon scoparius*
Prairie sedge	*Carex bicknelii*
Sunflower	*Helianthus annus*
Northern blue flag	*Iris versicolor*
Lupine	*Lupinus spp.*
Slough grass	*Spartina pectinata*
Side-oats grama	*Bouteloua curtipendula*
Plains muhly	*Muhlenbergia cuspidate*
Marrum grass	*Ammohila breviliulata*
Dune grass	*Elymus arenarius*
Wild rye	*E. virginicus*
Sand reed grass	*Calamovilfa logifolia*
Beach pea	*Lathyrus japonicus*

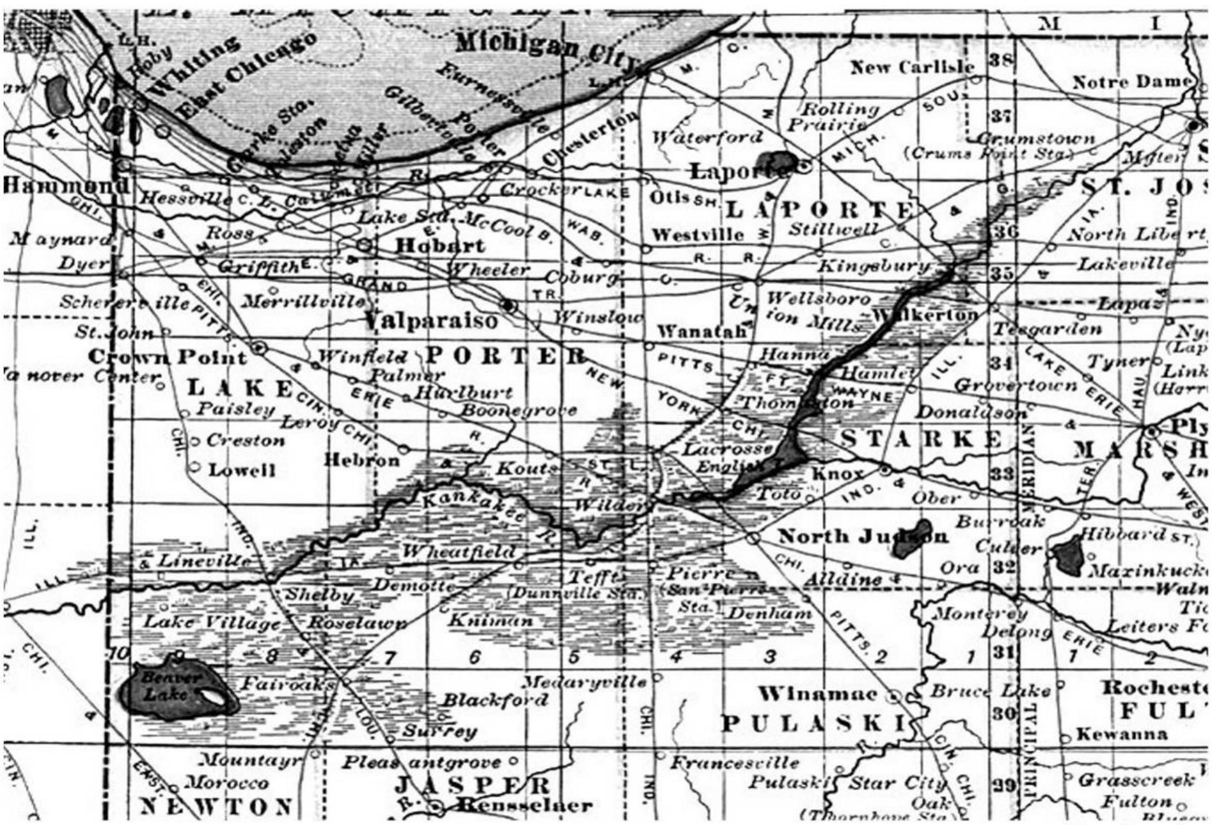
Continued on next page

COMMON NAME	SCIENTIFIC NAME
Fringed puccoon	*Lithospermum incisium*
Hoary puccoon	*L. canescens*
Jumpseed	*Polygonum virginiaum*
Virginia creeper	*Parthenocissus quinquefolia*
Poison ivy	*Toxicondendron radicans*
Skunk cabbage	*Symplocarpus foetidus*
Cinnamon fern	*Osmundastrum cinnamomeum*
Purple spring cress	*Cardamine douglasii*
Marsh marigold	*Caltha palustris*
Horsetails	*Equisetum spp.*
Liverwort	*Marchantiophyta spp.*
Bittersweet	*Celastrus scandens*
Wild garlic/leek	*Allium tricoccum*
Milkweed	*Ascelpias syriaca*
Bottle gourd	*Lagenaria siceraria*
Little barley	*Hordeum pusillum*
Goosefoot	*Chenopodium berlandieri*
Corn/maize	*Zea maize*
Stinging nettle	*Urtica dioica*
Cleavers	*Galium aparine*
Jewelweed	*Impatiens capensis*
Sweet Cicely	*Osmorhiza longistylis*
Solomon's seal	*Polygonatum biflorum*
Wild bergamot	*Monarda fistulosa*
Peppermint	*Mentha piperita*
Trillium	*Trillium grandiflorum*
Rattlesnake fern	*Botrychium virginianum*
Cow parsnip	*Heracleum maximum*

The Kankakee Marsh

> Marsh prairies of aquatic sedges and grasses, potential grazing areas; wild-rice sloughs, scenes of countless wild geese and ducks; flag ponds, lined with muskrat houses; a narrow but almost uninterrupted swamp forest, full of game, rimming a meandering river teeming with fish; the wet prairies, made humanly habitable by the interspersion of sandy island oak barrens that surmount the highest flood waters—such in brief are the physical setup which attracted the squatter pioneer from the East, who sought contentment in the solitude and seclusion of a marsh wilderness. (Meyer 1935:360)

The physical feature that probably had the greatest effect on prehistoric settlement was the Grand Kankakee Marsh (Figures 4–6). The marsh at its largest extent was said to have covered over 202,000 ha (500,000 acres) (Nichols 1965:4). It had “the highest diversity of plants and animals in Indiana” and “one of the most significant wetland ecosystems in North America” (Meyer 1954:266). Only the Great Dismal Marsh of southeastern Virginia and northeastern North Carolina rivaled the Kankakee Marsh in size and complexity (Weston 1977:1). The Kankakee Marsh was 88.5 km (55 mi) from east to west and averaged 104.6 km (65 mi) from north to south (Ball 1900:15).



No Scale

Figure 4. Extent of the Kankakee Marsh, c. 1897

Figure 5. Duck Hunter, Boat, and Decoys in the Kankakee Marsh, c. 1900 (photograph courtesy of John Hodges)

Figure 6. Poling a boat in the Kankakee Marsh, c. 1900 (photograph courtesy of John Hodges)

The marsh was a source for a wide variety of plants, fibers, and seeds. It provided an outstanding analogy for faunal and floral productivity (Meyer 1935). Reed (1920:18) also commented about the large quantities of wild rice found within the marsh: "Wild rice fields were inexhaustible granaries." However, to date, no wild rice has been recovered from archaeological contexts (Schurr 2005). Floral materials do not preserve well in this area due to the high acidic content of the soils. They could, however, be recovered archaeologically if they had been carbonized or otherwise protected from the destructive aspects of the soil.

> Marshes are perhaps the most valuable area for human exploitation. They supply large quantities of storable food from a limited number of species . . . . The marshes would have been an attractive area for human exploitation at many times during the year, but primarily autumn and winter. They offer storable food in large quantities [that could have been used] . . . during a lean time of year. (Goldstein 1983:140–141)

During its existence, heavy growths of timber and sporadic stretches of dry prairies bordered the marsh. These areas were interspersed with oxbows, sandy ridges of higher and drier land, lakes, sandy island oak barrens, and sloughs, and isolated sections of wet prairie bordered the marsh (Meyer 1935). The sandy islands consisted of aeolian sand (Plainfield fine sand) and occurred in the marsh or wet prairie. They were usually knobs not over 1.5 m (5 ft) in height or in long narrow ridges 3–6.1 m (10–20 ft) high, but were occasionally as high as 9.1–10.7 m (30–35 ft) (Faulkner 1972:24).

The patterns of faunal and avian activity in the marsh habitat are more complex and abundant than those of almost any other habitat (Daniels 1904:108). The marsh attracted large numbers of waterfowl, as it was located on a major eastern branch of the

Mississippi Flyway, as well as great numbers of both aquatic and land bird species. The marsh was a Mecca for hunters for millennia. Partial lists of the specific mammal and bird occupants of this habitat are included in the “Regional Fauna and Flora” section later in this chapter.

An easy and safe crossing of the marsh could occur at only one location. The crossing was essentially a sand ridge with the northern terminus at a location now called Baum’s Bridge, although its earlier names included the Potawatomi Trail Crossing and Eaton’s Ferry (Simons 1985:183). This use of this crossing continued into modern times.

The Kankakee Marsh fits the criteria stipulated by Struever (1968:305–306) for biomes in which “intensive harvest collecting” is feasible. Those criteria are (1) nuts and acorns, (2) the seeds of commensal plants, (3) white-tail deer, (4) migratory waterfowl, and (5) certain species of fish (particularly those found in slow-moving waters). This exploitation of selected, high-yielding natural foods is, according to Struever, the favored subsistence base for the Middle Woodland populations of the lower Illinois River valley. This may explain the heavier occupation in and around the marsh during the same cultural time period.

Lake Michigan. The third largest of the Great Lakes is also one of the research area’s biotic zones. This inland sea contains resources unique to its waters and the adjoining streams (Wiggers 1997). Additionally, floral and faunal communities along the lake foster many resources of particular interest to the inhabitants of the area.

The largest resource category is, of course, fish. Seventy-nine species of fish inhabit various environments within the lake from the cold and deep water to the warm and shallow areas. An additional 40 species occupy its tributaries (Indiana Natural Resource Commission, n.d.). Individuals can spear these fish in shallower waters or catch them through the use of nets or seines and weirs.

The sturgeon was probably the most favored fish. It is a direct descendant of fish that thrived 100 million years ago during the upper Cretaceous period. Usually occupying the deeper waters of the lake, sturgeon would gather at the mouths of rivers before spawning in the month of June. While most sturgeon are from 0.9 m to 1.5 m (3–5 ft) in length, the longest recorded in modern times was 2.7 m (9 ft) long and weighed 134.7 kg (297 lb) (Greenberg 2002:168). Off the mouth of the St. Joseph River, two others were caught, the larger 2.4 m (7 ft 11 in); each weighed about 140.6 kg (310 lb) (Greenberg 2002:168). A fish of that size would have provided a great deal of food, as a small sturgeon weighing 13.6 kg (30 lb) could produce 10.9 kg (24 lb) of edible meat, or a total of 80% of its live weight (Cleland 1966). Some features at the Upper Mississippian Elam site (20AE195), along the Kalamazoo River in Allegan County, Michigan, contained large quantities of sturgeon plates. During the period of the excavation of that site (April–June 1978) by Western Michigan University, archaeologists observed large numbers of sturgeon in the adjacent river.

Additional resources the lake provides include wood and stone. During a storm, strong winds deposit driftwood on the beaches. Water can carry the wood over long distances and for long periods of time. While not a substantial resource, it was sufficient and quickly accessible for fires during foraging or short-term occupations. Stone is not a resource normally associated with a lake; however, the wave action and currents are strong enough, especially during periods of higher water levels, to move stone from offshore deposits and leave them on the beach. Glaciers had deposited pebbles and cobbles from as far north as northern Wisconsin, the Upper Peninsula of Michigan and the Canadian Shield (Wiggers 1997). One source for granite, gneiss, and other heavy-grained rocks used in tool manufacture is in the surf-rounded gravels. The wave action relocated chert cobbles from an offshore location to a beach near the modern city of South Haven, Michigan. Thin sections of ceramics from the area show that some of the finer beach gravels and sands tempered the clay used in vessel manufacturing (J. Mills, personal communication 1998).

The lake also serves as a major transportation route for anyone with watercraft. Travel was faster on water than on overland routes. Even walking along a shoreline would have been easier than along most interior trails. The transportation of heavy loads was more efficient in a craft than on a person's back. However, travel on the lake is restricted to periods of relatively calm waters. During the warmer months, storms can develop very quickly with waves of dangerous size. During the winter, ice can extend long distances into the waters, with some compression ridges rising over 3.1 m (10 ft) high. Hazardous or open areas exist along the ice nearer the shore where an individual could easily drop into the frigid waters.

The Lacustrine Plain. The Lacustrine Plain consists of a strip of land adjacent to the southern shores of Lake Michigan, including the modern and relic beaches and the sand dunes (Figure 2). The plain is not a simple one created by the reduction or removal of a single incident of standing water. The creation of the Lacustrine Plain was very complex, created by numerous episodes of deposition, reduction, and additional depositions. A series of taller dune lines that are associated with former and current shorelines dominate the topography of the lacustrine area. These landforms correspond to major apex and recessional stages associated with glacial Lake Chicago. Sand dunes, some reaching over 9.8 m (32 ft), cap each former shoreline. Alternating with dunes are interdunal lowlands filled with marshes, ponds, bogs and small lakes.

The dunal region that parallels the shore of Lake Michigan is particularly rich in resources. According to the National Park Service (http://www.nps.gov/indu/), within the dunes are an estimated 352 bird species, 37 mammals, 27 reptiles, and 18 amphibians. With the addition of plants, fish, and mussels, it becomes a very attractive habitat. While some of these species occur throughout the research area, others are restricted to the dunal region.

The plants found in the dunes are essentially a mixture of species from more northern and southern environments (Daniel 1984; Deam 1924; Downing 1922; Facciola 1990; Greenberg 2002; Hanson 1979; Hill 1974). Some of these plants occur in more restricted, microclimatic areas, usually farther away from the lake. The prickly pear found in many areas of the dunes is the only true cactus to inhabit areas this far north. Its purplish fruit and pads are both good to eat (Daniels 1904). The jack pine and the bearberry are varieties found much farther north in colder climates. Their presence illustrates the unique quality of the floral inhabitants of the dunal areas with species from as far flung as the Artic, the Deep South, and the desert found in a single region (Indiana Department of Natural Resources, n.d.).

Archaeologists, geographers, naturalists, and other researchers use various terms for the natural regions of the lacustrine plain: the beach, the dunes, and the prairies. The dunes can then be broken down into smaller areas called the fore dune, the inner dunes, the interdunal marsh/bog areas (if any exist), and the back dunes (Figure 7). Each of these areas has a different habitat ranging from bare sand to forest, and each stage of plant succession creates different microenvironments. This sequence is the result of the change from a simple biological community to a complex one and is influenced by numerous factors, such as drainage, surface geology, nutrient availability and soil type, light intensity, and slope of the ground surface (Montgomery 1928).

Beaches are rich in resources for both man and animal. They contain the remains of birds, fishes, mussels, and insects that provide a food source for carrion scavengers of various sizes and taste preferences. From flies, tiny maggots, gulls, and sandpipers to mammals, birds of prey, and even humans, all feed on the flesh provided by the lake (Daniels 1904:14).

The fore dune contains small sand ridges formed by the modern rising and falling of the post-glacial lake levels. Vegetation that first establishes itself in this area contains such hardy and useful plants as prickly pear, sand cherry, wild grape, bearberry, and a variety of grasses.

The inner dunes are more stable and are inland from the fore dune. They are frequently seen in conjunction with fossil beaches. The first set of inner dunes was once a fore dune associated with the Tolleston stage of Lake Chicago. Trees topping this ridge are primarily white and jack pines and are the reason for the common name of “pine dunes.” The second line of stabilized dunes is known as the “oak dunes” because of the oak forest cover. It is associated with the earlier Calumet stage of Lake Chicago. Currently, this line of dunes is approximately 12.2 m (40 ft) above Lake Michigan.

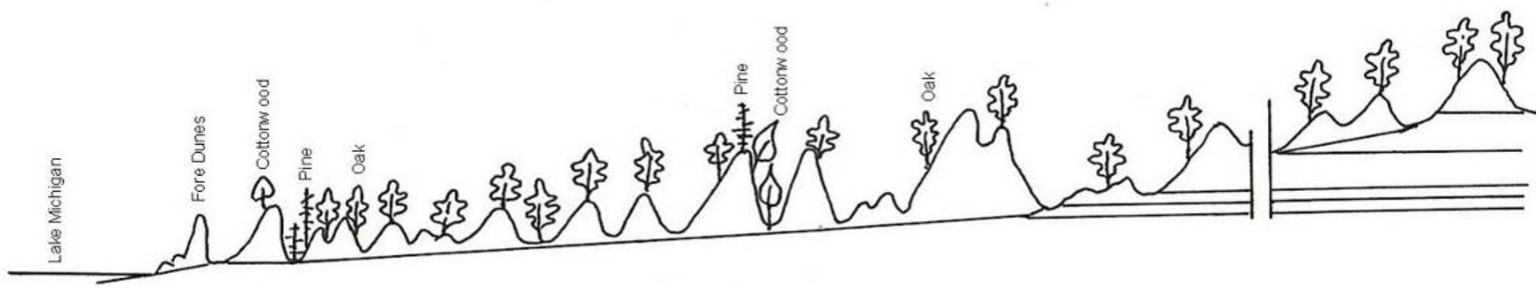


Figure 7. Dune Succession (after Olson 1958)

Archaeological excavations have determined that this dune line was frequently occupied during prehistoric times, including the period of the Middle Woodland (Lynott et al. 1993). A medium to tall broadleaf deciduous forest of white, red, and black oak and bitterroot and shagbark hickory species cover this dune. Shrubs and other plants found in this area include a variety of berry producers, such as buckleberry, snowberry, blueberry, nannyberry, and wild gooseberry (Brown and O'Brien 1990:255; Petty and Jackson 1966:288).

Inland from the oak dunes is a low, flat, former lake bed. Broken by two series of smaller ridges, the back dunes contain beech and maple trees as well as tulip and yellow poplar, ironwood, black cherry trees, witch hazel, ferns, and partridge berry. These dunes are often difficult to recognize or no longer exist because of wind or erosion.

The interdunal marsh/bog areas occur between the ridges of the dunes and consist of low areas often wet with bogs, marshes, and small lakes. The Lacustrine Plain has a high water table that often intersects with the surface. The level, number and extent of these wet areas are frequently dependent upon fluctuations in the water table (Lynott et al. 1993). However, there are other ways that these wet areas can form as well. Often a small tributary originating in a higher elevation flows through the interdunal area and eventually joins with Lake Michigan. As additional sand deposits expand in the beach area, these junctures are often blocked. The water then backflows into the interdunal regions until the tributary cuts a new route to meet the lake. The Galien River and the resulting Lake Potawatomi are examples of that process. Beaver activity can cause the same circumstances. The areas created by these back-flowing waters and high water tables can include ponds, marshes, streams, swamps, bogs, fens, floodplain forests, pannes, and sedge meadows. Each is different from the other, creating different ecological conditions and hosting different floral and faunal species. While these wet locales occur within the dunal areas, the same ecological system can occur elsewhere in the study area. For example, floodplain forests are common along the Kankakee River as well as in the inner dunal area.

The areas that offer the greatest resource potential are the ponds and linear marshes. A pond is a small body of open water that supports floating vegetation due to its slow current. Occasionally, the vegetation can become so dense that it threatens to cover any open water (Brown 1991). Some of the floating vegetation found on a pond includes the American lotus, the yellow pond lily, and the white water lily (Magee 1981). General resources that occur within the ponds consist of different types of fish, turtles, migratory waterfowl, various plants, and mussels. A linear marsh follows the route of the slow-moving water on one or both sides. It may also include bogs, small lakes/ponds, floodplain forests, and isolated marshes. Slough grasses, sedges, pondweeds, wild rice, cattail, flags, bur reeds, blueberries and huckleberries occur within the marshy areas. Other marshes consist of open areas with herbaceous groupings dominated by cattail, reed, great bulrush, and duck potato (Magee 1981). While marshes are often smaller than lakes or ponds, especially in the interdunal areas, they house a number of floral species that could be important in human subsistence. These species are highly productive and can withstand gathering activities over a long period of time (Brown 1991:133, 139).

The Calumet Area. The Calumet area is included as a separate region because it lies entirely within the lacustrine plain and contains the only river of note completely within the plain. It appears to be more typical of an interdunal area, having the same linear marshes and portions of prairies and ponds. Unlike the more easterly portion of the plain, however, no major dunes formed. Located just outside the tunnel of prevailing winds, the lack of such winds to transport sand kept the formation of any dune to a minimal size.

The Calumet River formed during the retreat of the ice. The changes in the depth of Lake Chicago caused the mouth of the river to shift. Originally, the river emptied to the west into the Sag River but, as the water level dropped, the river sought new outlets, which continually moved eastward. The river took the shape of a hairpin and moved back to the east, sometimes only a short distance away from the portion flowing to the west. As people settled there in the nineteenth century, the new residents found it confusing to have what they thought were two different rivers with the same name. Therefore, the easterly flowing, more northern portion was called the Grand Calumet River and the westward flowing, more southern portion was called the Calumet or Little Calumet River. This fact made research somewhat difficult as authors, even when writing about the late Pleistocene, refer to the Grand Calumet and the Little Calumet rivers even though, at that time, it was the same river. This division became permanent when the residents dug a canal from the Grand Calumet to Lake Michigan (Schoon 2003). The Calumet region also contained a number of lakes greater in size than in any other portion of the lacustrine plain. As Lake Chicago receded, sand spits captured a series of lakes, the larger ones being Wolf Lake, Lake George, Lake Calumet, and Berry Lake (Meyer 1950).

In the Calumet area, three major biomes converged. These included the eastern deciduous forest, the boreal forest, and tall grasslands. The biomes and a succession of a large variety of hydrologic regimes (e.g. streams, lakes, and wetlands) occur over a small area, making the Calumet area a biologically diverse environment (Nevers et al. 2000:3).

Clay Deposits. Large quantities of fine clays were important non-food resources found on the lacustrine plain. In some areas, erosion has exposed these strata, allowing easy access. Along the exposed face of a pine dune near the town of Union Pier, Michigan, layers of clay are visible. The deposit of this clay is calcareous and contains many concretions at the base of the leached zone. A pit dug near Chesterton, Indiana, at the former site of the National Fire Proofing Company, revealed a clay deposit over 15.2 m (50 ft) deep (Cressey 1928:64). The clay itself is blue-grey with a slightly sandy nature but sticky when handled. Through personal experimentation, the clay fires very clean and hard with less tempering agent needed for stability than found in other clays.

The clay deposits, at various depths through the Lacustrine plain, extend from just north of the Indiana-Michigan border and continue southwest through the Kankakee Basin. All pottery-making cultures that occupied the area probably used this resource, and it may have drawn non-residents to the area. Clay gathering and processing may have coincided with other foraging activities in the dunal areas. The clay deposits vary in quality in some areas, however. In the lower portions of the Kankakee River, clay shale and red clay, as well as the previously mentioned blue-gray clay, are in the strata exposed along the banks of the river and the feeding streams. The clay shale is quite malleable when wet and is conducive for use in ceramics (L. Binns, personal communication, June 2005).

The Morainal Complex. “The legacy of the Wisconsin glaciation comprises a series of morainic ridges and intermorainal basins floored largely with bedrock and ground moraines. . .” (Weston 1977:5). The moraines are an actuate end moraine complex several hundred kilometers in length. The lacustrine plain ends with a series of lower lake border moraines from the late Cary stage, undoubtedly remnants of the last ice sheet advances. The compounded moraines probably represent more than a single standstill of the ice front (Figure 2).

The Valparaiso Moraine figured prominently in the early history of the area as a route of travel around Lake Michigan and around the great marsh (Hartke et al. 1975:3). The Valparaiso Moraine is also a continental divide between the drainage to the St. Lawrence River and the drainage to the Gulf of Mexico. The moraine was deposited approximately 12,500 years ago during the middle Cary stage. It varied in width from 12.9 km to 24.2 km (8 to 15 mi) with an elevation of 213.4–274.3 m (700–900 ft) above modern sea level (amsl) with the highest point being 289.6 m (950 ft) (Mason 1958:19). The Valparaiso Moraine was approximately 45.7 m (150 ft) higher than the lacustrine plain around Lake Chicago. However, in some areas, portions of the moraine appeared to be more like till plains (Schneider 1966:51).

Several other landforms are associated with the end moraines. Behind the moraine is the ground moraine, which is a gently rolling, hilly deposit of till. A flat expanse of stratified sands and gravels called an outwash plain is in front of the moraine. Formed by sheet runoff of water created by the melting glacier, it often extends out to and covers the older ground moraines. Glacial erratics are boulders of granite, gneiss, and other resilient material from the Lake Superior region or Canada, brought down with the ice and scattered across the landscape. Following the ice sheet are drumlins, shaped like teaspoons. They occur behind the moraines when the more recent glacier shaped the previously deposited, ice-molded debris (Greenberg 2002).

The surface of the moraine has many low knobs and shallow basins. Small patches of wet and dry prairies also occur on the moraines throughout northeastern Illinois and into southwestern Michigan. Most of the moraine consists of forests with broadleaf hardwoods. These shallow basins often contain numerous small lakes, including kettles, as well as dry depressions (Cressey 1928:10; Greenberg 2002). Such lakes include larger examples such as Pine Lake, Hudson Lake, the Chain-o-Lakes, and Cedar Lake. Smaller examples, if named at all, include Tee Lake, Potawatomi Lake, and Clear Lake. The melting of buried large blocks of ice left by the retreating glacier formed the kettles on the moraine, as well as on the flatter areas north and south of the moraine. When the ice melted, the ground covering the ice collapsed, creating a great hole. Naturally, the larger the block of ice was, the larger the depression. These lakes are maintained by a combination of surface runoff, stream input, and groundwater springs, and are concentrated in two areas of northwestern Indiana and southwestern Michigan (Schoon 2003:23).

The Kankakee Outwash and Lacustrine Plain. The southern slope of the Valparaiso Moraine merges with the Kankakee Outwash and Lacustrine Plain without abrupt topographic change. However, the northern slope is just the opposite, presenting the appearance of a high wall as it is approached by a person heading south (Faulkner 1972:24). The Kankakee Outwash and Lacustrine Plain developed in a relatively short period of time between the building of the Valparaiso Moraine (c. 12,250 B.C.) and the earliest stages of the formation of Lake Chicago (c. 12,000–11,500 B.C.) (Weston 1977:9). The plain is nearly flat, the result of the fine mud released from the glacier and carried out of the area, which left only fine sand. Winds pile the sand into dunes as they do along the shore of Lake Michigan. Most dunes are small but some exceed 7.6 m (25 ft) in height. More dunes actually exist in the Kankakee Outwash Plain than along the rim of Lake Michigan (Schoon 2003:24).

The Prairies. "Grasslands rank among the most biologically productive of all communities" (Williams and Diebel 1996:19). These grasslands or prairies are the northeastern extension of the Prairie Peninsula, a part of the prairie of the Great Plains. According to Brown (1991:46, Table 7), prairie comprises 42% of the dry land of Porter County and 89% of Benton County, which is just south of the research area. The tall grass prairies occupy rolling to flat areas that existed between the ridges, moraines, and sandy knolls. The prairie is also found on the low sand or morainal ridges and occurs surrounding the oak-hickory forests on the slopes of shallow moraines. Therefore, this area of prairie tends to narrow or fragment as it extends to the northeast.

Wooded areas within the prairie are restricted to protected valleys, although open oak groves occur on knobs and in protected locations in the uplands (Anderson 1970; Curtis 1959). Dry prairies yield to the oak-grass type of vegetation and, in turn, to an oak-hickory association (Faulkner 1972:27).

Prairies are also a patchwork of different types of biotic communities and settings. Within the study area, there are five types of prairie: wet, dry, mesic, hill, and sand. Each type occurs under slightly different environmental and soil conditions; therefore, different types of prairie can occur adjacent to, or within, each other. I will not list animal, bird, reptile, and amphibian inhabitants as they randomly change locations from one type of prairie to another. Unlike plants and trees, very few faunal species are totally restricted to a single prairie type.

The wet and mesic prairies arise in moist conditions. The wet prairie forms in areas where the saturated soils occur during the growing period or in standing water. Usually separated from a marsh by a sedge meadow, a wet prairie contains such vegetation such as willow, alder, ash, American elm, and red maple trees. The mesic prairie is lush and green due to the availability of moisture throughout the growing period, the location of the landscape, and the presence of good soils. However, the climate supports mesic grasslands even with moisture deficits at various times of the year, in combination with relatively low annual snowfall (< 101 cm [40 in]) (Transeau 1935). These deficits are detrimental to tree growth, but vascular plants, including giant yellow hyssop, blue wild indigo, cone flowers, big bluestem, and prairie dock, occur on the mesic prairie (Brown and O'Brien 1990:133; Weaver 1968).

The dry and sand prairies often exist in similar conditions with the major variable being elevation. The dry prairie develops on uplands and hills with good drainage. Low-lying areas within the dry prairie, such as valleys or swales with higher moisture content, will support mesic prairie. Blue-eyed grass, dotted mint, and false boneset are among the plants found on this type of prairie. A sand prairie, on the other hand, occurs in areas of minimal moisture and, as the name implies, predominately in sand. Due to the large extent of sand in the study area, this prairie type appears throughout the region, although its favored areas are along the shores of Lake Michigan and the Illinois, Kankakee, and Calumet rivers. Plants found on the sand prairie include little bluestem, prairie sedge, tall sunflower, northern blue flag, and several types of lupine. Some of these plants also occur on oak savannas (Lucas 2001).

Within the Prairie Peninsula, the most common types of savannas are scrub oak barrens and oak savannas (Brown 1991:46). Savannas also tend to be seasonally dry with low diversity and occur in the major sand regions (Lucas 2001). Oak savannas occur with the sand prairies and are two-layered communities. They often contain a 10–80% canopy cover (Madany 1981). Oaks (including bur oak, black oak, white oak, red oak, and some butternut and shagbark hickory) predominate. Sub-canopy vegetation includes wild black cherry, dogwood, sassafras, hop-hornbeam, boxelder, and white mulberry (Bailey 1995; Lucas 2001). The ground level is quite distinct with some evergreen and a wide variety of wildflowers (Bailey 1995).

Glades are barrens found within the prairies. They are usually associated with graveled areas and have limited distribution, occurring only in the areas affected by Wisconsin glaciation. Due to the harsh environment and true to the descriptive term of barren, only a few plant species grow there. These are little bluestem, side-oats grama, plains muhly, and fringed puccoon.

The Forests. Forests are restricted to specific areas. Beyond the inner and back dunes, the other localities are in the swamps and marshes, on the floodplains, on the moraines and ridges, and along the bluffs and broad ridges above the rivers. Each environmental area supports different types of tree growth.

Two types of forest could each be mistaken for the other, depending upon the season of the year. The definition of a floodplain forest is a forest where flooding occurs during the “wet period” of the year, usually only lasting a few months. This stand of trees is highly variable and diverse, and stretches from English Lake (Indiana) to Momence, Illinois, on both sides of the river (Greenberg 2002:217). The trees include sycamore, butternut hickory, hackberry, silver maple, and American elm. The shrubs and herbaceous species include the spicebush, jumpseed, Virginia creeper, and poison ivy. The swamp forest, on the other hand, contains trees that are partially submerged most, if not all, of the time. The area must also have a 30% canopy in order to support the vegetation found in the understory. This wetland community consists of woody plants, trees, and shrubs plus a number of plants in the herbaceous level. The trees found in the swamp forest include sycamore, black ash, silver maple, beech, elm, hackberry, and basswood. In the herbaceous level are skunk cabbage, cinnamon fern, horsetails, mosses, liverworts, purple spring cress, and marsh marigold, among others. Hop-hornbeam, dogwood, sassafras, wild grape, and bittersweet grow in the dense understory.

The Uplands. The uplands contain soils that do not flood. The landforms include moraines, ridge tops, and terraces above the floodplain. Along the Kankakee River terraces, the timbered area ranged 1.6–4.8 km (1–3 mi) wide (Ball 1900). In the glaciated areas of the uplands, the American beech–sugar maple forest predominates. Associated with the beech-maple environs are, among others, pawpaw and red mulberry. While some oaks and hickories are also present, they exist only on the poorer soils. Some say that where the beech-maple forests occur, the prairie ends (Brown 1991:47).

Regional Fauna and Flora

Animal, bird, and fish species can be found throughout the research area and regularly cross over the previously discussed physiographic areas. An asterisk (*) indicates that the animal has been found in an archaeological context in the region. The scientific names for each species are in Tables 1 and 2. The problem of archaeological preservation is present within both types of remains. Species, other than those noted, may have been consumed or their body parts used in tool making or rituals, but the evidence of that activity is not present.

Whitetail Deer. Whitetail deer* was the major food animal consumed by prehistoric Native Americans in eastern North America, and the area under study was no different. Deer are among the top three food animals in usable meat per individual at 50% (Betteral and Smith 1973:133). Because they are good swimmers, deer were able to access the various islands within the Kankakee Marsh and could have been found anywhere from the beaches to the prairies. They gathered into groups late in the fall and dispersed in the spring. This herding made the hunting of deer by the Native Americans possible through the winter. Both deer and elk frequented the edges of both the forested areas and the woods along the waterways or lakes.

Elk. Elk or wapiti* roamed the areas adjacent to the marsh and rivers until the 1830s. They were noted as being "plentiful" around Fort St. Joseph on the St. Joseph River in 1763 (Greenberg 2002:417). Elk also have a very high percentage of usable meat per individual, at 50% (Betteral and Smith 1973:133). However, they do not respond well to hunting pressures. Additionally, elk were never as plentiful as whitetail deer. Many of the sites that I excavated in the study region produced either a major section of an elk antler or bones in at least one of the features. One of the features at the Bellinger site contained a major section of elk vertebra (Schurr 1997).

Black Bear. Black bears* were both conspicuous and present in large numbers, which may be due in part to the prolific berries and grapes in the region. Father Hennepin, while staying at the mouth of the St. Joseph River in November 1679, stated that his men became so tired of bear meat, they threatened mutiny (Greenberg 2002:422). The black bear produces the largest proportion of useable meat per individual, at 70% (Betteral and Smith 1973:133).

Bison. Contrary to the beliefs of many, bison may not be of "comparatively recent arrival on the eastern side of the Mississippi River and in relatively few numbers" (Greenberg 2002:421–422; Roe 1970). Recently, archaeologists identified the remains of at least three bison along the banks of the Illinois River, south of Peoria (Harn and Martin 2006). A thoracic vertebra contained a chert flake, possibly "from a glancing blow of a projectile point" (Harn and Martin 2006:12). A Dickson style projectile point punctured the tenth right rib of one individual. The recovered point fit into the impact cavity in the rib. The Dickson point has a time range from approximately 400 B.C. to A. D. 1 (Harn and Martin 2006:12), which coincides with the four radiocarbon dates from the site that cluster 365–265 B.C. (Harn and Martin 2006:11).

Mountain Lion. Mountain lions*, also called painters, panthers, and catamounts, were rarely seen, as they are primarily nocturnal, retiring, and roamed in territories as large as 579.3 km (360 mi). However, historic occupants of the area frequently heard them (Greenberg 2002:418). According to Brennnan (1923), two "old-timers" said that when they first arrived in the Indiana Dunes area in the 1830s, there were a large number of panthers in the dunes, on the beaches, and in the woods of the Valparaiso Moraine. A report of two individuals who shot at a mountain lion swimming in the marsh around 1830 stated that it was 2.7 m (9 ft) long from head to tip of its tail. The last local record of one shot, in Cook County, Illinois, was in 1844 (Greenberg 2002:418).

Bobcat. Bobcats* have been found recently as far south as Vigo and Sullivan counties in Indiana (R. Briggman, Indiana Department of Natural Resources, personal communications 2002). Bobcats and the similar lynx commonly occurred in the research area in the early historic period and their furs were sought.

Muskrat. While seemingly not a major food or fur source, the muskrat* does produce about 15% usable meat per individual (Betteral and Smith 1973:133). It has been a prime target for modern trappers and remains highly resilient to predation. In the late nineteenth century, 20,000 to 40,000 pelts were taken annually in just the Lake County, Indiana, area (Ball 1900; Simons 1985:184). Therefore, it is likely that the muskrat was both a food and pelt source in ancient times.

Other Mammals. Other land or land/aquatic mammals that occupied the region include the gray wolf*, coyote, beaver*, mink*, red fox*, grey fox*, opossum*, river otter*, and a variety of smaller animals. These animals were probably more important for their pelts.

Migratory Birds. The research area is on a major eastern branch of the Mississippi Flyway; therefore, migratory waterfowl would have been attracted to any of the available areas of open water. Birds have been hunted in large numbers throughout history. Royalty from all over the world came to the Kankakee Marsh to hunt waterfowl at the end of the 1800s. At that time, the number of ducks killed annually by hunters exceeded 250,000 birds. One man alone reportedly shot 2,300 birds in a single year and it was common for a man to shoot 50 ducks in a day (Ball 1900:449).

Migratory birds such as mallard* and wood ducks*, teal*, geese*, and swans* made the open water of the marsh a splashing, noisy mass of living feathers. Beaver Lake in Newton County, Indiana, in the southern portion of the research area, contained about 14,400 ha (36,000 acres) of water and marsh. Even into the late nineteenth century, its waters were completely covered with waterfowl at times during their migration (Greenberg 2002:220).

Two other migratory birds, however, avoided the waters. “Passenger pigeons [*] came in multitudes” (Reed 1920:21). According to reports, the flights of these birds darkened the skies for hours. Passenger pigeons filled the trees for miles in every direction, and the trees would often collapse under the weight of the birds (Reed 1920:21). Another species was less noticeable but was still an addition to the large number of flying food sources. The woodcock* preferred the forests, savanna groves, and heavy brush and was difficult to hunt successfully. Because of its size and tendency to occur singly or in small groups, this bird may not have been a heavily sought after species.

Other Birds. Beyond the seasonal visitors, other birds that served as food sources occur among the forests, prairies, and dunes. Among these permanent residents were the greater prairie chicken*, turkey*, ruffed grouse*, bobwhite quail, and sharp-tail grouse. The turkey is much larger than the others and provides a greater quantity of meat.

Other avian species not specifically sought for food are also numerous. Within the marsh, bogs, and along the river edges, the great blue heron*, the green heron, the black-crowned night heron, and the Least and American bitterns* are readily found. In the sky, a wide range of raptors are found, including the bald eagle*, turkey vulture*, owls, peregrine falcons, kestrels, and hawks. These species, as well as songbirds, may have been a source for eggs and feathers, and their bones and talons used for tubes, tools, beads, and ornamentation.

Fish. Fish similar to some of those in Lake Michigan are also found in the inland waters. Certain species of fish prefer specific water conditions, such as temperature, depth, type of bottom (rocky, sandy, etc.), availability of food sources, flow speed (faster or slower), and water quality (clear or turbid). Many types of fish contributed to the total food mass available in these settings.

The species preferring the slower waters of the upper Kankakee River tended to grow larger than those found in swifter-flowing conditions. These fish could feed a larger number of people than the smaller species. Fish such as the bowfin*, several types of catfish*, gar, and drum or sheephead*, as well as several others, are a sampling found in slowly moving waters. The drum is an example of how large the slow-water species could grow, with a recent record catch of one weighing 24.5 kg (54 lbs) (Wisconsin Department of Natural Resources 1994). A recently caught blue catfish weighed 56.2 kg (124 lbs), was 147.3 cm (58 in) long and had a girth of 111.8 cm (44 in) (Fish Survey 2005).

The use of nets is an established prehistoric activity based upon artifacts classified as net weights and impressions of nets into the wet surfaces of ceramics. Therefore, it is logical that the nets were also used in fishing. An illustration of the productivity of such netting comes from a more modern period. In the 1860s, shoreline seining operations occurred along a 32.2 km (20 mi) stretch of the eastern coast of Lake Michigan just south of the Indiana state line. Records show those fishermen were catching 453.6–680.4 kg (1,000–1,500 lbs) of fish each time they brought the net to shore (Schoon 2003:153). Spearing, trapping, and drop-line techniques of fishing were also employed in prehistoric and early historic periods.

Turtles. Of the reptiles and amphibians, the ones most frequently used, caught, and/or eaten were turtles (Bartlett 1904). Turtles can be caught throughout the year. During the winter, they tend to congregate just below the ice and near a fallen log or other shelter. They also use abandoned muskrat dens (Parmalee et al. 1972:71). A number of turtles can be gathered easily, simply by breaking through the ice, Turtles are easy prey when they come onto land to lay eggs, which were also a target for humans. Thirty-one percent of the total turtle remains found at the Apple Creek site in the lower Illinois River valley are from species that cluster to hibernate during the winter months (Parmalee et al. 1972:71; Styles 1981:248). Turtle shells were made into cups, dishes, spoons, and even rattles. The remains of almost every local turtle species have been found in archaeological contexts in the Illinois and Kankakee river basins.

Snakes. Snakes vary in diet, microhabitat and population. At least nine varieties occur within the study area. While not in the study region, several species of snakes have been found, and were apparently used in possible ritual practices in Middle Woodland burial contexts in the upper Illinois River valley. A description of those findings is in chapter 3.

Fruits and Nuts. Throughout the research area, a large number of fruit- and nut-bearing trees and bushes grow. Nuts from a variety of oaks, hickories, beeches, walnuts, butternuts, and hazelnuts added significantly to the dietetic resource base. Nuts, however, vary in the mast, or number of nuts that a particular tree produces in a specific year. The preservation problem is especially difficult because of their often small size and fragility.

In 1896, even after the destruction of much of the habitat, 4,000 bushels of huckleberries were sent to market in one season, and shipments reached 300 bushels per day (Ball 1900:17, 510). Cranberries in a 24.3-hectare (60-acre) marsh near Michigan City, Indiana, produced up to 81 bushels per hectare (200 bushels per acre) (Ball 1900:511). The fruits of the snowberry, nannyberry, and partridge berry ripen in the fall, and the berries persist into the winter (Ball 1900; Greenberg 2002). Fruits of the pawpaw and persimmon are edible and can be stored for long periods after having been dried. Persimmon fruit on the trees often lasts well into winter.

Plants. Plants provided other aspects of the prehistoric diet. Edible plants were numerous. Wild rice was undoubtedly collected in large quantities (Reed 1920:18). Duck "potatoes," water lily, and cattail tubers were baked, roasted, and/or pounded into a flour or paste. Wild garlic and milkweed pods were a possible seasoning source or may have been eaten raw. Other plants were used for beverages and/or medicinal purposes (Densmore 1974; Hutchens 1991). A sample list of the medicinal plants and their historical uses is shown in Table 3. For every medical problem, any one of several medicinal plants could have been used depending upon its availability.

Table 3. Medicinal Uses of Floral Resources

Tree/Plant	Part	Uses
Willow	Bark	Anti-inflammatory, analgesic, anti-rheumatic
Black cherry	Bark	Cough
Duck potato	Root	Wounds, Sores
White pine	Bark	Colitis, colds, laryngitis
Partridge berry	Bark	Child birthing
Cranberry	Berries / leaves	Emetic laxative, stomach ache
Witch hazel	Leaves / bark	Eye lotion, liniment for pain, stiffness, bug bites, mouth sores
Peppermint	Leaves / oil	Flatulence, colic, muscle spasms, ulcers
Juniper	Bark / needles	Diuretic, anti-rheumatic, anti-microbial
Nettle	Leaves	Diuretic, anemia, hemorrhaging
Sugar maple	Sap	Expectorant
Wild strawberry	Berries	Gastro-intestinal
Trillium	Root	Gynecological
Elm	Bark	Fever, skin eruptions
Walnut	Bark	Constipation
Solomon's seal	Leaves	Poltices, hemorrhoids, stomach ache, nausea
Hop hornbeam	Wood	Kidneys
Cow parsnip	Root	Boils
Yellow dock	Root	Cuts
Rattlesnake fern	Root	Snake bite
Tamarack	Inner bark	Burns
Sweet cicely	Root	Sore throat, stomach problems
Wild garlic / leek	Bulb	Wounds
Jewelweed	Leaves / stem	Rashes, stings, cuts, burns, eczema
Skunk cabbage	Root	Ringworm, sores, swelling
Skunk cabbage	Seeds	Whooping cough, epilepsy, convulsions, asthma, childbirth

Cultigens. Only minimal evidence for the existence of cultigens has been found in the region during the Middle Woodland period. Sunflower was recovered on the Early Woodland Eidson site (20BE122) in Berrien County, Michigan (Garland 2000). From this, it can be speculated that sunflower also existed in the Kankakee area but it has not been recovered archaeologically, possibly because of poor preservation and limited investigations. At the Goodall site, excavations recovered a single bottle gourd seed. It was charred and protected from deterioration by having been partially lodged inside a Hopewell pottery vessel (Schurr 1998). Evidence of bottle gourd seeds and rinds are common on Middle Woodland sites, such as Smiling Dan (11ST123), in the middle Illinois River valley (Stafford and Sant 1985:354–356). Corn/maize does not appear in the research area until well after the Middle Woodland period. During the period A.D. 1000–1400, corn became a major dietary item. The earliest carbon dates associated with corn in the study area range from A.D. 650–780 (Adkins 2003:97).

Non-Food Use of Plants. Based upon historic analogies, many plants were also used in making items for everyday activities. The inner bark of white birch as well as the inner and outer barks of the red-osier dogwood and bloodroot are items used in the making of red dye. Butternut and bur oak bark were ingredients used to make black dye. Yellow dye was made from the pulp of the sumac stalk. Willow branches and ash splints were components in basket making. Bearberry leaves were used as, or in combination with, tobacco. Red-osier dogwood leaves were also smoked. The thorns from a thornapple or locust tree served as awls and needles. People wove bags with tamarack roots (Densmore 1974:377–378).

Ideological Activities. Some plant and animal species may have been more highly regarded in socio-ideological relationships than others. The myths of the historical Native Americans of the eastern United States include owls, beavers, muskrats, cougars, snakes and raptors. Diving ducks, such as coots, buffleheads, and others, also may have been viewed as having symbolic importance, as they could occupy all three worlds (Upper, Middle, and Lower) (Mangold 2001b). Individual species or a particular animal may have had a personal significance, as a totem or protector. Particular body parts of these animals in association with a human burial could represent that affiliation.

Based upon historical practices, plants were part of the preparation for rituals or in the rituals themselves. Bearberry leaves mixed with the seeds of poison hemlock create a hallucinogenic state when smoked or eaten. Datura and certain species of mushrooms, although potentially deadly, cause mind-altering conditions that were thought to assist in healing and other rituals.

Total Resources

With the quantity and variety of food, ritual and medicinal resources within the research area, subsistence would have been relatively easy. Large numbers of animal, bird, and fish species occupied the area in prehistoric times. Migratory waterfowl alone could have provided an extensive meat source. Fish large enough to feed several families swam in Lake Michigan, the Kankakee Marsh, and the rivers. Excursions to the dunes in the summer to gather fruit, fish, and other resources would have been likely and very productive. Some of the Middle Woodland sites in this area may reflect such activities. Resources and the protection from the weather found in the islands inside the marsh would have caused that area to be more appealing during the other seasons. The conjunction of many biotic provinces would have reduced the need for cultigens, and that may also explain their perceived or actual absence.

> The Kankakee valley was characterized by great ecological diversity of dry prairie, wet prairie and wooded uplands. The effect of the diversity on the cultural system found in association would certainly suggest that specific ecological adjustments were probably made by the local inhabitants which would be reflected in their technological and social subsystems. (Faulkner 1972:21)

CHAPTER 3

THE HISTORY OF MIDDLE WOODLAND ARCHAEOLOGY IN THE KANKAKEE RIVER BASIN AND ADJACENT AREAS – THE EARLY YEARS

The Middle Woodland period in the Kankakee River valley and the surrounding area has been recognized for many years for its extensive burial mounds (Levette 1874). Mounds were, for the most part, the most commonly excavated archaeological feature prior to the late 1950s. While other types of sites were investigated, they received far less attention than that given to mounds. The early investigators were primarily interested in recovering artifacts. The artifacts found in those mounds were presented in trait-list fashion in order to associate them with others throughout the region. They were described in the jargon and concepts of that time and often do not translate well into the terms of today's artifact identification and analyses. Unless an illustration accompanies the artifact description, questions may remain about the accuracy of the description.

I am including sites outside the immediate Kankakee Valley in the present discussion because of their importance in assessing and interpreting the sites within the valley. I will not review several of the sites included in Quimby's originally defined Goodall focus because of the limited archaeological evidence, conflicting provenience information, and distance from my research area. The original Goodall sites not addressed here include Norton, Spoonville, Gratten, and Converse sites in the Grand River valley, and Brooks and McNeal sites in the Muskegon River valley. However, I will briefly discuss the Scott and Marantette sites in the upper St. Joseph River valley. I will also include, with minimum elaboration, other Middle Woodland sites that were investigated prior to 1960 but present very limited data.

The following histories use the original writings of activities and findings to retain the interpretations and descriptions of the period. These reports represent the total data available for that particular situation. While not the most desirable or extensive data, they are a reflection of the science of that period. For the sake of geographical clarity, I will order the sites by the river valleys in which they occurred.

A single dagger symbol (†) identifies the sites that have had additional, recently conducted investigations and are discussed in chapter 4. In some cases, I used lists of artifacts to compile the histories of the various sites. These lists came either from Native American Grave and Repatriation Act inventories completed by various institutions or from my own compilations from various records. Cited institutions include The Public Museum of Grand Rapids (Michigan), the Field Museum of Chicago, and the Illinois State Museum (Springfield). As my research deals specifically with the Goodall tradition (formerly "focus"), the first definition of it and the early work done at sites within the research area, I will present those first. Other early investigations at Middle Woodland sites in the research area follow and are presented in the context of the river valley in which they occurred.

The Goodall Tradition

The Goodall tradition is a regional expression of Havana Hopewell in western Michigan and northwestern Indiana. This recognition of a regionally unique archaeological cultural expression with an apparent chronological continuity was the outgrowth of a project begun in 1935 by George I. Quimby. Quimby and James B. Griffin had taken on the task to "study all the available material on the Hopewellian culture phase in Michigan" (Quimby 1941a:63). Using this data, Quimby completed his master's degree at the University of Michigan in 1937. In that same year, he accompanied Glenn A. Black of the Indiana Historical Society in inspections of the mounds in northern Indiana (Mangold 1997b). Black was unimpressed with what he saw; Quimby, however, used the additional data for a new project.

In 1941, Quimby defined the Goodall focus in a monograph published by the Indiana Historical Society. A focus, according to McKern (1939), was composed of sites that expressed similar attributes, especially in pottery. Quimby identified ten burial mound sites (9 in Michigan, 1 in Indiana) and called them components, based upon the presence of specific or similar traits following McKern's definition. These traits were essentially based upon Hopewell cultural characteristics found primarily in Illinois. The ten chosen sites were located in the Muskegon River, Grand River, St. Joseph River, and Kankakee River valleys. The Kalamazoo River valley, lying between the St. Joseph River and the Grand River valleys, was ignored. This was probably because very little evidence of Hopewell Middle Woodland sites had been found in the valley at that time.

Archaeological sites outside the primary research area contribute greatly to the understanding of what occurred within the Kankakee River valley. These sites can provide insights into cultural expressions, material culture, and site situations. With the relatively short distances between the Kankakee, St. Joseph, and upper Illinois river valleys, the prospects of interregional trade and interactions with the occupants of all areas must be considered.

Although sites in the Grand and Muskegon river valleys were included in Quimby's (1941a) definition of the Goodall focus, I have not included them in my research. This omission is based upon the current determination that the Goodall tradition is more geographically restricted (Mangold 1981b; Mangold and Schurr 2000, 2006). The sites in the Grand and Muskegon river valleys are now part of a separate tradition, the Norton-Converse tradition (Brashler et al. 2000, 2006).

Whether or not Quimby actually visited the sites outside the Kankakee Valley is not known. Instead, Quimby probably studied the recovered material from these sites that were in museum collections, especially The Public Museum of Grand Rapids. Many other Middle Woodland Hopewellian sites were known at that time, but the artifacts from those sites may have been difficult to access for analysis. Beyond the availability and accessibility of collections, Quimby apparently did not consider Middle Woodland sites for study unless they contained pottery. As I will discuss later, the mounds in the Upp-Wark group had been excavated and the findings published (McAllister 1932). Although Quimby probably knew of the information regarding the Upp-Wark site, he likely ignored the site because of the lack of ceramics. He did not consider the Union Mills mound group, published earlier in the same journal, for the same reason.

Quimby chose the name for this focus "Goodall" because the Goodall site had the largest collection of artifacts to study, especially pottery, and was the largest in the study group with at least 22 mounds. Goodall was geographically the closest site of the focus to the Illinois River valley and was also the site where the largest quantity of Havana-style pottery was found.

***The Goodall Mound Group* (12LE9)[†].** The Goodall mound group was first recorded during the 1834 Federal Land Survey. According to the records of William Clark, 12 mounds in a straight east-west line were located on the section line dividing sections 20 and 21, T.35N, R.2W, with eight mounds to the east and four to the west of the division. The mounds were approximately 10.1 m (33 ft) apart and each measured 1.5–10.1 m (5 – 2 ft) high (Mangold 1997b).

An 1880 account described them as

> . . . 14 in number, arranged in the form of a semi-circle. They run diagonally across section 21, terminating in section 20. The first one, beginning at the north, is a terrace of earth six rods in diameter and 26 feet high; the next is smaller; each decreases in size and dimension to the last one on section 20. (Chapman 1880:886)

The apparent confusion in the number of mounds actually present on the site has plagued research at the site for many years. As previously mentioned, Glenn A. Black visited the Goodall site with Quimby in 1937. His notes, initially kept in the collections of the Indiana Historical Society, are curated at the Glenn A. Black Laboratory of Archaeology, Indiana University. Black reported that there were five mounds aligned in a northeast-southwest direction east of the road, and five west of the road. The road (now known as LaPorte County Road 200 East) that was used as a landmark runs partially along the section line between sections 20 and 21 and is still in use. No map of the site was known to exist until two maps were found in the notes of Ernest W. Young, a long-time collector from South Bend, Indiana (Figure 8). Even these maps vary slightly as to the positions of the mounds and may have been accurate only in reference to the visible mounds at the times of Young's visits. Young's maps also provide relative sizes of the mounds at the time of his visits. The four largest mounds, located at the extreme northern end of the group, were severely impacted by "potting activities" in the nineteenth and twentieth centuries as well as by the construction of farm buildings (Brown 1964:116). An unknown number of mounds were destroyed by terracing and cultivation prior to 1945 (Mangold 1997a; 1998).

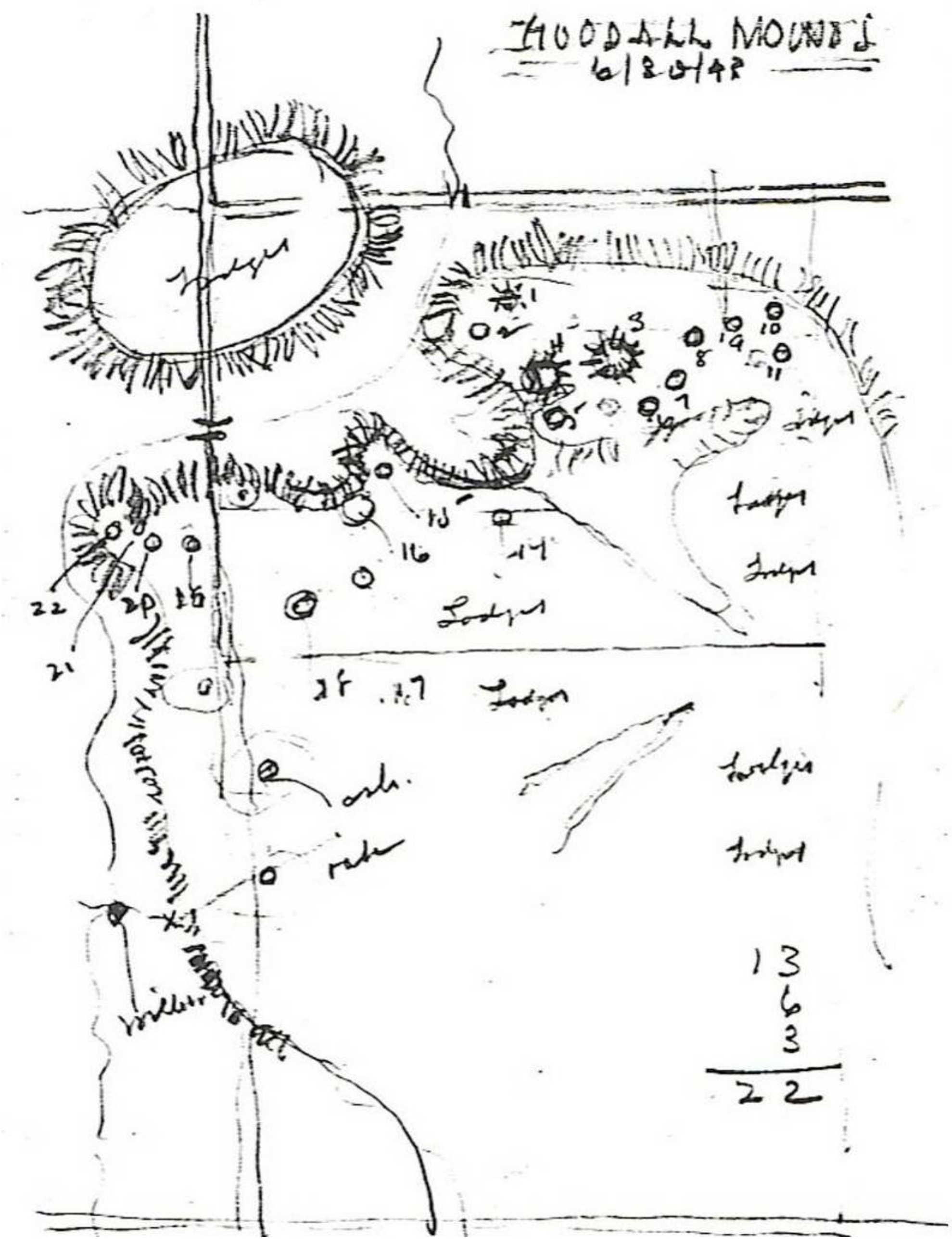


Figure 8. Young's Map of Goodall Site and Mounds, 1948 ("Lodges" may indicate artifact concentrations)

The earliest and most complete description of the early excavations at the Goodall mounds came from the communiqué of Dr. T. Higday, a LaPorte, Indiana, physician, to the Chicago Academy of Sciences in 1870. It was reported in Foster's *Prehistoric Races of the United States of America* (1878:143–144). Apparently, Higday had explored a number of the mounds between the late 1860s and early 1870s (Lilly 1937:91). Indiana's state geologist at the time, E. T. Coby, also opened some of the mounds in the nineteenth century and preceded Higday's work (Robison 1875:14). However, no information has been found describing his activities nor any artifacts recovered except the following:

> About twelve miles from LaPorte, on the banks of a tributary of the Kankakee, there are not less than twenty in number, some of which have been explored by Dr. Higday, with highly satisfactory results. He found that, at different times, the farmers of the vicinity had dug into four of them and had taken out two copper hatchets, a piece of galena, two imperfect earthen vessels, and one skull, all of which he was able to secure. On further examination, he was able to recover the enamel of a human molar tooth and a pipe representing a female figure. Selecting a tumulus ten feet high, we sank a pit thirteen feet deep, where we struck the skeletons of two adults and one child. Near the heads we found an earthen vessel containing black mould, a pipe representing a bear (puma?), [illustrated in a poor engraving by Foster], several pieces of mica, a piece of galena, two copper needles (awls), a piece of plate-copper, and two crude copper hatchets. We next excavated two mounds each about six feet in height but found nothing. The fourth one examined, originally, perhaps, about twenty feet in height had been partially undermined and washed away by the creek. We found under this, an adult skeleton, a copper needle (awl), several flint knives, and an earthen vessel filled with black mould and numerous pieces of tortoise shell. In the last one explored, which was over fifteen feet in height, a channel was cut down through the centre with teams and scrapers. A horizontal layer of ashes, two inches thick in the middle, and thinning out towards the circumference, was struck, thirteen feet from the top. Three feet below the ashes we came upon a pipe, a copper needle, pieces of pottery and two adult skeletons, one of which was nearly entire [sic], lying on what must have been a log of wood, but now so decayed that it could be readily pulverized by hand. Only one small piece of shell was found, which proved to be the *Cardium magnum* [now *Trachycardium magnum* L., the magnum cockle], and which must have been brought from the Gulf of Mexico, as this species does not exist at a nearer point. The fact that both the earthen vessels were full of black mould, and that one of them, also, contained numerous pieces of tortoise

> shell, may indicate that they were filled when buried with food for the departed. (Foster 1878:143–144)

A local historian also commented on the Goodall mounds and the destruction of their surface features:

> . . . a magnificent contribution of this ancient and important people to their unwritten history; but more than fifty years ago they were almost wholly erased from the landscape by specimen hunters, calling themselves scientific investigators, without leaving to posterity any written record that added in a material way to the readings of the lives of these people. Excepting, however, some excellent work done by Professor Coby . . . and Dr. Higday . . . [who] made an extensive and comprehensive collection, nearly all of which has been removed from our county, and are now valueless . . . . (Ransburg 1932:23–24)

Within his articles, Quimby (1941a, 1943) also illustrated other artifacts taken from Goodall during these early investigations that were curated in regional museums. These included a pair of cut and modified sections of a wolf jaw; flake knives; three slate gorgets and one slate pendant; bone awls; stone celts; cut sheet mica; a zoomorphic chipped stone effigy (possibly a surface find), and mussel shells (Quimby 1941a: Plates 11 and 12). Some of these artifacts are no longer in the collections. He also mentioned the presence of galena and tortoise shells that were found inside vessels. Sheet copper was also observed (Quimby 1941a:122).

Young's collection from the Goodall site provided the most comprehensive data. He had surface collected the site at least twice a year for almost 50 years until his death and kept detailed notes of each visit. The majority of local artifact collectors had stopped visiting the site by the 1960s, saying that "there was nothing worth going for" in terms of collectable artifacts (L. D. Ramsey, personal communication 1994).

Between 1939 and 1943, Young excavated the remains of Mound 22, which was located in the southwest portion of the Goodall group. A major portion of the mound had been removed by that time by the landowner (Mangold 1997b; 1998). Young reported finding two vessels in an area that had been part of or near the site of that mound. One vessel was approximately two-thirds restorable and different from most of the other vessels found in the research area (Figure 9). The other was intact but, according to Quimby's description, malleable due to poor firing and moisture in the soil. An additional vessel, formerly in the possession of the Indiana Historical Society and now curated by the Glenn A. Black Laboratory of Archaeology, Indiana University, is from Mound 22.

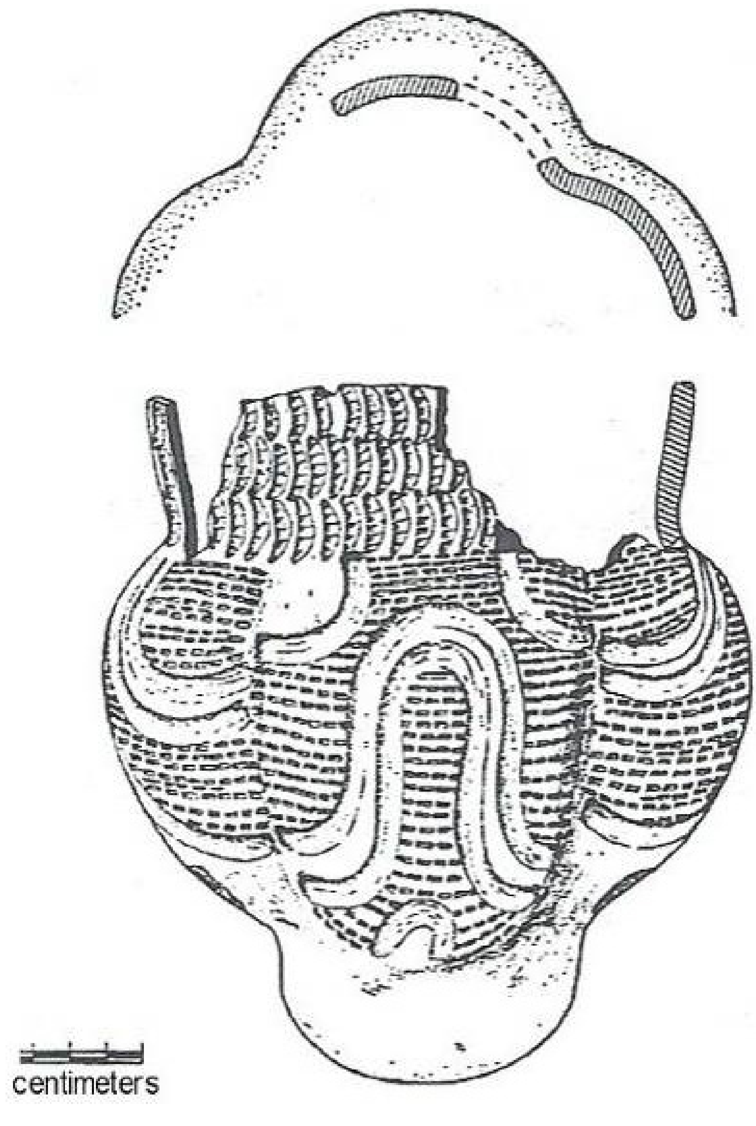


Figure 9. "Picasso Pot" from Mound 22, 12LE9 (after Brown 1964)

***The Sumnerville Mound Group* (20CS6)[†].** Located along the second terrace of Dowagiac Creek, a tributary of the St. Joseph River, the Sumnerville mounds were one of the ten sites/components used by Quimby (1941a) to define the Goodall focus. William Brookfield recorded the mounds in his notes as part of the Congressional survey in 1828. Brookfield stated that there were nine mounds in an east-west line, immediately east of the town of Sumnerville. Each was approximately 10.1 m (33 ft) through the base and 1.9 m (6 ft) above the surface of the ground (Quimby 1941a:104). This measurement is either inaccurate or Brookfield did not see or measure all the mounds, as Hunziker (1977:2) gave different dimensions for the mounds.

The exact number of mounds is difficult to confirm because the village of Sumnerville was built on and among one portion of the group. Hunziker (1977:2) described five mounds within Sumnerville, including one upon which the Methodist Church was built. Garland (1990:191) placed a group of three mounds approximately 0.8 km (0.5 mi) north of a line of nine mounds. Green (1953) measured the heights of the two smaller mounds using a transit and obtained heights of 1.1 m (3.5 ft) and 1.8 m (6 ft) above the ground surface. Three others "could be faintly seen" south of the village (Green 1953).

A short distance from the mounds described by Garland (1990:192) was a horseshoe-shaped trench measuring about 48.8 m (160 ft) in length by 30.5 m (100 ft) in width. Hunziker (1977:2) indicated this trench had been obliterated by long-term cultivation; however, the vestiges of it can still be observed in the plowed field with aerial photographs or by closer manned flights. Hunziker may have been able to detect heavily disturbed mounds by differential plant growth in the early spring. Quimby

(1941a:104) stated that there was a local lore regarding the existence of a circular enclosure but he was unable to locate it. Young stated that “there appears to be a slight trace of a reputed ‘earth works enclosure’ at this site” (Young 1943:5).

In 1878, Dr. Evan J. Bonine of Niles, Michigan, and his son Dr. Fred N. Bonine excavated one of the largest mounds north of the village. The mound was, according to Hunziker (1977:2) and Green (1953), 4 m (13 ft) high with a diameter of about 15.2 m (50 ft). Those dimensions appear rather generous considering the slope that would have been created on the sides of the mound. A burr oak tree, 1.2 m (4 ft) in diameter and with an estimated age of 300 years, was reported to have stood on the summit.

> A shaft was sunk by the excavators into the center of the mound, which was composed throughout of the same soil as that of the surrounding plain – a rich black loam. Usually the human remains found under the mounds rested on the natural surface of the earth, the mounds being heaped over them; but in this case the interment was several feet below the original level. A number of items were found including several skeletons of men, women and children; a number of fragments of pottery; a bone or ivory ornament bearing some resemblance to a walrus tooth [bear canine effigy]; several amulets pierced with holes; several bone implements and five copper axes of the fine edge and good formation. The copper axes were as sharp as a modern ax – their edges apparently annealed in some way long since forgotten. Other items had also been found, some of which were as true as though they had been turned on a lathe. . . .
>
> About 1888 Professor E. H. Crane opened some of the mounds in the Sumnerville area which had not already been excavated. He had spent years investigating the habits of the ancient mound-builder and [had] opened about 500 mounds in Ohio, Michigan, Illinois, Iowa, Minnesota, the Dakotas, and California. (The whereabouts of the contents of the Sumnerville mounds is not known – it is unfortunate they were not kept in an area museum.) One of the mounds opened by Crane was on a farm known as the ‘Merritt farm’ and ‘close to the Pokagon Creek and the road.’ The mound was built mainly of yellow sand and was 55 feet in diameter and six and a half high. The excavators found five arrow points, a piece of mica, two copper axes, three grit stones (used as we’d use sandpaper), a piece of birch bark and a partly decayed skeleton. Vases, a smoking pipe, and a few other items were also found. (Hunziker 1977:2–3)

Crane catalogued the artifacts from these mounds by the landowners' last names, which included Merritt, Walter, Kibler/Kibbler, and Leeder (Quimby 1941a:104). I think the mounds were numbered consecutively with the property owner's name added for additional data. Little data are known about most of the mounds. Whether Crane found nothing, found them totally destroyed, or did not excavate them at all cannot be determined. The inventories done by Janet Brashler (1993) on the Crane material in The Public Museum of Grand Rapids is the basis for what we know about the mounds. From the Kibler property, artifacts from Mound 9, Mound 12, and a general category of Kibler were present, some of which are diagnostic. The collection from Kibler 9 included a large sheet of mica, two Snyders or Snyders-like point fragments, a fragment of graphite and one Havana Zoned Dentate body sherd. The Kibler 12 collection included a slate gorget, a copper awl with fragments of a possible wood handle still attached to it, a fragment of wood with the impression of the previous awl across its center, a cross-hatched rim sherd, and two Snyders or Snyders-like points. Included in the general category were a cross-hatched rim sherd, graphite, copper-stained bone fragments, and copper-stained fibrous material (cloth?) (Brashler 1993).

Material from the Walters' property was listed as coming from Walters 1 and Walters 2. The materials from Walters 1 were the most numerous and included shells *(Busycon* spp.*)*, 10 fragments of bone awls, an engraved turtle shell, one Havana Dentate rim sherd, and two undetermined rim sherds. The Walters 2 collection was limited but interesting, with a drilled boatstone, an ivory or antler effigy of a bear canine, three bone awls, and the tip of a fourth.

Only one collection exists from the Merritt property and is identified as Merritt 5. Within this collection are a copper nugget, six sheets of mica (as well as a pulverized mica fragment), a drilled eagle talon, three Snyders or Snyders-like projectile points, one side notched point, and two ceramic vessels. One of the vessels has four large areas of dentate stamping with smoothed surfaces in between. The rim of this vessel also exhibits dentate stamping. The other had "incising, smoothing, punctuating [sic.], cross-hatching on the rim" (Brashler 1993). The ceramics recovered from the mounds and studied by Quimby had decorative attributes different from those at Goodall. Quimby classified the Sumnerville ceramics as a different type and possibly later than those from Goodall. Sumnerville ware has been used repeatedly as a chronological marker since that time (Kingsley 1981, 1990; Mangold 1981a). Young (1943) reported finding a marine shell pin in one of the mounds at Sumnerville but failed to identify which one. He also stated that, at the time of his visit, all the mounds had been impacted but some appeared to be only minimally disturbed (Young 1943:5).

Kankakee River Valley Middle Woodland Sites

Other than Goodall, a large number of Middle Woodland mounds occur in groups or singly, but are rarely associated with occupation sites. The following mounds provide the greatest quantity of detailed information that can be compared to that found in more recent excavations.

The Mud Lake Mounds (12LE14)*[†]*. No mention of the Mud Lake mounds and the associated habitation site(s) existed prior to their description in the notes of Young

(Young n.d.). In the late nineteenth century when Young first started collecting from the site, he mentioned that a difficult journey through the marsh was necessary to reach it. He felt that this isolation was the reason that only a few people collected from the site (Young 1943). Based upon his description, the site was situated on a sand island or ridge that was slightly above the water level. Young mentioned in his notes the presence of approximately eleven mounds and other small bumps or humps of earth that he interpreted as house foundations and other features (Brown 1964; Young 1943). He did trench one of the larger mounds but reported finding no artifacts. Instead, he described encountering a large dark stain, which today might be interpreted as a possible subfloor tomb. The site had scattered areas of clusters of artifacts, ranging from Archaic through Upper Mississippian, but no large village site seemed to be present (Young 1943).

The Upp-Wark Mound Group (12PR17–12PR27)[†]**.** In 1931, as part of the attempt of the Indiana Historical Bureau and the Archaeological Section of the Indiana Historical Society to complete archaeological surveys of the counties in Indiana, J. Gilbert McAllister investigated archaeological remains in Porter County (McAllister 1932). Porter County is bordered by Lake Michigan on the north and by the Kankakee River on the south. Porter County contained both single mounds and mound groups. McAllister's survey detailed a variety of camp sites, village sites, burial grounds, reported mounds, and observed mounds. The largest mound group he recorded was the Upp-Wark mound group.

The Upp-Wark group was named after the two landowners (A. E. Upp and Robert Wark), on whose properties the site was located. It consisted of ten mounds. The surveyors of the United States Land Survey recorded the group in the Record of Field Notes in 1834. The north-south section line between sections 33 and 34, T. 34N, R. 6W passed over “a large artificial mound surrounded by a number of smaller ones” (McAllister 1932:16). Some individuals were of the opinion that there were as many as 16 other mounds that had been obliterated by cultivation (More Mounds 1915). Some of the existing mounds were barely noticeable even when the ground was bare. These mounds are identified by the names of the individuals who investigated them, such as Franz-Green and Douglas-Hiatt. The others were either not investigated, not positively determined to be prehistoric in origin, or the nature and findings of the investigations are not known.

The Wark Mound (12PR19). The largest mound was located approximately “100 paces” west of the division line. McAllister described the Wark mound as:

> . . . the largest and best known mound in Porter County. It is 100 feet east and west, 110 feet north and south, and 10 feet high. Local people estimate that it was once 16 to 20 feet high. In 1897, however, Blatchley [state geologist] estimated it to be but 12 feet in height. It was probably circular in form, but continual plowing with north-south furrows has undoubtedly extended the mound in that direction. A. E. Upp, the first man to farm the land, said the mound was formerly much steeper and quite difficult to plow.
>
> Since there was some doubt as to the artificiality of the mound, a test pit was placed in the southeast quadrant, 15 ft from the center. The pit was 3 ft^2 by 3 ft 8 in deep and a post hole [was placed] in the bottom of this pit 3 ft deeper. One and one-half feet from the surface, a few bones of a small animal were found. Up to 1.5 ft, the mound is of a compact clay. For the remainder of the depth dug, the clay contained much sand. At a depth of approximately five feet, the clay became wet and quite sticky. Though no charcoal or flint flakes were noticed, the soil had an artificial appearance and was undoubtedly made by man. (McAllister 1932:17–18)

Work done by state geologist Blatchley supported this decision. In the 1897 *Geology of Lake and Porter Counties*, Blatchley reported his findings as:

> It [the Wark mound] is 300 feet in circumference, 12 feet high, and almost a perfect sugar-loaf in form. The owner of the farm, Mr. John Wark, of Valparaiso, kindly gave his consent to the excavation of this mound, and on October 6 and 7 1897 a ditch was dug three feet wide, 32 feet long, and, at the center of the mound, 14 feet in depth. The mound was found to be composed of a compact yellowish clay, in which were a few scattered pebbles of a small size. In the exact center and ten feet from the crest, the earth became darker, harder and more compact. Six inches lower was a layer of black organic matter, in which were the remains of a very badly decayed human skeleton. It lay in a reclining position with its head to the south. Only a few pieces of bone and 14 teeth were removed, the remains crumbling to dust. The crowns of the teeth were hard and solid but the fangs [roots] for the most part crumbled like the bones. No implements of any kind were found, though the excavations were extended four feet lower, and over an area 5 by 7 feet in the center of the mound. (Blatchley 1897:88)

The Douglas-Hiatt Mound (12PR20). The mound was first mentioned in Blatchley's 1897 report. "One hundred yards to the northwest is the third [mound], 180 feet in circumference and but four feet high, with a black oak 5.7 feet in girth growing from its side" (Blatchley 1897:88).

L. E. Douglas and Albert Hiatt reportedly dug into the mound only once, in 1928. They dug into the center of the mound, following the standard practice of untrained individuals of that time. Douglas reported that a depression had been created in the original surface of the ground into which the burials had been placed. Surrounded by black earth or muck, the skeletons were in a very bad state of preservation.

> In the southeast quadrant at a depth of about 5 feet and several feet from the center of the mound, artifacts were found associated with a burial. A platform pipe of red stone with a curved base was the most prized find. . . . Unfortunately it was broken and the pieces lost. A copper celt was associated with the pipe, as was also a copper awl measuring 4 inches in length and .38 inches in thickness. Nothing else was noticed. (McAllister 1932:19)

The pipe may have been "ceremonially" broken and its red coloring might suggest that it had been covered with powdered red ochre (Stillwell 2002:13). Another possibility is that it was actually a red stone, such as Catlinite or Ohio pipestone.

To determine the structure of the mound, which might be typical for this group of mounds, McAllister established a trench placed across the west side of the mound about 4.5 m (12 ft) from the center. The trench was 13.1 m (43 ft) in length and averaged 1.2 m (4 ft) in width during the excavation. Its depth ranged from 0.9 m to 2.3 m (3–7.5 ft) (McAllister 1932:19).

McAllister identified two artificial strata. The upper one was 0.7 m (2.5 ft) in depth at the center and gradually tapered to each side. Its composition was primarily an ash and clay mixture (marl?) with some charcoal. The line delineating the base of it was quite distinct. The lower band consisted of hard, dry, lumpy yellow clay. The bottom of this layer was made up of a layer of ash [marl?], charcoal, and humus that varied in thickness between 2.5 cm and 7.6 cm (1 in and 3 in). Below this was undisturbed crumbly clay and gravel to a depth of 0.9–1.2 m (3–4 ft). Just south of the center of the mound and at right angles to the trench, a cut was made 1.2 m (4 ft) wide, 3 m (10 ft) long and 2 m (6.5 ft) deep. On the profile of both major sections of the trench, the artificial strata became deeper, gradually slopping to a central depression, at the point where Douglas and Hiatt had discovered it. Other than flint chips and charcoal, no artifacts were found (McAllister 1932:19–20).

The Allman Mound (12PR21). The central mound of the three on the farm of A. E. Upp was 1.2 m (4.1 ft) above the surrounding ground and about 13.7 m (45 ft) in diameter when visited by McAllister in 1932 (Figure 10). According to Blatchley (1897), the superintendent of the Valparaiso schools investigated it just prior to 1897. Blatchley also stated that the mound was 51.8 m (170 ft) in circumference and, at that time, 2.4 m (8 ft) high with a flatter top and a few trees growing on it. Superintendent Wood found nothing during his endeavor (McAllister 1932:20–21). However, as Wood was probably digging for personal gain, as many were at that time, he may not have provided an accurate accounting. The mound was excavated a second time in 1928 by J. C. Allman. His written notes of the project were included in McAllister's report.

> EXCAVATION: Because of the lack of time, inability to work any day except Sunday, and the report that the mound might be excavated by someone who had no archaeological interest in it, I used the method which is described in this report. Each pit was of such size as one man could dig in a day, allowing for time to investigate ordinary finds and take notes on the excavation. If anything unusual had been found, this procedure would, of course, have to be changed. The following are the results of each days work:
>
> August 19, 1928. Started horizontal trench straight into the north side of the mound. Found mound that had been placed on the original ground level but with red ashes between. This excavation was so barren that the vertical pit was chosen as the quickest method for determining what was in the mound.
>
> August 26, 1928. Pit in center of mound, 3.5 by 6 feet. Upper 1.5 feet showed previous excavation. Next 3.25 feet of clay and gravel, with definite lenticularity. Next 3.25 feet of black dirt, damp and sticky, evidently brought in from the adjacent marsh. Below that .5 to 4 inches of white ashes [possibly marl]. On the bottom, but overlying a thin layer of red ashes [possibly red ochre], was 4 inches to 6 inches of black dirt mixed with sand and gravel, and many bones were in this layer.
>
> FINDINGS: There was not an artifact of any kind in this mound. The nearest to it were a few flint flakes mixed in with the dirt. The bones that were found had been thrown in indiscrimately [sic], some perhaps in bundles, where the leg and arm bones were in little piles. Some of the bones had been gnawed, showing that they had lain on platforms in the trees in accordance with an old custom of the Indians. One interesting find

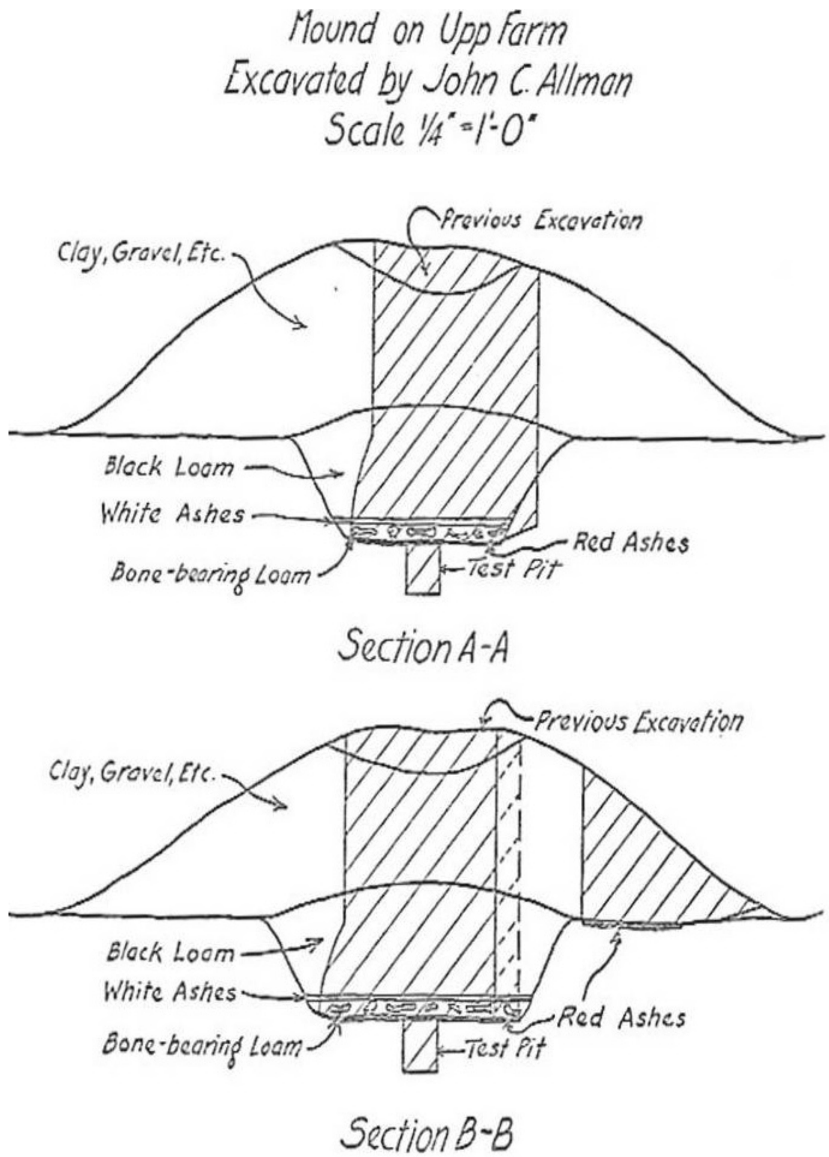
was the complete skeletons of two feet with all the small bones still in position. . . .

CONCLUSION: . . . Apparently this was a simple burial mound, probably for the common people, since there were no artifacts with the bones. How old the mound is, or who built it, are questions which cannot be answered by anything found in or about it, unless they can be connected with similar finds in other mounds about which something definite is known.

It was unfortunate that the mound could not have been excavated in a more scientific manner, but I feel that everything of value was gotten out of it. If it had not been done in this way it would have been completely destroyed by others who wanted to excavate merely for such artifacts as they could find. Under the circumstances it was the best method. (J. C. Allman quoted in McAllister 1932:22–23)

Figure 10. Allman Mound (left) and Franz-Green Mound (right) in the Upp-Wark Mound Group, Porter County, Indiana (after McAllister 1932)

Since the mound was excavated prior to 1897, I think the earlier collectors gathered the artifacts available and scattered the bones that had been encountered. Those collectors missed the two complete feet and were undisturbed as the people pillaged the tomb. Allman provided drawings of the plan of the mound and two cross sections of his excavations (McAllister 1932:20, 21) (Figure 11). Those drawings reveal some of the data regarding the construction of the mound and the stratigraphy encountered, much to the credit of Mr. Allman. They also provided the size of the tomb. It was about 1.1 m (3.5 ft) by 1.8 m (1.8 ft) with the long axis to the north (McAllister 1932:22–23; Schurr 1999:48).



CROSS SECTIONS OF ALLMAN MOUND. DRAWING BY J. C. ALLMAN

Figure 11. Allman Mound Profiles (after McAllister 1932)

The Franz-Green Mound (12PR22). This mound was the second largest of the mounds in the Upp-Wark group and at the group's eastern limit (Figure 12). Built near the end of a natural peninsula, the ground sloped down on all but the western side. Wolf Creek flowed just to the north of the mound and then entered a former marshy area just to the south below the group. Blatchley was the first to mention the mound.

> The nearest the creek is the largest of those [mounds] in the woods. It is 210 feet in circumference and its crest is 10 feet above the surrounding level. Growing on it is a number of black oak trees, one of which is 4.5 feet in circumference. (Blatchley 1897:87)

According to Blatchley, Superintendent Wood of the Valparaiso schools also investigated this mound but no information was available about that excavation. In Amos Green's (1931) notes of the excavation, however, he mentioned a depression in the top of the mound, which was probably related to Wood's work.

Figure 12. Harvey Franz on Mound after Clearing, Franz-Green Mound, Porter County, Indiana (after McAllister 1932)

Green kept good notes for the period regarding the methods of excavating, the artifacts and burials found, and the relative positioning of them (Green 1931) (Figures13 and 14). Unfortunately, time restraints during excavation caused the note-taking to be somewhat sporadic. The notes, however, were the best of any associated with the "investigations" of the Upp-Wark mound group other than Allman's notes. Green and his friend Harvey Franz, both from Berrien County, Michigan, started their investigations on September 2, 1915, hoping to dig three mounds. That total was impractical, and Franz and Green completed the work on just the single mound on September 12, 1915 (Dead Indians 1915). At that time, the mound was circular in shape, approximately 18.3 m (60 ft) in circumference and 2.4 m (8 ft) high. The height had decreased to 1.6 m (5.1 ft) but the diameter had remained the same when McAllister visited it in 1931 (1932:24).

Figure 13. Harvey Franz with Shovel Indicating Depth of Tomb, Franz-Green Mound, Porter County, Indiana (after McAllister 1932)

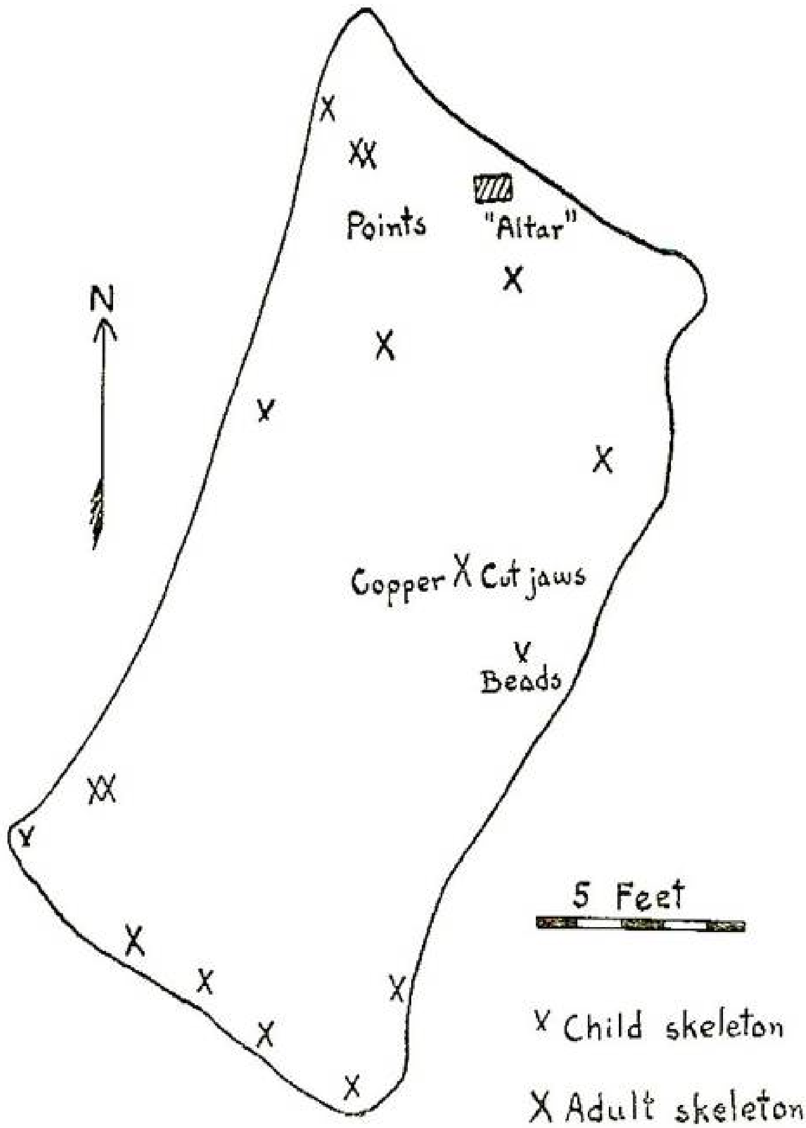


Figure 14. Sketch of Tomb by Amos Green, Franz-Green Mound, Porter County, Indiana (after McAllister 1932).

Green did not revise his notes until the spring of 1931 and he drew two varying maps from them. Green also presented a paper on his excavations at the 1953 meeting of the Central Section of the American Anthropological Association in Three Oaks, Michigan, but no copies of that paper are known to exist. McAllister talked extensively with Green during the revision of his notes and was allowed to examine and photograph his material, earlier photographs, and newspaper clippings. Green also gave McAllister a newly typed and revised copy of his notes and all data that was available.

Franz and Green investigated only that portion of the mound that was above a central pit. As part of the construction of the mound, an irregular rectangular pit had been excavated (Green 1931; McAllister 1932:25; Schurr 1999:48). The pit was approximately 2.9 m (9.5 ft) x 5.5 m (18 ft) x 0.8 m (2.5 ft) deep, with the long dimension nearly on a southwest-northeast axis. Green and Franz did not mention the stratigraphy they encountered in their excavation, except in the burial area. There a thin layer of "ashes" from 1.3 cm (0.5 in) to 5.1 cm (2 in) thick was found above the burials. Green thought the layer probably extended throughout the mound. There was also a similar layer, but less than 1.3 cm (0.5 in) thick, across the base of the tomb (Green 1931; McAllister 1932:24). Green and Franz found all the burials and associated artifacts between these two layers.

Seventeen burials were encountered, three of which were of children and four of which were paired adult burials whose sex was not determined (Dead Indians 1915; Green 1931; McAllister 1932). Green did not mention the other ten burials specifically in his notes, but all the burials were bundle burials. Based upon Green's map of the tomb (Green 1931; McAllister 1932:25), all the burials were located essentially around the sides of the tomb with the children widely separated from the other burials (Figure 14). One paired burial was almost at the extreme northern corner of the tomb while the second was in the western corner. Two child burials were almost opposite each other, one along the wall running north to west, and the other along the south to east wall. However, the central portion of the tomb was nearly devoid of burials. One bundle burial was located just outside the central area. This arrangement would seem to indicate that the earlier excavations may have come down into the center of the tomb, missing the other interments. Another possibility was that the central area was left vacant. Drs. Wilton Krogman and George Neumann, both physical anthropologists, examined one skull from the mound. They both concluded that frontal and rear cranial deformations were present (McAllister 1932:24).

The artifacts recovered were either associated with a specific individual or were in a location unassociated with any particular burial, e.g., in a burial cache. Five drilled, short, tubular shell beads were found with the child burial near the center of the southeast tomb wall. No additional information was available about the positioning or context of the beads, but they were probably from a necklace.

Hopewell items were found with or near several burials. A pair of cut, modified, drilled and polished sections of a human mandible (Figure 15), and a copper panpipe (a band of hammered copper that enclosed a number of reeds) was found associated with one burial (Green 1931; McAllister 1932:25–26). Seven large, diagonally notched Snyders points were found in a vacant area between burials (Figure 16). These points, made of Wyandotte chert, had been carefully deposited upon the floor of the tomb. They were arranged with four lying side by side positioned with their points all in one direction. Directly on top of these four, three points had been placed side by side, with their points positioned in the opposite direction (Green 1931; McAllister 1932:24–25).

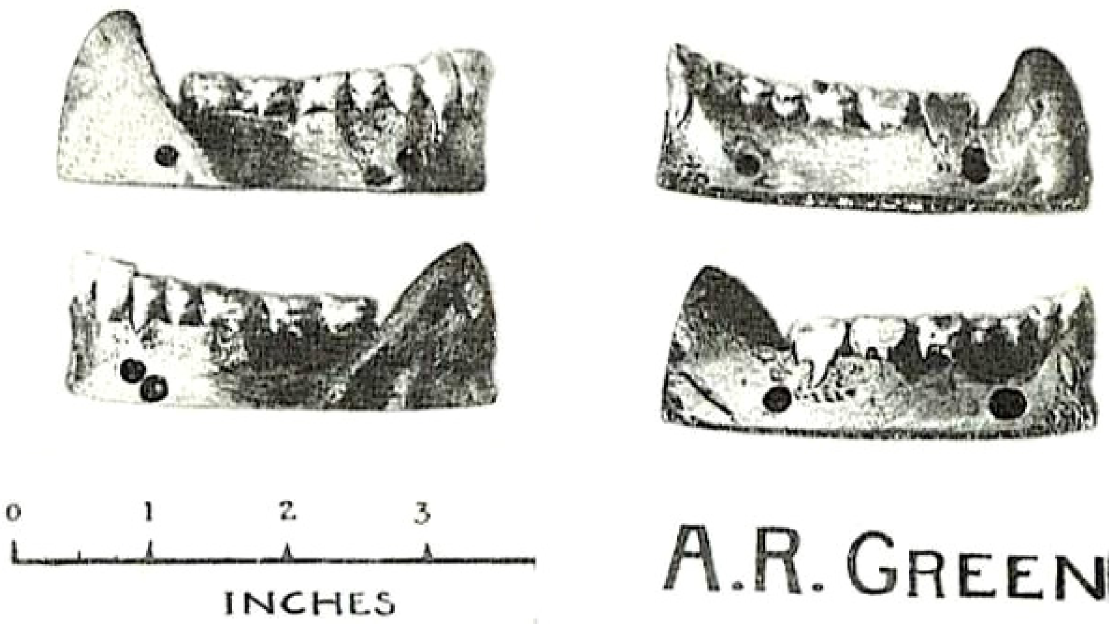


Figure 15. Modified Human Mandibles, Franz-Green Mound, Porter County, Indiana (after McAllister 1932).

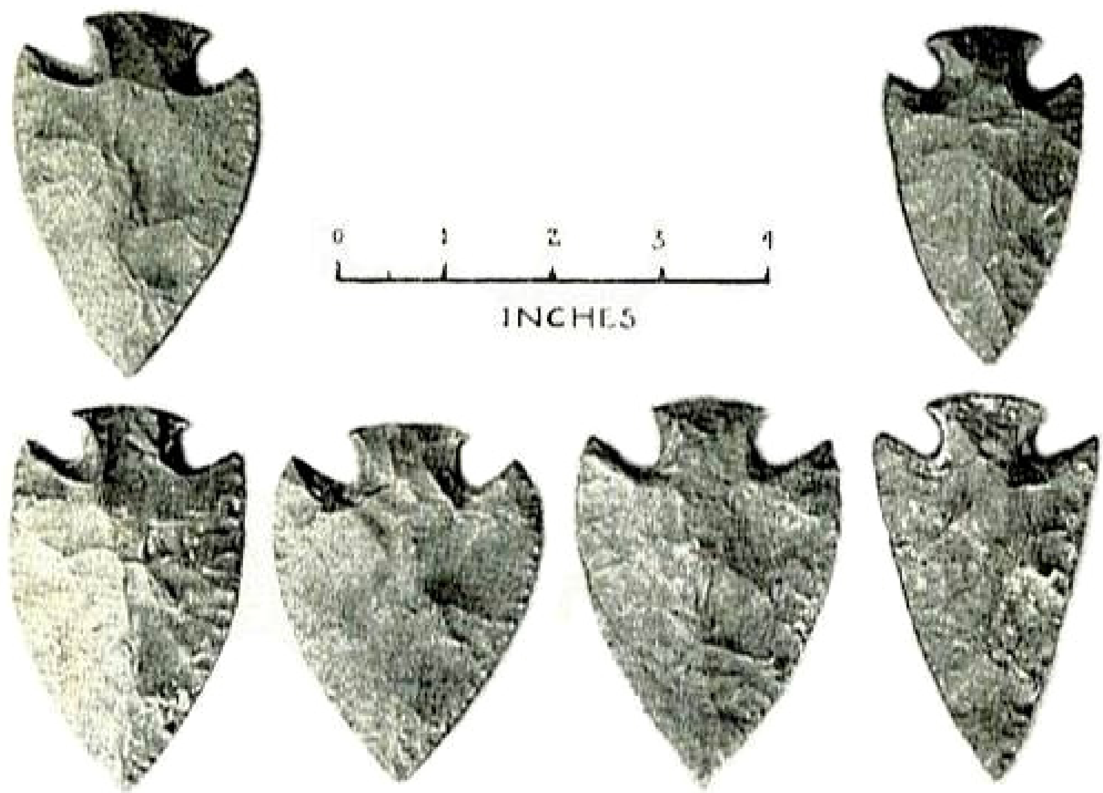


Figure 16. Six of Seven Large Snyders Points, Franz-Green Mound, Porter County, Indiana (after McAllister 1932).

An unusual feature that Green referred to as an “altar” was located in the center of the northwest-to-southeast–oriented wall of the tomb with its “top” approximately 0.6 m (2 ft) above the floor. According to Green:

> We came to what we consider an altar, made of clay, charcoal and ash. It was 12 by 16 [inches] on top and a rectangular parallelogram 4 inches thick on [the] side facing the center of [the] hole and sloped up to [the] edge on [the] side nearest the bank. I tried to remove it whole but [it] was too frail. I have a small sample and Mr. Upp has the largest piece taken out. [The altar] was placed so the top was on a level with the hardpan or a little below the level of the surrounding ground. There was no evidence of its being made in the space occupied, but was placed there after being made. The front, sides and top were nicely squared with [the] top. (Green 1931; n.d.)
>
> No pottery was identified or recovered in either the tomb or the mound fill:
>
> Mr. Green does not think he would have noticed small sherds, but he would undoubtedly have seen large pieces. No pottery was found in several adjacent mounds, nor has any ever been seen on the surface. (McAllister 1932:26)

The Pike Mound (12PR26). McAllister placed a shallow test pit into the mound. The work revealed a few flint chips and a small amount of charcoal. This, according to McAllister, indicated that it was an artificial construction.

An Unnamed Mound (12PR25). A second nearby mound, approximately 18.3 m (60 ft) in diameter and 0.6 m (2 ft) high, was also tested to a depth of approximately 1.2 m (4 ft). The work revealed an artificial construction with abundant debitage, but no ceramics. A portion of a charred log was found at a depth of 0.9 m (3 ft) below the surface. The excavations never reached an undisturbed base (McAllister 1932:27).

An Unnamed Mound (12PR23). Adjacent to the line separating sections 33 and 34, Blatchley (1897:87) noted two mounds, which were grouped under the identification of 12Pr23. "One is 175 feet in circumference and six feet high, the other 75 feet in circumference and four feet in height." He excavated the larger of the two, and Superintendent Wood and a number of his students dug into the smaller one. Nothing is known regarding these investigations.

In the fall of 1930, J. C. Allman and a number of Boy Scouts also dug a pit into the larger of the two mounds. About 1.1 m (3.5 ft) below the surface, they found a small slate gorget with two holes as well as an uncompleted third hole drilled into it. At a depth of 1.2 m (4 ft), skeletal material was discovered that had an "ash" layer above and a humus layer below. The skeletons were not disturbed. Other excavations into these mounds may have occurred, but nothing is known about them (McAllister 1932:26–27).

McAllister excavated several other suspected mounds. In his opinion, none of these were proven definitively to be anything other than natural elevations. The extent and methods of investigation, however, may not have been sufficient to rule out human construction.

The Union Mills Mound Group (12LE10). This mound group was also known as the William C. Flannigan mound group. Flannigan was the original owner of land upon which the village of Union Mills was built (Ransburg 1932:20). The number, antiquity, and issue of human construction of these mounds have been debated for many years. Clearly, some of the mounds were Middle Woodland in origin, as indicated by the artifacts recovered. A century ago, this group was thought to have been the center of mound-building activities in the area. A description of the historical activities follows:

> From 1878 until 1883, W. C. Ransburg, Esq., now an attorney in LaPorte, then a power in educational matters in the county, gave much study and attention to the mounds and archaeology of this region. He made many excursions, traveled widely, opened several mounds, consulted and corresponded with scientific men, and was quite enthusiastic in the pursuit of this kind of knowledge.
>
> The mounds belonging to this group had their center in and south of Union Mills. Mr. Ransburg did excavating in five of these mounds, three of which had never [been] opened, although they had been plowed down somewhat by the cultivation of the farmers. Originally, the largest of these mounds was on the site of the Flannigan house, now owned by Charles Blodgett. About forty rods southeast of this house, Mr. Ransburg opened the largest of the mounds, and also a smaller one near its base. For mounds of this class are found in pairs, a larger and a smaller. The smaller is always placed northeast of and overlapping the larger. The base of the mound was forty feet and that of the smaller five feet. The larger was nine feet high, even after sixty years of plowing. The Flannigan mound was opened during the years 1879–80. In excavating, the earth was removed very carefully so as not to disturb any objects which might be buried, and so that every indication might be carefully studied. The appearance of the earth indicated that fires had been built above the grave. First, there was a layer of earth, then a layer which was evidently the remains of a fire, then another of earth and so on, the layers of earth and fire alternating as the excavation was deepened . . .
>
> In the mound were found three skeletons in a reclining posture about a foot above the natural prairie level. Two of them appeared to be women, the other that of a man. They were reclining on the right side and facing west. Near the right shoulder of the largest skeleton were found several arrow and spear heads of very fine material and workmanship, several ornaments of copper and stone, and a finely wrought pipe of greenstone, representing a beaver sitting on a curved chip [Figure 17]. The animal constituted the bowl and the cavity for the tobacco was drilled down from the shoulders of the beaver, and the hole for the stem was drilled through part of the chip. The work had been done smoothly and with much skill. Near the other two skeletons were needles or awls of copper, stone scrapers, and instruments for the purpose of skinning animals. [Ransburg (1932:26–27) also includes that the points were made of a white flinty stone, and that eight copper celts and some woven fabric were also found. No pottery was found.]

To the north about four feet from the skeletons and about two feet above their level were found some of the bones of a dog or similar animal. Why was the animal there? Was it a dog, or some other animal? Or, if a dog, was he there to watch over the grave of his master, or for some other purpose?

The explorers secured a femur or thigh bone, a skull, some teeth, and the dog's skull and teeth; but most of the bones were in such decayed condition that they slacked or crumbled quickly on being exposed to the air, and it was impossible to handle and preserve them.

Of all these specimens, not including the skeletons, a tintype picture was taken, which for some years was in the museum of the Valparaiso college [sic]; but it disappeared and has not since been seen. The pipe and some of the relics are now in the private museum of Norman Spang, Esq., of Aetna, Pennsylvania [one of the most prominent artifact collectors of the time].

The house of Henry Cummings stands on another of the mounds in the same locality. Mr. Ransburg also examined the mounds opened by Dr. Higday and the specimens which he secured, and he places them in the class with the foregoing. (Blatchley 1897:15–16)

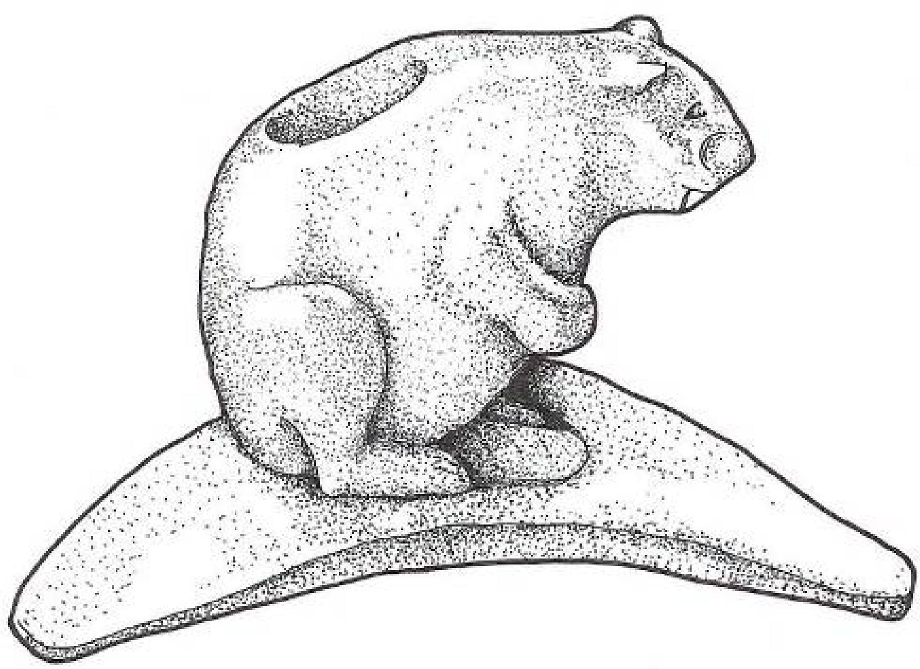


Figure 17. Beaver Effigy Pipe, Union Mills Mound Group, LaPorte County, Indiana (after Ransberg 1932).

Ransburg (1932:25) described his excavation techniques as beginning with a survey trench that was cut 0.9 m (3 ft) wide across the apex of the mound. He started having his men (students) remove the earth, which was mixed and friable, to a depth of 0.3 m (1 ft). Ransburg followed them closely with trench knife and trowel, smoothing the sides and examining all the earth while recording the delineations and markings on the sides, as well as making notes and sketches. A road cut through a large and important mound on the north side of the road and two mounds on the south side. "Many valuable specimens had been removed. . . . However, in 1880, I was able to gather some valuable specimens and data at this point" (Ransburg 1932:21). The construction of the Methodist and Adventist churches and their parsonages nearly demolished two mounds.

The Weise Mound (12PR35)[†]. The Weise mound is located in Porter County about 0.8 km (0.5 mi) north of the Kankakee River and situated on a rolling sand ridge. McAllister (1932) excavated a large portion of the mound in 1931. According to local knowledge, the mound had been dug into in 1908 but the findings are unknown (McAllister 1932:43). However, the Indiana archaeological site form for 12PR35 provides the following information:

> [The] 1908 excavation by Charles Wilcox revealed about 6 skeletons but disposition of them or accompanying artifacts aren't [sic] known. At the time of the first plowing, [a] cache of flint blades or ceremonial disks [was] found 225 feet north and west of [the] mound. 24 blades [were] buried side by side, at a depth of .5 feet.
>
> Summary [Found in Mound]: 5 flexed burials, 1 group reburials [counted as 1 skeleton?], 3 slate gorgets, 2 tubular copper beads, 1 copper plate, 2 shell beads, 1 flat base platform pipe, fragments of unbaked clay muck pipe, 25 projectile points of several types, pottery with concoidal base and slight rim constriction, grit-tempered sherds with incised, punched roulette, fabric and cord marks, possible cut jaws, ...

The mound had only been cultivated three times when McAllister visited it. Its size was about 12.2 m (40 ft) in diameter and .9 m (3 ft) high (McAllister 1932:45). The first plowing unearthed a cache of 24 ovate blades, approximately 3" x5" and made of a dark, fine grained chert. The cache was located about 61 m (200 ft) north of the mound (McAllister 1932:43–44, Figures 28 and 42). The blades were similar in shape to those found in a cache on the Goodall site in 1925 but were of a different material (W. Peeples, personal communication 1999). During the excavations, primarily flexed burials were uncovered. A cache of artifacts found associated with the individual nearest the center of the mound included an incised platform pipe, a banded slate gorget, two shell beads, a chert drill point, a triangular projectile point and pieces of muck that appeared to be an unfired clay pipe (McAllister 1932:49–50). Several pottery sherds were also found and were primarily grit tempered and either cordmarked or plain. I cannot reconcile the differences between the material listed on the site form and what is reported in McAllister (1932).

The La Count Mound (12PR15). In 1921, the La Count brothers excavated a mound on the farm property owned by their father. The mound and its contents are described as:

> [The mound] is said to have been 15 feet high at one time, though now it is but five feet in height and 75 feet in diameter. The soil is clay with some sand. On the west side of the center and at a depth of about three [to] four feet were found skeletal remains and artifacts. It is believed that there were three skeletons, with which were found a copper celt wrapped in leather, a pipe and a piece of pottery. The celt measures 5.63 inches at its maximum length, three inches in maximum width, which is at the cutting edge, and one-half inch in maximum thickness. The pipe is of the platform type, with a curved base, measuring 4.38 inches long, 1.75 inches maximum width, with the bowl 1.25 inches high and 1 inch outside

> diameter. The pottery was coarse and heavy, averaging about .25 of an inch in thickness. It was tempered with grit.
>
> The mound is located on a natural elevation adjacent to marsh land, and is less than 400 feet north of "Sandy Hook Creek." (McAllister 1932:14–15)

The artifacts from the mound are illustrated in Plate 9 of McAllister's 1932 report. The pipe is the type now referred to as having a V-base. An attempt to interpret the pottery is impossible based upon its incomplete description. The wrapping of the celt in leather was unusual. The vast majority of the copper celts recorded in the research area had been wrapped in fabric, identified by the impressions left in the copper salts and actual preserved fragments of the fabric itself.

***The Litchfield Mound (12SJ6)*†.** The Litchfield mound [currently referred to as the Bellinger mound] was first reported in 1925. A brief account of the looting of the mound by Carl and Jesse Litchfield described the artifacts and burials encountered (An Archaeological Find 1925). The Litchfields reported finding eight burials that were oriented like the spokes of a wheel, with the heads toward the center. The artifacts procured included a copper plate, beads, two monitor pipes, two pieces of silver ore [galena?], a quartz crystal point, projectile points, and a number of other unknown artifacts (An Archaeological Find 1925). The mound was clearly of Middle Woodland/Hopewell construction. Glenn A. Black visited the site in 1937 and described it as a "mound and camp." Cultivation severely deflated the mound and it is currently only one meter (3 ft) high. A local account said the mound was originally 7.6 m (25 ft) tall (Schurr 1997:5).

The Knox Mounds and Brems Site (12ST4). Duane DePaepe completed a survey of Starke County in 1959 for the Indiana Historical Society (IHS), and the majority of the data regarding the mounds comes from the publication of that report (DePaepe 1959). In Starke County, south of the Kankakee River, a large mound group existed within the modern town of Knox. In the general area of the current courthouse and the city cemetery, DePaepe identified 10–12 mounds overlooking the Yellow River in the early records. One mound was supposedly located in the northeast corner of the intersection of Main and John streets and another was described as having been located south of the courthouse. A prehistoric village site was thought to have been in the adjacent area (DePaepe 1959:28, 32). All the mounds were destroyed by development within the town. Additionally, DePaepe (1959) reported three single isolated "mounds" scattered throughout the county.

DePaepe also reported that a cemetery was found during a sewer project to place new lines through the city. Seven burials were covered with sheets of mica (DePaepe 1959:32–33), which suggested that an undisturbed tomb from one of the mounds had been discovered as a result of the construction. No other data regarding the burials or any associated artifacts exist.

To the west northwest of the city of Knox, the Brems site was located on a high hill of Jackson's Island that at one time was surrounded by the Kankakee marsh. The highest portion of this formation was called "Indian Hill" because of large quantities of artifacts that were found in the many sand blows (DePaepe 1959:28). According to DePaepe (1959:29), many of the potsherds from that area are related to the ceramics found at Goodall. The Indiana site form mentions that a Hopewell cross-hatched rim was found at this site.

John C. Birdsell of South Bend, Indiana, was one of the collectors of Indian Hill materials. In 1947, he gave the artifacts from the site to the University of Michigan. The information regarding the Brems site that was included in Betteral and Smith's (1973) volume on Moccasin Bluff and DePaepe's archaeological survey of the area are essentially all that is known about the site.

Some of the Middle Woodland ceramics that Birdsell collected from this site include Naples Ovoid, Naples Cordwrapped Stick, Sister Creeks Punctated, Havana Zoned Dentate Stamped, Zoned Rocker Dentate, and Havana Plain, some with notched or cordwrapped stick impressions on the interior lip and/or some with exterior nodes (Betteral and Smith 1973:186 –187). The chronological range of these ceramics indicates a long period of Middle Woodland occupation.

Northwestern Indiana Surveys

In addition to the Starke County and Porter County surveys previously mentioned, the IHS sponsored surveys of other counties. Charles Faulkner published the results of his research within Marshall County in 1961, and Joseph Hiestand published his results for Newton County in 1951. These investigations primarily looked at artifact collections within the respective county. They conducted little or no new physical survey of areas of either high site potential or of randomly selected universes. In a few cases, Faulkner and Hiestand visited sites previously identified by the collectors. While these surveys did provide some limited information on Middle Woodland sites, their approach and restricted areal coverage did not adequately reflect the actual prehistoric habitation of those counties.

St. Joseph River Valley Middle Woodland

I will discuss only the lower St. Joseph River valley and its associated Middle Woodland sites because a short portage is all that separates the St. Joseph and Kankakee river valleys. Therefore, it is important that I include the lower portion of the St. Joseph River.

***Moccasin Bluff (20BE1)*†.** Moccasin Bluff had definite Middle Woodland occupations. The University of Michigan conducted excavations there in 1947. Full descriptions of those excavations and their findings are in Robert L. Betteral and Hale G. Smith's *The Moccasin Bluff Site and the Woodland Cultures of Southwestern Michigan* (1973). The site was subsequently excavated in 2002 by Michigan State University, and areas of undisturbed occupations were found. The results of that excavation will be presented in Chapter 4. The Moccasin Bluff site will be referenced in later discussions of site placement and possible relationships to sites within the Kankakee River basin.

***The Sumnerville Mound Group (20CS6)*†.** Quimby (1941a) discussed the Sumnerville mound group as one of the Goodall focus sites within the research area. I will describe recent investigations in Chapter 4.

Illinois River Valley Middle Woodland

Archaeological sites in the northern Illinois River valley are included here to provide archaeological sites outside the primary research area that nevertheless contribute greatly to the understanding of sites that occur within the Kankakee River valley. These sites provide insights into cultural expressions, material culture, and site situation. Utica and Adler mound groups are the nearest of the Illinois River mounds to those occurring in the Kankakee River valley (Figure 18). In this research, the degrees of change occurring between the Illinois River valley and the upper Kankakee River valley help to define the western limits of the Goodall tradition.

***The Utica Mound Group (11LS1)*[†].** The Utica mounds originally consisted of either two mound groups (Baker et al. 1941:44) or three (Henriksen 1957:1) that were located on a bedrock ridge separated by the Illinois River. Twenty-one mounds were on the north bank and six were on the south bank. Henriksen (1957:1) described the mounds as two groups on the northern bank separated by a small gulley, with 14 mounds in the eastern group and seven in the western group. Six mounds were in the group on the south side of the Illinois River.

Over a half mile of marshy, river terrace separate the northern group and the bluff line farther to the north (Walz and Riley 1994). The mounds ranged from an approximate height of 0.6–2.1 m (2 to 7 ft). Baker et al. (1941:44) provided no diameters. Henriksen (1957), using the original notes of the early excavators, determined that the dimensions of the mounds ranged from 5.5 m to 30.5 m (18–100 ft) in diameter and from 0.6 m to 3 m (2–10 ft) high.

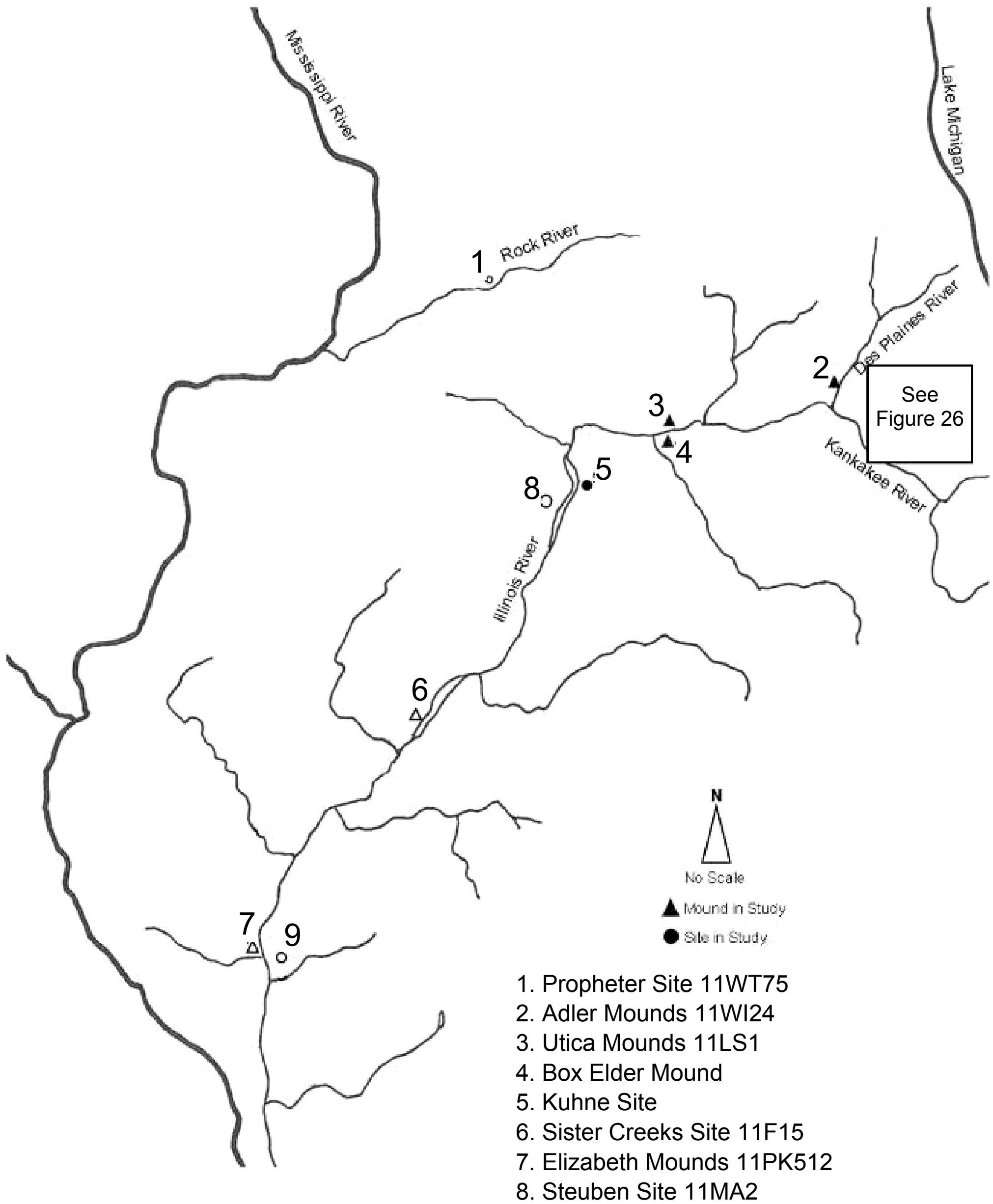


Figure 18. Illinois Middle Woodland Sites Used in Study.

Percy Hodges, who was working under the direction of Dr. Warren K. Moorehead, conducted the first recorded excavations for the University of Illinois (Baker et al. 1941:44). Hodges conducted some investigations in the southern group, sufficient to determine that the mounds were Hopewellian in cultural affiliation. During the winter of 1932, a former assistant to Hodges, Peter Steward, continued the excavations under the direction of A. R. Kelly. Kelly himself finished the excavation of several mounds in the summer of the following year (Baker et al. 1941:44).

To detail the descriptions of the excavations, number and orientation of burials, and various soil conditions for all 21 mounds would be excessive. However, I provide information sufficient to provide an understanding of a mound and its contents in a summary fashion, starting with the eastern group of the north side (Henriksen's Group 1).

A unique aspect of Group 1 Mound 1 was a group of rocks placed around the central area of the interior of the mound. The stones were oriented to form an almost complete, irregular circle with a triangular projection near one end of the arc. The early excavators interpreted the projection as a wing or a beak. Henriksen (1957:8) described it as "a representation of a snake, or possibly, a bird similar to a duck or swan." The "head" tapered and pointed toward the central tomb. The entire effigy was 7.6 m x 5.2 m (25 ft x 17 ft).

The excavators found a burial in the "head" of the effigy and it was placed there at the time the effigy was constructed (Henriksen 1957:12). The burial remains were covered with charred matting and logs. The main burial area was within the partial circle formed by the effigy. Of particular interest was Burial 22, where three ceramic vessels had been placed on the individual's pelvis (Henriksen 1957). Four burials were tightly flexed and were separated from the primary, extended burials by several large rocks (Henriksen 1957:13).

Mound 3 of Group1 had both a central tomb as well as an area of mass burial. The mass burial contained the remains of 46 individuals placed in a shallow, scooped out depression below the mound base. Both male and female, adult and child, remains were recovered as disorganized bones among the rocks. However, definite, individual bundle burials were found around the perimeter of the mass grave.

An interesting aspect of the remains in the central tomb of Mound 3, Group 1, was that two adults had a snake placed across their frontal bones (Henriksen 1957:13). This same treatment of two adults was also found in Mound 11, Group 1 (Henriksen 1957:39). In Mound 1, Group 2, a snake had been placed in a "V" position at the right shoulder of a person (Henriksen 1957:55). No speculation for the meaning of this practice was offered.

The burial of children between the legs of an adult occurred in several locations in the mounds (Henriksen 1957). This general placement has been found throughout the Midwest in various cultural periods; however, it has been rarely seen with the head of the child positioned near the feet of the adult. I hypothesize that this placement may have represented the act of childbirth.

Two mounds contained artifacts that could have been associated with construction. These artifacts consisted of bison bone hoes in Mound 1, Group 2, and two three-quarter grooved axes on the base of Mound 2, Group 2. In additional, an unusual type of mound construction was found in Mounds 1 and 3 of Group 2. The floors of the tombs in these mounds had been “paved” with closely spaced pieces of flat limestone (Henriksen 1957:55, 59).

Henriksen also reported that Hopewell artifacts were found associated with some burials but not in every mound. Individuals in Mounds 5, 7, and 14 of Group 1 and Mound 4 of Group 2 had platform pipes (or fragments thereof) buried with them. Ceramic pots were found with interments in Mounds 6 and 8 of Group 1, Mounds 1 and 4 of Group 2, and Mound 1 of Group 3. Worked copper was recovered from Mounds 7 and 14 of Group 1 and Mound 2 of Group 2.

The Adler Mound Group (11WI24). The Adler mound group in Will County, Illinois, consisted of “eight small and unimposing mounds that stretched 270 meters along the Des Plaines River and about 40 meters northwest of it” (Winters 1961:57). According to Winters (1961:57), these mounds are the “northeastern most known mounds.” In this case, Winters was referring to Middle Woodland mounds in the state of Illinois because other mounds exist to the northeast in Indiana and Michigan.

These earthworks were about 2.4 km (1.5 mi) west of Joliet, Illinois, on the northwest upper terrace of the Des Plaines River. The mounds were excavated in October and November 1929 as a salvage operation. The unspecified landowner was destroying them for extra soil, and to smooth the landscape; however, when human remains were uncovered, he reported the incident to the archaeologists who were working in the area.

General characteristics of the mounds included a black humus layer of 30 cm (12 in) or more covering them, with the tombs dug through heavily graveled soil to the hardpan. The ground at the base of the mounds base had been cleared of all projecting stones. Judging from an illustration in Krogman (1931: Figure 3), a layer of sandy clay covered the bottom of the shaft. The primary burials were extended, side by side in the center of the tomb floor. Secondary burials occupied areas around the edges of the walls.

The fill of the tomb area (buff-colored, sandy clay) probably came from some other location as no similar soil is found nearby. The clay contained flecks of charcoal, weathered human bone, and shell fragments. Black soil mixed with some clay had been placed in (at least) the upper 45 cm (18 in) of the grave shaft. Finally, the mound had been capped with black humus (Krogman 1931:417; Winters 1961:59).

Mound 1 was dug during the period of October 6–7, 1929, and only the eastern side was excavated. The mound was nearly 7.6 m (25 ft) in diameter and 30 cm (12 in) high while the tomb was approximately 1.8 m x 1.5 m (6 ft x 5 ft) and 1.7 m (5 ft 6 in) deep. Two bundle burials had been placed on a floor of sandy clay. One individual was a young female, the other an aged male. No grave goods accompanied either of them (Winters 1961:60).

Mound 2 was excavated between November 10 and 13, 1929, and was also approximately 7.6 m (25 ft) in diameter x 30 cm (12 in) high. The tomb was approximately 1.8 m x 1.5 m (6 ft x 5 ft) and 0.7 m (2 ft 4 in) deep. Eight extended or bundle burials were in the subfloor crypt; an intrusive burial lay across the northwest corner of the tomb. Some of the bones were weathered and broken (Winters 1961:60–62). The secondary burials had been placed in some type of container or wrapping, indicated by the organic residue surrounding them. A ceramic vessel was located near the head of burial 6, but it was not described.

Mound 3 was again approximately 7.6 m (25 ft) in diameter and 30 cm (12 in) high with a tomb that measured 2.4 m x 1.7 m (7 ft 9 in x 5 ft 6 in) and 71 cm (28 in) deep. It was excavated on October 13, 1929. A three-inch layer of buff sandy clay was found on the floor of the tomb. The burials had been placed shoulder to shoulder with the arms straight and hands flat against the thighs. The lower limbs were straight with the knees and ankles together (Langford 1930:4). A mussel shell spoon and a Havana Zoned Dentate pot had been placed near the head of burial 5, a child. All adult burials were found with articulated vertebrae of bull snakes (*Pituophis Malanoleucus* sayi) placed several inches above the waist (Winters 1961:62).

Mound 4 was approximately 7.6 m (25 ft) in diameter and 30 cm (12 in) high, and the tomb was about 1.9 m long x 1.8 m wide (6 ft 6 in x 6 ft). No depth was recorded. The mound was vandalized after the start of the excavations but the looters missed most, if not all, of the central tomb. Five extended burials (three adults and two infants/children) had been placed with their heads to the southwest. A large Havana ware rim sherd and some body sherds were found scattered on the tomb floor (Winters 1961:68).

Mound 5 was the largest of the group, approximately 15.2 m (50 ft) in diameter and 1.5 m (5 ft) in height. The tomb was equally large, ca. 2.9 m (9 ft 9 in) long x 2.8 m (9 ft 6 in) wide and 0.7 m (30.5 in) deep. Six extended and two bundle burials, all poorly preserved, were found in the tomb. One individual had a red pigment (red ochre?) on its thighs and near the waist. Several other skulls also had red pigment on their facial areas. Two burials (M5-7 & M5-8) were accompanied by caches of artifacts. M5-7 had a bundle of approximately 18 turkey bone awls, a small piece of mica, two unworked deer tines, and two elk incisors placed to the right of the skull. A rectangular biface and a modified Snyders corner notched point, salvaged into a scraper, were east of the skull. Burial M5-8 had, at the right shoulder, a cache of approximately 18 turkey bone awls, 8 turkey bone awl blanks, and several bone shuttles. East of the skull was a portion of a turtle carapace, a bird claw and an antler drift. Under the skull was a plain platform pipe of green-gray stone with a slightly curved base. The pipe may have been made of Illinois pipestone (T. Berres, personal communication 2003). Cut and modified human mandibles were at the left knee. This individual also had red ochre on the thighs and near the waist (Winters 1961:72). Burial M5-10 was an adult male. A rim sherd of a Havana-zoned pot was found near his skull (Winters 1961:72).

Mound 6 was about 5.5 m (18 ft) in diameter and 12.7 cm (5 in) high, with a central tomb that measured approximately 2.1 m long x 1.5 m wide (6 ft 10 in x 5 ft) and 1.4 m (4 ft 8 in) deep. The mound had been totally vandalized prior to the investigations. Winters surmised that there had been at least four burials, based upon remaining evidence. No artifacts were recovered (Winters 1961:72).

Mound 7 was also a mid-sized mound, 5.5 m (18 ft) in diameter and 45 cm (18 in) high. The size of the tomb was typical of many of the others, being approximately 1.8 m x 1.5 m wide (6 ft x 5 ft). Because of disturbance by pothunters, no depth for the tomb was obtained. Eight burials were found and the mound fill contained additional bones. Four were extended adult burials, three were infants, and the remaining one was a bundle burial. Articulated snake vertebrae were found just above the waist of one of the adults (Winters 1961:72–73).

Mound 8 was approximately 15 cm (6 in) high and about 6.1 m (20 ft) in diameter. The tomb was approximately 1.5 m (5 ft) long by 1.5 m (5 ft) wide and 55 cm (1 ft 10 in) in depth. The tomb floor was specifically prepared to receive three extended burials and one large bundle burial. One adult male was accompanied by grave goods, including projectile points, mica, and snake vertebrae. Stones colored with red and yellow ochre had been placed near the head. Two of the projectile points had been stained red and two others were flecked with mica. The three adult burials were found with patches of an unidentified, white powdery substance over their bodies. This was also found on adults in other mounds, but not on infants. Snakes were found on at least six adults in two mounds. They were often accompanied by red ochre placed on the waist of the deceased prior to the placing of reptiles on the body. The sex of the individual did not appear to be a factor in this ceremonial practice (Winters 1961:72).

Summary

The extent of the knowledge of the Goodall tradition in the Kankakee River valley prior to 1960 is fragmentary and biased. These aspects so influenced any interpretation that they need to be discussed further. To go beyond the evidence gathered previously, we must understand its limitations.

The knowledge is collection biased. The information regarding Goodall comes almost exclusively from collections gathered by private individuals or through early excavations conducted by untrained, or minimally trained, individuals. The artifacts in the collections were either surface collected or obtained during some type of looting of mounds conducted under a variety of circumstances. While some collections were gathered together through the endeavors of various museums or agencies, that action merely creates a collection of collections.

The knowledge is fragmentary. Not every Goodall-related or Middle Woodland site in the Kankakee River valley was examined. Many sites were collected that are not currently known to professional archaeologists. In some cases, the collections have been lost, disposed of, sold, stolen, or have become so widely dispersed that amassing data from them is almost impossible. Some owners denied me access to their collections, fearing robbery or seizure. Collectors have died, making their data and insights unobtainable. Thus, the collections that are available for study do not represent the entirety of the potential data. As discussed in the methodology section, the problems in dealing with individual collectors are inherent and numerous.

The concepts of the cultural identity of the sites and artifacts are biased. During the late nineteenth and early twentieth century, only mounds, not habitation sites, were of interest to investigators. If artifacts appeared the same as those found somewhere else, they were thought to have been made by the same culture, whether that be Egyptian or the Moundbuilders of Ohio (Foster 1878). The artifacts that were described and/or illustrated were the exotic, not the common projectile points, and certainly not flake tools or similar items. Newspapers reported on local digging and advanced old ideas and impressions (An Archaeological Find 1925; Dead Indians 1915; More Mounds 1915). Collectors had a very limited knowledge base upon which to judge the artifacts they held. Young (1943) considered the Goodall site to be similar to Hopewell but could not expand the interpretation much beyond that point. During his time and throughout the 1930s, 1940s, and 1950s, those cultural concepts were becoming more refined through the development of the discipline of archaeology. Papers, journals, and theses were being written by such researchers as McKern (1931), Cole and Deuel (1937), Quimby (1941a,b, 1943), Bluhm (1961), Deuel (1952), Griffin (1945, 1952a), Henriksen (1957), and McGregor (1958). Each year archaeological work improved over earlier concepts. Relative time periods were established, primarily through trait analyses and battleship curves, and the foundations upon which more precise interpretations of the Goodall tradition could be based had been laid.

In summary, the Goodall tradition at the middle of the twentieth century was considered to be a mound-building culture, with ties to Illinois that spread from Indiana north along the eastern shore of Lake Michigan. The various river valleys contained sites associated with the Goodall focus based simply upon the similarity of artifact traits (especially ceramics), mound groups, and limited information on burial patterns within those mounds. Little interpretation beyond that point was offered. However, the Goodall tradition had been born and reached its developing years.

CHAPTER 4

THE HISTORY OF MIDDLE WOODLAND ARCHAEOLOGY IN THE KANKAKEE RIVER BASIN AND ADJACENT AREAS – MODERN RESEARCH

Changes in the technological aspects of archaeological investigations have brought research into a new age. Information never previously obtainable or even considered is now important for interpreting the past. The following examples highlight the recovery of post-1960 data from long-known sites as well as new discoveries.

Sites Researched

Bellinger Mound (12SJ6). Modern investigations at the Bellinger (a.k.a. Litchfield) Mound began in 1992 when the University of Notre Dame started conducting excavations. That work was the first mound excavation in northern Indiana to use the most modern techniques, e.g., resistivity and magnetometer studies. These tools enabled the archaeologists to determine abnormalities in the ground and to facilitate targeted excavations. The goal was to determine the extent the mound had been damaged in the mid-1920s and to retrieve samples of diagnostic pottery and carbon that could be used to date the structure.

During the excavations of the mound, a looter's hole was identified in the southwest quadrant. The work done inside the previously disturbed area established that substantial, intact deposits existed beyond the margins of the looter's pit. Investigations recovered a small sample of diagnostic ceramics and revealed a time frame from late Early Woodland to late Middle Woodland (Schurr 1997:129).

Excavations in 1994 completed a full north-south profile through the mound. These excavations exposed previously unknown methods used in the construction of the mound, e.g., the use of various soils in the mound mantle, and defined two additional holes created by looting activities. The investigators also delineated the boundaries of a subfloor tomb. The tomb was approximately two meters square with a corner oriented to the north (Schurr 1999:48).

By the end of the investigations in 1995, the excavators identified 11 prehistoric and historic features within the mound. The prehistoric features were attributed to mound construction, while the historic features revealed looting activities or other disturbances (Schurr 1997:130). The prehistoric features included one large postmold that was in the original ground surface but outside the mound. Its function cannot be determined. Two empty trenches approximately 15 cm wide were found at the base of the mound (Schurr1999:52). Empty trenches have been found elsewhere flanking tombs and may have been part of the tomb's construction (Griffin et. al 1970; Mangold and Schurr 2000, 2006). The initial construction of the mound's mantle had been done using habitation midden and sandy subsoil (Schurr 1999:52). The burial area and the initial mound had been covered with a dark muck and white/grey marl cap. Additional soil had been placed over the muck and marl to finalize the mound's contours (Schurr 1997). The southwest corner of the tomb was impacted by the second of three looters' holes. The backfill of this pit contained flecks of copper and the remains of an elk skeleton. The flecks indicate that copper artifacts had probably been present in that particular area. The southwestern corner, therefore, appears to be the source of the copper artifacts taken in 1925. The third pit disturbed the northwest corner of the tomb and had small bits of human bone in the fill. The burials encountered in 1925 probably came from this area (Schurr 1997). However, the random digging by the collectors "may have left up to 80% of the tomb intact" (Schurr 1997:130). The tomb was left untouched by the Notre Dame archaeologists.

Beneath the base of the mound were two features that had preceded the mound's construction. This discovery indicates that other, older pre-mound occupations are present at the site. It also suggests that areas beneath other mounds in the region may produce the only undisturbed remnants of earlier occupations.

Goodall Mounds (12LE9). As part of my master thesis work in 1979, I examined the Young collection at the Illinois State Museum and, working from the data on Young's county maps, located the Goodall site southeast of LaPorte, Indiana. At the time, the surface of the site was covered with crop stubble and debris, and there was limited surface visibility, making simple investigations very difficult (Mangold 1981a). Because I did not have the landowner's permission, I could not conduct an actual survey. However, I saw a mound remnant in the southwestern portion of the field. I also located several local collectors and viewed their collections (Mangold 1981a). My research was the first professional attention paid to the site in nearly 50 years. However, investigations that were more extensive did not occur for over a decade.

In 1993, Dr. Mark R. Schurr of the University of Notre Dame and members of that season's archaeological field school visited the Goodall site and began the modern era of archaeological investigations at the site and its associated mounds. Their initial findings, as well as my own (Mangold 1997b), revealed that the Goodall "site" actually consisted of a number of small activity areas with very light artifact scatters between them (Mangold 1997b; Schurr 1993; 1996). The Goodall site, defined by artifact scatters, covered an area of at least 81 ha in four agricultural fields and three residential properties.

The 1996 excavations were conducted in an area with emerging secondary growth. The chosen location was along the north edge of the upper terrace above the creek in the southern-most agricultural field. Because the area was somewhat higher than the adjacent cultivation, the researchers hoped there had been somewhat less impact of modern agricultural activities to this portion of the site. Additionally, the area did not interfere with the current farming activities.

The initial shovel probes, coring and testing provided some of the anticipated data. The complexity of the soil profiles were both interesting and challenging, as the archaeologists found a plowzone, two middens, marl layers, intrusive pits, and soil layers moved and re-deposited by modern agriculture. Basket-loaded earth was present in one unit at the edge of what proved to be a deflated mound. It appeared "very similar to the distribution of basket-loading at the Norton Mound (Griffin et al. 1970) where areas of basket-loaded earth flanked a central sub-floor pit" (Schurr 1997:17).

The investigations recovered a limited number of artifacts. However, those found are sufficient to confirm the site's chronological placement. Notre Dame excavated sherds of Havana ware, with two differing pastes used in their construction, from the midden layer. Two of the sherds are also decorated in typical Havana styles. Based upon radiocarbon dates for those wares in Illinois, a probable date of A.D. 1–A.D. 200 is likely (Munson 1986;Schurr 1997).

Archaeological excavations recovered two Hopewell ware rim sherds from the fill of Feature 1. Both are tempered with limestone, which is not a manufacturing trait found in the region. One sherd is a classic Hopewell rim exhibiting cross-hatching with a lower band of punctations (Griffin 1952a). The other appears to be a possible local variant of that style. The two Hopewell potsherds reinforce the projected date of A.D. 1–A. D. 200 for the Goodall phase, the earlier phase of the Goodall tradition.

The University of Notre Dame's excavations were continued through 1998 to determine the construction and size of what we thought was Mound 15 (based on Young's map, although it may actually be Mound 16) and to determine the damage to it (Schurr 1999:28). During that excavation season, a largely intact tomb, approximately one meter wide, was partially exposed. A corner of the tomb appeared to be orientated to the north. The excavations recovered additional Hopewell ceramics, including several major portions of at least two vessels and a rim sherd that exhibits a "raptor" or bird motif. This motif is most frequently found in the lower Illinois River valley (K. Farnsworth, personal communication 1998; Charles et al. 1988).

The investigations found artifact caches around the side of the exposed tomb, probably on what were ramps surrounding it. These included Snyders points of heat-treated Burlington chert, a piece of sheet mica, copper awls, a cache of bird bone awls, and copper celts wrapped in fabric. The excavations also recovered a large section of a Hopewell vessel containing mussel spoons, a turtle carapace dish, and a single charred bottle gourd seed (L. Bush, personal communication 1998). The vessel protected the seed from the acidic soil by the vessel. The seed had been charred, which also provided some protection.

While Young (1943) recorded the presence of 22 mounds, additional mounds may have been present. Black's (1937) reporting of the same number of mounds may be the result of communications between Young and Black (M. Schurr, personal communication 2007). The other possibility is that Young's maps may be less accurate than thought. Schurr conducted limited geophysical investigations at the site from 1996 to 1999. The most recent of those investigations revealed several soil anomalies (Schurr 1999). When tested, one of these anomalies was found to be a possible tomb of similar size and orientation to the one excavated earlier. This finding may indicate that either Young's maps show the mounds in significantly different locations, or that mounds of lesser heights had already been plowed down to surface invisibility by the time of his investigations.

The disintegration of shell and bone made it difficult to identify potential artifacts associated with the interments. Charcoal, wood, and other plant remains were too badly disintegrated for radiocarbon dating. Subsistence data had also been destroyed. These missing parts of the data set create major problems in the interpretation of the site's activities. The presence of surface artifacts at the site is low enough that very few collectors visit the Goodall site, but, for a number of years, Edward Troche, who lives nearby, has surface collected there. In his collection are several items of particular interest. One is a large heavily patinated, ovate triangular blade (Figure 19). Troche stated that it had been given to him by the landowner/farmer who had found a cache of 24 of them on the northwestern edge of the Goodall site (E. Troche, personal communication 1995; W. Peeples, personal communication 1999).

Figure 19. Biface from Cache of 24, 12LE9 (longest dimension approx. 12 cm).

Troche also found a lamellar blade with a proximal end that had been reworked into the profile of a raptor, while the distal end had been tapered to form of a tail (Figure 20). While chipped bird effigies have been found on several sites in the Illinois River valley, they have only been recovered from habitation contexts (K. Farnsworth, personal communication 2007).

Figure 20. Chert Raptor Effigy, 12LE9 (approx. 8 cm long).

One example from the Steuben site bears a strong similarity to the artifact found on the Goodall site (Figure 21). The other interesting aspect of Troche's collection is the large amount of debitage collected from the site. Most collectors do not bother with collecting the lithic wastes. The material was predominately shades of red, white and black, which several archaeologists interpreted as colors favored by Hopewell peoples (Buikstra et al. 1998:84–88;Mangold 1998). My surface surveys of the area determined that the most commonly encountered lithic tool was the lamellar blade (Mangold 1994, 1997b). Most recovered blades are either proximal or distal ends. The central portions that I found exhibit considerable use wear. The Troche collection reinforces my findings.

No scale

Figure 21. Chert Raptor Effigy, 11MA2 (Morse 1963).

I encountered ceramics most frequently in the extreme northeastern portion of the site and east of the creek/ditch. These sherds are primarily Havana styles with decorated rims and/or bodies. Although ceramics are occasionally surface collected in the southern portion of the site, including one large, zoned dentate sherd, the numbers are far fewer.

These excavations reveal that mounds that have been highly disturbed can still retain valuable information. The Archaeological Conservancy has recently purchased a portion of the Goodall site, based upon its demonstrated value to contain important archaeological data.

Mud Lake Mounds (12LE14). The University of Notre Dame initiated work at the Mud Lake site to explore further the data recorded within the Young collection and his notes.

Young's notes and the physical investigations by Notre Dame indicate that the Mud Lake mounds were widely dispersed with some apparent groupings (Schurr n.d.). Brown (1964:121) had stated that Mud Lake had a total of 11 mounds. In the areas subjected to a field reconnaissance, a geophysical survey in 1998 identified the location of two possible mounds. The westernmost of the two was approximately 25 m in diameter and approximately 45 cm in height (Schurr n.d.:11; 1999:60). A resistivity survey indicated a circular anomaly of higher resistivity surrounded by an area of lower levels of resistivity. The eastern mound was approximately 30 m in diameter and about 47 cm high and the western mound was approximately 25 min diameter and 20–30 cm high. They were spaced about 200 m apart (Schurr n.d.:11). Both mounds could be identified because they had lighter soil coloration than the surrounding area. As at the Goodall site, artifacts occurred in light scatters in the vicinity of the mounds.

Early testing of the eastern mound revealed that it was covered with a thick marl cap. At the southern edge of the mound, the cap covered an artifact cache that had been deposited below a lens of muck on what would later be determined to be the edge of a tomb. The cache consisted of two very small, late Middle Woodland ceramic vessels. The vessels had been badly crushed by the soil pressure and had to be removed in the surrounding matrix. Both are Hopewell in configuration, globular with constricted necks. A decorative rim band consists of a narrow plain area set off by punctations.

A tomb was found and, appearing intact, was left undisturbed. Excavations also encountered areas of reddish sand. The red color may have resulted from the mixing of red ocher and sand. Adjacent to the tomb was an empty flanking trench. The only other flanking trenches known in the region were found at the Norton mound group near Grand

Rapids, Michigan, and at the Bellinger Mound (Griffin et al. 1970; Schurr n.d.). In the mound excavations, two possible basket loads of marl were encountered, which gave possible insight into the construction of the mound. A circular stain below one of the basket loads was reddish sand. A large sherd and a corner notched point were found in close proximity. The enamel cap of a human tooth was found under the marl area in the northern portion of the same unit. Excavation of the other basket load revealed fragments of additional enamel caps and a second corner notched point (Schurr n.d.).

Slightly over 10 cm below the area of the basket loads, excavations identified a fragile crushed vessel. The pot had been left with the orifice down in a unique matrix of dark, loosely packed soil. Laboratory excavation of the matrix revealed that the vessel had collapsed under pressure, probably prior to having been set in that location. The rim is missing. Based on the vessel's condition and placement, a logical conclusion is that the pot had been damaged by the looter(s) and discarded. Adjacent to the vessel was an area of very mealy bone, which also may have been discarded by looters (Schurr n.d.:10–11).

Researchers placed test excavation units in the western mound to acquire additional data regarding the mound's construction. This investigation revealed methods similar to those encountered in the eastern mound, with a heavy marl cap and muck present in the interior structures. At least one looter's pit was found. In the surrounding general area, a lamellar blade and a small Hopewell cross-hatched rim were recovered. Excavations found a well-defined area of muck with a corner near 90º, which, when probed with a pin flag, descended an additional 20 cm. Due to the end of the field school, investigators did not complete its excavation. The feature is probably a tomb but this conclusion cannot be reached without additional excavation. At least one looter's pit was identified, as well as a cluster of horse bones. Based upon the condition of the bones these undoubtedly were buried more recently. Near the horse remains, researchers found a small cross-hatched rim sherd and a lamellar blade, possibly displaced during the digging of the hole.

Before the end of the excavations in 2005, a majority of the surface of the tomb had been exposed. The tomb itself was approximately 1 m x 2 m and had been filled with dark mucky soil. A narrow linear feature of lighter-colored soil ran diagonally across one portion of it and into one wall. I hypothesized in the field that it might have been a piece of wood used to support a hide during the filling of the grave. The hide may have protected the deceased, especially the face, during the filling of the tomb. Flanking trenches were again present, with groups of artifacts placed on the ramp between the trench and the tomb. Under the marl cap, excavations recovered two large bifaces, somewhat similar in style to a Norton point (but definitely not a Norton point per J. Brashler, personal communication 2003). Concretions are present on the surfaces of the bifaces, resulting from contact with the marl. A cluster of bone objects, possibly pone pins or awls, had been placed vertically into the ramp near the bifaces. About 7.3 m south of this tomb, researchers found the edge of a possible second tomb, as well as a group of at least four bear canines. That feature was not further exposed because of the end of the field school.

The Upp-Wark Mound Group (12PR17–12PR27). Two investigations of the Upp-Wark mound group (also known as the Boone Grove mound group) have taken place within the last 10 years. Schurr (2002) conducted a surface reconnaissance. Stillwell (2002) conducted a second surface reconnaissance and an evaluation of the existence and conditions of the mounds. Both archaeologists completed their investigations as part of a cultural resource management study for a potential landfill. Some archaeologists, Native Americans, and local residents contested the project, forcing it into litigation. After several appeals, the potential developers of the landfill project withdrew their plans.

In 1998 and 1999, Schurr conducted a surface survey of 34 ha that contained sites 12PR17, 12Pr218, and 12PR24–12PR27 (Schurr 2002:1). Most of the area had been tilled and was well washed by rain, so provided excellent surface visibility. Sites 12PR17 and 12PR18 were located in a field of unharvested corn and were not surveyed, although two small knolls that matched the locations of the mounds were noted. The remainder of the sites were located outside the survey area and within sections of pasture, where contours could easily be seen (Schurr 2002:1).

The survey helped to establish habitation areas associated with the mound group. The western portion of the research area (approximately 26 ha) contained very scant evidence of prehistoric occupation. However, Schurr's survey found a higher density of artifacts along the bluff above Wolf Creek, near the eastern edge of the mound site. Another, sparser scatter of debitage was found north of the Wark mound and south of the creek. These were the only two habitation areas found in close proximity to the mounds. Others may exist on the former Wark farm to the west, which was not surveyed (Schurr 1999:42). The habitation areas found follow the same characteristics as those associated with the Goodall and Mud Lake mound groups.

The Griesmer Site (12LA3). The Griesmer site is situated on the highest knoll of a long sand ridge in the Kankakee marsh just north of the river. Donald Flatt, a local collector, informed Charles Faulkner, an archaeologist working with the Indiana Historical Society, of the site. The Griesmer site was an Upper Mississippian site but it also had a Middle Woodland component. Two low sand mounds were located among the pine trees that had been planted nearby for erosion control. Faulkner stated that they were Middle Woodland tumuli (Faulkner 1972:39). He did not explain how he made this determination. At least one of the mounds had been "completely destroyed by a large centrally placed pit dug some years before by person or persons unknown" (Faulkner 1972:39).

During the summer of 1962, the researchers excavated 25 10 m x 10 m blocks to an average depth of 46 cm (Faulkner 1972:41). Because the soil was very wet and full of rootlets, Faulkner decided to sift only the drier and more productive areas in features and middens (Faulkner 1972:41). The area had a midden that ranged in depth from about 20 cm thick on the west side of the road that bisected the site to over 45 cm on the eastern side. The midden was homogeneous brown sand. It contained charcoal, faunal remains, pottery, and lithic materials that represented at least four cultural occupations based upon the artifacts found. Below the midden, the soil was essentially sterile. Approximately 77 features were revealed, none of which could be confidently assigned to any single occupation of the site.

Lefty's Coho Landing Sites (12PR527 and 12PR528). Archaeologists from Indiana University surveyed a 75-acre development site for Lefty's Coho Landing in northern Porter County (Natt and Sipes 1998). The project was in a dunal area adjacent to the mouth of a creek. Of the three sites found during the survey, it was determined that two were potentially eligible for listing on the National Register of Historic Places. Both sites were large lithic scatters and contained numerous pottery sherds. The ceramics from 12PR527 included a Havana Hopewell component of the Middle Woodland (Stillwell 2002:13). Site 12PR528 also contained a Middle Woodland component. The Middle Woodland ceramics are very similar to those found at the Moccasin Bluff site (20BE1) in southwestern Michigan (Betteral and Smith 1973; Stillwell 2002:13).

The Utica Mound Group (11LS1). In 1993 and 1994, the University of Illinois at Urbana-Champaign (UIUC) conducted field schools at the Utica mound site (11LS1). During the 40 years since the first excavations by Hodges and Kelly, the majority of the site has been severely impacted. Successive modifications and developmental expansions associated with barge terminal enterprises, limestone mining, and the operational needs of those activities have almost destroyed the site (Walz and Riley 1994).

The UIUC investigations were focused on a small remnant of a fairly undisturbed portion of the site. In 1993, the remaining portion of the site was surveyed to create a topographical map. The field school undertook controlled surface collections of 212 2 m x 2 m units and all surface debris and artifacts were piece-plotted to record their precise positions. Additionally, 14 units totaling 50 m^2 were excavated by hand. In 1994, an additional 10 m^2 were opened and the previous excavations begun within the mound were completed (Walz and Riley 1994:3).

The researchers attempted to correlate the remaining topography of the site with that contained in the only existing map, created in 1929. Judging from these comparisons, the remaining portion of the site was at the extreme western end of the mound group. The mound that was investigated in 1993 and 1994 was identified as Mound 6 of Group 2. This mound was one of only three that had not been excavated by Kelley. Of the other two, Mound 7 of Group 2 had been severely impacted by looting and destruction caused by construction personnel. Mound 5 of Group 2 had only recently been buried under the ever growing wall around the pit, which was created by limestone mining activities. The human remains scattered across the mound's surface indicate that Mound 6 had also been looted (Walz and Riley 1994:3).

Because of the endangered status of the mound, the archaeologists excavated two adjoining 3 m x 3 m units on the southern flank of the mound. One of the units revealed undisturbed context within the roots of a locust tree at 70 cm below the surface (Walz and Riley 1994:5). Further excavation in that spot revealed intact human bones. One adult right femur displayed obvious cut marks on its dorsal surface. Other remains included a few human deciduous teeth, and burned and unburned bone fragments. During the exaction of Unit 12, burned and unburned bone fragments were found in association with several large limestone slabs. A bundle of long bones had been placed on top of one of the limestone slabs (Walz and Riley 1994:6). The authors present the following explanation for interpreting the evidence:

> While bundle burials are one means of interpreting the observed bone, especially that recovered in Test Unit #12, the commingling of burned and unburned bone and the fragmentary nature of most recovered pieces may alternatively suggest that what we observed was the result of processing activities connected with mound interment, rather than the burials themselves. If this is indeed the case, the recovered remains are best viewed as a population of bones, rather than of individuals, which were none the less included within the overall mortuary program at the site. (Walz and Riley 1994:5)

Away from the mound remnant, lithic debris, broken tools, hammerstones, and a quantity of burned limestone were found consistently. Limestone, intact dolomite or dolomite rubble was found at a depth of approximately 40 cm. Artifacts were found with the fissures in the bedrock or within the dolomite rubble. As Oneota and Shakopee cherts outcrop in the immediate area, the lithic debris may have remained from earlier occupations. The artifacts in the mound were seemingly bioturbated and mixed.

These findings, however, do not negate the fact that these mounds were essentially built upon rock. The process of digging the graves must have been extremely difficult and any and all soils used in their construction would necessarily have been carried some distance. Methods of burial also followed the seemingly traditional practice of covering the deceased with a black, sticky, or clay-like soil.

The archaeologists submitted a sample of approximately 30 g of burned bone for radiocarbon dating. The result was 2010 +/- 80 B.P. (ISGS-2747) with a single intercept of A.D. 10 and with a 1-sigma range of 70 B.C.–A.D. 90 (Walz and Riley 1994:5). This is the only radiometric date obtained from the entire mound complex and is quite important in establishing the chronological patterns in the upper Illinois and Kankakee rivers.

National Park Service Indiana Dunes National Lakeshore Sites. The Indiana Dunes National Lakeshore is dominated by a series of three old dune ridges associated with former shorelines tied to major recessional stages of glacial Lake Chicago. The limited data obtained by research within the National Lakeshore Monument was consistent with and supported by the archaeological knowledge of the area.

The Midwest Archeological Center of the National Park Service conducted a series of archaeological investigations in advance of a proposed 182-acre campground area. The series consisted of a surface survey in 1989, testing in 1990, the excavation of two sites in 1990, and the excavation of three additional sites in 1992 (Lynott et al. 1998:222). The survey recorded 15 sites: six identified strictly from surface finds, usually in sand blowouts or other large exposed areas; five identified during shovel testing in dense forest with no surface disturbance; and four recorded through a combination of surface survey and shovel testing. Evidence was “meager” and temporal diagnostics were rare (Lynott et al. 1993:27). Shovel testing produced only slightly more information than surface survey. The sites appeared to be small, temporary campsites. Subsequent investigations were based upon that determination.

All the sites targeted for further investigation were located on the back dunes and were probably originally surrounded by perched wetlands (Lynott et al. 1993:28). Testing included 54 test pits at 11 sites, the majority of the artifacts typically occurring below 50 cm with some below 60 cm. Five sites required further investigation. Two of these sites (12PR288 and 12PR295) were excavated in 1990, and the remaining three (12PR297, 12PR298, and 12PR299) in 1992 (Lynott et al. 1998:227–228).

While the National Park Service (NPS) archaeologists found Late Woodland artifacts on every site, my discussion will focus on two sites, 12PR288 and 12PR295, as these have Middle Woodland occupations. Excavations at 12PR288 did not recover any artifacts other than lithic debris and some very small cord-marked sherds. Text excavations revealed two features and one was found during shovel testing. Carbon from the fill of Feature A yielded an uncorrected date of 2170 +/- 70 years B.P. (Beta-41642), calibrated age of 190 +/- 70 B.C. with a corrected two-sigma range of 389 B.C.–A.D. 8 (Lynott et al. 1998:228, 254).

Site 12PR295, one of the more heavily occupied sites, was located along the crest of a low sand ridge in dense woods. Six features were uncovered, including four hearths. The hearths were generally small, oval stains with small quantities of lithic debris and fire-cracked rock (Lynott et al. 1998:232). The number of recovered artifacts was much higher (10,332), possibly because the upper level of the site had not been removed prior to testing. The plow zone had been removed in the previous site. Among the projectile points recovered were two probable Norton points, but no lamellar blades. At least two rim sherds are Middle Woodland. One sherd has an exterior boss in the midst of a band of dentate rocker stamping (Figure 22). The second sherd has plain rocker stamping perpendicular to the lip (Figure 23). Additionally, fingernail impressions were found on several sherds, similar to those found at the Behner site (20BE255) near New Buffalo, Michigan. Feature C has an uncorrected date of 2120 +/-70 (Beta- 44485), a calibrated age of 157 +/- 40 B.C. and a two-sigma corrected range of 340 B.C.–A.D. 35 (Lynott et al. 1998:232–237).

During the shovel test survey of another section of the Calumet Dune Ridge of the Indiana Dunes National Lakeshore, NPS archaeologists recovered a single sherd. Although no additional work has been done to date, the artifact should be included in this discussion. Lynott et al. (1998:248) described the sherd as a decorated body sherd. My determination is that it is a damaged rim sherd with the lip missing. The decoration consists of plain rocker stamping over a small external boss, which is later Middle Woodland.

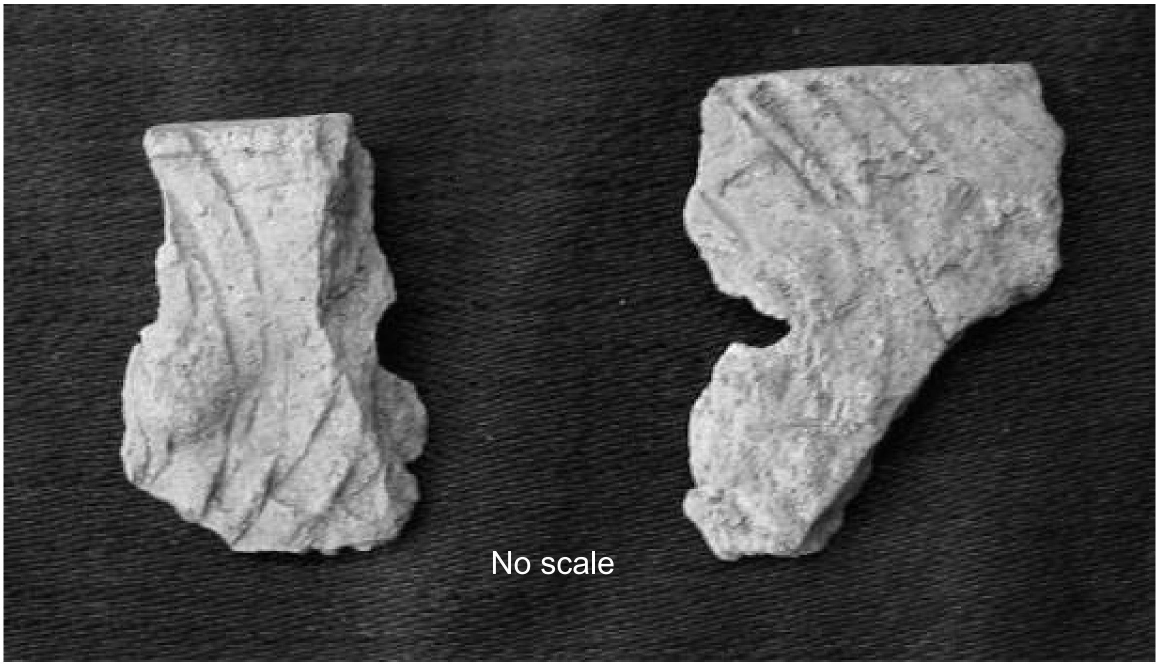


Figure 22. Middle Woodland Rim Sherds, 12PR394.

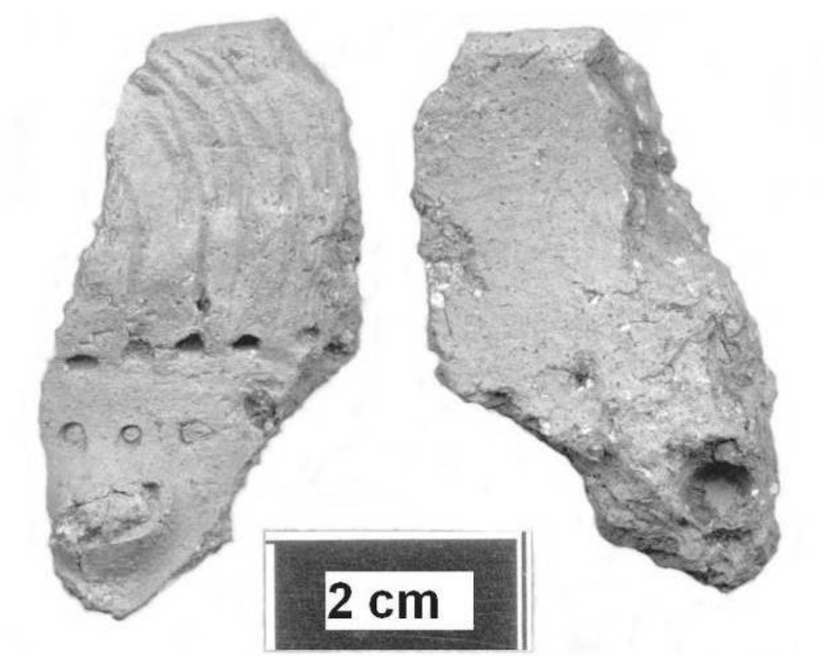


Figure 23. Middle Woodland Sherd (Obverse and Reverse), 20PR397 (courtesy of Midwest Archaeological Center, U.S. Department of the Interior).

***The Trail Creek Site (12LE351*).** In August 2005, Dr. Mark Schurr and a field crew of students and experienced volunteers conducted a small cultural resource management project on the eastern side of Michigan City, along Trail Creek in La Porte County, Indiana. The project location was approximately 2.4 km from Lake Michigan (Schurr 2005). During the shovel testing of the area, the researchers located a small, short-term Middle Woodland site on the terrace above the creek and near a spring. The site occupies a portion of the terrace that is protected from the prevailing winds off the lake. The researchers identified the site as Middle Woodland because of the presence of the base of a corner-notched Snyders point that was broken at the haft. The only unique artifact recovered from the lithic debitage was a "small blade-like flake" (Schurr 2005:23). After personally viewing this artifact, I am confident that it is made of Knife River Flint. The presence of this material in the dunes near Lake Michigan is quite significant. Prior to this discovery, Knife River Flint had been found only on sites that were near or on the Kankakee River.

The Moccasin Bluff Site (20BE1). In 2002, the Michigan State University archaeological field school investigated the Moccasin Bluff site for the first time since 1948 (Betteral and Smith 1973). The field school participants tested the site to better definite its boundaries, to better determine the extent of cultural occupations, and to assess the condition of the site after over 50 years of impacts (O'Gorman 2003; O'Gorman and Warner 2003). While not extensive in scope, the goals were accomplished, including the realization that intact cultural deposits still exist. Of importance to my research, a Middle Woodland component was re-affirmed. A small number of artifacts were recovered; however, their location is significant. The Middle Woodland occupation appears to be associated with the low, marshy area adjacent to and south of the site. Adkins (2003:77) has categorized this low region as a marshy embayment (of a small stream). The excavations in this area were limited to 4 m^2 with modern disturbance found in a number of the units. Early Woodland material culture was also restricted to this area.

The Middle Woodland artifacts consist of only a few sherds. One has clear dentate stamping. O'Gorman classifies the sherds as transitional Early to Middle Woodland because of their thickness, which ranged from 8.3 mm to 9.6 mm (O'Gorman 2003:16). However, I have found numerous Havana ceramics that fall within that range. She also states that mafic temper was found. This is unusual as the vast majority of the Middle Woodland sherds I have studied for this dissertation had feldspar as the dominant temper. The only clearly Middle Woodland mafic tempered vessels I reviewed came from the Utica Mounds. Due to the limited evidence, the reason for the difference in temper cannot be explained.

The Behner Site (20BE255). I discovered the Behner site as part of my investigation of the Galien River Basin through surface collections of disturbed areas. The site overlooks a large, intermittent interdunal marsh, historically called Lake Potawatomi (Kissman 1976; Mangold 1981b:36). Prehistoric occupations appear to surround this marsh on the higher landforms (Mangold 1981b; Cremin 1991). The majority of the site had been severely impacted by cultivation, wind erosion, all-terrain vehicle and motorcycle activity, and sand mining. Shovel testing in a secondary-growth woods to the west produced strong indications that the site continued into that area with seemingly much less disturbance. It was not possible to conduct extensive investigations within this area due to the lack of manpower and the end of excavations at the site (Mangold 1981b). In portions of this southern area, prehistoric artifacts were covered by more than 30 cm of sterile sand. However, the movement of sand in one portion of the site may be a recent occurrence and may essentially preserve a disturbed site.

I established a loose stratigraphy based upon evidence found in a small portion of the site. The upper 25–30 cm of the area contained the historic material and the Middle to Late Woodland artifacts. This zone would roughly coincide with the plowzone or the depth of historic disturbance. Strong lithic debris occurred from a depth of 30–40 cm, together with a few artifacts; however, the quantity of debris increased in the 40–50 cm level. This deepest level produced the majority of pre-Woodland lithic artifacts (Mangold 1981b:37). The occupations at the site ranged from Late Paleo through Euro-American periods.

Snyders-like projectile points are prominent, with Madison triangular points following in frequency. All bifaces are made of local glacial cherts; no exotic materials were encountered. A single hoe flake was also found. The later period represented by the hoe flake was probably part of the occupation that discarded numerous collared pottery sherds, including one restorable rim section (Mangold 1981b: Plate 4). The Middle Woodland ceramics consist of a quantity of fingernail-impressed sherds (Mangold 1981b: Plate 5). These sherds are grit tempered, consistent with the high percentage of feldspar typically seen in other Middle Woodland ceramics in the region. The rims are square, vertical, and notched with a smoothed interior, but I can determine little else due to their small, fragmentary nature.

Unfortunately, faunal and floral preservation was poor. No radiocarbon dates could be obtained. In the time since the investigations were conducted, both areas of occupation have been destroyed by housing developments.

The Bobinski Site (20BE282). According to local history, the Bobinski site is adjacent to an area that had at least three mounds. The mounds were located on the farm of Benjamin Quantrell, whose farm house was located less than 60 m from the Bobinski site (Kissman 1976). The mounds were extensively disturbed in the mid-nineteenth century with no description of material recovered other than a large quantity of bones (Kissman 1976). A long-time friend and avocational archaeologist brought the site to my attention. Bridgett Bobinski brought a number of large potsherds that had been found in her family's garden to class.

The site location fits Quimby's description of a Goodall focus encampment as

> . . . located in the sand dune country of western Michigan. Such sites usually were situated in a hollow between two dunes and were adjacent to a river mouth or were between Lake Michigan and a small inland lake. (Quimby 1952:104)

Like the Behner site, the Bobinski site is adjacent to Lake Potawatomi, an interglacial lake that frequently drains to form a large marsh. It is separated from Lake Michigan by the barrier dunes.

Between 1977 and 1978, I excavated approximately 56 m^2, primarily in the form of small test units in and around the area of cultivation. The units were randomly placed over the four undeveloped lots, which included at least part of the site (Mangold

1981b:35). Researchers dug a 5 m x 0.5 m trench across the area where the cluster of ceramic sherds had been found in hopes of finding a feature that had contained the sherds. The Bobinski site, originally part of a working farm, had been largely disturbed by cultivation and wind erosion. The majority of the artifacts occurred in the humus layer or slightly below it. No evidence of a plowzone was noted which was probably due to the dry, sandy nature of the soil.

Excavations recovered a total of 689 sherds and sherdlets representing a minimum of 11 unique vessels (Mangold 1981b:35). The vast majority of these are too small to analyze. Even the largest of the ceramic sherds often consists of the reconstruction of a number of smaller ones. A major section of Naples Stamped variety Cord-wrapped Stick is the strongest of the diagnostic ceramics (Figure 24). The impressions are found in vertical rows below the lip and in six horizontal lines below the vertical rows. The lip is square with slight outward flare to the rim. The interior lip is notched. The tempering is consistent with that of regional Middle Woodland construction methods (Mangold 1981b:35). Faulkner (1961:132) recorded similar vessels in Marshall County, Indiana, which he associated with the Middle to late Middle Woodland periods. The interior notching is reminiscent of that found in the Kankakee River valley. The surface treatments of other recovered vessels include cordmarking, punctates on cordmarking, incised line over cordmarking, linear dentate stamping, exterior bossing, and finger impressions on the lip (Mangold 1981b:35). I was unable to reconstruct any other portion of a ceramic vessel from the plow-broken and scattered sherds.

Surprisingly, excavations recovered very few lithic artifacts. These include three projectile points (one expanding stem, one corner-notched, and one triangular) and two unifacial "thumbnail" scrapers. Debitage was also very light across the site. Since 2004, home construction has destroyed several large portions of the site, including some possible mounds.

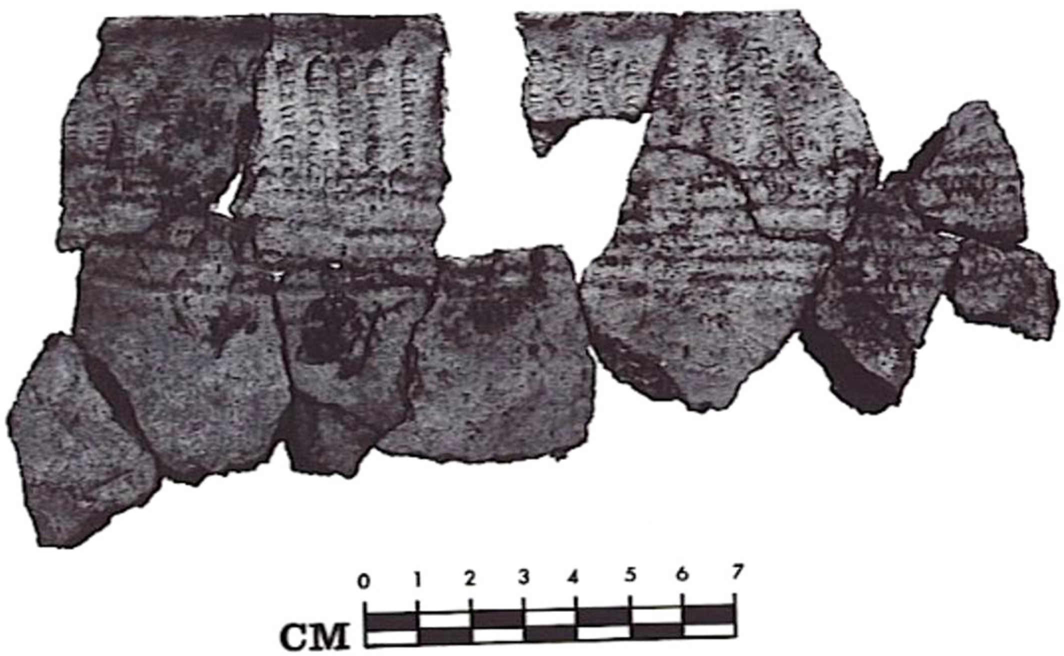


Figure 24. Vessel Fragments, 20BE252 (Mangold 1981b)

The Sinner-Pardee Site (20BE224). The Sinner property (also known as the Pardee farm) has long been known as a very good place to collect artifacts. A strong ridge north of the residential area has been considered the prime location for artifact collecting in the region for over a hundred years. My investigations focused on an area at the southern edge of the property where it adjoins two parcels belonging to other landowners. The change in focus from the northern to southern areas was necessary because the northern portion is located in a conservation soil bank with non-impact restrictions.

The southern portion of the Sinner-Pardee site is primarily located on a north-south tending ridge with a small creek immediately to its south and a large marshy area to the east. At the northern edge of this ridge, a strong knoll tapers easily to the north but drops quite abruptly to the east, south, and west. The main portion of the site has been cultivated for a long period. This is reflected in the level of soil deflation in the cultivated area as compared to the ground surface in adjacent fencerows.

The site covers all periods in prehistory and includes some nineteenth-century Euro-American artifacts. Focusing on the Middle Woodland period, I shall address those artifacts surface collected from a relatively small area of the ridge.

On the eastern and southern portion of this ridge, I found a number of lamellar blades, including several of non-local cherts. One of the blades was created from a fine-textured material that had been heat treated to a strong salmon pink. To my knowledge, the color and other characteristics have never been seen elsewhere in the area. In most other aspects the chert is similar to heat-treated Burlington. The blade had been sharpened to a perforator at one end. Other blades I found at the site are made of Burlington and Flint Ridge cherts, and probably Wyandotte chert (Mangold 1981b).

The knob is the highest point in a fairly large area. It may have been used in place of a constructed burial mound. The knob may be natural, but material may have been added to create its current shape. The use of natural formations as burial areas occurs throughout the Midwest, possibly as a labor-saving effort. Two notable discoveries from the knob area indicate its possible burial function. The first is a portion of a medium-sized conch shell (*Strombus* spp.), which is native to the southeastern Atlantic coast and Florida. Conch shells are often found with Hopewell Middle Woodland burials. The other is a rimsherd that has the physical characteristics of a Havana rim, but with the typical Hopewell cross-hatched rim decoration (Mangold 1981b) (Figure 25). Sherds with this type of rim profile and design have also been found in the lower Illinois River valley (K. Farnsworth, personal communication 2005). In the region, Hopewell rim sherds have most often been found in or near burials, rarely in domestic contexts. The combination of the unique artifacts with a probable artificial elevation reinforces the possibility of a mound.

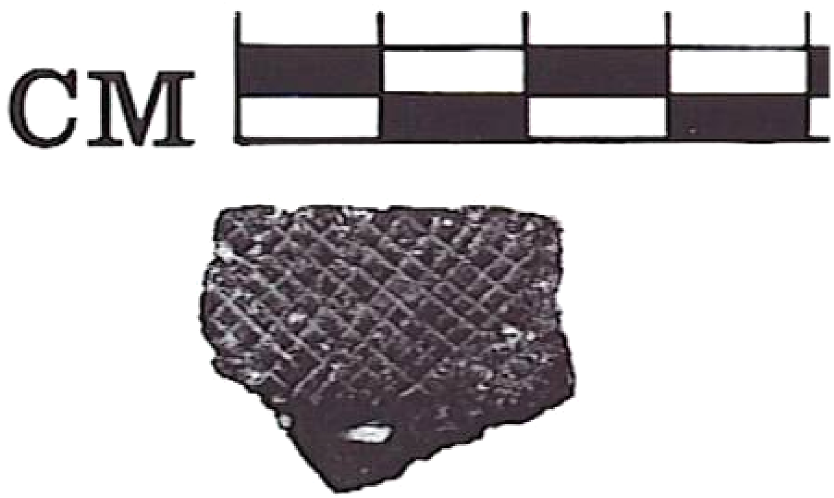


Figure 25. Middle Woodland Rim Sherd, 20BE224 (after Mangold 1981b).

The Sumnerville Mound Group (12CS6). During 1985, two residents of Sumnerville attempted to interpret a large dark stain in a cultivated field east of Mound F on the outskirts of the town. Western Michigan University (WMU) investigations determined that this and another similar feature nearby were two Late Woodland ossuaries. Surface collections determined that the recovered lithics occurred in small quantities over the entire area, while ceramics were very sparse. Archaeologists found only a few diagnostic Middle Woodland artifacts, including corner-notched points, blades, and Hopewellian sherds of the Sumnerville Incised type established by Quimby (1941a) (Garland 1990:193–194).

During the process of relocating Ossuary 1, researchers found another feature located to the west. They placed an excavation block to include both features. The second feature was an oval firepit. Above the fuel zone and in an area of homogeneous fill, they found a pottery vessel. The pot has a conical base, a T-shaped lip similar to Brangenberg ware, with a well-worn groove on the exterior below the lip. The vessel rested on its side with its orifice facing east. The groove is possibly an indication of suspension. The surface texture is somewhat roughened in the upper portions but is not smoothed-over cordmarking (Garland 1990:195). To the east of the pot, the excavation revealed the upper portion of a red ocher deposit. A blade of white chert, possibly Burlington, and a broken gorget of blue-gray slate were within the deposit and adjacent to the vessel. Red ocher stains occur on both sides of the gorget. Several pieces are broken from it, but the breaks are old and worn.

Beneath the vessel, the archaeologists recovered the enamel caps of four human molars. The teeth had been exposed to fire but not within the context of the feature. Dry screening through a fine mesh obtained other cap fragments, including probable fragments from one canine and one incisor. The molars were from both right and left sides of the mandible. Garland's determination was that a pair of modified human mandibles was burned first; the remnants were then wrapped in either cloth or natural fibers, and then buried with the other objects in the oval firepit (Garland 1990:203).

A 23-gram sample of wood charcoal associated with those artifacts produced an uncorrected date of 1750 +/- 60 B.P. (A.D. 200, Beta 35074). "Therefore, based upon the uncorrected dates, the ceremonial pit is of Hopewell age . . ." (Garland 1990:204). The corrected dates for the ceremonial pit did not cause substantial changes in interpretations. Four intercepts for the "ceremonial" pit ranged from A.D. 257 to A.D. 319 with a maximum two-sigma spread from A.D. 84 to A.D. 420 (Garland 1990:204).

Upper St. Joseph River Basin Sites. WMU investigated the sites of Stroebel (20SJ180), Dieffenderfer (20SJ179), Eccles (20SJ46), Barton Lake (20KZ182), Simpson (20KZ226), and Schilling (20KZ56) in the upper St. Joseph River basin (Garland and DesJardins 2006: Figure 14.1; p. 228).

The Middle Woodland occupation at the Dieffenderfer site is small and restricted (Garland and DesJardins 2006:232–233). The ceramics are predominately rocker stamped on the bodies of the vessels. Two vessels have rim profiles and other attributes very similar to Brangenberg wares from the lower Illinois River Valley. Brangenberg rim sherds have also been found on the Goodall site (Mangold 1998; Schurr 1998). The Stroebel site contained a small number of ceramics similar to Naples zoned dentate stamped wares (Garland and DesJardins 1995, 2006). The only recovered rimsherd exhibits a strong interior beveled rim but with a slightly rounded outer lip (Garland and DesJardins 2006:233). The Eccles site contained sherds from a minimum of two Middle Woodland vessels. One vessel is strongly channeled and noded; body sherds exhibiting "bold, dentate-stamped impressions filling a curvilinear zone" represent the second vessel (Garland and DesJardins 2006:234). The authors state that this style of decoration is similar to ones from the Prison Farm site and the Norton mounds (Garland and DesJardins 2006:234). The Simpson site may have a substantial Middle Woodland occupation based upon initial findings. It contained Naples-like ceramics and others with narrow linear dentate stamping and fingernail impressions (Garland and DesJardins 2006:234). The Schilling site is associated with a lake and produced a number of Middle Woodland projectile points, a major section of a vessel, and a fragment of a large obsidian preform. No other obsidian artifact of that size has been found in western Michigan or northwestern Indiana. A few flakes of obsidian debitage were recovered from the upper Kankakee River basin (Mark Schurr, personal communication 2006). The vessel has 6-millimeter thick walls, and the exterior surface has vertical columns of plain rocker stamping. This is unique within the region and is like vessels from Ohio Hopewell cultures (Garland and DesJardins 2006:234).

The Prison Farm Site (20IA58). Although the Prison Farm site is outside the research area, I thought it pertinent enough to be included in this discussion. Even though Havana-related sites have been known in the western portion of Michigan for over 100 years, the Prison Farm site is one of a small number of dated Middle Woodland habitation sites (Brashler 1993; Brown 1964; Quimby 1941a, 1941b). The site is also essentially a Havana Middle Woodland occupation with other cultural occupations spatially isolated from it. This site has escaped the problems of soil acidity encountered in the Kankakee River basin and sealed alluvial deposits on a small portion of the Prison Farm site may contain additional faunal and floral remains.

The site occupies a portion of a low, natural levee that is on the floodplain of the Grand River, about 130 km from where the Grand River enters Lake Michigan. Its associated surface artifact scatter, a mixture of ceramics, animal bone, lithics, and fire-cracked rock, encloses an area of several acres. Based upon current knowledge from the excavations by Grand Valley State University (GVSU), the majority of the site is in the plowzone but some of it is under one or more alluvial depositions (Brashler 1993).

Formal stone tools were relatively scarce within the excavations; however, the site has been heavily surface collected for many years. The vast majority of the lithics are Middle Woodland in style and non-local in origin. Heavily reworked, crude corner-notched points predominate. Their appearance is a rough form following that of the Norton point. Excavations recovered one possible Jack's Reef point but no triangular types, all of which emphasizes the deposits as uncontaminated Middle Woodland in origin (Brashler 1993).

Exotic cherts from Michigan, Illinois, Indiana, Ohio, and Ontario are present, indicating that the occupants of the site were active in a wide network of exchange. The dominant chert is Bayport from the Saginaw region of Michigan (Brashler 1993). The connection with that area of Michigan and the Middle Woodland cultural expressions in the Saginaw River basin could be significant (Brashler 1993). The Saginaw Bay Middle Woodland occupations could be the result of the occupants of the Prison Farm site moving eastward up the Grand River and connecting with one of the rivers draining into Lake Huron.

The ceramics at the Prison Farm site seem to be typologically Middle Woodland with some notable exceptions. Interior cordmarking and smoothed-over cordmarking occurs in several vessels. Vessel body wall thickness averages 1.1 cm with coil breaks common. The paste is sandy and tempered with igneous rock. Noding, which usually occurs about 1.9 cm below the lip, is the foremost decorative pattern. Other frequent patterns are widely incised lines on the exterior and cord-wrapped tool impressions on the lips and interiors of the rims. A few vessels have decorations similar to Naples Zoned Dentate ceramics with carefully executed designs on smoothed surfaces of well-constructed vessels (Brashler 1993). In general, the ceramics are markedly different from those found in the Kankakee Valley. The vessel walls are thicker and the heavy use of nodes in decoration is quite different.

The archaeologists from GVSU also found items that indicate possible involvement in a regional exchange system. These artifacts include a copper bead, the distal portion of a ceramic platform pipe, a cut and drilled canine from what may be a wolf or large canid, and several large undrilled black bear canines. One of the bear canines had been split in preparation for finishing.

The chronometric dates from Prison Farm and nearby Middle Woodland sites are of the greatest importance. Standard radiocarbon dates include 75 B.C. (230 B.C.–A.D. 70) (Beta-113897); 5 B.C. (175 B.C.–A.D. 110) (Beta-113898); A.D. 65 (35 B.C.–A.D. 130) (Beta-83091); A.D. 66 (32 B.C.–A.D. 125) (Beta-69939), and A.D. 100 (A.D. 25–220) (Beta-113894) (Brashler et al. 2006:269). These dates may reflect settlement earlier than, or contemporary with, that found in the Goodall tradition area.

The Kuhne Site. The Kuhne site is located in Putnam County, Illinois, approximately 108 km west of the confluence of the Des Plaines and Kankakee rivers. Dr. Stuart Struever excavated it in 1955 and 1956. The site had midden deposits averaging 2 m thick. The midden revealed evidence of discontinuous Early Woodland through Late Woodland occupations (Loy 1968:132). Although the Early Woodland occupation was minor, Loy (1968:132) stated that the main occupation was of the Black Sand tradition. More recent interpretations of the Early Woodland period indicate that the occupations at Kuhne were probably Sister Creeks–related. The major occupation was Middle Woodland with calibrated radiocarbon dates of 90 B.C. (M-580), A.D. 59 (M-578), and A.D. 66 (M-579) (Stuiver and Reimer 1993:215–230).

I examined approximately 150 sherds from the site in the archaeological artifact collection storage facility housed at Kampsville, Illinois, in 2000. Curved to slightly curved dentate stamping is the predominate decoration used on the rims. The individual dentate or tooth is very large, often in excess of 3 mm. Decoration of the interior lip through notching or stamping is present, but not in the frequency found in the Goodall tradition (Mangold 1998). The thickness of the sherds averages 9 mm, which falls within the range for Havana ware.

11WI590. This site is located on a ridge that parallels the north bank of the lower Kankakee River in Will County, Illinois (Figure 26). A small tributary runs on the north side of the ridge and enters the river just west of the main portion of the site. An unknown portion of the site is included in the Kankakee River State Park.

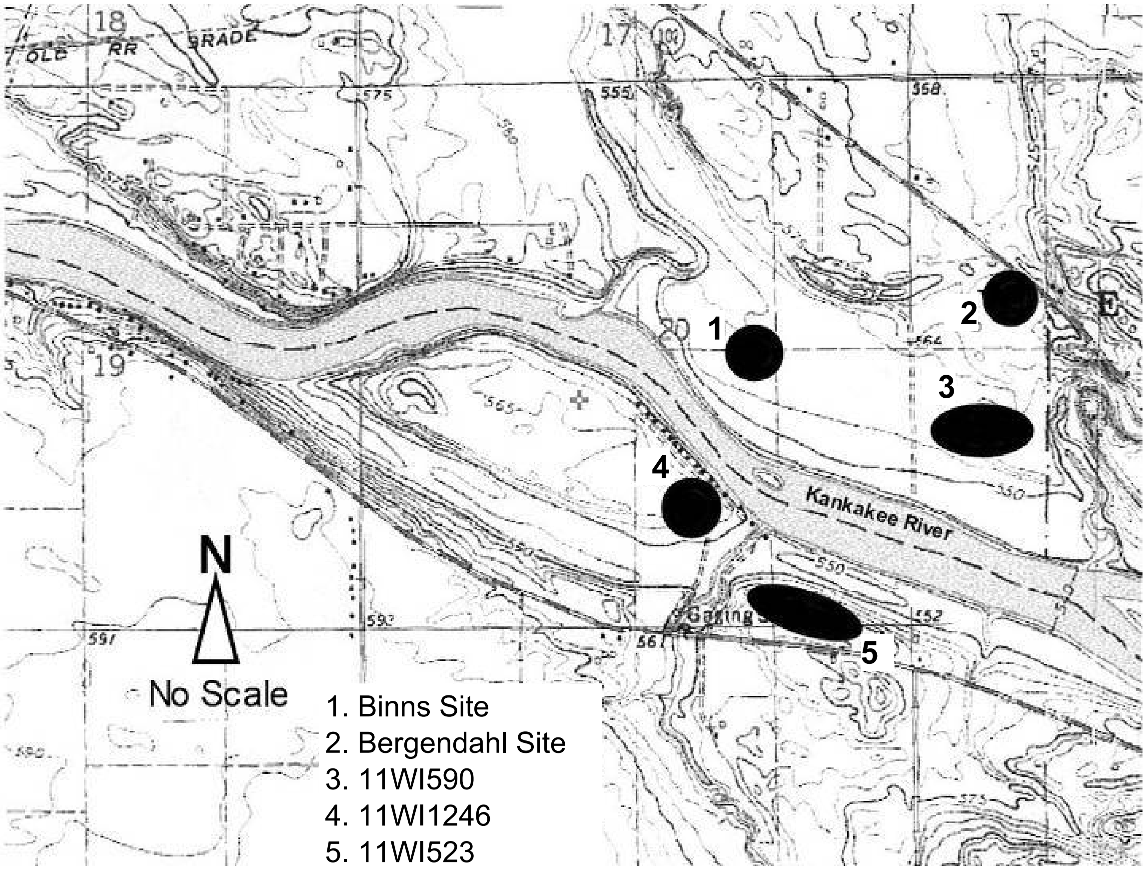


Figure 26. Cluster of Middle Woodland Sites, Lower Kankakee River Valley

Local collectors “vacuum” the site yearly, leaving little behind except debitage, fire-cracked rock and ceramic sherds (L. Binns, personal communication 2005). Based upon my experience with collectors, broken ceramics are rarely of interest to them. The ceramics recovered from the site surface are primarily Havana ware. However, Early Woodland Marion and late Middle Woodland Steuben sherds are also present, as well as several early Havana wares. The sherds provide interesting insights into the occupations of the site and its relationships between the upper Kankakee River to the east and the Illinois River to the west.

Within the physical setting of this site, there are two different clay sources, one red and one white. Another resource is the exposed outcrops of dolostone, a non-mineral form of dolomite, which is a calcium carbonate. As a calcium carbonate, dolostone has the same reaction to rain and ground water as limestone. When used as a tempering agent, the exposed rock fragments dissolve, leaving small voids in the ceramics. Dolostone has its own unique empty spaces that can be distinguished from those of limestone. The voids tend to be slightly larger and more angular. Some vessels on the site are tempered with dolostone, some with limestone.

11WI523. This site is across the Kankakee River from 11WI590. From 1996 to 1999, excavations were conducted by Governors State University, University Park, Illinois, under the direction of Robert Gergen (Figure 26). The site not only has a strong Late Woodland occupation, but Early Woodland and early Havana as well (Robert Gergen, personal communication 2006).

I examined approximately 70% of the recovered material from this site. The majority of the ceramics are probably Havana Cordmarked. However, a number of decorated rim sherds are present in the Binns collection. Among them is a sherd from a quadrilobate vessel. It contains a portion of one of the lobes with its surface decorated in zoned areas filled with dentate stamping. I find that vessels of this type are usually associated with burials, most frequently in a mound context. Mounds have been mentioned in local lore for this area but their possible locations cannot be established.

11WI1246. This site is located across the Kankakee River and south of 11WI590. 11WI1246 was also surface collected by Binns. The number of artifacts he recovered from the surface of the site indicates a medium-density site. The ceramics he found include Middle Woodland Havana and Steuben wares. One quadrilobate body sherd is also in the collection. The Havana wares include vessels with sharply beveled rims, such as those found in the Goodall area. Other Havana vessels are decorated with large-toothed dentate stamps like those found at both the Kuhne and Goodall tradition sites.

The Goodall Tradition

Evaluations and redefinition of the Goodall "focus" have recently been put forth through my personal research (Mangold 1981a; 1994; 1998), that of Mark Schurr (1996; 1997), and our combined efforts (Mangold and Schurr 2000, 2006; Schurr and Mangold 2003). The full extent of the redefinition has not been completed. The goal of this dissertation is to assist with some of the missing factors that hamper the resolution. Arguably, every archaeologist who has attempted to work within this chronological/cultural period in this geographical region has been entangled in 50 years of misunderstanding. Many of them proposed their own ideas regarding the Goodall culture. Most of those suppositions have been proven unsupportable through additional modern research.

With these problems in mind, Dr. Schurr and I redefined the Goodall culture in both chronological and geographical aspects (Mangold and Schurr 2000, 2006). We replaced *focus* with *tradition* in order to deal with the large area and chronological depth of the archaeological expression. I (1981a) and others (Brashler et al. 2000, 2006; Garland and DesJardins 2000, 2006; Kingsley 1981) have noted a difference in technology, forms (lithics and ceramics), and settlement patterns. Those patterns vary between the northern Middle Woodland occupations in the Grand, Kalamazoo, and Muskegon river valleys and those of the southern occupations in the middle St. Joseph and Kankakee rivers valleys.

Following that cultural division, the Goodall site was selected as the type site for the tradition. The site appears to be the largest both in size and number of recorded mounds. Having defined the spatial extent and the type site, and using the materials recovered throughout the Kankakee Marsh and adjoining areas, we developed a new chronology (Mangold and Schurr 2000, 2006) (Table 4).

Brown (1964) explained the presence of the Middle Woodland culture in western Michigan and northwestern Indiana as a result of a rapid expansion from Illinois into the northwestern extension of the Prairie Peninsula and its fragments. At the Bellinger site, a late Early Woodland–early Middle Woodland occupation was found beneath the mound construction (Schurr 1992, 1996, 1997). At several of the Middle Woodland sites in the Kankakee Marsh, late Early Woodland/early Middle Woodland pottery wares, such as Neteler and Sister Creeks, occur. This indicates a longer chronological history of the Middle Woodland occupations. The evidence would negate the theory of a rapid expansion into the Kankakee area (Mangold 1981a, 2001a, 2003).

Table 4. Goodall Tradition Chronology

		Kankakee Valley			Middle Illinois Valley	Central Illinois Valley	Upper Illinois Valley
Date	Cultural Period	Mangold and Schurr (2006)	Griffin, et al. (1970)	Faulkner (1972)	Griffin, et al. (1970)	Munson (1986)	Wolforth (1993)
A.D. 700	**Late Woodland**	**Walkerton** *Walkerton, Weise, and Wunderink Mounds*	*Undefined*	**Walkerton**	**Weaver**	**Weaver**	**Weaver / Swanson**
A.D. 400	**Middle Woodland**	**LaPorte** *Bellinger Mound* *Summerville* *Marantette* *Scott* *Mud Lake (12LE14)*	**LaPorte**	**Late Middle Woodland**	**Steuben**	**Frazier**	**Steuben**
A.D. 200		**Goodall** *Goodall (12LE9)*	**Utica**				
A.D. 1		**Stillwell**	*Undefined*	**Early Middle Woodland**	**Fulton**	**Fulton**	***Undefined***
200 B.C.	**Early Woodland**	**North Liberty** *Bellinger pre-mound* *Mud Lake surface*	*Undefined*		**Morton**	**Late Morton / Caldwell**	
						Late Morton / Early Morton	

Havana Culture of the Midwest

Almost from its initial documentation, the Havana culture has been described in terms of its ceramics. More recently, Struever (1964) identified Havana culture as having "ceramic continuity" while Griffin et al. (1970) and Loy (1968) described it as a "ceramic tradition." Munson carried both concepts further, saying that the Havana culture is an "areal based continuity which would be considered a cultural system" (Munson 1986:290).

Munson (1986) argues that the Early Woodland Marion and Morton phases were precursors to Havana ceramics. However, he insists that the Black Sand phase was a separate cultural tradition, unrelated to the Havana phase (Munson 1986). Further, by removing the Black Sand phase from the sequence, an even-flowing developmental progression that covers a considerable depth of time occurs. Therefore, the Marion tradition should be considered "proto-Havana" (Munson 1986:291).

Black Sand and Morton ceramics are reported in collections from extreme northwestern Indiana, northeastern Illinois, and in the lower Kankakee Valley. Most occurrences are either closer to Lake Michigan or in the Des Plaines/Chicago river drainages. Fenner (1961:57) stated that both Morton and Black Sand wares were found at the Bowmanville site located along the north branch of the Chicago River. I recently heard of a site near Joliet, Illinois, where both wares are present (D. DeCamp, personal communication 2009). Neither ware was reported in any large quantity, but rather in small or single numbers. Their mention primarily occurs on old site forms without illustrations or detailed descriptions. The accuracy of the cultural assessment of these ceramics proves to be a major problem in determining the extent of the possible cultural antecedent for Havana.

A problem has developed within the transitional phase between Marion and Havana periods regarding the geographic extent over which this phase occurred. For many years, it appeared to happen within the Illinois region with an expansion into immediately adjacent areas. Recent discoveries of Sister Creeks wares at the Norton and Zemitis sites in the Grand River valley and the strongly represented early Havana ceramics at the Prison Farm site (J. Brashler, personal communication January 2006) have called this theory into question. Sister Creeks ceramics have also been found in the area of Willow Slough in Newton County, Indiana, and in early records of sites in northern Porter and Lake counties. The extent of the use of Sister Creeks or Sister Creeks–like wares is much larger than previously thought. In Illinois, Early Woodland settlements were located in a wide range of environmental situations without any apparent patterning. That settlement choice appeared to continue into the Middle Woodland period but with the possibility of more defined decision making.

CHAPTER 5

FINDINGS AND INTERPRETATIONS

Cerca, trova

Looking for and finding archaeological sites and artifacts are frequently the easy parts of the research. Pothunters can locate sites, collect artifacts, and often identify simple stratigraphy. Archaeologists must use the artifacts, site locations, stratigraphy, and other information to go to the next level of interpretation and understanding. What can these things tell us? James B. Griffin, the noted archaeologist, often said that it was necessary to handle, prod, and examine every potsherd until it spoke to you. His "whispering sherds" concept may only be a slight exaggeration. Artifacts, as well as site locations, should tell archaeologists more than is heard by a pothunter or surface collector. These "secrets" should provide direction, which can lead to greater understanding.

The following sections address the questions posed at the start of this work through new data and its recovery, followed by the more complex interpretations to which the data lead. Some sections deal with specific sites and the information from them. Others take site location data and/or artifactual data, apply that information to the development of interpretations of the environment, spatial utilization, and cultural interaction.

The Definition of a Goodall Site

Site location. A quick review of Goodall tradition site locations is necessary prior to any discussion of settlement and subsistence. It is not difficult to find any archaeological site within the former expanse of the Great Kankakee Marsh. Soils that had been waterlogged during the marsh's existence appear dark in a nearly flat topography. Any elevation, however slight, has a high potential for having been occupied, at least briefly, by one or more of the prehistoric and historical cultures. As these elevations are primarily remnants of early sand dunes, the lighter colors stand out prominently from the darker soils. This is especially true during the early stages of cultivation in the spring. Larger areas of sand could represent one of the islands identified by the early historic settlers, such as Grape, Bogey, Pigeon Roost, Dutch, Eagle Point, Jackson, Coon Ridge, or Jackson (McCormick 1902:41). Almost without exception, the higher, usually wooded, ridges have archaeological occupations. Consisting of sandy soils, the elevations, low or high, are subject to wind erosion. While artifacts are quickly exposed, the landforms become deflated, destroying any existing stratigraphy.

A second physiographic setting in which Goodall tradition sites occur is on higher locations in conjunction with marshy areas both near Lake Michigan and inland. The soils in this area are also sandy. These settings occur in locales with numerous procurement opportunities. Bringelson and Sturdevant (2007:142, Table 6) and Sturdevant and Bringelson (2007) report that Woodland-period sites within the Indiana Dunes National Lakeshore are found on the Glenwood stage ridges (2), Calumet ridges (26), Tolleston ridges (13), lake plain (2), and moraine (1). These sites are not all Middle

Woodland, but the data obtained from them disclose the propensity for the occurrence of sites on particular landforms.

Figures 27–31 regarding site distributions in the research area may need some comments for clarification. I identified the sites through site records, collector interviews, and published reports. However, they do not represent the total number of Middle Woodland sites that exist. The entire region has not been professionally surveyed, not every known collector site has been cataloged, and no records of destroyed sites exist. Gaps in the site distributions exist unquestionably. The data presented, however, are the most accurate available at this time. Additionally, in some cases, one circle may cover more than one site. This is especially true in southern Lake County, Indiana.

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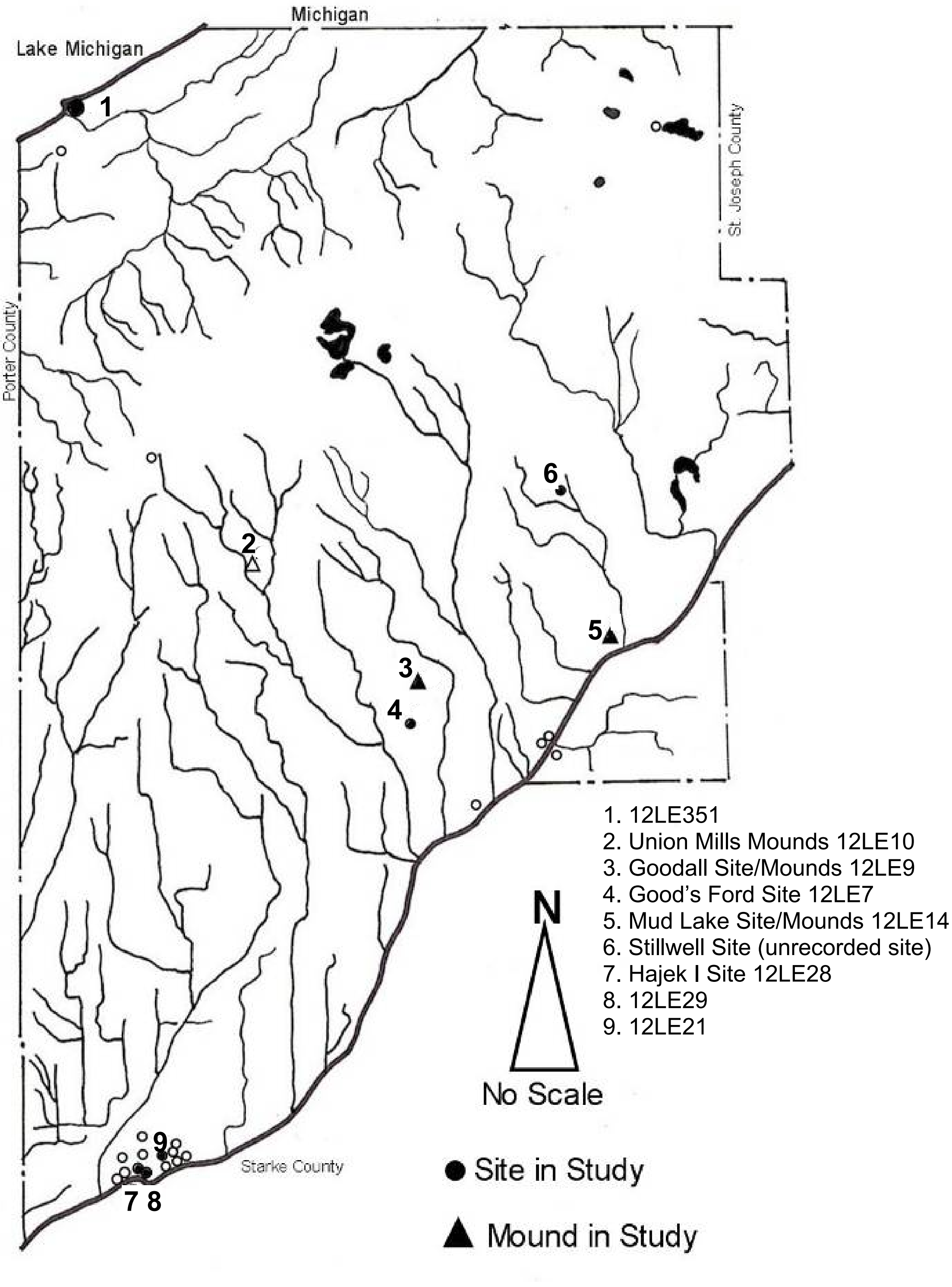


Figure 27. Site Distribution, Laporte County, Indiana

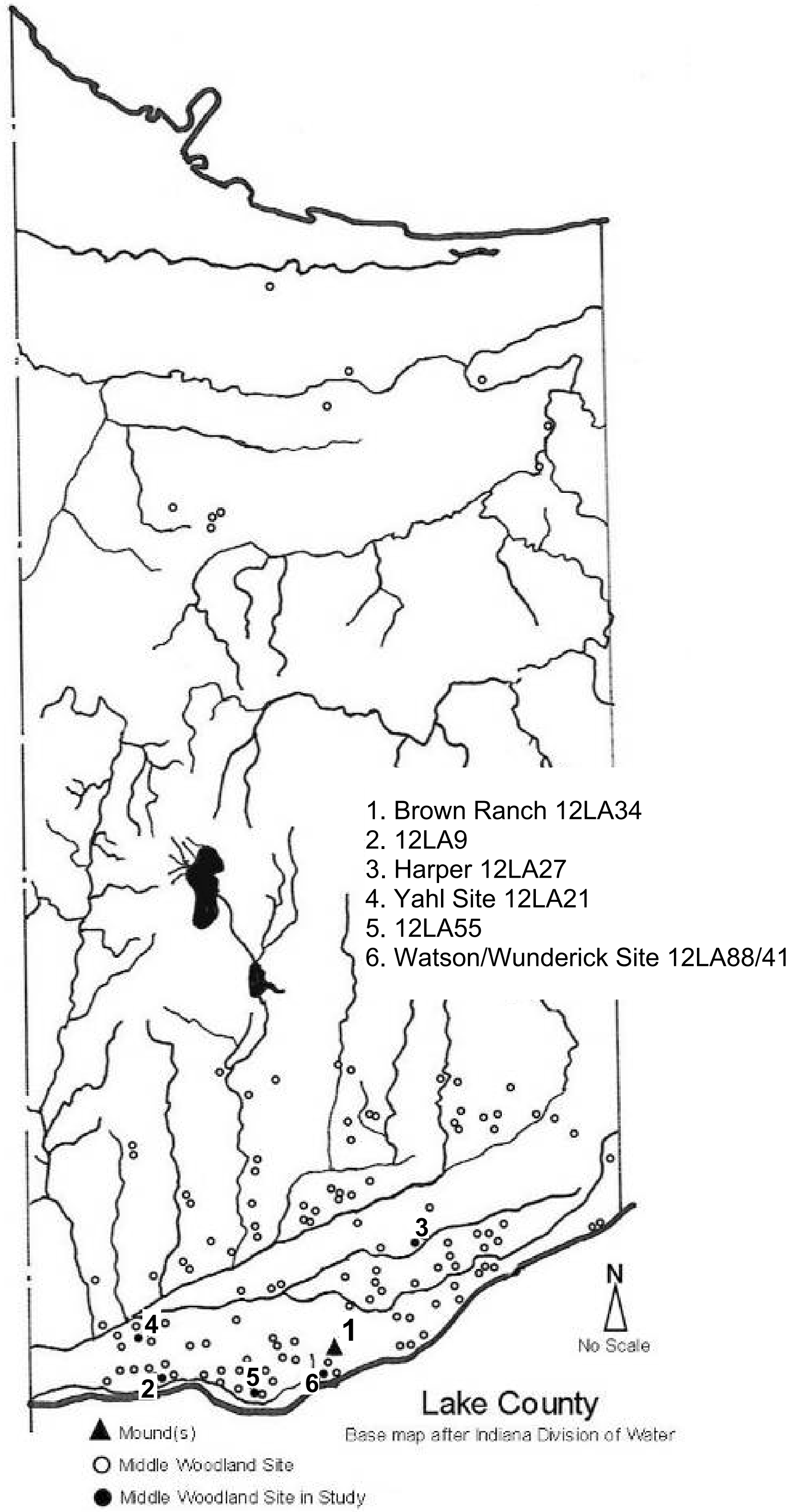


Figure 28. Site Distribution, Lake County, Indiana

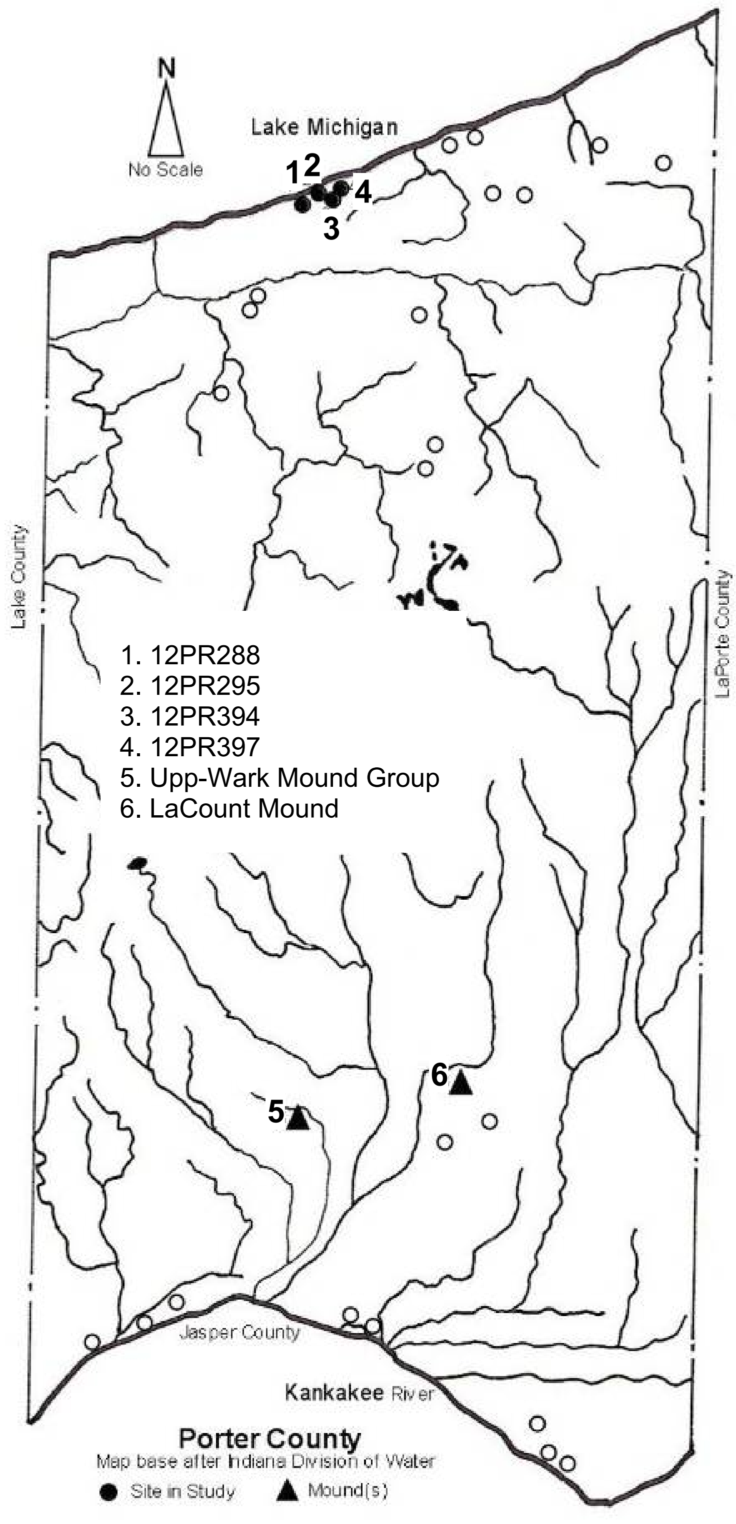


Figure 29. Site Distribution, Porter County, Indiana

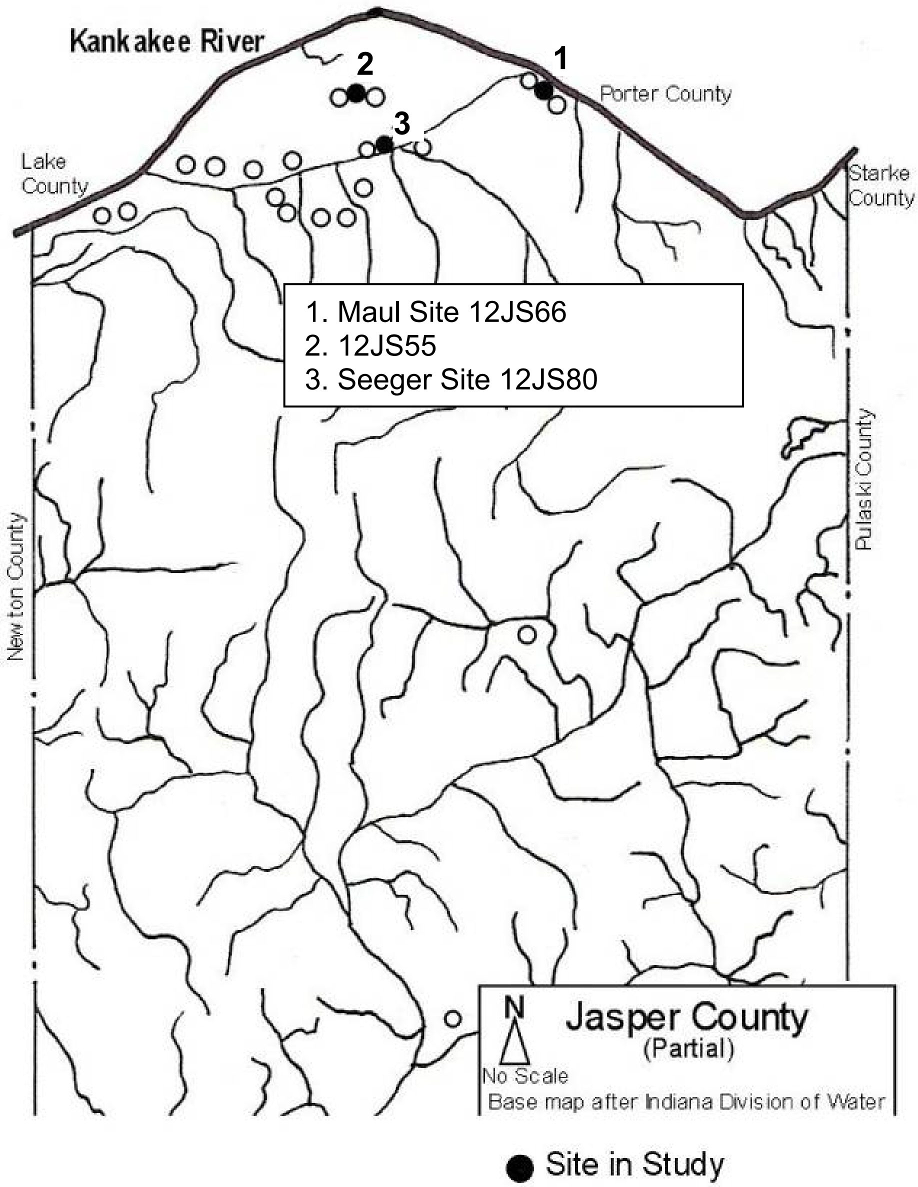


Figure 30. Site Distribution, Jasper County, Indiana

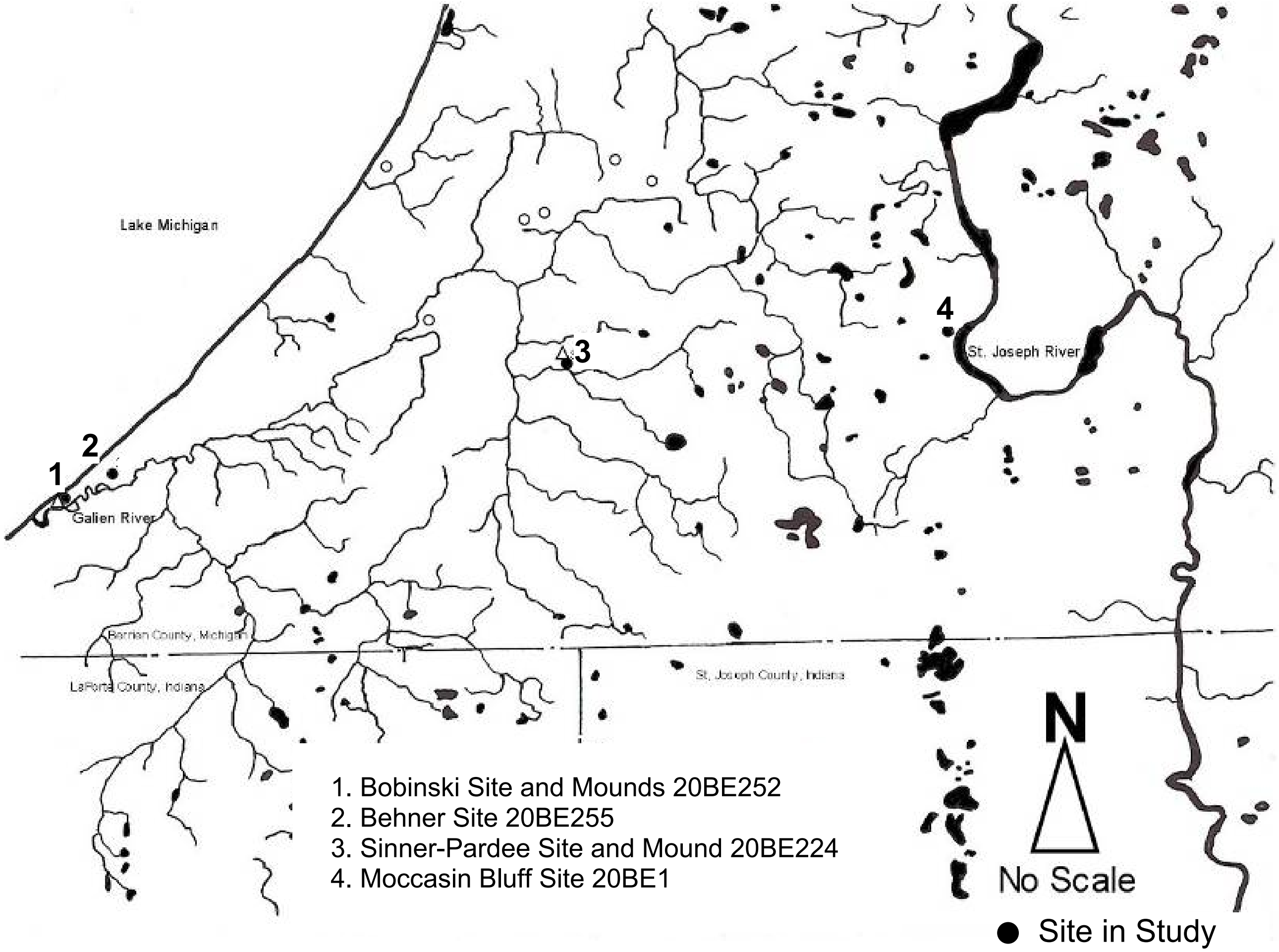


Figure 31. Site Distribution, Southwestern Michigan

Artifacts

> A prerequisite to the type of locational analysis . . . is a means of chronological control over the sites to be analyzed. The better the control, the more meaningful the locational analysis. . . . [T]he most chronologically-sensitive artifacts are ceramics and projectile points. (Roper 1979:23)

These artifacts establish the primary method of determining a Goodall tradition site. Ceramics clearly constitute the easiest of the artifacts to recognize. Many of the Kankakee River valley marsh sites contain Middle Woodland ceramics, especially Havana wares. Havana Cordmarked body sherds may be difficult to distinguish from other cordmarked vessels. However, the presence of large quantities of feldspar temper is one factor for separating out the Middle Woodland sherds. The clays that occur in the region do not naturally contain fragments of feldspar. Hopewell series ceramics usually occur in burial contexts but occasionally appear on habitation sites. The problem with relying on the presence or absence of ceramics is that a potential bias is introduced by considering only sites with ceramics as Woodland occupations. Not all Woodland sites, including those of the Goodall tradition, contain used and discarded ceramics. Sites with different functions may have required different tools; therefore, a wider range of artifacts must be considered. Snyders, *affinis* Snyders, and other projectile point styles are also characteristic of the Goodall tradition, as are lamellar blades. Certain types of lithic material can also be indicators of possible Goodall affiliation. These include Knife River Flint, obsidian, and Upper Mercer and Burlington cherts, in both natural and heat-treated states. Unfortunately, any one site may not have a large number of diagnostic artifacts exposed on the surface, which makes quick identification during a Phase I survey difficult. The locational setting and the diagnostic artifacts are two methods of identifying potential Goodall tradition sites, but the most revealing information must come through careful excavation and thorough analyses.

Survey and Excavation. Surface artifacts identified the majority of the sites used in my research. From that point, some of the sites were tested; others were excavated, and a portion continued to have only surface artifacts recovered by artifact collectors. The latter point introduces a large number of potential biases that were discussed in Chapter 1. Formal archaeological reconnaissance surveys conducted in northwestern Indiana are not numerous and only a limited number of site excavations have occurred. Other archaeologists, through the auspices of the Indiana Historical Society, conducted early surveys of individual counties. Counties within the research area included Newton (Hiestand 1951), Marshall (Faulkner 1961), Porter (McAllister 1932), and Starke (DePaepe 1959).

The Distribution of Goodall Sites and Mounds

Where is Goodall? When one looks at the locations of known Goodall sites within the region, several things are noticeable. Sites are predominately on the shores of Lake Michigan, within the confines of the Kankakee marsh, and in conjunction with areas of inland marsh habitat. Occasionally, a Goodall period artifact will occur outside these areas as an isolated find or in lithic scatters. These artifacts probably represent minor activity areas outside the main habitation areas.

The sites along Lake Michigan contain few features and a low frequency of diagnostic artifacts (Lynott et al. 1993, 1998; Mangold 1981b, 1996, 1997a). Middle Woodland sites are difficult to locate because of these factors. The features that do occur are not intensely used or numerous. Other undateable features are surface stains and small post molds. The occurrence of fragments of fire-cracked rock is also low. These clues seem to indicate warm-weather occupations that do not need large storage facilities or heat. Site locales vary from high fossil beach ridges to areas behind the main barrier dune. Two sets of radiocarbon dates are available for Goodall sites within the Indiana Dunes National Lakeshore. The dates are from 12PR288 and 12PR295 and range from 389 B.C. to A. D. 35, calibrated at two sigma (Bringelson and Sturdevant 2007:33). Feature A at 12PR288 had a date of 2170 +/- 70 radiocarbon years B. P. (Beta-41642) while Feature C at 12PR295 revealed a date of 2120 +/- 40 radiocarbon years B. P. (Beta-44485) (Bringelson and Sturdevant 2007:Table 2).

On the other hand, Middle Woodland sites within the main Kankakee River valley and especially within the marsh proper are more numerous. These sites occur predominately on oak islands. Other inland Middle Woodland sites also occur in conjunction with marshy areas. The marsh-oriented sites have higher quantities and varieties of artifacts than Middle Woodland sites along Lake Michigan. Features on the inland sites, although primarily undateable, are deeper, more frequent, and more intensively used.

A major dropoff in the presence of Middle Woodland sites takes place west of the barrier to the Kankakee River at Momence, Illinois. My research has identified only four conclusively Middle Woodland sites in the lower Kankakee Valley (Burge 1982;

Doershuk 1985; Gergen 1986, 2001; Jeske 1988; Tankersley 1992; Wiant and Rickers 2002). Others, including what may have been mounds, were recorded and given Illinois state site numbers. However, the information provided on the state's short site form can not substantiate any connection to the stated time periods. With the material from one site listed as debitage, a hammerstone, fire-cracked rock, and a broken biface, making assignment to any cultural period is haphazard at best. The sites that are clearly a Middle Woodland cluster within one area, located in Will County between the modern town of Wilmington, Illinois, and the area of the Illinois Kankakee River State Park (Figure 26). The state numbers associated with the sites are 11WI523, 11WI590, and 11WI1246. The fourth site does not have a state site number. It was identified in the 75-year-old notes and illustrations of a collector (Bergendahl 1935). The location of 11WI523 was originally on an island in the middle of the Kankakee River and may have had one or more mounds associated with it. The river changed its channel, connecting the island to the southern bank. A possible factor in the location of these sites is the availability of two types of clay in the banks of the river. Evidence recovered from 11WI1246 indicates the possibility that ceramics had been made at that locale. Two pieces of intentionally or accidentally fired clay, tempered in preparation for pottery construction, were recovered. One fragment exhibits adult-sized finger impressions (Figure 32).

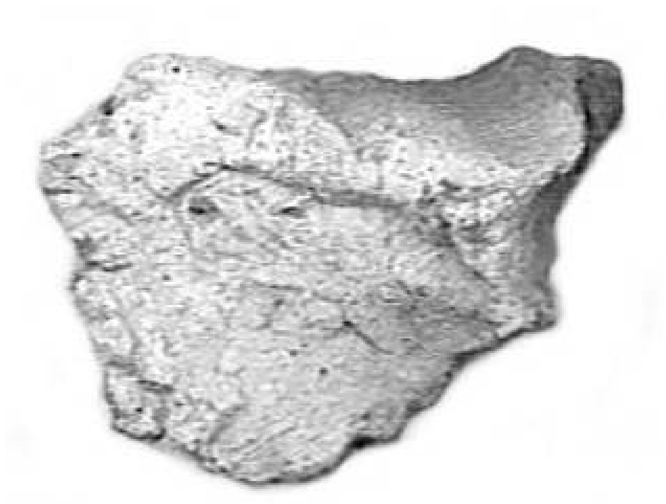


Figure 32. Waster Clay, 11WI1246 (enlarged)

The unoccupied space between the heavily occupied Kankakee Marsh and these sites may be the result of physiographic changes. West of Momence, Illinois, the Kankakee River cut a much deeper bed as a result of the actions of the glacially related Kankakee Torrent. Marshes and floodplains along the river are very rare, although some marshes exist inland. In the Illinois River valley, as well as in the Kankakee Valley, a strong correlation exists between these environments and Middle Woodland habitations.

I am including the Galien River basin sites with the Goodall tradition. Supporting this assignment are the presence of artifacts obtained through regional exchange networks; the presence of Illinois-made or locally copied Havana ware; a similar settlement/subsistence pattern, and site locations. At the Sinner-Pardee site (20BE224), a portion of a conch shell, a rim sherd from an Illinois-produced or inspired vessel, and lamellar blades of high-quality exotic cherts were found during surface collections. Rim sherds from an early Havana vessel or vessels were recovered from 20BE255 during limited salvage testing. Associated with an unknown number of mounds described in historic records, the Bobinski site (20BE282) produced only ceramics, including a large section of a Naples cord-wrapped stick impressed jar (Mangold 1981a, 1981b) (Figure 24). An additional factor taken into consideration is that the headwaters of the Galien River and the headwaters of several tributaries of the Kankakee River are less than a kilometer apart.

Mounds and Mound Groups. The lower Kankakee River valley has no confirmed Middle Woodland mounds or mound groups. Local information indicates that mounds supposedly existed in the area near the cluster of Middle Woodland sites previously mentioned and elsewhere; however, road construction and cultivation have destroyed them. William Calhoun reported that several mounds existed near the junction of Terry Creek and the Kankakee River (Gergen 1999:19). Terry Creek runs between the sites of 11WI1246 and 11WI523 (Figure 26). The recovery of zoned dentate body sherds from two quadrilobate vessels supports the presence of a mound. In my experience and supported by that of others (K. Farnsworth, personal communication 2007), this type of ceramic vessel form is primarily found in mortuary context outside the Illinois River valley. Binns (personal communication 2006; Illinois Archaeological Survey site files) also stated that at least 16 burials were exposed and removed during the construction of a river landing in the vicinity during the 1930s.

Within the upper Kankakee River valley, mounds are far more numerous and tend to cluster in two particular areas (Figure 33). The stronger presence is along the northern edge of the Kankakee Marsh where mounds occur singly, in pairs, and in groups having as many as 22 tumuli. The second presence is in the lake plain, that area between the dunes and the Valparaiso Moraine. The mounds appear smaller than those found near the marsh and appear to occur only singly or in pairs. As so few mounds remain in this region, we must rely upon the early records, even though their accuracy is subject to question. Schurr (1999) attempted to relocate some of the isolated and small groups of mounds described in the early records. His attempt was unsuccessful due to development or cultivation, possible locational errors in the original documents, and looting. Looting may have obliterated the mound, or the "mounds" may have been natural features. While the descriptions of mounds occur in the early records and newspaper articles, little artifactual evidence is available to support or refute the existence of these tumuli. The one exception known at this time is a copper celt in the Young collection from a mound located between the north and south lakes of the Chain-O-Lakes at Lydick, Indiana. In his notes, Young recounts digging a mound and finding little except for the celt. I observed human remains in my search of the curated material at the Illinois State Museum, which confirms that the structure was a burial mound.

The Sumnerville mound group and the Moccasin Bluff site, with its documented Middle Woodland habitations, are more difficult to assess. Both have produced Havana wares (Betteral and Smith 1973; Garland and DesJardins 2006). A few of the sherds were from the early Havana period. Some restricted survey and testing was done in the vicinity of the mounds with limited results (Garland 1990; Garland and DesJardins 2006). However, it could be evidence of the same pattern found at the Goodall site (Mangold 1995, 1997a; Mangold and Schurr 2006; Schurr 1998). Small habitation scatters with a limited number of diagnostics occur in the general area encircling the mound group. With the available data, these two sites cannot be considered part of the Goodall tradition.

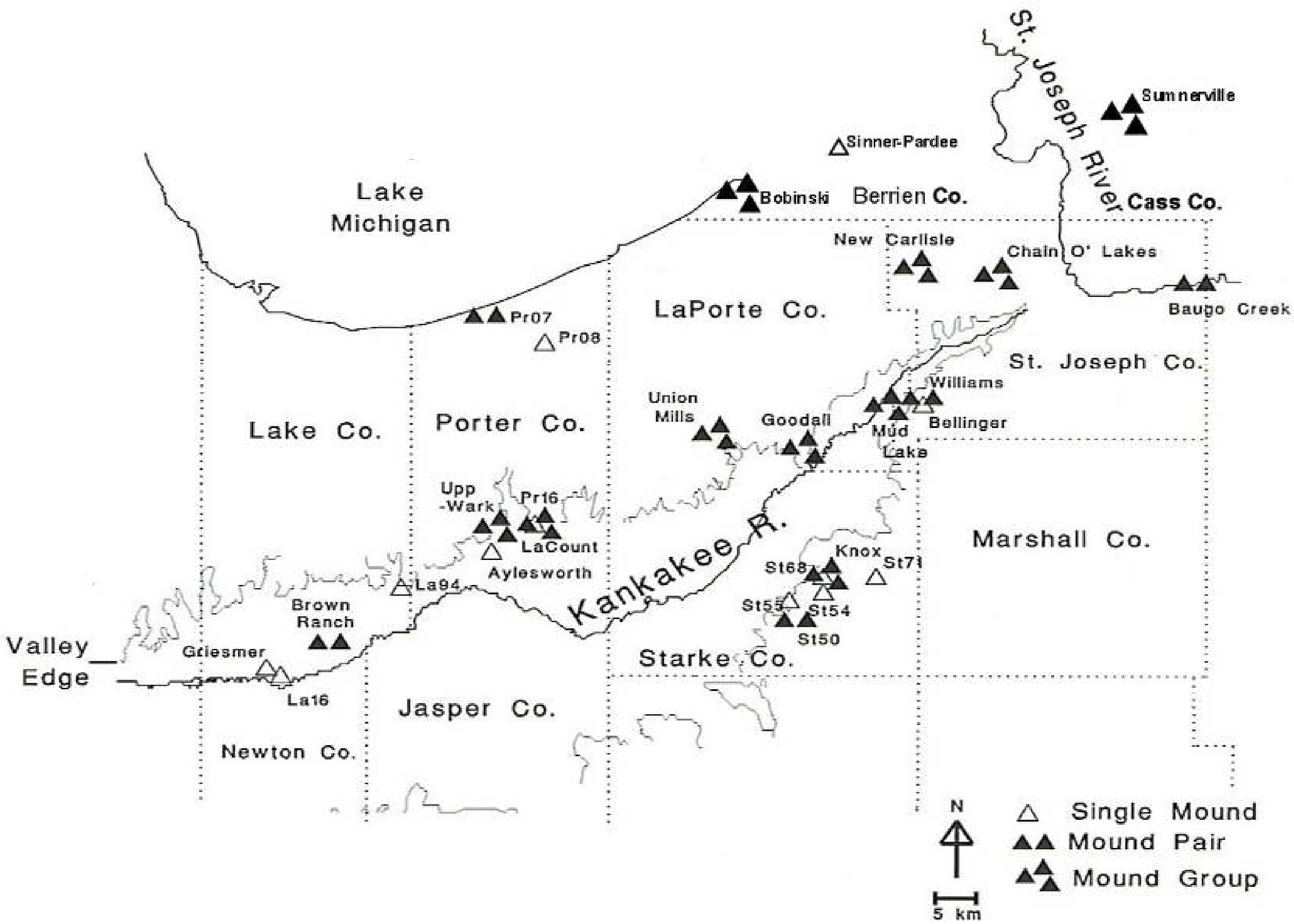


Figure 33. Mound Distribution in Research Area (Mangold and Schurr 2006)

Subsistence and Settlement

One of the more important questions of my research looks at the settlement and subsistence patterns of the Goodall tradition. A foundation is necessary upon which to judge the uniqueness, if any, of the use of the environment by the Goodall people. The settlement and subsistence activities of the Middle Woodland people of the central and lower Illinois River valley have been heavily researched. Kingsley (1981), Brown (1964), and Faulkner (1972) have also proposed other theories. I shall use discussions of the proposed patterns to address and support different conclusions, including the uniqueness of the Goodall activities.

Illinois River Valley. The Illinois River valley, especially the lower portion, is the most heavily studied in terms of subsistence and settlement patterns. A comparison of the Goodall tradition activities to activities found in the Illinois Valley should support the uniqueness of those occurring in the Kankakee Valley.

Struever (1964) proposed a triumvirate of site settings. The sites he described occurred on levees within the floodplain, at the bases of bluffs, and positioned on bluff tops. He theorized that the sites in the floodplain were primarily horticultural in nature and dealt with the procurement of weedy annuals that grew quickly in the formerly flooded areas. The bluff base locales were the location of large base camps. The bluff-top settings were utilized primarily for ceremonial activities and contained the majority of the mounds. Since Struever's 1964 research, other archaeologists have found additional locations that are undoubtedly part of the settlement-subsistence pattern. Farnsworth (1973), Farnsworth and Koski (1985), Roper (1979), Stafford and Sant (1985), and Styles

(1981) provide "base camp" site locations in tributary river valleys as well as other interior sites. These additions point to a far more complex system than that originally proposed by Struever. Within tributary river systems, smaller-scale but sophisticated settlement-subsistence patterns were identified (Farnsworth 1973). It is clearly established that weedy annuals, such as little barley and chenopodium, sunflower, and bottle gourd were part of the total subsistence package. Struever used the term "mudflat horticulture" to describe the use of the disturbed habitat created by the receding flood waters on the valley floor. The question of whether or not the weedy annuals were planted or grew naturally in the habitat has not been resolved. The increased median seed size during the Middle Woodland period could be used to argue for the intentional selection and planting of larger seeds.

Michigan River Valleys. Kingsley (1981) proposes that the subsistence-settlement pattern in the large river valleys in western Michigan developed from that found in the Illinois River valley. In particular, a strong similarity exists with the system found in the Sangamon River valley (Kingsley 1981:136). Villages tend to be located on a terrace or levee directly adjacent to the river, with the levee always near large tracts of floodplains. Additionally, Kingsley stated that no confirmed Middle Woodland "village" sites had been located and excavated in any of the described river valleys. He did not provide a definition of a village. The situation in the Kalamazoo River valley, where only a few "minor" Middle Woodland sites occurred at the time of his writing, was used to support his definition of Middle Woodland settlement preferences. He attributed this lack of occupation to the undeveloped floodplain in the river valley. Several problems exist with his proposed system. Prior to the publication of Kingsley's article, a number of Middle Woodland sites had been located (Figure 34). These included the Mushroom site (20AE88) in 1978 (Garland and DesJardins 2006; Garland and Mangold 1979); the Hacklander site (20AE78) (Garland 1976; Garland and DesJardins 2006; Kingsley 1978, 1981, 1990); and the Fennville site (20AE54), both in the 1960s (Garland and DesJardins 2006; Rogers 1972). Garland and DesJardins (2006:241) described the Mushroom site as a "large Middle Woodland site." Since Kingsley's writing, the Armintrout-Blackman site (20AE812) (Garland and DesJardins 2006;Spero et al. 1991), and the Hart site (20AE860) have been located and investigated. These sites are primarily associated with terraces above what would have been marshy areas in the river valley and at locations where the river valley narrows. This pattern is similar to those found elsewhere in western Michigan.

Grand Valley State University extensively excavated the Prison Farm site (20IA58) in 1996, 1997, and 1999 (Brashler et al. 2006). The site dates from approximately 10 B. C.–A. D. 330 (Brashler et al. 2006:269, Table 15.2). These dates compare favorably with the other Middle Woodland radiocarbon dates that range 10 B.C.–A.D. 426 (Brashler et al. 2006:269, Table 15.2). A second occupation site in the Grand River valley was located and excavated in 1999 as a result of work related to a proposed bridge location. This site was associated with the Converse mounds (20KT2). The ^{14}C dates are comparable with those from the Prison Farm site. The Converse habitation area contained abundant and relatively well-preserved faunal material, but floral remains were quite limited. The large amount of sturgeon remains argues that the season of the use of this site was early spring (Bashler et al. 2006:281). This is similar to the occupational focus at the Prison Farm site and suggests a settlement-subsistence pattern “. . . involving considerable seasonal mobility during the Middle Woodland . . .” (Egan-Bruhy 2003). The Prison Farm site’s lithic collection also is indicative of a strong but possibly brief focus on hunting and hide processing that is more associated with a late fall occupation (Brashler et al. 2006:282). It has been suggested (Brashler and Holman 1999; Egan-Bruhy 2002; Hambacher and Robertson 2002) that the settlement-subsistence pattern of dispersed populations during the warmer seasons shifts to the lower reaches of interior lakes and to the headwater areas.

The overall settlement-subsistence pattern proposed by Kingsley (1981) for the Grand River valley and possibly its northern neighbor, the Muskegon River valley, involved site selection similar to that found in the lower and central Illinois Valley. Current research, however, indicates a heavy reliance on animal resources. The role of floral resources cannot be adequately addressed due to preservation issues. The emphasis on hunting and gathering suggests a continuation of earlier patterns found in the Late Archaic and Early Woodland periods (Brashler et al. 2006:283).

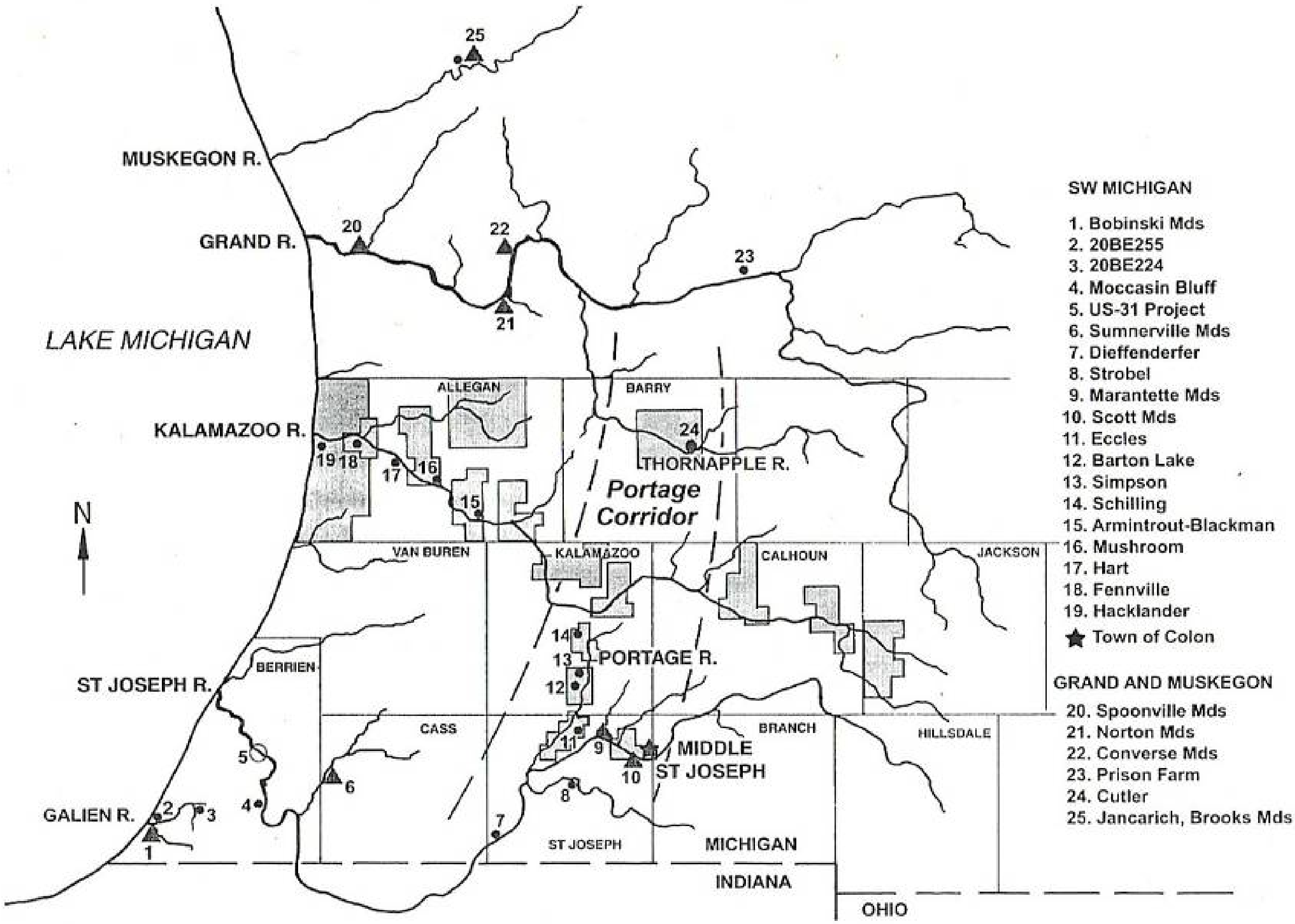


Figure 34. Michigan Middle Woodland Sites (after Garland and DesJardins 2006).

Goodall Settlement and Subsistence Patterns. Because excavations have recovered limited faunal and floral data from Middle Woodland contexts in the Kankakee River valley, it is necessary to determine what resources would have been available in the region. The dunal areas have a rich mixture of seeds, mussels, fruit and berries, fish, mussels, mammals, and migratory waterfowl. Many ducks and geese summer along Lake Michigan, in the interdunal lakes, and on the numerous ponds and marshes. However, the majority of mobile natural residents quickly abandon the lakefront area with the approach of winter weather.

Within the interior river valleys and marshes, fish, aquatic mammals (such as beaver), larger mammals, birds, turtles, and nuts are available. Aquatic resources tend to be abundant, reliable, predictable and easily exploited. Many of these resources continue to be available through the winter months. People can obtain hibernating turtles, fish and mussels through the ice. Deer tend to gather or "pen" during the winter months in protected areas. Examples of such places include the oak islands in the marsh and the timber along the river. The islands would have been easily accessible over the ice. Deer, being good swimmers, could have moved easily from island to island to shore at any time of year.

The site locations in the upper Kankakee River valley and adjacent areas reflect a dual settlement subsistence pattern. Residents would have spent late spring through early fall in the areas along the lakeshore where the edible plants, fruits, and berries could have been gathered and dried. "These dune sites presumably were summer camps occupied by Hopewell peoples who must have lived elsewhere in the winter" (Quimby 1952:104). They caught fish and dried or smoked the meat. The habitation areas would be dispersed to take advantage of as many of the available resources as possible. “Dispersal is usually motivated by the scattered distribution of resources . . . . Most striking is the flexibility of spacing behavior observed in the same species, depending on specific situations” (Kummer 1971:221). The travel effort expended in moving between the marsh and the dune/lake is balanced by the ease of resource procurement and comfort. The relatively stable recurring resources in both regions would have encouraged the reoccupation of sites (Redman and Kinzig 2003). This would have made the region very attractive for human resource procurement. Beyond the food resources, clay was easily found in the cut banks along the lake. It could have been gathered, dried, and powdered for use elsewhere or at another time.

After nuts were gathered in the dunes, settlement would have shifted to the protected inland areas. The major migratory flights of various fowl were undoubtedly targeted, possibly through the use of nets. The birds would have been attracted to the area by stands of open water and abundant food. Migrations occur on fairly predictable schedules and hunting the birds could have been timed to fit into other activities. The large quantities of acorns would have been gathered and processed, and deer and larger animals would have been hunted. Deer also would have been drawn to the protected, wooded areas where winter storms would have been less threatening. The presence of acorns would have provided an additional food source. Habitation areas were primarily located on sand islands within the marsh. These locations exhibited intense evidence of occupation. However, the number of individuals within each settlement would have been small, probably no more than one or two families. With dispersed hamlets in both warm and cold seasons, inhabitants would necessarily want to congregate with other members, friends, and relatives. As with other cultures, the aggregation would probably have been a time of rituals and feasting. This aspect of Goodall settlement is discussed below.

During the excavations at Goodall Mound 16, a single, carbonized, bottle gourd seed was found protected from decomposition by its location inside an overturned ceramic vessel. At the Eidson site in the St. Joseph River valley, well-documented evidence for the use of sunflower during the Early Woodland period was recovered (Garland 1986). The probability of the utilization and possible cultivation of the sunflower is likely during the subsequent cultural periods. Other starchy seeds may have been selectively harvested in the previous season and replanted. After the spring high water levels recede, a soil band that is clear of weeds is exposed. This would have provided an excellent location for planting seeds, such as sunflower and bottle gourd. This disturbed context would also have been where starchy seed plants would grow naturally. A return by the inhabitants to harvest the results would need to be timed to occur prior to the rise of the water levels with the late fall rains. There may have been occasional forays from the lakeshore to bring back and cache dried food for the winter. Fruits gathered and dried during the warmer months could have been mixed with fat and dried meat, creating something like the pemmican used by later cultures.

The distance from the northern edge of the Kankakee Marsh to the shores of Lake Michigan varies from 32 to 51 km. From a marsh-oriented, interior site such as the Sinner-Pardee site, the travel distance is even less, approximately 8 km. Travel between more distant locations could have been completed within a few days even at a heavily loaded pace. Children, women, and older adults could have accomplished some of the subsistence activities, leaving the men to carry the processed resources back into the Kankakee River valley.

Other considerations present in establishing the scheduling of this dual subsistence system are more comfort related. Living in a humid, mosquito-filled marsh during the summer months is not enjoyable for man or larger animals. Nor are the bitterly cold, windblown lakeshore and high morainic ridges in winter. The deep lake-effect snows added to the impact of winter near Lake Michigan. While resources that could be used are present in both locations throughout the year, human comfort may have been a contributing factor to the use of this dual subsistence pattern.

If Goodall peoples employed a dual subsistence-settlement system, that pattern would not have been practical if the distance separating the two resource areas became too great. The area outside this particular zone of dual access to resources may not have seen any Goodall occupation. A change in resources played a significant role. Goodall peoples may not have settled there if dunes were absent along a portion of Lake Michigan or if a marsh environment in the region was missing. Dunes begin to disappear approximately at the modern Illinois-Indiana state line. The wind force and direction are less capable of creating sand dunes in the southernmost portion of the Lake Michigan lakeshore. The dunal environment favored by Goodall people was not present and the western edge of the Kankakee Marsh was directly south of this area. At that point, favorable environmental conditions for the Goodall subsistence system ended. Therefore, the western edge of the Goodall occupation would have occurred near the natural obstruction of the Kankakee River and the emergence of the marsh. Using the same criteria, Goodall occupation would have rapidly diminished east of the South Bend–

Mishawaka area. Although the dunes continued north along the eastern shore of Lake Michigan, large, marshy areas were rarely present. The Goodall area did not extend as far north as the mouth of the St. Joseph River. To the south, the marsh boundaries expanded or contracted in response to the quantity of water impounded in the main marsh. However, the lack of dunal conditions would have restricted the expansion of Goodall in that direction as well.

Ruby et al. (2005) conclude that Middle Woodland cultures in the Illinois, Wabash, and Scioto River valleys practiced a pre-maize, swidden agriculture. The plants included squash, sunflower, sumpweed, chenopodium, erect knotweed, maygrass, and little barley (Ruby et al. 2005:125). The reasons for the need for farming included markedly linear and circumscribed resources, the low density of resources, and a more sedentary and dense population (Carr 2005d:79; Ruby et al. 2005:130). In the Scioto River valley, the reliance on seeds was less and the use of nuts increased (Carr 2005a:61). The need for swidden agriculture was unlikely in the upper Kankakee River valley. The total resource base in that region was much larger and more diverse. While the rich resources could have encouraged sedentism and population growth, the size of the area may have kept the population size small. If the use of nuts increased during the Middle Woodland period in the region, the Goodall peoples were well placed for acquiring them. Large numbers of nut trees occur along the lake plain, on the moraines, and on the islands in the marsh. Unfortunately, poor floral preservation makes this determination difficult.

A similar dual settlement system containing individual components with concomitant differences in economic activities was found in southern Germany (Jochim 1976, 1998; Reinerth 1929, 1930; Taunte 1973). Clusters of surface artifact sites along the shores of Lake Federsee reflect warm weather resource procurement. Unlike the Goodall sites found to date, some of these lithic scatters represent more intense occupations, suggesting site reuse or use by larger numbers of individuals. The summer activities were paired with winter activities centered in cave and shelter sites in the Swabian Alb Mountains. Similarly, the Goodall activities were open and lake oriented during warm weather and centered on hunting in more protected areas in cold weather.

In addition to the limits imposed by the geographic conditions, evidence for cultural boundaries can be seen (Barth 1969; Canouts 1986; Fie 2000; Hastings and Wilson 1999; Melko and Scott 1987; Stark 1991; Taylor 1988; Varien 1999; Wandsnider 1996; Wilmsen 1972). In the lower Kankakee Valley, ceramics from the Illinois Valley and the Goodall tradition are present; however, Goodall ceramics are in the minority. To the north and east of the Kankakee Marsh, different cultural preferences are found. With regard to chert outside the Kankakee Marsh, the preference changes from Burlington, Wyandotte, and Flint Ridge lithic material (in that order) to Flint Ridge, Wyandotte, and Bayport cherts. In eastern Indiana, circular enclosures similar to those in southwestern Ohio are found at Mounds State Park, New Castle, Whitaker, and the Taylor Mound in Steuben County. One possible enclosure at the Sumnerville mound group was created in a manner like that of several at Mounds State Park. In these cases, ditches were dug and no or minor raised walls were constructed. No other prehistoric enclosures have been identified in the Goodall area. The presence of these traits to the north and east of Goodall may represent a cultural boundary or sphere of influence. The Goodall tradition appears to be in communion with the Illinois River valley, while northeastern and eastern Indiana seem to have been looking in the opposite direction.

To review, the boundaries of the “classic” Goodall tradition can be established as the southern edge of the Kankakee Marsh, the end of the dunal line along Lake Michigan and the river obstruction creating the marsh on the west. The general area of the big bend of the St. Joseph River is the eastern edge, and the northern boundary fell somewhere south of the mouth of the St. Joseph River. This may be a relatively small area by many standards of cultural territory, but the Goodall tradition appears to be tied to the dual settlement system just described and to the region in which it can be actively pursued.

If such is the case, how can the Middle Woodland sites in the lower Kankakee River valley not be of the Goodall tradition? These sites contain ceramics with designs and construction methods similar to, if not the same as, Goodall tradition vessels. As previously stated, ceramic vessels were being made in that area; however, the time period of that manufacturing cannot be determined at this time. The cluster of sites is the only currently known Middle Woodland occupations between the western boundary of the marsh and the confluence of the Des Plaines and Kankakee rivers. These sites may have been a meeting place for Goodall peoples or traders and similar representatives from the Illinois River valley. Rim sherds typical of those found in the Goodall area were recovered on all three sites. While there is a mixing of ceramic design traits, construction technology is quite comparable. This determination is based upon thin sections taken from key Middle Woodland sites throughout the area of the Goodall tradition and from Illinois sites (Table 5). I also performed macroexaminations of additional ceramic sherds from both areas.

Table 5. Ceramic Thin Section Analyses.

Sample	Matrix	Quartz	Plagiocia	K-spar	Rock Frag. – Ign.	Rock Frag. – Chert	Rock Frag. – Meta.	Rock Frag. – Sed.	Total % Temper	Temper to Matrix Ratio	Rounded	Siltstone RF	Comments
SWMI 1	63	1		tr	36				37	58.7	few		
SWMI 2	77	11	3	2	7				23	29.9	few		tr biotite
SWMI 2A	69	20		10		tr		1	31	44.9			tr hornblende
IL 1246	78	6		3					22	28.2			
IL 1246-13	78	15	5	tr					20	25.6	few		2% mitrocline
IL 590-18	67	12	5	5	11				39	49.3			
IL 590-43	84	7	1	3	5				16	19.0			rare plagioclase
IL 1246-8	75	12	tr	7	6				25	33.3	few		tr hornblende
WILS 262	76	tr	tr	1	23				24	31.6	few		
WILS 263	64	10	12	6	8				36	56.3	few		
WILS 264	61	16			23			tr	39	63.9	few	1	siltstone rounded 1 mm
WILS 265	65	27	1	tr	5	2			35	53.8	abundant		tr biotite, hornblende
WILS 266	80	10		3	4	2			19	23.8	some		tr biotite, muscovite
WILS 267	68	9		15	8	tr			32	47.1	few		tr hornblende
WILS 268	87	6		2	6				14	16.1			
WILS 269	73	16	tr	3	8				27	27.0	few		
WILS 270	79	17		2		4			23	29.1	some		
WILS 271	93	3	tr	4	Tr				7	7.5			
WILS 272	72	16	2	2	6				26	36.1	some	2	
WILS 273	85	4		11	Tr				15	17.6			

Continued on next page

Sample	Matrix	Quartz	Plagiocia	K-spar	Rock Frag. – Ign.	Rock Frag. – Chert	Rock Frag. – Meta.	Rock Frag. – Sed.	Total % Temper	Temper to Matrix Ratio	Rounded	Siltstone RF	Comments
KUHNE 1	70	15	1	9	5				30	42.9		1	tr microcline
KUHNE 2	73	6	4	12	4				26	35.6	few		clinopy foxene 1%
KUHNE 3	75	7	tr	4	12				23	30.7	few		tr titanite, hornblende, epidote, 2% biotite
KUHNE 4	65	15	5	15					35	53.8	some		
KUHNE 5	65	16	tr	11	13				30	46.2	some		5% hornblende
KUHNE 6	60	15	5	11	9				40	66.7	some		tr biotite, 1% hornblende
IU 5447-1	61	10	1		22		6		39	63.9		1	phylite (?) 2 rf
IU 5447-2	63	17	2	13	Tr		4		36	57.1	1		tr hornblende
IU 5186-29	60	22	7	9	3				41	68.3			
G 2729	85	2	tr	11	2				15	17.6	some		
G 3167	72	4	14	10	tr				28	38.9	some		
G 3568	55	12	1	15		13			41	74.5	some		4% biotite
G 4634	91	tr	tr	tr	9				9	9.9	some		tr biotite
G 5339	74	7	1	8	10				26	35.1	many		tr biotite
G 5961	82	14	1	4	tr				19	23.2	many		tr biotite
G 2098	86	10		tr	4				14	16.3			
G 4621	75	10	tr	12	3				25	33.3	few		
G 4623	70	11	tr	7	12				30	42.9	few		
G 5334	62	15	tr	1	23				39	62.8	few		
G 5335	75	4	4		18				26	34.7	few		tr clinopyroxene
G 5340	68	2	tr	4	27				33	48.5	few		
G 6287	70	1		1					2	2.9			mostly EVF grit temp

Continued on next page

Sample	Matrix	Quartz	Plagiocia	K-spar	Rock Frag. – Ign.	Rock Frag. – Chert	Rock Frag. – Meta.	Rock Frag. – Sed.	Total % Temper	Temper to Matrix Ratio	Rounded	Siltstone RF	Comments
GF 5443	75	7		12	6				25	33.3			thk
GF 6144	71	4	tr	7	18		tr		29	40.8			tr biotite
GF 7081	72	8	tr	16	8		tr		28	38.9	few		
GF 6629	74	11	2	2	11				26	35.1	abundant		
GF 7877	63	tr	1	1	16				18	28.6	one		
DSP 270	52	11	tr	16	21				48	92.3			tr biotite
DSP 280	65	8	11	10	3				32	49.2	some		3% biotite
DSP 333	87	3	6	4	tr				13	14.9			Ttr biotite 28% vf grit temper; 72% clay
DSP 301	62	31	1	2	4		tr		38	61.3		1	
ML 3486	85	tr	4	5	7				16	18.8			
ML 4890	90	9	1						10	11.1	few		15% vf grit temper
ML 7546	71	14	tr	7	8		tr		29	40.8			tr biotite hornblende
ML 4443	71	24	1	4					29	40.8	few		30% vf grit temper
ML 4560	64	4	3	12	12				31	48.4	few		5% hornblende
ML 4831	76	11	tr	7	7				25	32.9	few		tr biotite
ML 7237	78	8	4	4	6				22	28.2	few		
HAJ 22	79	3	tr	6	13				22	27.8	some		
IU 5180-11	46	28	1	3	24				54	117.4	few		tr biotite tr titanite / monazite
IU 5184-1	94	5	2		tr				7	7.4	abundant		
IU 5185-3	60	24	tr	18	tr				40	66.7			tr biotite
IU 5186-4	74	7	1	7	13				28	37.8			tr biotite / tr zircon
IU 5186-19	72	10	3	4	11				28	38.9	one		

Continued on next page

Sample	Matrix	Quartz	Plagiocia	K-spar	Rock Frag. – Ign.	Rock Frag. – Chert	Rock Frag. – Meta.	Rock Frag. – Sed.	Total % Temper	Temper to Matrix Ratio	Rounded	Siltstone RF	Comments
IU 5186-26	64	7			29				36	56.3			
IU 5168-38	88	7		7	tr				14	15.9	few	one	
IU 5187-1	49	12	8	4	16				50	102.0	few		1% biotite / tr hornblende
IU 5187-2	62	4	tr	7	24				35	56.5			3% biotite / tr hornblende / tr muscovite
IU 5187-6	75	19	1	5	tr				25	33.3			
IU 5187-8	85	9		6	tr				15	17.4			
IU 5187-20	61	8	tr	18	13				39	63.9	few		
IU 1266-6	67	24	9	tr	tr				33	49.3	few		tr biotite
IU 5169-24	78	4	3	3	12				22	28.2	two		tr biotite, muscovite
IU 5171-2	80	15	tr	4	1				20	25.0	abundant		
IU 370-20	67	3	tr	30	tr				38	49.3			
IU 370-22	72	7		9	12				28	38.9	some	few	
IU 678-13	56	39	2		3			1	45	80.4		few	red matrix
IU 678-14	90	5	1	2	tr			2	10	11.1		one	red matrix
IU 678-15	76	2	tr	15	7				24	31.6	one		
IU 678-18	73	3	tr	10	6				19	26.0	two		
IU 678-27	79	3		tr	18				21	26.6			
ST 5001	70								70				30% vf grit temper
ST 1392-3	60	19	tr	13	8				40	66.7	few		

Notes: 1. Few = 2–4 grains; some = 4–5 grains; abundant = > 5 grains
2. The data is based on a 100-point count of each sherd. A random line or lines was selected across the sherd along which the percentages were tallied. 95% of certainty results for a 100-point count.

Continued on next page

Notes (cont'd)

% Constituent	95% Certainty (+/-)	Range of True Value at 95% Certainty
90	6.0%	94.0 – 96.0%
80	6.0%	72.0 – 88.0%
70	9.0%	61.0 – 79.0%
60	9.8%	50.2 – 69.8%
50	10.0%	40.0 – 50.0%
40	9.8%	30.2 – 49.8%
30	9.2%	20.8 – 39.2%
20	8.0%	12.0 – 28.0%
10	6.0%	4.0 – 14.0%

<u>Samples</u>

SWMI 1: Bobinski Site (20BE282)
SWMI 2: Behner Site (20BE255)
IL: Illinois Sites 11WI590, 11WI1246
WILS: Wilson Site (12LA46), University of Notre Dame Collection
DSP: Dunes State Park (IN) Collection
KUHNE: Kuhne Site, Center for American Archaeology Collection
HAJ: Hajek Site (12LE28)
G: Goodall Site (12LE9), Illinois State Museum Collections
GF: Goods Ford Site (12LE7), Illinois State Museum Collections
ML: Mud Lake Site (12LE14), Illinois State Museum Collections
ST: Stillwell Site, Illinois State Museum Collections
RF: Rock Fragment
Rounded: Rounded sand/quartz grains

The findings provide some important data. The temper composition, size, and density from all Goodall tradition sites are remarkably uniform (Table 5). However, I found those characteristics, as well as similarities in design attributes, in sherds from the Kuhne site in the middle Illinois River basin (Figure 35). This would be more understandable if the ceramic sherds from sites between the Kuhne and Goodall occupations exhibited the same distinct qualities, but that does not appear to be the case. I examined ceramic sherds and vessels from the Utica mounds at the Spurlock Museum on the University of Illinois campus and at the office of the Illinois Transportation Archaeological Research Program (ITARP), both in Champaign. In all cases, the physical composition of the Utica sherds is noticeably different. The Goodall and Kuhne sherds have high proportions of feldspar with some individual particles being quite large. In contrast, the sherds from the Utica mounds exhibit a low ratio of feldspar and a higher level of mafic temper. The individual mafic particles are also much smaller. This could possibly be the result of two factors. The Utica mounds and occupations are of a different time period from those found at Goodall. The second is much harder to prove but still remains a distinct possibility. Some type of interaction, whether direct or indirect, may be indicated. The where and how that type of activity may have taken place go beyond the scope of the current data.

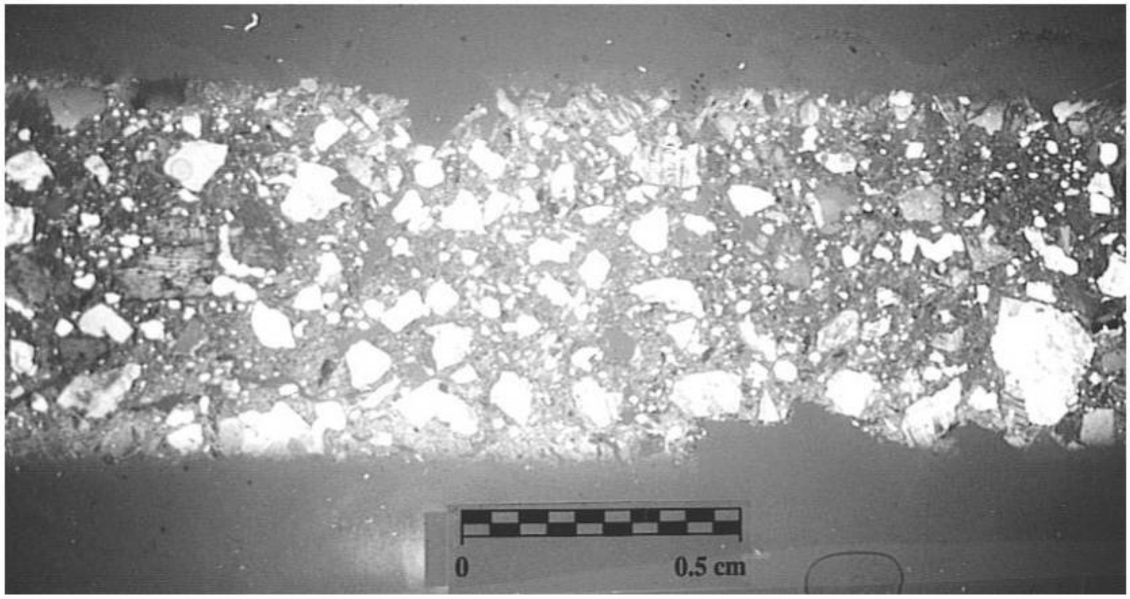


Figure 35. Thin Section of Sherd #411, Kuhne Site, Illinois

James Watson described how learned behaviors are being expressed, consciously or unconsciously, in the making or decorating of material artifacts under *cultural diacritics.*

> [Cultural diacritics] reflect familiarity, custom, habituation, and an acquired accommodation to the creatures, things, spirits, and . . . powers of a particular locale, aided by the instruction and ritual and magical proclivities of parents and other elders of a community. (Watson 1990:38)

The invisible aspects of artifacts may have as much significance as the visible ones. The paste and temper recipe seen in this study may be as potent a social identification of an association with a group as other more visible ones, such as a copper axe or mica mirror. In addition, the way an artifact was manufactured may have special meaning to those who knew its history (Wobst 1977).

Without closer examination of both, the designs used and the impressions left by the tools used for making those designs, important data is missing. An unusual bulbous quadrilobate ceramic vessel was recovered from Mound 22 at the Goodall site (Figure 9).

The decoration of that vessel is as unique as the form, with numerous styles of stamping and zoning overlapping each other. A sherd from a second similar vessel was recovered from a different but unknown site in the area (Mangold 1981a). A vessel from the lower Illinois River valley has similar bulbous lobes but the decorations are more restrained (K. Farnsworth, personal communication 2006). Three rim sherds from three different vessels on 11Wi1246 have a decorative pattern that is reminiscent of the "Picasso pot" from Goodall. A linear dentate stamp was rocked across the exterior rim in a manner similar to the rocking motion used with a curved stamp (Figure 36). Only close observation determined that it was a straight stamp; otherwise, it could have been misinterpreted as being a curved tool.

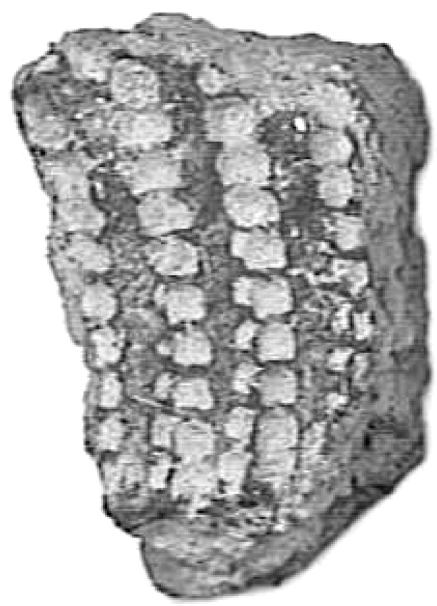


Figure 36. Example of "Rocked" Linear Dentate Stamp Impression, 11WI1246 (enlarged)

Middle Woodland artisans are often seen as being in the forefront when it comes to unusual art forms or doing traditional designs in non-traditional material. This can be explained by looking at how the artifacts function. Beyond any actual physical use, many Middle Woodland objects are symbolic or carry the message of membership in a special society. If the message is continually sent through the same medium, it becomes repetitious and apt to be ignored. By creating ever changing but still traditional message carriers, the meaning is more likely to be noticed and membership is continually reinforced (Hodder 1982; Wobst 1977). A variation in the Hopewell cross-hatched rim was found on limestone-tempered vessels recovered through the excavations of the University of Notre Dame (Figure 37). In this variety, the cross-hatching is not continuous along the entire rim on quadrilobate vessels. Instead, interruptions in the decorations by sections of diagonally incised, but not cross-hatched, lines occur. The nearly complete vessels allowed this decoration to be followed around the rims. In every case, the interrupted areas corresponded to the areas of the vessels where the extended lobes occur. The incised lines alternate between diagonally to the left and diagonally to the right. This decorative style is noted in the lower Illinois River Valley at sites such as Smiling Dan, Peisker, Macoupin, and Apple Creek (K. Farnsworth, personal communication 1999; Stafford and Sant 1985). "Less frequently, vessel rims may be partially cross-hatched and accompanied by non-cross-hatched sections displaying a series of parallel incised lines diagonal to the vessel lip" (Stafford and Sant 1985:202). This variety, which I refer to as Hopewell Interrupted Cross-hatch, occurs in both the lower Illinois River and the Kankakee River valleys. However, it has not been previously described as an individual design style. This pattern not only illustrates the continuing changes to traditional design appearance but the trade relationship between the two regions. Farnsworth (personal communication 1999) has expressed the possibility of the

Hopewell Interrupted Cross-hatch variety being primarily of the period A.D. 100–A.D.200. These dates would correlate well with the Goodall phase of the Goodall tradition (Table 4).

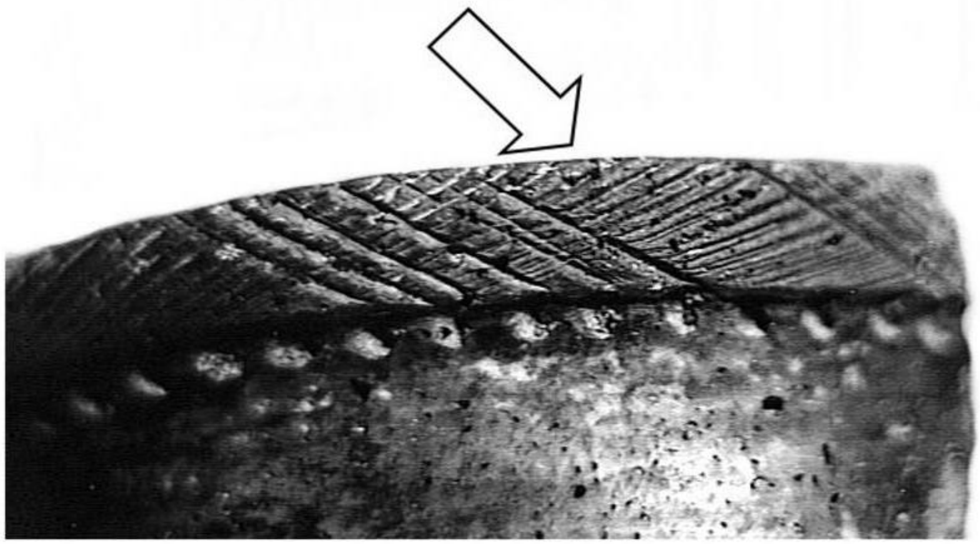


Figure 37. “Interrupted Cross-Hatching” on Vessel, 12LE9 (enlarged)

A second stylistic variation that occurred in the Goodall tradition was the notching or tool impressing of the interior lip. Over 26% of the Havana ware examined in the Young collection has such features (Mangold 1998). The notching is applied in consistent intervals around the entire interior lip (Mangold 1998). The frequency of notched interior vessel lips found in the Goodall tradition is not found anywhere in the Illinois River valley (K. Farnsworth, personal communication 2005).

During further examination of the Young ceramic collection, a third decorative aspect is revealed. A large number of the Havana rim sherds have a strong interior bevel. While interior bevel rims can be found elsewhere, the angle of Goodall beveled rims is considerably stronger. The angle of that feature ranges from 15º to 60º from horizontal with some angles even stronger (Figure 38). In conversations with other paleoceramicists, the Goodall beveled rim appears unique to that region (J. Brashler, personal communications 2005, 2006; K. Farnsworth, personal communications 2006, 2007; S. Fie, personal communication 2006). I propose that this rim profile found on Goodall ceramics is distinctive enough to be diagnostic and can be referred to in future examinations as a "Goodall beveled rim."

Figure 38. Example of Goodall Interior Beveled Rim (enlarged)

Another change occurred over a longer period of time. The width of the decorative band decreases in size. The band width drops from more than 4 cm in Havana wares to approximately 2 cm during the classic Hopewell period to, finally, 1 cm or smaller by the late Middle Woodland. This process of change may be related to differences in overall cultural concepts and ceramic use rather than the revising of an existing type of decoration. The reduction in rim band width may also be a result of overall smaller vessel size. Many of the decorated rim sherds from the Mud Lake mounds are of the smallest (late Middle Woodland) width.

The construction and decoration of a ceramic vessel consists of a series of choices. The potter may opt to change his or her mind at any point in the process. Often such a change results in the discard or destruction of the item under construction. Rarely can an investigation see the visible results of an artist or craftsperson's change of mind. A vessel from Mound 4 of the Goodall site mentioned in Chapter 3 is one of those unusual occurrences. In the process of doing an examination of Goodall vessels using a magnifying glass, I noted a change in decoration. The artist had started to decorate the exterior rim with a "D" or kidney-shaped stamp. The stamp is the same one found on the rim of the previously noted "Picasso Pot." However, the potter apparently had a change of mind and, with a swipe of the thumb, erased the impressions in order to start over again. Fortuitously for this research, one partial stamp managed to escape destruction.

During the examination of decorated rim sherds from the Young collection, I was able to identify a dentate stamp with an unusual characteristic. An imperfection on the last tooth of the stamp left a unique impression in the clay (Figure 39). Looking at other rim sherds, I identified a minimum of six vessels that contained that particular impression. Ceramic-making tools and decorative patterns are often the property of modern Native American individual and clan artisans. These items are frequently passed from the potter of one generation to his or her successor (Rice 1984a,b; Shepard 1948, 1956; Skibo and Feinman 1999). If such was the case with Middle Woodland craftspeople, the vessels created by a specific individual or small group of related potters could be followed through its life history. Data of that nature would be of enormous use in tracking the construction/distribution/exchange of ceramic wares and the movement of the artisans themselves. However, in the case with the above-mentioned third vessel from

Mound 22 of the Goodall site, the use of the same stamp on two vessels would indicate the same artisan made both vessels. The individual undoubtedly had a number of tools available for the decoration of ceramic vessels and made a selection of a particular one. However, that individual had sufficient artistic consciousness to realize when a project was not progressing in the manner anticipated. Because the potter was not confined to specific designs in selected areas, he or she was free to make personal changes (Hill and Gunn 1977). With this artistic freedom, the tracking of individual workmanship is more difficult but not impossible.

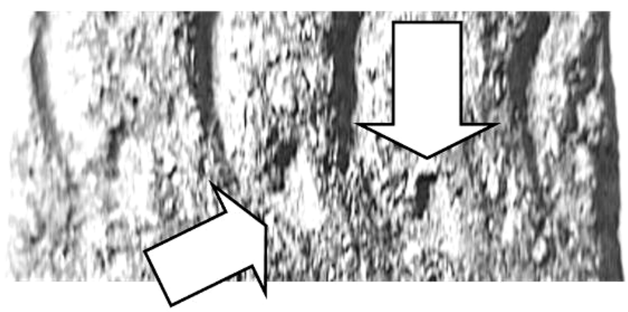


Figure 39. Neteler Rim Sherd with Unusual Tool Impression, 12LE9 (highly enlarged)

External Relationships and Trade

The Goodall people were not an island unto themselves. They interacted with others, either directly or indirectly and sometimes over long distances. These interactions helped influence the character and physical expressions of the tradition within the Kankakee Valley. Examinations of the relationships between the different areas can shed light upon their reflections in Goodall.

Included within the understanding or definition of Hopewell is the participation of a specific group within a regional exchange network (Caldwell 1964; Seeman 1979; Struever 1964; Walthall 1981). The Goodall peoples were certainly involved in that activity. Artifacts associated with this interaction are found at Goodall tradition sites. These include raw copper, copper celts, panpipes, and awls; mica; galena; obsidian; exotic cherts such as Burlington, Upper Mercer, Wyandotte, Flint Ridge, and Knife River Flint, and non-local ceramic vessels. Some of these items deserve individual attention to assist in the positioning of Goodall within a regional trade network.

The objects that best reflect the extensive trading are Knife River Flint, obsidian, copper, and the non-local ceramics. Knife River Flint is found in western North Dakota at a source approximately 1,200 km from the Kankakee Valley. This material has been found on numerous sites in southeastern and northwestern Wisconsin (Clark 1984) and the central Illinois River Valley (Conrad 2004). The northernmost site in the central Illinois Valley is in Peoria County (Conrad 2004: Table 1). Other sites in the central Illinois Valley containing Knife River Flint are Loy, Smiling Dan, the Portage mound in Jo Daviess County, Havana Mound 6, and Naples-Chambers Mound 3 (Conrad 2004:173). Within northwestern Indiana, Knife River Flint occurred on six sites, including Goodall (Mangold 1998; Mangold and Schurr 2006). The material was recovered as both finished artifacts and mundane tools. Whether this is indicative of the movement of both finished tools and raw material cannot be established at this time. However, the presence of Knife River Flint in everyday tools may be the result of the salvaging of any fragment of the material. Due to its rarity, any fragment could be highly regarded. The most unique artifact created out of Knife River Flint is a reworked, wide lamellar blade found at the Goodall site (Figure 40). The blade has parallel, secondary flaking across the entire dorsal surface that obscures the earlier flake scars. All lateral edges are retouched, creating fine serrations. There is no comparable artifact found in the literature (Clark 1984; Conrad 2004; K. Farnsworth personal communication 2007). A large stemmed biface that appears to be made of Knife River Flint is in the collections of the La Porte County (Indiana) Historical Society and Museum. However, the only known provenience is simply "La Porte County." Obsidian appears more frequently than Knife River Flint on Middle Woodland sites in the lower Illinois River valley (K. Farnsworth, personal communication 2008). This situation may simply be a reflection of local preferences. However, obsidian and Knife River Flint may have been traveling along trade routes that frequently, but not always, moved into the same areas.

Figure 40. Knife River Flint Modified Lamellar Blade, 12LE9 (approximately 7 cm in length).

The possibility of individual pilgrimages to the sources of these raw materials as part of a spiritual or “power” quest cannot be excluded (Carr 2005c). However, my opinion is that these long-distance, personal journeys were very rare. Visions, totemic interventions, and other avenues of spiritual and personal enhancement could be obtained in more local settings. The volume of copper used in artifacts would indicate that the majority, if not all, of that material was obtained through interpersonal trade. Additionally, copper had been traded into the region as early as the Late Archaic, as seen in the Old Copper, Glacial Kame, and Red Ocher cultures. Those same trade mechanisms could have easily included other items, such as Knife River Flint and obsidian. Knife River Flint has also been found on numerous sites in southeastern Wisconsin (Clark 1984).

Other forms of exchange and interaction occurred between the Illinois and Kankakee valleys. The Hopewell-style ceramic vessels found in the Goodall excavations have been determined to be the same types, forms, designs, and construction found in the lower Illinois River valley (K. Farnsworth, personal communications 2004, 2005, 2006). Hopewell ware in the Goodall area appears to occur exclusively in mortuary context. Rim sherds found in the Goodall excavations are similar to Brangenberg in form (K. Farnsworth, personal communication 2002; Morse 1963). Thin sectioning reveals that the ceramic composition of these sherds is totally different from others from the area (Figure 41). The temper consists of sand and very fine grit. The closest site that exhibits similar Brangenberg rims is the Steuben site, approximately 240 km from the Goodall site. A second unique rimsherd appears to be Hopewell Red Film ware (Figure 42). Thin section analyses confirmed layers of high iron content on both interior and exterior surfaces.

This would be consistent with the application of a prepared red clay slip and diagnostic of red film ware. I identified other Hopewell Red Film ware pieces on three different sites in the Goodall region.

Another tie between the sites is in the presence of two very similar lithic bird/raptor effigies (Mangold and Schurr 2000, 2006) (Figures 20 and 21). Lithic bird effigies have been found on a number of other Illinois Middle Woodland sites (K. Farnsworth, personal communication 2007). The bird effigy in the Troche collection from the Goodall site is the only example known in the region.

Figure 41. Thin Section of Brangenberg Rim Sherd, 12LE9

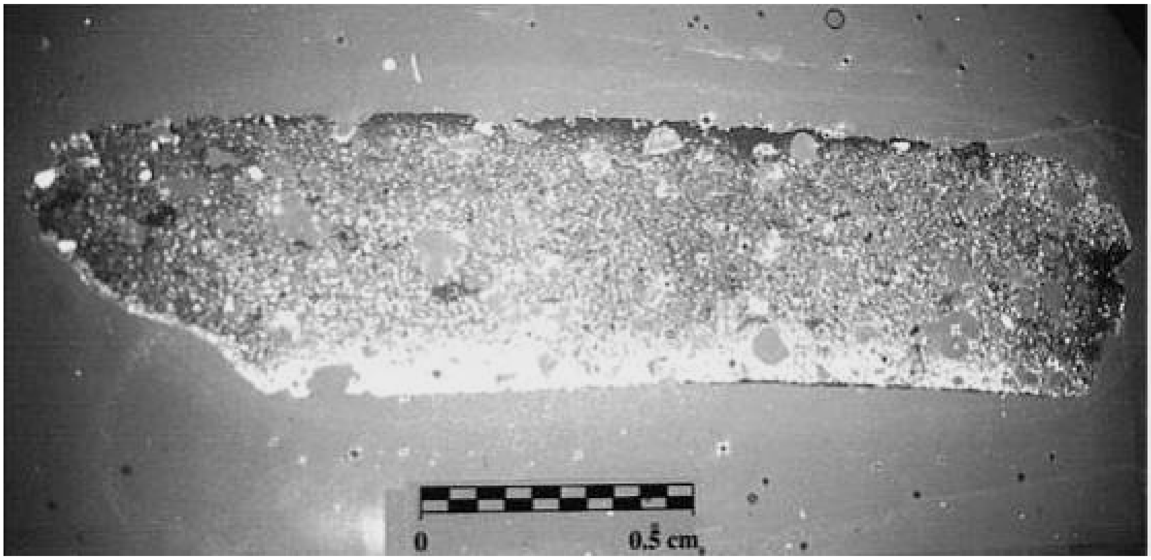
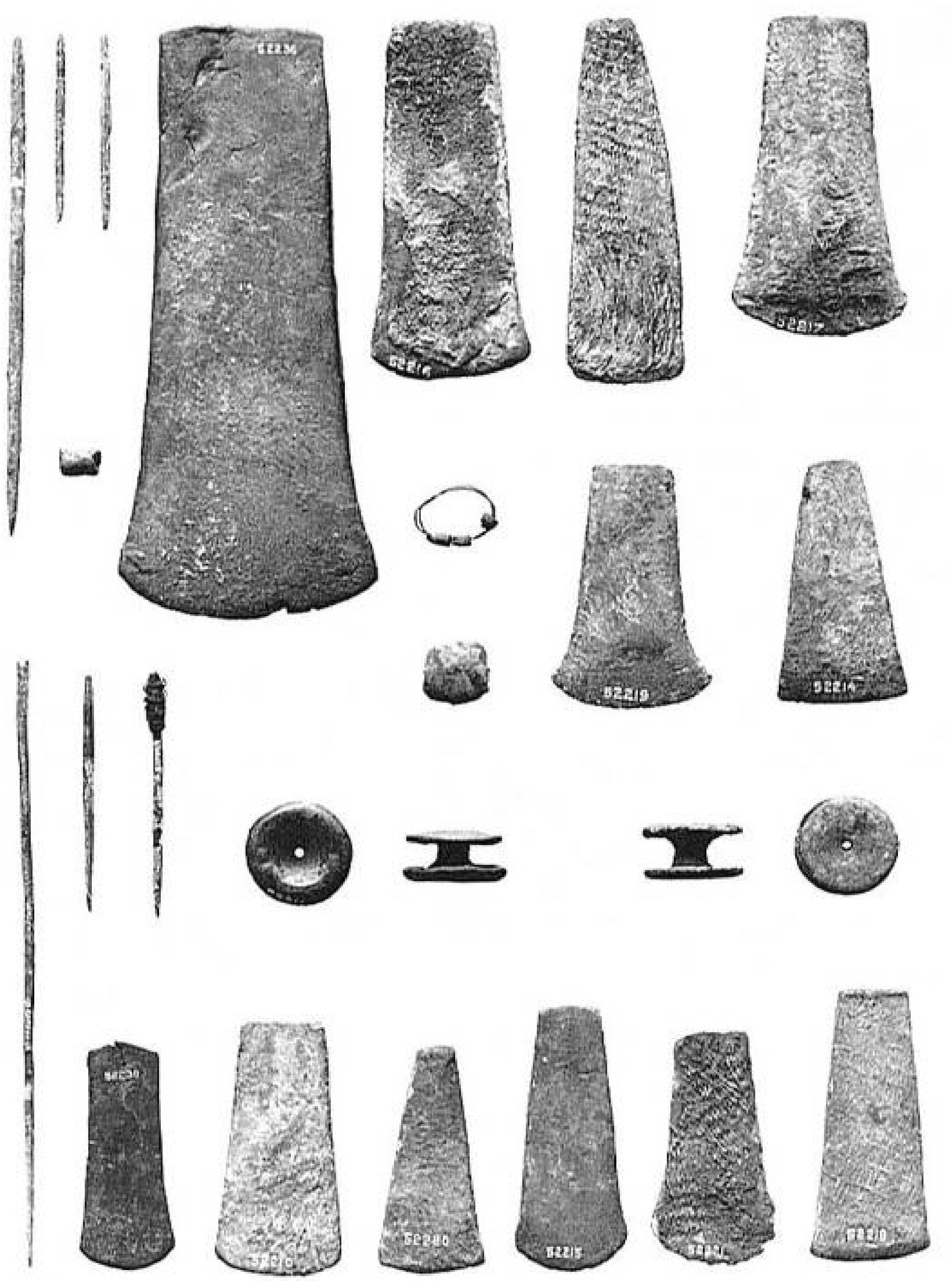


Figure 42. Thin Section of Hopewell Red-Filmed Vessel, LaPorte County, Indiana

Raw materials have also circulated from several regions into the Goodall territory. One of those materials is copper. It probably followed a trading route that was similar to one used historically, which traveled down the western side of Lake Michigan (Mangold and Schurr 2000, 2006). The material traded may have been in the form of finished artifacts or raw nuggets. A partially hammered copper nugget is in the Young collection and was surface collected at the Goodall site. Copper artifacts found at the Goodall site mounds are more numerous than of all those found in the original Goodall focus site combined. Figure 43 shows a portion of the Goodall copper artifacts. The Field Museum of Natural History in Chicago has a group of copper celts that are simply labeled as originating in Union Township, LaPorte County, Indiana, or from the Goodall farm (J. Haas, personal communication 1998). Because the Goodall site is located on the Goodall farm and in Union township, the assumption is that the copper celts are from that site.



No Scale

Figure 43. Copper Artifacts, 12LE9 (after Quimby 1960).

The Goodall site may have been a regional distribution point for copper (Mangold and Schurr 2000, 2006). With the presence of partially worked raw copper, artifact manufacturing or retooling may have occurred at the site or nearby. Beads are the most common copper artifact found in western Michigan. Larger quantities of copper would seemingly be more prevalent as that area is closer to the source of that material in the Keweenaw Peninsula. Based upon this information, copper was likely coming into the Goodall area and, from there, redistributed to other areas including western Michigan.

Other exotic raw materials have been found (Seeman 1979; Struever and Houart 1972). No artifacts made from obsidian have been recovered either in the written record or in recent excavations. However, three obsidian flakes have been found in the region, one each on the Mud Lake site (LaPorte County), the Bellinger (village) site (St. Joseph County), and the Collier Lodge site (12PR33) (Porter County). Because obsidian is rare in the Kankakee River valley, small pieces of the material may have held as much importance as larger objects elsewhere. Galena, mica, and marine shells have been found historically at the Goodall site as well as others (Faulkner 1961; Mangold 1981b; Quimby 1941a).

During a 2000 Middle Woodland ceramics workshop, Sarah Studeman (formerly of ITARP) and I noticed the strong similarity between ceramic motifs found at the Propheter site in northwestern Illinois and the Goodall site. While a considerable distance separates the two sites, trade relationships may have linked them. The Propheter site is adjacent to a newly discovered source of pipestone. The material was used in a number of Middle Woodland pipes found throughout the Midwest (Farnsworth et al. 2004). A trade route of the Knife River flint and obsidian may have passed through the area of the Propheter site and continued into northwestern Indiana.

The dispersal of exotic material does not appear to have a discernable and/or logical flow pattern. Attempting to track the routes of exchange is, at best, frustrating. It is almost impossible to factor in the variable of human preferences. However, the activities of extraction and movement form the variables of the finished items before their working edges are put to use on energy, information, or matter (Wobst 1977:122).

> [It] is difficult for anyone but the user/maker to assess if there are preferred or broad ranges of raw materials, if the sources are nearby or far away, how much variance there is in color, and if raw materials differ by task, tool type, or social context. Nevertheless, the ultimate distribution in these variables results from individuals entering form into their social field in ways they thought appropriate or satisfying. The actions that relate to raw material extraction and movement often take place over more space or time and in broader social fields than the energy and matter uses of the artifacts. Thus, variation added in this phase also potentially talks about social contexts in process and about human interfering [interfacing] with humans materially. It is my hunch that much of the exotic material that finds its use in parochial tasks derives its primary utility not from marginal efficiency and effectiveness but from its marginal efficiency and effectiveness for messaging in, and reshaping, local communication matrixes. (Wobst 1977:122–123)

Mounds as a Reflection of Social Organization

Mounds are scattered throughout the Kankakee River valley. They occur singly, in small groups of two or more, and in large groups of approximately 10 or more (Figure 33). Many of the single mounds or smaller mound groups may have disappeared quickly after cultivation in the area began. Only four of the larger groups existed in the immediate Goodall area: Goodall, Upp-Wark, Knox, and possibly Union Mills mound groups. Union Mills is questionable due to the small number of “mounds” that have been excavated and have been proven to be man-made. The historical descriptions do not provide sufficient data in that regard (see Chapter 3). Groups of approximately 2–9 mounds include Brown Ranch, La Count, Chain-O-Lakes, 12PR9 (Chesterton), and New Carlisle. However, there appears to be a definite gap in the presence of mounds between the northern and southern areas of the region.

Mounds were not stable entities. Their size and shape probably varied after the initial construction. The northern tomb in the western mound at Mud Lake was quite close to the marl cap. The two large bifaces left at the edge of the northern edge of the tomb had concretions caused by contact with the marl. The possibility exists that a second tomb (the northern one) was not anticipated, but that an unexpected death forced the change. On the other hand, the northern tomb may have been added at a later time with the previous marl cap extended over it. Muck filled the tomb but did not form a cap over it. This situation was frequently encountered in other Goodall mounds and in the Illinois River valley.

Mound Relationships and Interaction of Residents. Mounds are not located in strictly random environmental and cultural settings. The core of the Goodall area contains at least three of the mound groups—Goodall, Upp-Wark, Knox, and possibly Union Mills. The Goodall site is just east of the center of the circumscribed area. It is the largest in terms of number of mounds and the number of Hopewell Interaction Sphere objects recorded. It is possible that the Goodall site was a distribution site, which may be a factor in its central location. However, I contend that the relationship between the mounds is far more complicated.

The dispersal of both warm-weather and cold-weather settlement areas would make the function of a single, centrally located, religious/burial area difficult. It would seem that a tiered leadership and ritual structure would be more appropriate. On the lowest level, one or more persons may have acted as an appointed leader. This person(s) would suggest placements of both summer and winter sites within a particular area. Intimate knowledge of an area is more feasible if it is divided into smaller "districts." Leaders or important people of smaller groups may have been buried in the single mounds. These burials may or may not contain any status-carrying objects of exotic material; however, local copies could occur. The other possibility is that an individual did not have to be buried with objects to be considered a person of higher standing. Other non-tangible, ceremonial rites, such as songs or food, could have established that social ranking. However, there could have been other cultural relationships present that could have functioned as unifying agents.

The actions and interactions of these cultural organizations can provide some understanding of the relationship between the mounds and the inhabitants of the region. Sodalities were present in historical records but not in sufficient detail to provide information that can be applicable to the prehistoric record (Thomas et al. 2005). The term "sodality" was coined by Lowie (1948) to differentiate and clarify the relationship between residential and/or kinship groups and non-residential and/or non-kinship groups. Sodalities are especially relevant to the Great Lakes–Riverine tribes. Within these tribes, ritual organizations were prominent in the historical period (Radin 1945; Thomas et al. 2005). The ritual organizations formed for many specialized reasons such as healing, warfare, or ritual. Each had religious items that were needed in conducting certain rituals.

Sodalities have one or a few manifest functions or purposes, which are normally directed to the structure of the groups. Sodalities are considered to be the maximal independent sociopolitical units to which people belong. Social relationships between sodalities emphasize ranking (Carr 2005b). Archaeological evidence for social ranking is visible, pervasive, and redundant. A sodality also emphasizes macroregional interaction, cultural and religious unity, and long-distance exchange (Ferguson and Mansbach 1996; Neitzel and Anderson 1999:247). The possibility exists that this type of organization may help to explain the relationship between groups found throughout the Hopewellian Midwest. Each sodality would have a number of other sodalities that would be in its universe. Regular interaction occurred between them, including trade, bride exchanges, and friendly competitions.

If the interactions between sodalities were a factor in the distribution or redistribution of exotic items and materials, would there be sufficient evidence to trace the movement of certain goods between sodalities? This might be possible if the total inventory of these materials were still present or had been accounted for, but such is not the case. However, relationships may still be tenuously classified by attempting to identify the types, quantities, and sources of exotic raw materials and/or artifacts present within each sodality. If copper beads, for example, were the primary exotic item occurring in one sodality, do those items have a similar trace analysis to beads or larger copper items found in other polities? Thomas et al. (2005:372–374) and Field et al. (2005:391) provide listings of artifacts related to sodalities, status, clan, and gender that may be applicable to other geographical regions. The relationships between sodalities may be surmised through those same distributions. Copper celts are the most numerous exotic artifacts in the Goodall tradition (Bernadini 2005). The sodality having very little exotic material may be thought to be either the weakest of the sodalities or the one least favored by the strongest. Similarly, the sodality with the second-highest quantity or quality of exotics could be seen as the second strongest or favored.

This certainly would be most feasible if the main interaction between the sodalities was competition. If the Goodall site and its involved peoples controlled the flow of exotics, those who simply want to emulate the status of the Goodall individuals could only be accomplished through locally produced copies, such as carved bone effigies of bear canines or facsimiles of Hopewell series ceramics. The same might also occur in the weakest of the polities with little or no chance of obtaining the actual items. Cultural inventory, particularly those carrying messages of identification, e.g., names, ceremonies, mythologies, and insignia of membership, are more common in sodalities (Service 1962:22). In face-to-face residential groups, such identification would not be necessary as everyone is familiar with each other and their activities.

Because sodalities are non-local by definition, they would have had to develop political functions because of cross-cutting different residential units. This would have lead to integrating the various units and configuring the society (Service 1962:22). Membership in sodalities may have also conferred status. Sometimes a direct relationship exists between groups, status, and sodalities (Service 1962:24). Without sodalities, no unity would exist between residential groups except through marriage (Thomas et al. 2005:348). As sodalities are not local, they must be tied with non-local activities. Based upon the data discussed and the unity needed between the small seasonal residences, I hypothesize that sodalities were an important part of the Goodall tradition as they were in other Hopewell societies in Ohio and Illinois (Carr 2005d). The need for these relationships to be linked to a non-local activity would fit well with the ritual aspects, the lack of intense habitation around the mound sites, and the use of various cultural items to reinforce membership. All are found in the Goodall tradition. However, the extent of the roles of sodalities as described by Carr (2005d:99–100, 2005e:319–320) and others (Carr and Case 2005:221, 233; Carr et al. 2005:496–498) may not have been found in Goodall society. The smaller population found in the Goodall region may not have needed the more complex social organization found in Ohio and Illinois.

It may be assumed that all the sodalities were male-oriented because of the strong male images indicated by the material inventories left in the mound tombs. Carnivore and raptor body parts and insignia were probably used as identification by male sodalities. However, could female sodalities have existed? I think they could have (Dolgin et al. 1977; Fernandez et al. 1982; Henry 1994; Hodder 1982; Pearson 1994). The Hopi, among others, have both male and female ritual/social organizations (Carr 2005d; Loftin 2003). Items like the bird-bone awls found at the Goodall and Mud Lake sites may be indicative of the female activity of sewing. It is possible that items like mica could have represented the feminine aspects of water; red ocher, menstrual blood; and plain pottery vessels, the womb. The use of red ocher on the floor of the tomb, as well as on the body, may represent a return to the womb of the earth. The male figures would protect the individual. The use of the two colors of soil may also be ritualistic. Complex Hopewell mound construction in the Illinois River valley used multicolored soils, including dark soil in the graves and as mound caps (Buikstra et al. 1998:84–88). Using Levi Strauss' concept of polar opposites, the dark soil (muck), which occurred both in the tomb as well as a cap over the mound, may have represented death. The light (marl) may have been symbolic of life (Mangold 1999). Differences in the material used in the final mound cap exist at Goodall. Some mounds appear to have been capped with marl, while others were capped with muck. These different materials would produce mounds that would appear to be either black or white (Mangold 1999).

The Goodall mounds, which have the largest in number of mounds and Hopewell artifacts, may have been the central ritual location during the Goodall phase. Burials here may have been reserved for higher-ranked individuals, sodality leaders, or clan leaders. This concept is compatible with the indications that the Goodall mounds and others contained only a small percentage of the members of the communities buried there.

Within the Goodall, Upp-Wark, and possibly other mound groups in the region, the individual mounds were placed in clusters or groups within the overall site. At Goodall, the mounds occur in three separate groups, partially distinguished by topography. The same pattern of segmentation also occurs at the Utica and Sumnerville and possibly Mud Lake mound groups (Garland 1990; Henriksen 1957; Quimby 1941a). This division may reflect the burial practices and mound placement of a particular sodality or clan. The use of snakes upon the bodies of burials at the Utica mounds may be such an indication as well. Individual sodalities may have been responsible for different ritual activities, including burial, at each of the major mound groups. Thomas et al. (2005:361, 365) stated that the presence of certain animal body parts or images might have additional meanings. These items may be an indication that a clan representing that animal either took part in the ceremony or that the individual being buried was a member of that group. The presence of the chert raptor effigy and the ceramic vessel with the raptorial bird as part of the overall design may indicate that a raptor society may have been active at Goodall. Cut and modified wolf jaws were also recovered, as was a chert effigy of what may be an otter (Quimby 1941a). Bear canines are frequently found in burial offerings. While some are actual bear canines, others are carved of bone to closely resemble the originals (Quimby 1941a). Bear canines were recovered from one of the Mud Lake mounds and a carved ivory or antler effigy of a bear canine was found at the Sumnerville and Utica mounds. Thomas et al. (2005:341) states that the bear clan played an important role in burial rituals. However, if that role was so important, bear canines or some other bear item would be present in the majority of the burials, but they are not. As previously discussed with status, the presence of the bear may not be physically present but certain songs, food, actions, or rituals could have been a substitute for it.

Within the mounds, the tombs at Mud Lake and Goodall were placed at an angle off from north, with the orientation to either the northwest or northeast. This diagonal orientation was also found with the tombs at the Elizabeth mounds in the central Illinois River valley and the Pete Klunk mounds in the lower Illinois River valley (Charles et al. 1988; Perino 1968). At the Adler mounds in Will County, Illinois, of the six mounds excavated by Winters (1961), four had the diagonal orientation and two had an orientation directly north-south. In the Utica mounds reported in Henriksen (1957), 14 of the 23 tombs were established in a north-south orientation. While the number of identified tombs in the Kankakee River valley is small, it appears to follow the central and southern Illinois River Valley rather than the preference shown at the Utica mounds. Combined with the different ceramic tempering seen there, the Utica mound group, or at least parts of it, can possibly be anomalous in the region. Could that actually mean that a group of individuals with slightly different ceramic techniques and ritual patterns were living in the northern portion of the Illinois River valley? Then why would the pattern re-establish itself in the upper Kankakee River valley? Without additional data, those questions cannot be answered.

Period of Mound Construction

Many of the ceramics recovered from the mounds are Hopewell series wares. The vessels exhibiting the classic Hopewell cross-hatched rim may have a production span of less than 200 years, approximately A.D. 1–A.D. 200. While this may be useful in some respects, other ceramic vessels often found in conjunction with Hopewell series wares are not so readily delineated. For example, while the previously mentioned "Picasso Pot" has a Hopewellian characteristic quadralobate form, the decorative aspects are more Havana-like (Figure 9). The stamp shapes are more closely aligned to those found in the Neteler series, which peaked in popularity in the lower Illinois River valley before early Hopewell, 300 B.C.–A.D.1 (Farnsworth and Asch 1986:425; Gardner 1969:166; Hofman 1980). Ceramic vessels recovered from the Goodall mounds and elsewhere included vessels typical of Havana wares (Figures 44, 45). It is probable that some of the mounds within the Goodall area were constructed prior to A.D. 1; however, ^{14}C dates are lacking to support any such conclusions. Mounds that contained more Havana-like vessels were primarily situated in the western portion of the marsh. This location could support a position that mound construction activities with the associated tombs were taking place during the early portion of Hopewell ware availability. The rimsherd found on the Pardee-Sinner site apparently had a Havana or Havana-like vessel morphology and a steeply beveled lip combined with the attributes of a Hopewell cross-hatched rim. Additionally, Brangenberg wares were found at the Goodall site. These ceramics have an estimated date A.D. 100–A.D. 300 (K. Farnsworth, personal communication March 2008). Given that Havana, Hopewell, and Brangenberg ceramics have all been found on the Goodall site and in mound context, a date of activity could logically be established as ranging from 100 B. C. to A. D. 200. That time frame is somewhat large. A more realistic span might be 150 years. Ceramic construction and decoration methods do not have a clear delineation of popularity. Potters in one area may have continued producing a particular style after the same style had been replaced in another. This issue can be adequately addressed only with more radiocarbon dates.

Figure 44. Havana Vessel, Brown Ranch Mound, 12LA34.

Figure 45. Havana Vessel, Mound 22, 12LE9.

Goodall Origins

Clearly, many of the cultural traits found in Goodall are derived from cultures occupying the Illinois River valley. A theory among Illinois River valley archaeologists is that people who moved out of a more central region of the river valley settled in the lower portion. The migration theory is based on the premise that the central Illinois Valley was the area in which the Havana ceramic styles originated (Schurr 1997:127). If such was the case, the movement of those people may have included movement in other directions, including the Kankakee Valley. Many authors (e.g., Brown 1964; Quimby 1952) have stated that these cultural forms arrived in the Kankakee River valley through the direct migration of Middle Woodland peoples into the area and onward into western Michigan. While it is entirely possible that migrations did occur, I conclude that it was only in small units such as individuals or families. The area of the central Kankakee River valley appeared to be the primary area of early Middle Woodland occupations. Ceramic styles within the Kankakee River valley are chronologically deeper than the Goodall tradition. The Bellinger mound and two of the Mud Lake mounds were constructed over a late Early Woodland cultural occupation. Sister Creeks ceramics (Figures 46 and 47) occur on sites in the central Kankakee valley, as do Early Woodland Marion wares. Marion ceramics are spread throughout the region. Early Havana decorative attributes, including ovoid, barred ovoid, small and large curved dentates, and plain bar stamping, occur within the same region from the western edge of the marsh to the approximate area of the Knox mounds. This fact follows Griffin's findings in the Illinois River valley that the earlier Havana village sites were located on higher elevations and near the base of the uplands (Griffin 1952a:156). In this particular region of the Kankakee River valley, the morainic uplands are in close proximity to the river, closer than in any other portion of the valley. Later Havana and Hopewell styles arrived by either diffusion of ideas, trade, or by new individuals arriving in the valley.

The hypothesis stated at the start of this project that the earliest Middle Woodland occupations occurred in the western portion of the marsh needs to be modified. The original hypothesis must expand to include the central Kankakee River valley.

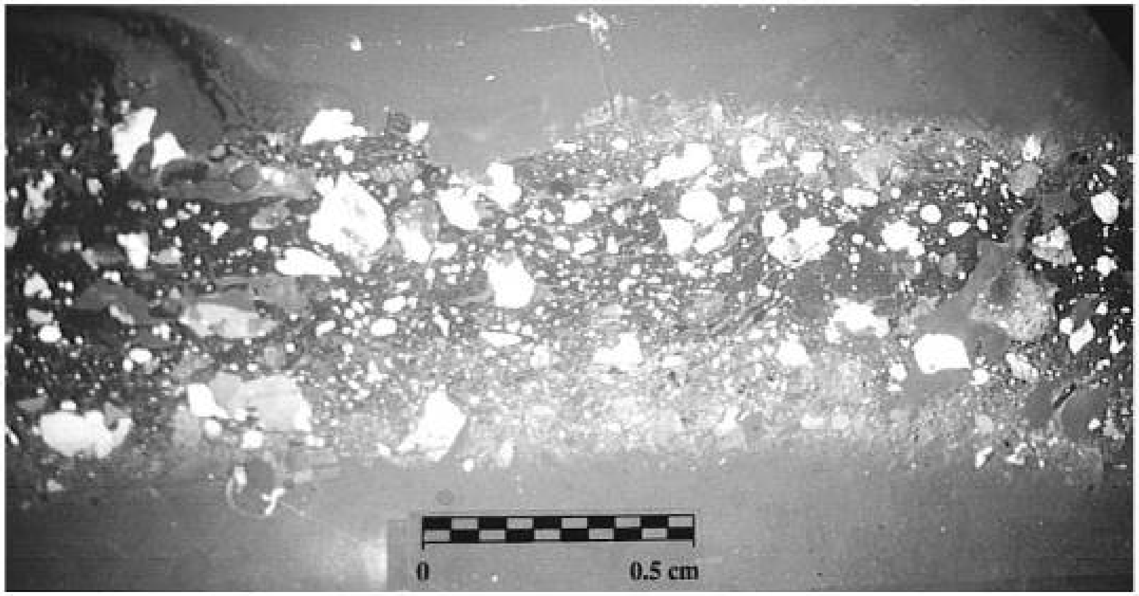


Figure 46. Thin Section of Sherd #1392-2, Stillwell Site, LaPorte County, Indiana

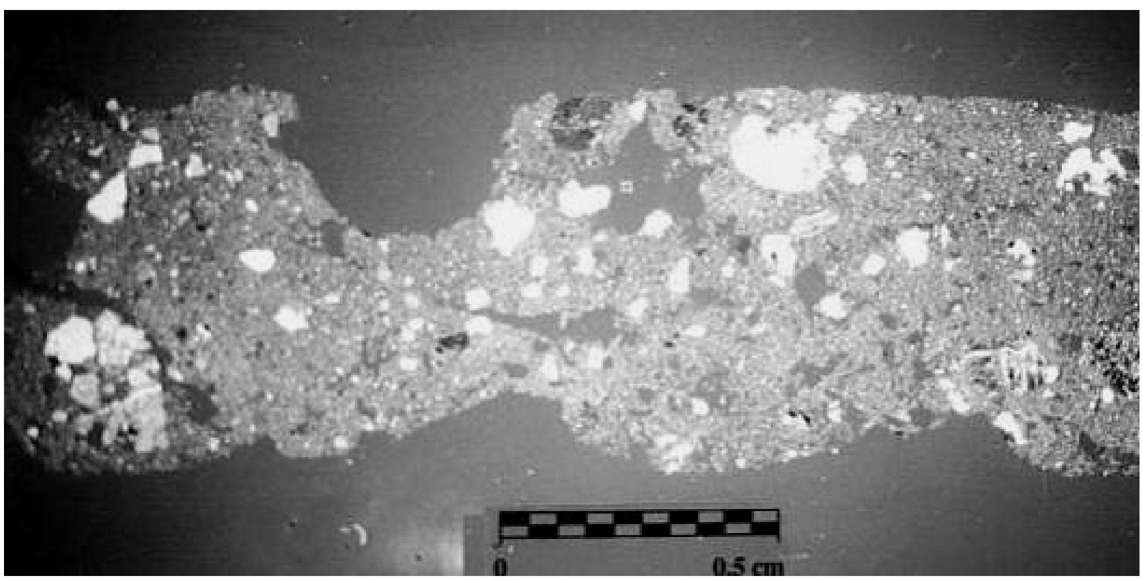


Figure 47. Thin Section, Sister Creeks Rim Sherd, Newton County, Indiana

Goodall Evolution

Culture allows people to react in response to changes around them. The Goodall tradition was no exception. The exact reasons for the changes are not clearly known but may have been more far reaching than I initially hypothesized. In approximately A.D. 200, or the start of the LaPorte phase (Table 4), a movement of people spread outward from the central Kankakee River basin. While some sites still remained in that area, more were found outside of it. The Bellinger, Sumnerville, Marantette, and Mud Lake sites have later Middle Woodland components. Farther north, the Mushroom site (20AE88) appears to have been the result of Middle Woodland expansion out of the Grand River valley at about the same time period (Mangold 1981a).

This movement undoubtedly included ceremonial activities. The Goodall mounds do not appear to have been used after A.D. 200 (Mangold and Schurr 2000, 2006). My hypothesis is that the ritual activities were also relocated. The LaPorte phase ceremonial centers may have included the Knox, Upp-Wark, Mud Lake, Bobinski, Chain-O-Lakes, and Sumnerville mound groups. Other sites and mound groups, such as Marantette and Scott, may reflect an ever widening expansion.

Looking back in time, I surmise that occupations earlier than the Goodall phase may have been more widely scattered. Those inhabitants could have had a more typical hunter and gatherer subsistence cycle with less physical contact between groups, and smaller populations. As the population increased and the earliest Middle Woodland social, subsistence, and ceremonial ideas filtered into the area, things changed. The most abundant and dependable resources were targeted by the entire population with the timing, movement, and dispersal directed by emerging sodalities. The sodalities also took charge of organizing and conducting ritual activities, and trading. This pattern continued to be refined until something happened to institute a change. The change could have been culture-, population-, environment-, or subsistence-related. A condition that brought the people together was no longer exerting its pressure. Whatever it was, the population gradually returned to its earlier subsistence-settlement patterns, even re-occupying sites that had been unused for hundreds of years.

The Goodall Tradition in Summary

The Goodall Tradition was located east of the natural blockage of the Kankakee River and the area primarily north of the southern edge of the Grand Kankakee Marsh. The area of earliest Havana settlement/influence was in the central area of the Kankakee River valley moving eastward from the western edge of the marsh to approximately the junction with the Yellow River. The fact that the presence of early Havana ceramics is rarely found elsewhere supports this placement.

The subsistence and settlement patterns used by this tradition consisted of late spring, summer, and early fall residence and resource procurement along the shores of Lake Michigan. Resources in the marsh and the timber that lined the marsh and river valley were targeted in late fall, winter, and early spring. Residential groups were small, possibly two or three families, who may or may not have been related. These groups did not aggregate into larger communities in order to more effectively use the environmental settings. When the distance between summer and winter areas became too great or one of the other environmental areas was not available, the Goodall people avoided the region or just made an occasional foray into it. Bottle gourds were part of their subsistence and/or were used as vessels. Sunflowers were probably grown, based upon evidence from the St. Joseph River valley.

The social organization within the Goodall culture was based on small residential groups. However, the groups contained active sodalities that kept the various residential units unified and controlled. The sodalities probably controlled movement and settlement within the area, and conducted ritual activities that involved the entire population. Not being a residence- or kinship-based organization, the sodalities relied on cultural items to identify themselves. Those items were frequently included in the grave goods of a particular individual.

The burial and mound-building activities were similar at the various sites. Mound construction usually consisted of clearing an area for the mound. This often occurred on a site that had earlier occupations. The tomb was dug with the approximate size being 1 m wide, 2 m long, and 1m deep. Apparently, the grave was oriented in either a northeastern or northwestern direction with one corner pointing in a generally northern direction. In some cases, the floor of the tomb was powdered with red ocher. Artifact offerings were primarily placed in groups on the ramps alongside or within the tomb area. Based upon early descriptions of investigations, artifacts were apparently not often in direct associations with burials. Those descriptions and the presence of copper-stained human bone at Goodall suggest that copper artifacts may be the only confirmed evidence of close artifact placement. The closer relationship of individual to artifacts can be interpreted as personal ownership of those items (Kan 1989; Pearson 1994). The tomb was filled with dark, often gummy, soil that was probably muck. The first cap of the mound usually consisted of that same substance with later caps of varieties of sand, marl, muck, or locally available soil. The presence of muck and marl soils represents specially obtained material as not all mound sites occur adjacent to a marshy area where these soils are found.

The external relationships were extensive. The number of Hopewell artifacts and raw materials, the consistency in construction and decoration of ceramic vessels, the ritual activities and symbolism drew me to this conclusion. It is highly unlikely that two neighboring cultural areas would have so many similar attributes without intensive interaction.

The Goodall tradition is a unique cultural expression, separate from Illinois Havana traditions. However, some Havana artifacts or local copies represent interaction between the two entities. The Goodall tradition also represents a unique opportunity to study cultural response within a spatially defined area. In most situations, Middle Woodland regional expressions cover an area too large to study efficiently. The insights gained from further research in this region may have cultural applications more widespread than can be currently projected.

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1993 *Woodland and Early Historic Period Settlement Patterns in the Kankakee Drainage of La Porte County, Indiana. A*rchaeological Laboratory, Report of Investigations 93-1. Department of Anthropology, University of Notre Dame, Notre Dame, Indiana.

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1999 *Geophysical Surveys of Middle Woodland Mounds in Northwestern Indiana.* Archaeological Laboratory, Report of Investigations 99-1. Department of Anthropology, University of Notre Dame, Notre Dame, Indiana.

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1977 Stylistic Behavior and Information Exchange. In: *For the Director: Research Essays in Honor of James Bennett Griffin*. Edited by C. E. Cleland. Pp. 317-342. University of Michigan Museum of Anthropology. Ann Arbor.

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1943 *Some Notes on Northwestern Indiana and Southwestern Michigan – Hopewellian*. Unpublished manuscript in possession of author.

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EDUCATION

Ph.D. **Indiana University**, Bloomington, IN 47405
2009 Area: Anthropology (Archaeology emphasis)
(Anticipated)

M.A. **The Pennsylvania State University**, Middletown, PA 17057
1987 Area: American Studies (Material Culture emphasis)

M.A. **Western Michigan University,** Kalamazoo, MI 49008
1981 Area: Anthropology (Archaeology emphasis)

B.S. **Western Michigan University,** Kalamazoo, MI 49008
1970 Major: Education

EXPERIENCE

1995–present **U.S. Dep't of the Interior, Office of Surface Mining,** Washington, D.C.
Instructor. Teach cultural resource management regulations (Section 106) to individuals in reclamation enforcement and inspection.

1994 –present **Native American Museum,** Terre Haute, IN 47803
Consultant/Assistant Curator. Analyze and describe prehistoric collections. Advise on and create displays. Investigate and record archaeological sites reported by patrons. Give programs on various aspects of archaeology, anthropology, and ethnology. Do computer inventories. Assist visitors.

1991 – 2009 **Indiana Department of Natural Resources,** Indianapolis, IN 46204
Archaeologist

2000–2009 **Division of Historic Preservation and Archaeology** Responsible for Section 106 environmental reviews, accidental discoveries, and public education and interaction. Assist with record and literature reviews. Review proposed methodologies for site testing and mitigation. Assist with planning and implementation of activities for Archaeology Month. Design or coordinate designing of Archaeology Month poster and other special products requiring artwork. Conduct research as directed. Do surveys and excavations as required. Interface with State Historic Preservation Officer.

1991–2000 **Division of Reclamation**
Responsible for all archaeological and cultural resources that may be affected by coal mining or reclamation in 19 counties in southwestern Indiana. Review all planned impacts. Write scopes of work. Monitor projects and evaluate reports. Do surveys and excavations as required. Act as liaison between coal companies, the State Division of Historic Preservation and Archaeology, and the general public. Record and document unregistered cemeteries and significant historic structures. Assist in relocation of cemeteries.

1991–present **Galien River Watershed Council,** New Buffalo, MI 49117
Consultant. Advise as to nature and scientific value of archaeological resources within the Galien River Basin. Coordinate research with planned construction activities Conduct Phase 1 cultural resource investigations.

1989–1991 **The College of St. Francis,** Joliet, IL 60435 (Camp Hill, PA extension)
Adjunct Faculty. Taught *Cultural Anthropology* to classes of registered nurses.

1988–1991 **Heritage House Historical Association,** Elizabethtown, PA 17022
Consultant/Archaeologist. Advised as to potential value of archaeological data in restoration and interpretation of historic house dating from 1780. Organized and trained volunteer workers. Conducted Phase I and II cultural resource investigations. Analyzed findings and published reports.

1987–1990 **The Pennsylvania State University**, York Campus, York, PA 17403
Adjunct faculty. Taught *Introduction to Anthropology.*

1986–1991 **Hershey Museum of American Life**, Hershey, PA 17033
Consultant. Cataloged, described and analyzed major collection of prehistoric, protohistoric and historic Native American artifacts and European trade goods. Designed exhibits and wrote scripts. Taught classes: *Archaeology for Teachers; Using Archaeology to Teach History.* Replicated artifacts for exhibits and programs.

1984–1991 **Harrisburg Area Community College**, Harrisburg, PA 17110
Adjunct Faculty. Taught anthropology, archaeology, and U.S. history. Courses taught: *Social Anthropology; Introduction to Archaeology; The Archaeological Heritage of Pennsylvania* (included historic preservation); *History of the United States to 1877.*

1983–1991 **Self-Employed Archaeologist.** Conducted all phases of archaeological research (both prehistoric and historical) including responding to RFPs/RFQs, literature and file searches, field work, analyses and preparation of reports. Interfaced with federal, state and local agencies, corporations, and individuals. Assisted with National Register of Historic Places nominations and environmental and social impact assessments.

1981–1983 **Resource Analysts, Inc.**, Bloomington, IN 47402
Archaeologist. Conducted various archaeological investigations/excavations. Did extensive archival and historical research. Wrote research proposals, budget presentations, news releases, and reports. Supervised crews of 1–10 individuals. Coordinated volunteer laborers. Produced artifact illustrations, drawings, and maps for reports. Assisted with National Register of Historic Places nominations, State Register nominations, and environmental and social impact assessments.

1978–1981 **Western Michigan University,** Kalamazoo, MI 49008
Archaeologist. Directed artifact processing laboratory. Conducted long and short term archaeological investigations. Supervised 1 – 40 individuals. Did extensive archival, historical and collections research. Wrote reports. Interfaced with public and artifact collectors. Produced maps and artifact illustrations.

SPECIAL TRAINING

Global Positioning Systems
Photography
Ceramic Analyses
Various Computer Applications
18th & 19th Century American Material Culture
Expert Witness
Evidence Identification & Processing
Construction
Educational Programs
Genealogical Research
Graphic Design
Artifact Illustration
Social Impact Assessment
Statistical Analyses
Artifact Replication/Restoration
Display & Exhibit Design & Ethnology

OTHER

2003 Midwest Archaeological Conference, Milwaukee, Wisconsin.
Discussant. *Moccasin Bluff Revisited.* Session organized by Dr. Jodie O'Gorman, Michigan State University.

2001 Cornelius O'Brien Conference on Historic Preservation, South Bend, IN
Session organizer. *Current Archaeological Research in Michiana.* Solicited papers. Hosted session. Presented paper.

1999 Midwest Archaeological Conference, East Lansing, MI
Special session participant. Middle Woodland ceramics.

1998 Midwest Archaeological Conference, Muncie, IN
Session organizer. *Middle Woodland in the Southern Lake Michigan Region.* Posted call for papers. Arranged for discussant. Sent copies of papers and abstracts to discussant. Organized and hosted session. Timed presentations.

1978–1988 Northwest Indiana Avocational Archaeologists, Kouts, IN
Advisor. Supervised field projects. Trained individuals in proper survey, excavation, analytical, and curatorial techniques. Organized speakers program for schools. Promoted archaeological awareness. Arranged programs and speakers for monthly meetings.