Middle Woodland Ceramics of Northwestern Indiana and Western Michigan

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Western Michigan University

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MIDDLE WOODLAND CERAMICS OF
NORTHWESTERN INDIANA AND WESTERN MICHIGAN

by

William L. Mangold

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Arts
Department of Anthropology

Western Michigan University
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MIDDLE WOODLAND CERAMICS OF
NORTHWESTERN INDIANA AND WESTERN MICHIGAN

William L. Mangold, M.A.
Western Michigan University, 1981

Much information regarding the Middle Woodland occupation of
northwestern Indiana and western Michigan has been recovered since
the definition of the Goodall Focus by Quimby(1941a). The object of
this report is to undertake a detailed stylistic analysis of the
ceramic assemblages from Middle Woodland sites, including the vessels
used to establish the Goodall Focus, in order to elucidate Middle
Woodland cultural relationships within this region. An attempt is
made to establish stylistic zones through the use of typological
and attribute analysis.
ACKNOWLEDGEMENTS

When such a large geographical area is the subject of research, many individuals are instrumental in providing information that would be otherwise physically impossible for one person to obtain on his own. By their efforts, these people have served to increase the knowledge of the prehistory of this region. My gratitude is extended to Mrs. Philip Hajek, LaCrosse, Indiana; Mrs. Mary and Betty Alt, LaCrosse, Indiana; Mr. and Mrs. James Lambert, Kouts, Indiana; Mr. Harold Haman, Kouts, Indiana; Mr. Harold Kohley, Rensselaer, Indiana; Mr. Robert Neisus, Wheatfield, Indiana; Mr. Donald Flatt, Shelby, Indiana, and members of the Northwest Indiana Archaeological Association. The members of the Michiana Archaeological Research Team, in particular Mrs. Henry Haynes, Miss Sherry Alford, Dr. L. D. Ramsay and Mr. Donald Mangold, provided much of the assistance in excavation. A special thank you must be given to Mrs. Shirley Anderson of Kouts, Indiana, for providing many leads in research and a place to call home during my trips into northwestern Indiana, and to Don and Terri for putting up with me for so long.

Other individuals and institutions which I wish to acknowledge include: Mr. Daniel Bobinski, New Buffalo, Michigan; Mr. Alex Sinner, New Troy, Michigan; the University of Michigan Museum of Anthropology; the University of Notre Dame; Grand Valley State College; the Grand Rapids Public Museum; the Fort St. Joseph Museum; the Illinois
State Museum, and the Graduate College of Western Michigan University for a research grant which enabled me to view collections otherwise beyond my capabilities.

Dr. Elizabeth Garland and Dr. William Cremin of Western Michigan University and Dr. James Bellis of the University of Notre Dame, my committee, have provided me with much valuable advice and encouragement. I am indebted to Jim and Betsy for their support prior to starting my Master's program and their sound advice to enter into that program.

The interpretations contained in this document are solely mine, and I take full responsibility for any errors that may remain.

William L. Mangold
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**Introduction**

The objective of this study is to compare ceramic decorative styles of the Middle Woodland period from northwestern Indiana and western Michigan (Fig. 1) in order to delineate style zones that may be present. "Middle Woodland cultural development must be studied in terms of local units before we can speak of the broader units with any accuracy . . . defining ceramic style zones is the beginning of the study of the meaning of Hopewell." (Struever, 1965, p.211). There are distinct differences in the ceramic styles from northwestern Indiana and western Michigan and the reasons for the variation should be investigated.

It is the desired situation when a researcher has total control over all aspects of data collection. Unfortunately, it is often the case that one has to use information gathered by other individuals under differing circumstances, particularly in geographical areas where little professional archaeological work has been done. There are several problems that must be realized when dealing with artifacts recovered by non-professional archaeologists.

The first problem is that the existence of these collections is not normally public knowledge. It is necessary to inquire and to explore various tips from informants. This may reveal one collection but fail to disclose another, possibly more relevant, collection nearby. Individual landowners often collect artifacts as "curiosities" or in keeping tradition with what their fathers did before
Figure 1: Map of Midwest Showing Research Area
them. Often these artifacts are not actively sought but rather are picked up in the course of doing agricultural tasks or in hunting. Sites may be collected by individuals other than the landowner, with or without his knowledge. Often these collectors are not aware of the identity of other collectors who may be visiting the same site.

It is necessary at this point to indicate that there are several kinds of "collectors". The kind that, unfortunately, comes most readily to mind is the one who gathers by any means artifacts of marketable value. The other kind is the individual who gathers all artifacts whether whole or broken, and, if more than one site is visited, keeps the materials from each site separated. While the information is not usually written down, these individuals have a real knowledge of the site and its occupation. A collection of this kind can be of great value to the professional archaeologist and the individual collector can be properly referred to as an avocational archaeologist. While being of assistance to professional archaeologists, avocational archaeologists cannot replace them. The professional's judgment, training and analytical capabilities are essential.

Most avocational archaeologists are usually self-taught, with little field experience outside their own activities. The field-recognition capabilities of the non-professional may be limited. In particular, potsherds are frequently not recognized. However, a decorated sherd may be more readily observed than a smooth or cordmarked one. Therefore, collections which include pottery may be biased. Quimby (1941a) encountered this problem in his Middle Wood-
land research, since non-professionals who excavate mounds often ignore individual sherds in preference to whole or reconstructable vessels.

Another question to be raised concerns the interpretation of surface collections. In most cases, artifacts are gathered from the surface of sand blows or cultivated fields. A sand blow may eventually expose all cultural deposits but does so in a manner that may combine several cultural layers. A cultivated field will only expose those horizons within the depth of the plowzone and leave others undetected.

Ceramics found as burial offerings in Middle Woodland mounds were formerly considered to be specifically made for that purpose; a distinction was made between ceremonial and utilitarian wares (Morgan, 1952, p.89). However, the Hopewell/Baehr jars found in burial associations in the Klunk-Gibson Mound group in Illinois have been classified by David Braun(1977, p.70) as "common midden occurrence". Also, ceramics from the Spoonville village site are similar to those used as grave offerings in the mounds at Norton and Sumnerville(Fitting, 1975, p.105). These examples suggest that there was little or no difference between vessels being used in everyday activities and those included as grave offerings.

However, there are indications that certain Middle Woodland pottery vessels might be considered as exotic or status items. In observing much of the same material that Quimby reviewed in establishing the Goodall Focus(Quimby, 1941a, 1941b, 1943, 1944), this author has noted limestone tempering in one vessel from Sumnerville.
Two other limestone-tempered vessels were noted in the collection from the Spoonville mounds. This kind of temper is frequently found in vessels in Illinois but is not found in the vast majority of Middle Woodland ceramics in northwestern Indiana and western Michigan, due to the lack of available limestone sources within the research area. Limestone-tempered vessels found in northwestern Indiana and western Michigan were, therefore, probably imported from Illinois and may be considered status items.

As previously stated, the ceramics used in this analysis have been obtained by diverse methods. The sites reported here that have been excavated by Western Michigan University or this author exhibit similar recovery procedures. All units have been dug in arbitrary 10 centimeter levels or by natural strata and screened through 1/4 inch mesh. The surface of sites have been subjected to intensive collection. Any deviation from this will be discussed in the presentation of individual sites. Unless specifically noted as excavated material, all artifacts and site assemblages discussed are surface collections. Whenever possible, the sites yielding surface collections were visited by this researcher, which permits some uniformity in comparisons with sites personally known to the author.

"Hopewell" or "Hopewelian" are terms that have become integrated into archaeological terminology but their meaning is not standardized. As Stuever(1964, p.85) points out, "Hopewell" refers to a cultural type, a cultural phase, a temporal horizon and a form of burial complex or cult, to cite a portion of the list. Within the context of this analysis, "Hopewell" is used to reference a pan-
regional interaction sphere (Caldwell, 1964) and its characteristic artifacts, an interaction network in which regional cultures participated to varying degrees, and to the ceramic series defined as Hopewell by Griffin (1952). The term "Middle Woodland" will apply to the various cultural expressions of the time period ca. 150 B.C. to A.D. 450. "Havana" refers to the Havana "tradition" (Brown, 1964, p.109-10) and the Havana "phase" as defined at the Havana site (McGregor, 1952). Both these cultural units depend on ceramic traits for their definition. "Goodall Focus" and "Norton Focus" refer to regional responses in northwestern Indiana and western Michigan respectively.
Chapter 1

Environment of the Research Area

Northwestern Indiana

The Kankakee River basin is the southernmost region of the research area. It is an area of unique resources that were particularly attractive to Middle Woodland peoples.

Landforms in northern Indiana are primarily the result of glacial activity. A great variety of depositional forms is present, including kames, outwash plains, end moraines, lake plains, valley trains and kettle depressions. There are many closely related postglacial features as well as lakes, sand dunes and peat bogs.

There are five physiographic units in northern Indiana: the Calumet Lacustrine Plain, the Valparaiso Morainal Area, the Kankakee Outwash and Lacustrine Plain, the Steuben Morainal Lake Area and the Maumee Lacustrine Plain. Of these five, only the first three pertain to the research area (see Figure 2).

The Calumet Lacustrine Plain is an abandoned lake bottom. It is a compound lacustrine area in which successive stages of Lake Chicago are represented in step-like fashion between 640 and 590 feet in elevation (Schneider, 1966, p.50-1). The highest is approximately 50 feet above the current level of Lake Michigan and follows the boundary between the lake plain and the Valparaiso Moraine. Lower strandlines are identified by beaches at intermediate positions,
Figure 2: Map Showing Physiography of the Research Area

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particularly at 605 and 620 feet in elevation.

The topography of the lake plain is not flat and featureless, but is marked by abundant low sand ridges. The principal shorelines are defined by nearly continuous beach ridges which are often covered with stabilized sand dunes rising as much as 40 feet above the adjoining lake bottom. Offshore spits and bars, although less conspicuous and much lower, are common, as are massive high dunes along the modern lakeshore.

The Calumet Lacustrine Plain is enclosed on the south by the Valparaiso Moraine, an arcuate end moraine complex that can be followed for several hundred miles around the head of Lake Michigan from southern Wisconsin through northeastern Illinois and northwestern Indiana to west central Michigan. The southern edge of the moraine is generally considered to mark the terminal position of the Lake Michigan lobe during the Cary substage of the Wisconsin ice sheet, but recent work indicates that the Valparaiso Moraine is a compound moraine and represents more than one stillstand of the ice front (Schneider, 1966, p. 51). It is not possible to recognize the several discrete morainal ridges as has been done in Illinois and Michigan.

The Valparaiso Moraine is approximately 150 feet higher than the Calumet Lacustrine Plain. Much of the moraine is 700 to 800 feet above sea level and many of the higher knobs reach 850 to 950 feet above sea level. Between Valparaiso, Indiana, and the Michigan State line, the moraine is generally higher and more rolling than in other areas. Ice block depressions (lakes, and some partially filled with
peat) are found throughout the entire moraine, but are more abundant in knob and kettle topography which prevails in the northeast-southwest ranging portion.

The Kankakee Outwash and Lacustrine Plain through which the Kankakee River flows lies south and southeast of the Valparaiso Moraine. Extending into northwestern Indiana and Michigan from Illinois is a vast area underlain primarily by sand deposited as outwash by glacial meltwaters (Meyers, 1936, p.364). Lacustrine origins are suggested by poorly drained and low areas. Most of the materials were deposited as outwash plains and broad valley trains whose outlines are, in part, related to the extant St. Joseph, Kankakee, Tippecanoe and Iroquios Rivers. Thick gravel deposits below or interbedded with surficial sandy sediments partially confirms the outwash origin (Schneider, 1966, p.52). Large portions of the original topography have been modified by prevailing westerly winds.

Most of northwestern Indiana within the Kankakee Outwash and Lacustrine Plain and the Calumet Lacustrine Plain is an area of low relief consisting of winding sand dunes interspaced with long marshy swales. There are also extensive gravel terraces and broad flat depressions that were probably former marshes.

The soils of the lacustrine and outwash plains are Plainfield and Oshtemo sands, Maumee and Gilford sandy loams, and Tracy, Door and Fox loams (Ulrich, 1966, p.85). They vary widely in characteristics and potential productivity due to differences in mineral composition. Only the black sandy and loamy soils and muck are considered good
for cultivation.

Within the glacial lake area, there are two soil regions (Figure 3). The western region consists of lake beds of calcareous clay that have been covered by outwash deposits of interbedded silt and fine sands. Soils are darker, developing under prairie grasses. The eastern region is a broad, flat lake plain. Approximately 80 percent of this plain was once a forested marshland (Ulrich, 1966, p.86).

The Kankakee River, which is the major waterway of northwestern Indiana, has its headwaters near South Bend, Indiana, and drains into the Illinois River at Momence, Illinois (Figure 4). The total meandering distance of approximately 250 miles (402 km) has a gradient averaging about 5 inches (12.7 cm) per mile (Meyer, 1936, p.364). The average gradient for the 85 mile (136.8 km) long valley is about 15 inches (38.1 cm) (Meyer, 1936, p.365). There was a limestone sill at Momence, Illinois, which controlled the flow of the Kankakee River and restricted its trenching into its bed.

The Kankakee Marsh is not a single unit, but is rather a complex terrain consisting of multiple marshes interspersed with sandy ridges of higher and drier land, meanders, oxbows, sloughs and bayous. It is the outstanding feature of the area and provides a wide variety of resources.

Three formations of original native plant cover have been identified: 1) the upland or oak-timber association; 2) the marsh sedge and grass, including occasional small outliers of swamp timber, and 3) the river swamp timber (Meyer, 1936, p.365).

Following the course of the river from its western limits half
Figure 3: Map Showing Soils of the Research Area
Figure 4: Map Showing Rivers of the Research Area
way to its source, the swamp timber averaged a mile to 3 miles (1.61 to 4.8 km) in width. Ash, elm, maple, oak and birch were the dominant species.

Within the marsh were rank sedges and grasses, wild hay, wild rice, outliers of pin oak and its tree associates, lily pads, reeds cattails and flags. Huckleberries and cranberries were abundant. Tamarack swamps were also noted (Meyer, 1936; Petty and Jackson, 1966).

The insular dunal and other upland areas supported either a thin moss or herb cover or bore a stand of scrub or medium-sized timber, primarily black oak and white oak (Meyer, 1936). Dwarf huckleberry, blueberry, blackberry and dewberry and a variety of nuts were also available (Petty and Jackson, 1966).

The Kankakee Marsh was one of the greatest waterfowl and fur-bearing areas in the world (Petty and Jackson, 1966, p.292). White-tail deer, muskrat, beaver and migratory waterfowl found this area to be particularly inviting. In historic times it has been a haven for sportsmen.

The Kankakee lies within the Koppen Dfa type of climate. It occupies a borderline position between the severe-winter Dfa and the mild-winter Cfa (Meyer, 1936; Newman, 1966). This position is a result of the lake effect. The presence of Lake Michigan moderates heat and cold and produces a heavier snowfall (Schaal, 1966). The frost-free days vary from 146 to 160, depending upon the nearness to the lake (Meyer, 1936, p.380).
Western Michigan

The region of western lower Michigan is defined here as the area from the Indiana State line northward to the Muskegon River basin and from Lake Michigan eastward to include the western 2/3 of the basins of the major west flowing rivers. The many river basins vary in size (Figure 4), but are rather uniform physiographically, although there are individual combinations of landforms and water within each basin providing more or less favorable settings for prehistoric occupation.

Four major west Michigan river basins will be discussed: the St. Joseph, the Kalamazoo, the Grand and the Muskegon. One minor river basin with known Middle Woodland sites, the Galien, will also be discussed. The Galien is located between the St. Joseph and the Kankakee rivers.

The St. Joseph River basin is the first major river basin north of the Kankakee. At one point, near the present day city of South Bend, Indiana, it is an easy portage from the Kankakee to the St. Joseph, and this portage was used extensively during historic times (see Figure 4). The watershed contains 4,586 square miles (11,877.9 km²). The river is 160 miles (257.6 km) long with a basin 110 miles (177 km) long and 65 miles (104.6 km) in width (Fitting, 1975, p.18). The headwaters are in eastern Hillsdale County, Michigan, with an elevation of over 1,100 feet (335.4 m). It has an average gradient of 3.75 feet (1.14 m) per mile. With 11 tributaries, the St. Joseph drains 300-400 lakes (Wood, 1914, p.47).
Lakes and marshes comprise approximately 10 percent of the drainage. It was one of the first rivers to develop its course after the retreat of the glaciers and during glacial times probably carried the waters of the Kalamazoo and the Grand (Wood, 1914, p.47).

The Kalamazoo River is 125 miles (201.2 km) long with a watershed comprising 2,064 square miles (5,345.9 km²). Its basin is 100 miles (161 km) long and varies from 10 to 30 miles (16.1 km to 48.3 km) in width (Fitting, 1975, p.19). Like the St. Joseph, it has its origin in northeastern Hillsdale County at an elevation of 1,100 feet (335.4 m). The Kalamazoo has an average gradient of 4.0 feet (1.2 m) per mile.

The Grand River is approximately 300 miles (482.9 km) long with a watershed of 5,572 square miles (14,431.8 km²). Its basin is 100 miles (161 km) long by 60 miles (96.6 km) wide (Fitting, 1975, p.18). The headwaters of the Grand are in Jackson County, Michigan, at an elevation of 1,000 feet (304.8 m). The average gradient is approximately 1.5 feet (45 cm) per mile. However, near the present city of Grand Rapids, as its name implies, the fall was much greater at 16 feet (4.9 m) per mile (Wood, 1914, p.48). The Kalamazoo and the St. Joseph, as well as the Grand, have rapids in their upper reaches where rivers course through boulder-blocked areas in the positions of terminal moraines (Hudgins, 1958, p.24). At Grand Rapids, however, there are several short falls where the Grand flows for a considerable distance over bedrock (Wood, 1914, p.47).

The Muskegon River, the northernmost river in the research area, is the fifth largest in the state with a watershed of 2,663 square
miles (6,897.3 km²). It is approximately 150 miles (241.5 km) long with a basin 120 miles (193.1 km) long varying from 10 to 30 miles (16.6 km to 48.3 km) in width (Fitting, 1975, p.19). The headwaters of the Muskegon are at Higgins Lake, Roscommon County, at an elevation of 1,160 feet (353.7 m). The Muskegon has an average gradient of 3.8 feet (1.16 m) per mile.

It is difficult to assess with any accuracy the floodplain development of any of these rivers. With the European settlement of western Michigan in the early 19th century, the water power available in these rivers was harnessed. By the time any information regarding the natural aspects of the river basins was recorded, dams had already changed the rivers. However, if the Galien River can be used as a smaller scale example, floodplain development can be regarded as being isolated occurrences where the river has changed its course. This is verified by a portion of the St. Joseph River north of Berrien Springs, Michigan. In an area associated with an oxbow lake, the 100-year flood line established by the Army Corps of Engineers veers away from the bank of the St. Joseph to a point over 500 meters west of the current bank. The farm manager of Andrews University, which owns this property has stated that much effort is needed to maintain a farm road adjacent to the river. The road has flooded several times in his memory (Anderson, B. Personal communication, June, 1979).

Kingsley (1978) has stated that the apparent lack of Hopewell occupation in the Kalamazoo River basin was due at least in part to the lack of floodplain development. However, a map of the area
west of Allegan which was prepared prior to the construction of the Allegan Dam on the Kalamazoo River shows an area of floodplain that may be typical of other areas prior to damming.

A feature common to all the rivers, large and small, within the research area that drain into Lake Michigan is a backwater lake formed behind the current dune line. These lakes are formed as dunal activity constricts or blocks the river's mouth causing water to back-flood. The physical characteristics of these lakes change considerably over time. The dunal lake associated with the mouth of the Galien River at New Buffalo, Michigan, is shown on an 1873 map of New Buffalo Township as Lake Pottawatomie and was described as being 5 to 20 feet (1.5 to 6.1 m) deep and 2.5 miles long by 1 mile (3.35 km by 1.34 km) wide(Kissman, 1976, p.10). A map drawn during the 1920s shows corn being cultivated on land within the 1873 borders of the lake. Currently, the area is a wet marsh. These lakes provide a wide variety of aquatic resources including fish and flora and are a popular resting area for migratory waterfowl. The changing nature of these environments from lake to marsh to tillable land and back to lake again would provide a favorable habitat for such annuals as Chenopodium and Iva.

The physiography of this portion of the research area is a mixture of till plains, lacustrine plains, outwash plains and moraines due to the complex glacial history of the area. To describe the location and expanse of each geographic/glacial formation would be beyond the scope of this study. Instead, it can be said that each of the rivers in this portion of the research area flows through
three regions from Lake Michigan inland: a lake border region; a "hill-land" region, and a rolling plain region (Sommers, 1977, p.75), (see Figure 2).

The lake border region consists mainly of a dunal zone. This would include both active and stabilized sand dunes and any former dune lines that may now be several miles from the current shore of Lake Michigan.

The hill-land region would include the glacially formed hills and moraines. The Valparaiso Moraine, as discussed earlier, is quite prominent as it extends from south to north through western Michigan. As it reaches the northern limits of the research area, the moraine has decreased in area and the height of the ridges has diminished. Associated with the Valparaiso Moraine are its lesser ridges such as the Covert Ridge which runs to the west of the main portion of the Valparaiso Moraine across the western edge of the St. Joseph River basin.

The rolling plains lie east of the hill-land. This area is composed of outwash, till and lacustrine plains (Sommers, 1977). This region has a very complex history, which will not be dealt with here.

The soils of western Michigan also constitute a very complex set of associations. Some areas have as many as three soil types within one acre of land. As a generalization, a significant portion of southern Michigan is covered with grey-brown podzolic soils that have developed in a humid, temperate climate under deciduous forest cover.
The climate of western Michigan is highly influenced by the presence of Lake Michigan. Eichenlaub (1979, p. 190) describes most of the Great Lakes basin as being "humid continental cool summer" or Dfb in the Koppen classification. This would be characterized by cold snowy winters, cool or moderately warm summers and precipitation evenly distributed throughout the year. However, the effects of Lake Michigan have created in extreme southwestern Michigan an area of Dfa, a warmer climate similar to that found in the Kankakee (Meyer, 1936).

South of a transitional zone extending from near Muskegon eastward to Saginew Bay, the presettlement forest was composed of deciduous trees on all but the wettest, most acid soils (Veatch, 1959). White oak, black oak, red maple and shagbark hickory were found on well-drained uplands. Basswood, beech, sugar maple and red oak were prevalent on more moist, somewhat finer textured upland soils. Near Lake Michigan, beech and maple were more widespread. On muck, alluvial or lake plain soils, forests of ash, American elm, silver and red maples and swamp white oak were common (Sommers, 1977, p. 18).

The presettlement forests were interrupted by stretches of upland prairie. The areas of prairie were most extensive in Kalamazoo, Cass and St. Joseph counties. The grass species found in the prairie area are similar to more extensive areas of prairie development in Illinois and Iowa (Sommers, 1977, p. 19).

The fauna found in western Michigan include almost every species common to the Midwest. The lakes and rivers contain a wide
variety of fish and turtles. Western Michigan is within the Mississippi flyway of migratory waterfowl and thus has both resident and transient duck and goose populations (Downing, 1922).

**The Middle Woodland Adaptive Strategies**

An assessment of the prehistoric sites in this report in relationship to the environmental situation in which they occur may provide insight into the adaptive strategies of Middle Woodland peoples. It may also provide a cohesive element between the sites in northwestern Indiana and southwestern Michigan. Brown (1964) contends that the Havana tradition is largely co-extensive with the Prairie Peninsula and, based on this premise, that there is an ecological basis for its distribution. He notes the number of Middle Woodland sites in the Kankakee region and suggests that marsh resources had only a "limited place in the subsistence activities" (Brown, 1964, p. 120), since the sites were situated in a position to exploit both marsh and upland resources. All of the eight Middle Woodland sites in the Kankakee River basin described in this report (and others not described) are situated within the boundaries of or adjacent to the Kankakee Marsh. Two of the eight sites are located where a tributary stream entered the marsh, not as common an occurrence as suggested by Brown (1964, p. 120). While some of these sites contain mounds and others do not, the locations of the sites strongly suggest exploitation of marsh resources to a greater degree than Brown infers.

Of the 10 Michigan Middle Woodland sites discussed, eight are
associated with marsh or marsh-like conditions. Those not demonstrably associated with a marsh, Norton and Sumnerville, are primarily mound groups with no defined village areas. Both are in areas of urban development and environmental reconstructions would be somewhat speculative.

Middle Woodland sites associated with marshes are not located in identical situations, however. While two of the eight sites are found on second order streams, six are associated with first order streams or rivers. This corresponds with Struever's (1968) and Farnsworth's (1973) findings in the lower Illinois River valley.

The majority of Middle Woodland sites in the lower Illinois River valley are situated on first order waterways in order to exploit floodplain resources. Struever and Farnsworth mention no marsh associations with the Middle Woodland sites on second order streams.

There are some similarities between site locations and inferred adaptive strategies in the lower Illinois River valley and the research area described in this report. All Middle Woodland sites in the research area are located to best exploit a wide variety of resources. Most sites are situated adjacent to marshes, on some type of waterway and accessible to upland resources. Certain sites located within the Kankakee Marsh may have been specialized extractive campsites. The heaviest concentrations of Middle Woodland sites in the research area are located in river valleys that probably exhibited extensive floodplain development. Struever (1964, p.103; 1968, p.288) has stated that Hopewell expansion out of Illinois was restricted to environmental zones within which the sub-
sistence system could be implemented. The Kalamazoo valley, while having some limited floodplain development, may not have provided the optimal situation desired by the Hopewellian peoples. The Kalamazoo River basin is an environmental "anomaly" in western Michigan as the river is, for the most part, still cutting a channel for itself rather than occupying an original glacial spillway channel (Kingsley, 1978, p.7-8). It would appear that floodplain resources are major consideration for the settlement of Hopewell populations. Unfortunately, there is little information regarding the utilization of the environment available from these sites to verify this hypothesis. Further information from these sites in terms of resources actually being utilized is very much needed.
CHAPTER 2

THEORETICAL AND METHODOLOGICAL CONSIDERATIONS

Cultural Systems

Before an attempt can be made to generate a ceramic typology, it must be established that the makers of the ceramics had preconceived ideas on what was "proper". As Deetz (1967, p.46) expressed it, "The idea of the proper form of an object exists in the mind of the maker, and when this idea is expressed in tangible form in raw material, an artifact results." The patterning that is found in the attributes which characterize any series of similar objects exists because the behavior producing these objects is patterned. The patterning of behavior which produces uniformity in artifacts is largely conditioned by the culture of the artisan (Deetz, 1965).

It is the anthropologist's task to discern the patterns of learned behavior, i.e. culture (Garbarino, 1977, p.4). A cultural system is a set of constant or cyclically repetitive articulations between social, technological and ideological, extrasomatic and adaptive means available to a human population (White, 1959, p.8). The culture must be viewed as a systemic whole, consisting of interrelated subsystems such as the ideological system, the social system and the technological system (Binford, 1962; 1965). Longacre (1970, p.2) adds that "such a perspective compels the paleoanthropologist to focus on the nature and interrelations of the component
parts of the cultural system under study". Binford (1965) and Flannery (1967) see cultural systems as being participated in differentially and not evenly "shared". Therefore, the focus of investigations centers on variation rather than "norms" or averages.

The regional approach to the study of cultural system has been advanced by Binford. "The extent of such regions will vary because it is recognized that cultural systems differ greatly in the limits of their adaptive range and milieu." (Binford, 1964, p.426). As cultural systems evolve into greater complexity, they generally occupy greater ecological ranges and engage in more complex, widespread, extrasocietal interaction (Binford, 1964).

**Typology and Attribute Analysis**

An artifact typology should reflect culturally imposed patterning. The basic term or concept to be used in this analysis is attribute, defined as the smallest recognizable, single element that can be observed in the ceramics being studied (Fowler, 1955; Stoltman, 1973). Attributes would include, for example, surface preparation, tempering, and lip shape. Once the various attributes have been established, it is possible to formulate larger categories.

Spaulding (1953, p.305) sees an artifact type as "a group of artifacts exhibiting a consistent assemblage of attributes whose combined properties give it a characteristic pattern." A "Level I" analysis under Spaulding's (1954, p.392) organization is basically the determining of the attributes present in the artifacts. "Level II" is the determining of attribute frequencies and the relationship of
these attribute frequencies to the various attribute combinations to provide information on the amount and nature of the attribute clustering in the assemblage. "A type at this level is a group of artifacts exhibiting a consistent and distinctive cluster of attributes" (Spaulding, 1954, p.392).

James Wright (1973, p.17,19) has summarized the advantages of attribute analysis as follows:

1. Greater conciseness and stronger control over the factors of space and time;
2. Maintenance of the integrity of individual attributes without mixing them or losing them as can happen between types;
3. Stability of data for making comparisons, as types are subject to periodic modification.

Variations in Ceramic Design

Variations in ceramic design can be viewed as the result of "social interaction" (Deetz, 1965; Longacre, 1970; Plog, 1977; Whallon, 1968). The premise of this model of decorative stylistic variability within a specific culture area in space and time is that the nature of stylistic concepts is determined by the nature of the interaction between artisans of the same community and those of other geographical areas (Whallon, 1968). Ethnographic research by Bunzel (1929), Friedrich (1970) and Stanislawski (1973, 1975) indicates that individuals of a single social group making pottery use a common repertoire of design attributes, techniques and design patterns.
Because of unique designs caused by differences in motifs and technical attributes of execution, it becomes possible to recognize pottery from different villages or social units within the same sociocultural system.

Several anthropologists, including Deetz (1965) and Longacre (1964, 1970), have demonstrated that social structural rules established within the socio-cultural system may directly affect stylistic patterning. Decorative behavior, therefore, is a learned behavior and any interruption in the transmission of this behavior from one generation to another will cause changes in the spatial distribution of integrity of decorative concepts (Deetz, 1965, p. 2).

Within given temporal and spatial confines, there should be a high degree of homogeneity in design treatment (Braun, 1977; Deetz, 1965; Whallon, 1968).

An increasing within-site homogeneity in decorative ceramic attributes is seen by Whallon (1968) as an indication of decreasing interaction between communities over time. Conversely, the use of certain stylistic behavior from outside one's own community would tend to exhibit one's alignment with other groups and, therefore, project information about one's social group affiliations, status, religious beliefs and political ideology (Wobst, 1977). Brashler (1978) states that locally or regionally distinct ceramic types would be an indication of a societal network that is highly nucleated. In a non-nucleate network such as typically exists among hunting and gathering societies, the spread of attributes and ceramic types across regional geographic boundaries would be expected.
It should be stressed, however, that most attempts to discern social structure in archaeological context through the study of variations in art style has met with strong criticism from socio-cultural anthropologists. Many articles appeared during the 1970s warning "would be" ethnoarchaeologists of the pitfalls of "cross-disciplinary time lag", i.e. the borrowing of ethnological constructs that are no longer considered valid by other anthropologists (Allen and Richardson, 1971, p.48). A summary of the primary criticisms directed against the "ceramic sociologists" is found in a recently published paper by Peter Roe (1980). Roe uses ethnological data from a South American Indian group to test the validity of some of the assumptions that archaeologists have used to draw sociological inferences from their recovered data. The findings of Roe's research show that the relationship between social structure and art styles is extremely complex. However, he concludes that only a slight shift from seeking paleo-descent rules towards the establishing of paleo-residence rules would accommodate the major criticisms of this approach and still maintain the sociological perspective of this portion of the research (Roe, 1980, p.63).

Methodology

In order to establish a typology or begin the analysis of any ceramic assemblage, one must "know the language" and prepare a methodology to conduct the analysis. The "language" in this case refers to the definitions used in the classification and description of ceramic vessels.
In general the terms and definitions used in this presentation follow those used by Fowler (1955) in his analysis of Illinois Middle Woodland ceramics.

A mode is described as a linking of attributes (Fowler, 1955, p.216). An example of this would be fine-toothed, dentate rocker stamping.

A type is a group of modes that are demonstrated to be significantly linked together in space and/or time (Fowler, 1955, p.216). Types can be established once modes are defined and the combination of modes that occur on a particular vessel are noted. A type may be limited spatially or temporally, possibly occurring at one site or within a limited time span.

A ware is an assemblage of pottery which is more inclusive than a type grouping. A ware may include several types. It is defined by consistent attribute clustering of characteristics of paste, temper and manufacture (Griffin, 1952, p.11).

The decorate modes that have been recognized in the analysis of the ceramics in this study are briefly defined in Table 1.

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<td>Definitions of Ceramic Decorative Traits</td>
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**Cord decoration:**

- Single cord - The impression of a single twined cord into moist clay as a decorative technique.

- Cordwrapped paddle - A technique used to roughen large areas of
the vessel surface and to bond or thin sections of portions of the vessel during manufacture.

There will be no distinction between "cordmarked" and "smoothed-over cordmarked" due to the difficulty and subjectivity involved (Kingsley, 1977).

**Cordwrapped stick stamp**: An impression made with a stick wrapped with cord and giving an appearance similar to a linear dentate stamp.

**Bar stamp**: A long, narrow, rectangular impression made into the clay by a non-dentate stamp.

**Punctate**: An impression produced by a variety of sticks, reeds or other implements, and usually found in series.

**Boss**: A rounded lump, usually on the exterior, formed by a punctation on the interior extending almost completely through the vessel wall.

**Dentate stamp**: A straight, or slightly curved, toothed stamp usually applied to the rim of a vessel or used to fill zoned areas as decoration. The size of the tooth may vary from very fine to very large.

**Plain rocker stamp**: A tool with a curved surface, such as the edge of a shell, applied with a rocking motion.

**Dentate rocker stamp**: A tool consisting of teeth cut into a curved surface, such as the edge of a shell, and then applied in a rocking motion. The size of the teeth may vary from very fine to large.

**Zoned**: "A form of arrangement of designs in body decoration in Havana and Hopewell wares comprised of . . . zones set off from plain body areas by incised lines and usually filled with stamping or incising." (Fowler, 1955, p.220).

**Cambered rim**: A thickening of a rim by the addition of clay on the exterior surface just below the lip.

**Channeled rim**: A single wide groove on the interior rim surface near the lower margin of the rim and parallel to the lip.

**Burnished surface**: The result of rubbing leather-dry clay with a stone or other hard object to produce a surface which reflects light.
Brushed surface: Fine striations of varying widths and depths caused by the brushing of the vessel surface with a bundle of stiff fibers. Exterior brushing can be decorative in intent (result); interior brushing may best be interpreted as vessel finishing; i.e., part of the manufacturing process.

Combed surface: Produced by dragging a dentate stamp across the surface of a vessel resulting in evenly spaced striations.

In practice, it is difficult to determine whether an impression is made by a linear dentate stamp or a cordwrapped stick. Replication studies have shown that this difficulty can be caused by several situations. If the surface of the clay vessel is too wet at the time of application of either stamp, the impression created is not well-defined and difficult to judge. If a carved dentate stamp is not precisely applied, any extraneous motion will blur the sharp edges of impression. If a cordwrapped stick has been used for a long period of time, the accumulation of clay on the cord fibers will cause an impression lacking the marks of the individual fibers. These cord impressions are often the main characteristic used to determine cordwrapped stick impressions from those of a dentate stamp.

The same type of problem arises with determining cordwrapped paddle impressions from cordwrapped stick surface treatment. Replication studies conducted by John White (Personal communication, August, 1976) of the Foundation for Illinois Archaeology have shown that there is no evidence whatsoever for paddles, which always leave a multifaceted surface. White sees all of the "paddled" vessels as covered by a "rolling pin motion" of cordwrapped stick.
This method would be combined with the use of an interior form, such as the trowels found on Mississippian sites, to stretch the clay and produce a uniform wall thickness.

In this study, description and comparative analysis of the Middle Woodland ceramics from northwestern Indiana and western Michigan will focus on paste, temper, vessel form, vessel construction and decorative motifs. Following the reasoning of McPherron (1967), that hardness and color are too arbitrary to be useful comparatively, neither will be considered to any extent. Decorative motifs will be the major factor in the assessment of ceramic temporal sequence in the research area and in the establishment of stylistic zones. Decorative motifs will be compared to the decorative styles found in the fairly well established Middle Woodland phases in Illinois. Ceramic attributes which correlate with these phases are presented in Table 2.

The breakdown of ceramic attributes pertains to the rims of the vessels only. In the majority of cases, the vessels are fragmentary with little or no indication of the decoration or form of the body. The rim of a vessel is often subject to decoration when other portions are not. In the description of the vessels, the total decoration and form will be provided to the extent that they are known. Plain vessels are enumerated but will not be described.
Figure 5: Ceramic Nomenclature Used
<table>
<thead>
<tr>
<th>Phase</th>
<th>Attribute</th>
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<tbody>
<tr>
<td>Weaver</td>
<td>Fine-line incising</td>
</tr>
<tr>
<td>A.D. 400 - 600+</td>
<td>Cordmarking</td>
</tr>
<tr>
<td></td>
<td>Cordwrapped stick stamping</td>
</tr>
<tr>
<td></td>
<td>Exterior brushing</td>
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<tr>
<td>Pike-Hopewell</td>
<td>Cambered rim</td>
</tr>
<tr>
<td>A.D. 200 - 400</td>
<td>Crosshatching</td>
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<tr>
<td></td>
<td>Punctuation</td>
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<tr>
<td></td>
<td>Long stroke, plain rocker stamping</td>
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<tr>
<td></td>
<td>Medium to fine-tooth, dentate rocker stamping</td>
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<tr>
<td></td>
<td>Zoning</td>
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<tr>
<td></td>
<td>Fine-line incising</td>
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<tr>
<td></td>
<td>Exterior brushing</td>
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<tr>
<td>Havana-Hopewell</td>
<td>Cambered rim</td>
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<tr>
<td>A.D. 1 - 200</td>
<td>T-shaped lip</td>
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<tr>
<td></td>
<td>Crosshatching</td>
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<tr>
<td></td>
<td>Hemiconical punctation</td>
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<tr>
<td></td>
<td>Burnishing</td>
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<tr>
<td></td>
<td>Medium to fine-tooth linear dentate stamping</td>
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<tr>
<td></td>
<td>Short-stroke plain rocker stamping</td>
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<tr>
<td></td>
<td>Medium-tooth dentate rocker stamping</td>
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<tr>
<td></td>
<td>Cordwrapped stick stamping</td>
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<td></td>
<td>Zoning</td>
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<tr>
<td></td>
<td>Broad to medium-line incising</td>
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<tr>
<td></td>
<td>Red slip</td>
</tr>
<tr>
<td>Havana</td>
<td>Straight rim</td>
</tr>
<tr>
<td>200 B.C. - A.D. 1</td>
<td>Interior beveled lip</td>
</tr>
<tr>
<td></td>
<td>Notching of the interior lip</td>
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<tr>
<td></td>
<td>Bossing</td>
</tr>
<tr>
<td></td>
<td>Ovoid and barred ovoid stamping</td>
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<tr>
<td></td>
<td>Large to medium-tooth linear dentate stamping</td>
</tr>
<tr>
<td></td>
<td>Large to medium-tooth curved dentate stamping</td>
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<tr>
<td></td>
<td>Crescent stamping</td>
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<tr>
<td></td>
<td>Broad to medium-line incising</td>
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<td></td>
<td>Punctation</td>
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<td>Bar stamping</td>
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<td>Zoning</td>
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<td></td>
</tr>
<tr>
<td>Cordmarking</td>
<td></td>
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<tr>
<td>Chevron patterns</td>
<td></td>
</tr>
</tbody>
</table>

(after Braun, 1977; Griffin, 1952; Taylor, 1958)
CHAPTER 3

DESCRIPTION OF MIDDLE WOODLAND CERAMICS

Sites and Ceramics

The sites and their ceramics are presented in the context of their river valleys. Some sites and/or mound groups are not discussed due to either limited or non-existent ceramic assemblages or scant information regarding the manner of excavation or collection of the site (Figure 6).

In the following ceramic description, several previously described types occur frequently. References to these types are provided in Table 3 and will not be repeated after each mention of the type.

TABLE 3

References to Frequently Mentioned Ceramic Types

Norton Crosshatched(Quimby, 1941, p.491)
Summerville Incised(Quimby, 1941, p.492)
Hopewell Zoned Stamped(Griffin, 1952, p.116)
Baehr Zoned(Taylor, 1958, p.216)
Naples Stamped(Griffin, 1952, p.107)
Hummel Stamped(Griffin, 1952, p.110)
Havana Cordmarked(Taylor, 1958, p.215)
Hopewell Red Filmed(Griffin, 1952, p.118)
Neteler Stamped(Griffin, 1952, p.104-5)
Figure 6: Map of Middle Woodland Sites in the Research Area.
The presentation will commence with the Kalamazoo River basin, since material from the intensively excavated Mushroom site is pertinent to the interpretation of ceramics found at other sites.

The Kalamazoo River Basin

The Mushroom Site

The Mushroom site (20AE88) is located in the NW 1/4, Section 14 of Valley Township, Allegan County, Michigan, and is the first Middle Woodland site of any size to be recorded in the Kalamazoo River basin (Mangold and Garland, 1979). The site was discovered during a survey of Kalamazoo Basin sites directed by Dr. Elizabeth Garland in 1973. The Middle Woodland affiliation of the site was not noted until, during a recollection of the site in 1978, zoned body sherds and a cambered crosshatched rim were recovered. The site was tested in 1978 and was the focus of excavations in 1980 by the Western Michigan University Archaeological Field School under Garland's direction. The major occupation of the Mushroom site is Middle Woodland, with spatially restricted Late Woodland materials also present.

The Middle Woodland occupation covers approximately eight acres on two terraces, at 620 and 660 feet (188.9 and 201.2 m) in elevation, above the Kalamazoo River along what is now the northern shore of Lake Allegan, upriver from the Allegan Dam. There are no mounds associated with the site. Mounds have been mentioned in the basin by private collectors but, to date, no Middle Woodland mounds have been confirmed through test excavation.

During the 1978 and 1980 excavations, a total of 281 m² was ex-
cavated (Figures 7 and 8). Of the eight features uncovered, only two contained cultural material. A radiocarbon date from Feature 5 of A.D. 295-65 (UGa 3427) was obtained from charcoal associated with a zoned, plain rocker stamped body sherd and a smoothed sherd. While typical Middle Woodland ceramics, Norton-like projectile points, and lamellar blades were recovered, no exotic items or materials, such as copper or marine shell, which would be indicative of the Hopewell Interaction Sphere, were found on the site.

A total of 3,539 sherds including 96 rimsherds representing a minimum of 80 vessels were obtained in the combined excavations. Approximately 40 percent of the sherds have eroded surfaces or have such a small surface remaining that surface treatment could not be analyzed. The average size of the sherds from the Mushroom site is less than 3 cm², with many less than 1 cm².

Of the 80 vessels identified from the Mushroom site assemblage, six are represented by a thin pottery with interior/exterior cord-marking which is termed Mushroom Cordmarked. There are 35 rimsherds from a minimum of six vessels (vessels 31-35). Since this is probably a Middle Woodland type, it will be described here. A formal description is presented in Appendix I.

The vessels appear to be straight walled with lips that vary from square to round. Cordmarking is applied vertically to the lip on the exterior and horizontally or slightly obliquely to the right on the interior. The cord is tightly twined and the impressions are parallel and well separated. Cordmarking on the lip is also common. Instances of incising over cordmarking and punctation have also been
DECORATION

A. Punctation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing,
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 80

Figure 9 : Percentage of Single Attributes

Mushroom Site
recorded. The orifice of two vessels, estimated from partially re-
constructed rims, are 18 cm and 21 cm in diameter. The walls are
thinned to the lip with the thinning commencing approximately
7.5 mm below the lip and the thickness is reduced by an average of
3 mm.

The temper consists of hornblende and fine grit. The indivi-
dual pieces of temper are quite large, ranging from 1 mm to 7 mm,
and often protrude through the surface of the vessel. This temper
is characteristic of these vessels only and has not been found in
any other ceramics at the site.

The vessels appear to be well fired. Split sherds are extremely
rare, but there is a marked tendency toward coil breakage. This
breakage is reflected in 78 percent of the sherds of these vessels.
The breaks reveal either the concave edge or the convex shape of the
mold of the individual coil. The coils vary from 6 mm to 1.2 cm in
diameter and retain the scoring used to secure one coil to another.

An application of a clay slip prior to cordmarking is a common
occurrence. The slip consists of a clay of slightly different com-
position than that of the main body of the vessel. It was applied
to both interior and exterior surfaces to a thickness of 1 mm (Figure
10). This slip covered large gaps between ineffectively joined
coils.

Mushroom Cordmarked is distinctly different from both the
Early Woodland and Late Woodland wares found to date in the Kalama-
zoo River basin (Mangold and Garland, 1979, p.3-5,14). It has been
identified as a minority type at the Harper, Alt I, Goodall and Mud
Figure 10: Mushroom Cordmarked Characteristics
Lake sites in the Kankakee River basin and at the Spoonville and Toft Lake sites, as will be described later in this report. Doreen Ozker (1976, p. 286) describes 1½ interior/exterior cordmarked sherds at Sumac Bluff in Midland County. The site has other minor Middle Woodland ceramic traits and Ozker suggests an Early Late Woodland placement for this pottery. As widespread as this minor type appears to be, it is surprising that it has not been previously described and formally recognized.

The majority of the decorated Middle Woodland ceramics at the Mushroom site appears to represent a late period according to the Hopewell series as delineated by Griffin (1952). The date of A.D. 295±65 can be considered an accurate placement with regard to the ceramic styles found.

The description of the vessels found at the Mushroom site is as follows:

Vessel 1 (Figure 11a) This grit-tempered vessel has a cambered rim with crosshatching spaced 5 mm apart and extending 1.5 cm below the lip. At 1.7 cm below the lip, there is a single row of medium-sized punctates spaced 6 mm apart, applied from below with a solid tool. The body shape is probably globular.
Type: a "Hopewell Rim" (Griffin, 1952, p. 116) or Norton Crosshatched.

Vessel 2 (Figure 11b) The vessel is grit tempered with a rim thickness of 9 mm. The lip is flat with an interior bevel. The
rim is straight and vertical with slight oblique to the right, plain rocker stamping extending from the lip to 1.1 cm below the lip. The rocking stroke is long and closely spaced with the convex to the lower right to bottom.

The lip is rounded to slightly flattened. The rim is straight to slightly everted. The interior surface of the vessel is lightly brushed and the exterior is roughly smoothed. The only decoration on this grit-tempered vessel is a double row of hemiconical punctates applied from the left with a hollow tool and running parallel to the lip. The punctates are 2 cm and 2.8 cm below the lip and 1.5 cm apart.

The lip is rounded with splaying to the exterior and slopes to the interior. The rim is straight and vertical with a slight thinning towards the lip. The grit-tempered vessel has a smoothed exterior with a single row of fragmentary bosses created by interior punctation commencing 1.6 cm below the lip and are 1.7 cm apart. The rim thickness is 5 mm.

The rim is cambered with an interior beveled lip. The interior of the grit-tempered vessel is brushed. On the cambered area of the rim are oblique to the right fine linear dentate stamping, approximately
4 mm apart. Below the cambered area, 1.5 cm below the lip, is a single row of small hemiconical punctates 8 mm apart and applied from the right with a hollow tool. The rim thickness is 7 mm.

Vessel 6
(Figure 17b)

The rim is straight with a rounded lip that has been thickened from 4 mm to 9 mm commencing 5 mm below the lip. The only decoration is horizontal brushing on the exterior.

Vessel 7
(Figure 17c)

The rim is straight and vertical with a rounded lip that has been thickened from 8 mm to 1.1 cm commencing 7 mm below the lip. The temper is grit and the only decorative attribute is the burnishing of the lip.

Vessel 8
(Figure 16)

The vessel is tempered with heavy concentrations of white grit. The rim diameter is 7 mm. The lip is square and the rim sharply everted. On the exterior rim, medium-toothed dentate rocker stamping has been applied with the convex to the lower right. Below the band of dentate rocker stamping and 1.5 cm below the lip is a single row of hemiconical punctates applied from the left and 7.5 mm apart. The neck is plain. On the upper shoulder of a probably globular body is a 2 cm wide band horizontal to the lip and delineated by incised lines. This band is filled with medium-toothed dentate rocker stamping.
with the apex of the arc to the lower left. Both cases of dentate rocker stamping show the stroke to be closely spaced.

**Vessel 9**  
(Figure 12a)  
The lip is square with fine cordwrapped stick impressions in "V" patterns with the point of the "V" to the exterior. The rim is straight and vertical. A single row of 7 mm diameter bosses 2.3 cm apart occur 2.8 cm below the lip. The exterior surface is not present. The temper is fine grit.

**Vessel 10**  
(Figure 15d)  
The cambered rim is burnished on the exterior surface. At the base of the cambering and 1.3 cm below the lip is a series of widely spaced hemi-conical to triangular punctations applied from below and into the thickened portion of the rim. The tempering agent is grit.

**Vessel 11**  
(Figure 13a)  
This grit-tempered vessel has a straight and vertical rim. The lip is rounded and thickened to 1.1 cm. The rim is decorated with deeply incised, irregularly spaced, diagonal lines. There is a row of punctates 2.4 cm below the lip.

**Vessel 12**  
(Figure 14a)  
The vessel is grit tempered with a rim thickness of 1 cm. The lip is L-shaped with the extension to the exterior and has triangular notches along the interior lip edge. The rim is straight and vertical.
An area of triangular punctations have been applied 6 mm apart from below at the exterior angle of the "L". There are two faint, parallel, horizontal lines incised on the exterior of the lower rim.

Vessel 13 (Figure 15a)

The lip is rounded and flattened. The rim is cambered. Below the camber and 1.2 cm below the lip is a single row of triangular punctates 5 mm apart and applied from below into the thickened portion of the rim. The interior surface is missing but the tempering agent is a medium grit.

Vessel 14 (Figure 12b)

The vessel is grit tempered with a rim thickness of 8 mm. There is an interior bevel to the lip. The rim is straight and slightly thickened towards the lip. The exterior surface is roughly smoothed and the decoration consists of horizontal plain rocker stamping with the apex of the arc towards the bottom. The strokes are short and closely spaced.

Vessel 15 (Figure 13e)

The vessel is grit tempered. The lip is slightly rounded. The rim is slightly cambered with long, closely spaced, horizontal plain rocker stamping with apex of the arc towards the lip on the cambered area combined with vertical, short, widely spaced plain rocker stamping, gives the impression of crosshatching. There is a single row of hemiconi-
cal punctates applied from the left 1.8 cm below the lip and 5 mm apart.

Vessel 16 (Figure 11c) The vessel is tempered with a fine to medium grit. The lip is rounded and slightly thickened. The rim is straight and vertical to slightly everted and decorated with plain rocker stamping. The partially obliterated strokes are long, closely spaced and parallel with the lip, with the apex of the arc towards the rim. A series of square punctates were applied 2.1 cm below the lip and 5 mm apart.

Vessel 17 (Figure 15f) The lip is square to slightly rounded and the rim is straight and vertical. Medium-toothed, linear dentate stamping is applied to the exterior rim vertically to the lip. The stamping extends 1.5 cm below the lip and the impressions are 6 mm apart. The temper is a fine grit.

Vessel 18 (Figure 14d) The temper is grit and the thickness of the rim is 8 mm. The lip is rounded and the rim cambered. Fine brushing is applied horizontally and obliquely to the right on the exterior with a single row of round punctates 1.7 cm below the lip and 7 mm apart.

Vessel 19 (Figure 14e) The rim thickness is 6 mm and tempering is grit. The lip is flat with an exterior splaying and
Vessel 20  
(Figure 14b)

beveled to the interior with cordwrapped stick impressions on the lip. The rim is straight to slightly flared. The interior is brushed and brushing is the sole exterior decorative technique occurring just below the lip.

The tempering agent is grit and the rim thickness is 5 mm. The lip is rounded and slightly flattened on the exterior, creating a slight L-shape. The rim is straight and vertical. Brushing occurs just below the slight exterior protrusion of the lip. A single row of punctates was applied 1.7 cm below the lip and 7 mm apart using a pointed, oval to triangular tool from below.

Vessel 21  
(Figure 15e)

The rim is cambered and exhibits incised lines diagonally from right to left and left to right at varying intervals, creating an irregular cross-hatched pattern. There is a horizontal incised line 1.8 cm below the lip. The temper is grit. Probable Related Type: Norton Crosshatched.

Vessel 22  
(Figure 14f)

The rim thickness is 8 mm and the grit temper appears to be black and white granite. The lip is rounded with a slight undulation. The rim is straight and vertical with vertically applied, parallel cordwrapped stick impressions. A 1 cm diameter boss is present 3 cm below the lip.
Vessel 23  
(Figure 15b)  
The temper is black and white granite. The thickness of the rim is 8 mm. The lip is L-shaped with the extension to the exterior and the flat surface is highly burnished. The rim is straight and vertical. At the internal angle of the "L", there are small triangular punctations applied from below occurring in groups.

Vessel 24  
(Figure 15c)  
The vessel is grit tempered and the thickness of the rim is 4 mm. The lip is square to slightly rounded. The rim is straight and vertical and has an exterior design created by the incising or scraping of a rounded and slightly serrated tool. The pattern is vertical to the lip and has a corrugated appearance.

Vessel 25  
(Figure 13d)  
The vessel is grit tempered with a thickness of 7 mm. The lip is square with an interior bevel and the rim is cambered. On the cambered area are five parallel incised lines with the lowest line 1.5 cm below the lip. A single row of round punctates occurs 2.4 cm below the lip and the punctates are 1 cm apart.  
Type: Sumnerville Incised.

Vessel 26  
(Figure 19b)  
The temper is fine white grit. The lip is rounded and flattened and the rim appears to be cambered. The interior portion of the rim is missing and con-
firmation is not positive. On the exterior surface of the rim, plain rocker stamping has been applied obliquely to the right. The stroke is short and widely spaced and the incision is thick.

**Vessel 27**
(Figure 15g)
The vessel is grit tempered with a rim thickness of 8 mm. The lip is flat with an interior bevel. The rim is straight and vertical. The exterior surface is roughly smoothed and there is a fragmentary boss 1.7 cm below the lip.

**Vessel 28**
(Figure 13c)
The rim is cambered with plain rocker stamping on the exterior. The stroke is long and closely spaced with apex of the arc toward the top. The temper is white grit in heavy concentrations.

**Vessel 29**
(Figure 14c)
The temper is grit and the rim thickness is 7 mm. The lip is square with a slight exterior bevel and is burnished. The rim is straight and vertical.

**Vessel 30**
(Figure 13b)
The temper is white grit in heavy concentration. The rim thickness is 8 mm. The lip is rounded and thickened with small, round, paired punctations on the exterior edge of the lip. The rim is straight and slightly everted. The decoration consists of hemiconical punctates applied from below and 1.3 cm below the lip.
Vessel 31
(Figure 18a)
The lip is square with light cordmarking. The rim is straight and vertical with fine, well-separated cordmarking placed vertically to the lip on the exterior and obliquely to the right on the interior, with some obliteration of the cord. All cordmarking extends to the lip. The rim thickness is 8 mm. The vessel is straight walled with an estimated orifice diameter of 18 cm and tempered with large angular pieces of hornblende.
Proposed Type: Mushroom Cordmarked

Vessel 32
(Figure 19a)
The lip is square with light cordmarking. The rim is straight with fine, well-separated cordmarking placed vertically to the lip on the exterior and horizontally on the interior and has a rim thickness of 8 mm. The interior cordmarking is partially obliterated. The walls are straight and all interior and exterior cordmarking extends to the lip. This vessel has an estimated orifice diameter of 21 cm and is tempered with medium to large pieces of hornblende.
Proposed Type: Mushroom Cordmarked.

Vessel 33
(Figure 18b)
The vessel is straight walled, tempered with medium sized pieces of angular hornblende and has a rim thickness of 6 mm. The lip is flat, beveled to the exterior, and is cordmarked. The rim is straight
and vertical with the exterior cordmarking extending to the lip and oriented at a slight angle to the left of vertical. Cordmarking on the interior is horizontal and partially obliterated. The cordmarking on this vessel is not as well executed as in vessels 31 and 32.

Proposed Type: Mushroom Cordmarked.

Vessel 34
(Figure 17d)

The lip is slightly splayed on both the exterior and interior and is cord impressed. The rim is straight and thinned from 8 mm to 5 mm at the lip. The exterior cordmarking is fine and well separated and is applied at a slight oblique to the left. The interior cordmarking is horizontal to the lip and is partially obliterated. The walls are straight and the temper is angular hornblende.

Proposed Type: Mushroom Cordmarked.

Vessel 35
(Figure 18c)

The lip is rounded and smooth. The rim is straight and thinned from 1.1 cm to 7 mm. The cordmarking is applied randomly with little concern for orientation. The interior is smoothed over cordmarked. Interior punctations made with a chisel-shaped tool and forming an exterior boss occur 2.3 cm below the rim.

Probable Related Type: Havana Cordmarked.
Figure 11: Mushroom Site Ceramic Vessels
Figure 12: Mushroom Site Ceramic Vessels
Figure 13: Mushroom Site Ceramic Vessels
Figure 14: Mushroom Site Ceramic Vessels

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Figure 15: Mushroom Site Ceramic Vessels
Figure 16: Mushroom Site Ceramic Vessels

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Figure 17: Mushroom Site Ceramic Vessels

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Figure 18: Mushroom Site Ceramic Vessels
Figure 19: Mushroom Site Ceramic Vessels
Although it has not been possible to establish the decorative pattern for an entire vessel, the 246 decorated body sherds, which constitute 7 percent of the total assemblage, reflect similar Middle Woodland attributes. Attributes of zoning, plain and dentate rocker stamping in zones and unbounded brushing, burnishing and punctation were noted. Dentate rocker stamping ranging from very fine toothed to large toothed was found on 37 sherds; 19 of these were bounded by zone lines. Plain rocker stamping occurs on 44 sherds, including 2 which may be neck sherds and 3 with zone lines. A single sherd also exhibited an application of a red slip to the exterior surface of the vessel. Brushing was observed on the exterior and/or the interior of 46 sherds. While it is difficult to determine whether the vessel(s) was zoned, incised lines ranging from strongly curvilinear to straight were observed on 46 sherds, including a sherd showing evidence of a red slip. Punctations of various sizes were noted on nine sherds. Of these, two also exhibited definite zoned lines.

The Galien River Basin

The Bobinski Site

The Bobinski Site (20BE282) is located in the SW 1/4, NE 1/4 of Section 3, T.8S., R.21W., New Buffalo Township, Berrien County, Michigan, and lies just inside the barrier dunes along Lake Michigan on a peninsula between the lake and the Galien River. This portion of the river has, at times, formed a dunal lake. The site occupies four undeveloped lots in a subdivision and a small portion of an un-
deeded park. An unknown amount of the site has been destroyed by residential development and road construction.

Local history records three mounds formerly located on the Benjamin Quantrell Farm (Kissman, 1976). These mounds were dug in the 1860s revealing "large quantities" of bone. The area of the Bobinski site is part of the Quantrell farm. Unfortunately, no physical evidence of the mounds remains.

The site came to this author's attention in June of 1977. Bridget Bobinski, daughter of the owner, brought several pieces of lithic debitage from her garden to school as part of a science project. Her teacher was Mrs. Ruth Haynes, an avocational archaeologist, who then visited the site and passed her findings on to this researcher. From June 1977 - August 1978, this author and members of the Michiana Archaeological Research Team excavated 55 m$^2$. Most of the excavation consisted of randomly placed 1 x 1 m units and a 1 x 10 m trench.

The material from the site indicates a single component. Only one definite prehistoric feature was encountered and that at a depth of over 1 m. Unfortunately, it was culturally sterile and at the junction with the water table.

A total of 689 sherds, including 37 rim sherds representing a minimum of 11 vessels, were recovered from excavations at the Bobinski site. The majority of the sherds are less than 2 cm$^2$ in size and many are less than 1 cm$^2$. Because of the small size of the sherds, vessel description is only possible with accuracy for a few vessels.
Vessel 1  
(Figure 21a)  
The vessel is straight walled with a very weak rounded shoulder. It is probably a jar with a conical base. The temper is white grit in heavy concentrations. The estimated orifice diameter is 25 cm and the thickness of the rim is 7 mm. The lip is square with notches on the interior lip made with a cordwrapped stick. The notches are approximately 1 cm apart. The rim is straight and vertical with the exception of the uppermost 1 cm which is slightly everted. The exterior surface is smoothed to burnished.

The decoration consists of cordwrapped stick impressions applied vertically to the lip. The tool appears to be a 2.3 cm long. The impressions start 1 cm below the lip and are 5 mm apart. Commencing 3 cm below the lip are five or six rows of cordwrapped stick impressions placed horizontally to the lip. The lowest row is on the upper shoulder area 5.5 cm below the lip. Within the horizontal band and approximately 5 cm apart are groups of three or four pairs of vertical punctates made with the end of a cordwrapped stick.

Type: Naples Stamped, variety cordwrapped stick.

Vessel 2  
(Figure 21b)  
The temper is grit and the thickness of the rim is 6 mm. The lip is square with a burnished surface and portions of dentate stamps extending 5 mm below
the lip on the exterior edge of the lip. The rim is straight to slightly everted with the upper portions of the interior rim being burnished. There is a single row of oval punctates on the exterior 1.1 cm below the lip and 1 cm apart.

Vessel 3 (Figure 22a)

The temper is grit and the thickness of the rim is 5 mm. The lip is flat and beveled to the interior. The rim is straight and vertical. On the exterior are irregularly spaced linear dentate stamps applied vertically to the lip.

Vessel 4 (Figure 22b)

The temper is sand mixed with grit and rim thickness is 1 cm. The lip is square to slightly rounded with a slight exterior bevel. The rim is straight to slightly everted. On the interior of the rim below the lip are 1 cm long vertical fine cordwrapped stick impressions spaced 1.7 cm apart. The only exterior decoration present is a punctation made with a semi-pointed tool just below the lip and occurring at intervals of 1.5 cm.

Vessel 5 (Figure 22c)

The thickness of the rim is 6 mm. The temper is fine grit. The lip is rounded and slightly pointed. The rim is straight and probably vertical. On the interior surface of the rim are 1.4 cm long cordwrapped stick impressions placed vertically to the lip and 7 mm apart. A portion of fine dentate
rocker stamping is present on the upper exterior rim. It appears to be oriented parallel with the lip but this cannot be accurately determined. A fragmentary boss occurs 2.4 cm below the lip.

The 29 decorated body sherds exhibit many Middle Woodland decorative attributes. Only two sherds clearly show zoning, one zoned sherd is filled with punctations and the other with fine dentate rocker stamping. There are three instances of isolated punctations and two of isolated bosses. Burnishing occurs on five sherds and brushing of the exterior and/or interior surfaces occurs on five sherds. There are two examples of unbounded plain rocker stamping. Incised lines are found on ten sherds.

The Behner Site

The Behner Site (20BE255) is located on a high ridge overlooking dunal Lake Pottawatomie in the NE 1/4 of Section 2, T.8S., R.21W., New Buffalo Township, Berrien County, Michigan. This site is approximately 1.5 km northeast of the Bobinski site. A total of 75 m² were excavated by this author and members of the Michiana Archaeological Research Team between 1975 and 1977. A multicomponent site with poorly defined stratigraphy, the dominant lithic assemblage is from the Middle Woodland period. However, less than 10 percent of the 640 sherds reflect any Middle Woodland decorative attributes. One vessel which can be described on the basis of its rim characteristics and nine decorated sherds comprise the total assemblage which can be assigned to the Middle Woodland component with
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing.
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 11

Figure 20 : Percentage of Single Attributes

Bobinski Site
Figure 21: Bobinski Site Ceramic Vessels
Figure 22: Bobinski Site Ceramic Vessels

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confidence.

Vessel 1 (Figure 23a) The temper is fine grit. The rim thickness is 9 mm. The lip is square with a slight interior bevel and has round impressions 8 mm apart on the interior edge of the lip. The rim is straight with a series of fingernail impressions on the exterior and the arc is towards the lip of the vessel.

Of the nine decorated body sherds, four are burnished, two have brushing on the exterior and/or interior surfaces and two have incised lines on the smoothed to burnished exterior surface. A sherd that may be a fragmentary rim exhibits fine crosshatching.

The Sinner Site

The Sinner Site (20BE224), a large multicomponent site, is located in the E 1/2 of Section 21, Weesaw Township, Berrien County, Michigan. The site has been known for over 100 years, but has only been actively surface collected for the last 15 years, primarily by this author. It occupies a north-south trending ridge, with the southern portion of the ridge adjacent to Blue Jay Creek. East of the ridge is a low marshy area which may have been a pond or one of the kettle lakes so common in this area of the county.

The Middle Woodland period is minimally represented by a rim-sherd. Two Norton-like projectile points, six blades including one modified into a drill, and a fragment of a marine shell. The marine shell fragment has been identified as being from Strombus puligis.
alatus, a small conch (Hargreave, D. Personal communication, April, 1980). The lack of ceramics is not surprising as there are few sites in the Galien River basin that have strong ceramic assemblages and the Late Woodland material from the Sinner site contains no ceramics (Mangold, 1978). The single Middle Woodland vessels can be described as:

Vessel 1  
(Figure 23b)  
The temper is fine grit and the rim is 8 mm thick. The lip is flat and beveled to the interior. The rim is straight and slightly thickened. The neck is slightly constricted. A fine crosshatching decorates the rim to 1.6 cm below the lip. A hemi-conical punctation from the left occurs 1.8 cm below the lip. 
Probable Related Type: Norton Crosshatched.

The Saint Joseph River Basin

The Sumnerville Mound Group

The Sumnerville Mounds are located near the corner of sections 29, 30, 31 and 32 in Pokagon Township, Cass County, Michigan, and were recorded in the notes of the 1828 Congressional survey of the area. William Brookfield, the original government land office surveyor, noted nine mounds, each of which was 50 links (33 feet) (10 m) through the base and 6 feet (1.85 m) high and strung along the south bank of Dowagiac Creek (Quimby, 1941a, p. 104). Visits to the area in July 1980 by Barbara Mead of the Michigan History Division and by this re-
Figure 23: Behner Site and Sinner Site Ceramic Vessels
searcher at a later date, revealed that six of the nine mounds were still discernable (Mead, B. Personal communication, August, 1980). Habitation areas associated with the mounds have not been positively identified. A site on the William Bogenreider property in Section 31 of Pokagon Township may be a candidate, but has yet to be examined. The collection from the site was viewed several years ago by this author and, while it did not contain any ceramics, the lithic assemblage was strongly suggestive of Middle Woodland occupation.

The mounds were the object of "potting" during the latter part of the 19th century. Evan Bonine of Niles and E. H. Crane were among the first amateur archaeologists to undertake excavations at Summerville (Quimby, 1941a, p.104). Some material from these mounds is now at the Grand Rapids Public Museum. Items reflecting participation in the Hopewell Interaction Sphere (Struever, 1964), such as copper awls and celts, an ivory effigy of a bear canine, and two limestone-tempered vessels, presumably imported from Illinois, are included among these materials.

Twelve vessels have been included in this study. Most of these were personally observed, although a few which were not available for study have been included on the basis of the description given by Quimby (1941a).

Vessel 1 (Figure 25b) The grit-tempered vessel has a rim thickness of 3 mm. The lip is flat and beveled to the interior. The rim is cambered. On the cambered area, commencing at the lip and extending to 1 cm below the
lip, plain rocker stamping has been applied horizontally. The strokes are long, closely spaced and with the arc towards the base. A single row of fine punctates created by a very thin, pointed tool occurs 1 cm below the lip and at intervals of 4 mm.

Type: Baehr Zoned Stamped, variety plain rocker.

Vessel 2
(Figure 25c)

The lip is square to slightly rounded and the rim is cambered. The upper rim is plain with a single row of hemiconical punctates occurring 1.2 cm below the lip and below the cambering. At 1.5 cm below the lip is a single, horizontal, thin incised line. Below this incised line is a series of oblique to the left, incised lines 8 mm apart. The temper is fine grit.

Vessel 3
(Figure 25a)

The lip is rounded and slightly thinned and the rim is cambered and straight. The vessel is short-bodied with rounded shoulders. The form is jar shaped with a rounded bottom with a slight constriction at the neck and a quadrilobate body. The overall height of the vessel is 10.2 cm and the orifice diameter is 8.8 cm. The temper is limestone.

The upper rim is decorated with fine cross-hatching. At 1.2 cm below the lip is a single row of hemiconical punctations made from the left and...
Vessel 4
(Figure 25c)

4 mm apart. The body decoration consists of curvilinear zones which are either empty or filled with closely spaced dentate rocker stamping. The pattern appears on alternate lobes.

Type: Hopewell Zoned Stamped.

The lip is square to slightly rounded. The rim is straight and slightly flared. The vessel is short-bodied and slightly quadrilobate in form, with rounded shoulders. There is a slight constriction at the upper shoulder. The overall form is of a jar with a rounded bottom. The height is 9.2 cm and the orifice diameter varies from 6.7 to 7.7 cm. The rim thickness is 5 mm. The tempering agent is grit.

The upper rim is decorated with closely spaced cordwrapped stick impressions. At 9 mm below the lip is a single row of hemiconical punctates applied from the right and 6 mm apart. The body decoration commences on the upper shoulder and consists of curvilinear and angular zones which are either empty or filled with closely spaced cordwrapped stick impressions. All four lobes exhibit the same pattern and the bottom of the vessel is also decorated with the same cordwrapped stick impressions.

Probable Related Type: Baehr Zoned Stamped.
Vessel 5
(Figure 26e)

The lip is rounded and thinned and the rim is slightly flared. The vessel is a short-bodied quadrilobate jar with a rounded bottom. The shoulders are rounded and there is a very slight constriction in the upper shoulder area. The overall height of the vessel is 9.1 cm and the diameter of the orifice is 8.5 cm. The diameter of the rim is 4 mm and the vessel is grit tempered.

The upper rim is decorated with four or five horizontal, closely spaced incised lines. A single row of triangular punctates applied from below occurs 9 mm below the lip and are 5 mm apart. On the upper shoulder is a 9 mm wide band that is bounded by incised lines and filled with closely spaced plain rocker stamping. The strokes are long with a narrow rocked interval and the arc is towards the lip. On the lobes are curvilinear zones which are either empty or filled with closely spaced plain rocker stamping. The bottom of the vessel is also decorated with closely spaced plain rocker stamping which extend into the interlobate areas but are bounded by incised lines.

Type: Sumnerville Incised.

Vessel 6
(Figure 26b)

The rim diameter is 4 mm and the temper is grit. The lip is rounded and slightly thinned. The rim is short and straight to slightly flaring. The
vessel is double-bodied or panduriform in shape, with a rounded bottom and slight constrictions of the upper shoulder and at the interbody area. The height of the vessel is 11.8 cm and the orifice diameter varies from 8.8 cm to 9.2 cm.

The decoration on the upper rim consists of four or five horizontal, closely spaced incised lines. At 1 cm below the lip is a single row of triangular punctates applied from below and are 5 mm apart. The decoration on the uppermost of the two bodies consists of angular zones which are either empty or filled with vertical plain rocker stamping. The strokes are long with a narrow rocked interval and the arc to the right. The decoration on the upper body is bounded by incised lines at the top and bottom. The space between the two bodies contains a single horizontal row of closely but irregularly spaced triangular punctates applied from below. Decorations on the lower body are indistinct.

Type: Summerville Incised.

This description is based on information provided by Quimby (1941a, p. iii).

The lip is rounded and flattened. The rim is short and straight to slightly flaring. The vessel form is that of a short-bodied, slightly quadrilo-
bated jar with rounded shoulders and bottom and a slight constriction at the upper shoulder. The vessel height is 11.5 cm and the mouth diameter is 9 cm. The rim thickness is 4 mm and the temper is grit.

The rim is decorated with a rather narrow band of four or five closely spaced, horizontal incised lines with a single row of closely spaced, medium-sized, semilunate punctates a few mm below the incised lines. Around the upper shoulder area is a narrow, horizontal band of closely spaced, medium-sized, lunate impressions bounded at the top and at the bottom in the interlobeate areas by incised lines.

Type: Sumnerville Incised.

Vessel 8 (Figure 25a)

This description is based on information provided by Quimby (1941a, p.111-12).

The lip is rounded and flattened. The rim is straight, vertical, and short with a slight convex thickening of the upper rim. The form of the vessel is a jar with a short body, slightly quadrilobate and round shouldered. There is a slight constriction of the upper shoulder and the base is rounded. The temper is grit and the vessel height is 9.1 cm. The orifice is 8.2 cm in diameter.

The upper rim is decorated with a narrow band
of closely spaced, vertical plain rocker stamping with the convex to the right. This band is restricted to the thickened area of the rim. Directly below this band is a horizontal row of closely spaced small punctations. The body decorations consist of curvilinear zones which are either empty or filled with closely spaced, vertical plain rocker stamping, convex to the right. The body pattern is bounded at the top with an incised line. The pattern appears on each lobe and the interlobate areas as well as the bottom are filled with closely spaced, vertical plain rocker stamping, arc to the right.

Type: Baehr Zoned Stamped.

Vessel 9
(Figure 27d)

The rim diameter is 7 mm and the vessel is grit tempered. The lip is rounded and slightly thinned. The rim is straight to slightly flaring. The upper rim is decorated with oblique to the left, incised lines spaced approximately 2 cm apart. Beneath this, at 1 cm below the lip, is a single row of small, round punctates spaced 4 mm apart.

Vessel 18
(Figure 27b)

The vessel is tempered with grit and has a rim diameter of 8 mm. The lip is square and the rim is straight. The decoration consists of slightly
oblique to the left, parallel, linear dentate stamping which extends 2.6 cm below the lip and are 8 mm apart.

**Vessel 11**  
(Figure 27b)

This grit-tempered vessel has a rim thickness of 9 mm. The lip is round and beveled to the exterior. The rim is straight and vertical. The exterior of the vessel is cored with the impressions vertical to the lip. Occurring at 2 cm below the lip is a single row of 1 cm diameter bosses spaced 3 cm apart.

**Vessel 12**  
(Figure 27c)

The lip is round and flattened to the exterior causing a splaying of the lip. On this external bulge of the lip are a series of notches or smooth tool impressions spaced 4 mm apart. The rim is straight. The exterior surface of the vessel was cored and then smoothed. The decoration consists of a pair of parallel, curvilinear, incised lines, roughly oblique to the right. The grit-tempered vessel has a rim diameter of 6 mm.

**The Moccasin Bluff Site**

The Moccasin Bluff site is located in the SE 1/2, NW 1/4 and the NE 1/4, SW 1/4 of Section 23, Buchanan Township, Berrien County, Michigan, and is situated on a terrace on the western bank of the St. Joseph River between the river and a line of bluffs to the North,
DECORATION

A. Punctation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 13

Figure 24 : Percentage of Single Attributes

Summerville Mound Group
Figure 25: Summerville Ceramic Vessels

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Figure 26: Summerville Ceramic Vessels

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Figure 27: Sumnerville Ceramic Vessels
West and South. It has long been known to local collectors and large portions of it have been destroyed by the construction of roads and homes. The summerville Mounds are approximately 12 miles (19.3 km) east of the sites. There were indications of a small mound in the southern portion of the site (Bettarel and Smith, 1973, p.108). In 1948, the University of Michigan conducted excavations in the eastern portion of the site totalling 5,855.5 square feet (544 m²)(Bettarel and Smith, 1973, p.11).

The Middle Woodland component of the site is small. Of the 424 vessels recovered by the University of Michigan, approximately 20 were Middle Woodland in affiliation (Bettarel and Smith, 1973, p.69). Other Middle Woodland vessels from the site have been noted by the author in the Birdsell collection curated by the University of Michigan and the Young collection at the Illinois State Museum.

**Vessel 1**

(Figure 29a)

The vessel is grit tempered and has a rim thickness of 9 mm. The lip is round and slightly beveled to the interior. The rim is straight and vertical. The exterior surface of the vessel is corded with the impressions vertical to the lip. There are vertical, large-toothed linear dentate stampings applied to the exterior of the rim and extending to 4 cm below the lip. On the interior, the large-toothed linear dentate stampings are applied at a slight oblique to the right and extend to 3.5 cm below the lip. The impressions are approximately 1 cm apart.
Type: Naples Stamped.

This vessel is curated by the Illinois State Museum.

Vessel 2 (Figure 29c)

The lip is square with a slight interior slope. The rim is straight and vertical and has a thickness of 8 mm. On the exterior are cordwrapped stick impressions that are parallel and have a slight oblique to the left. Across these impressions is an oblique to the left, fine-incised line. The temper is sand mixed with grit.

Vessel 3 (Figure 29b)

The lip is square and slightly thickened. The rim is straight and vertical to slightly everted with a thickness of 7 to 9 mm. The exterior decoration consists of parallel and slightly oblique to the left, cordwrapped stick impressions. The vessel is grit tempered.

Vessel 4 (Figure 29d)

The lip is rounded and the rim is straight and vertical with a thickness of 7 mm. The exterior decoration consists of oblique to the right and parallel cordwrapped stick impressions spaced 1 cm apart. The vessel is grit tempered.

Vessel 5 (Figure 29e)

The lip is square. The rim is straight and vertical with a thickness of 6 mm. The exterior surface is lightly corded with a double row of vertical fingernail impressions with the arc to the
right. These impressions occur 1.6 cm below the lip. The temper is grit.

**Vessel 6**
*(Figure 29f)*
The lip is round with a slight exterior flare and flattened on the interior edge. The rim is straight and slightly everted. It has a thickness of 6 mm. The exterior surface is roughly smoothed with 8 mm diameter bosses 2 cm below the lip and 2.8 cm apart. The temper is grit.

**Vessel 7**
*(Figure 30a)*
The lip is flat with an exterior bevel. The rim is straight and slightly everted with a thickness of 7 mm. There are cordwrapped stick impressions on the exterior edge of the lip. The exterior and interior surfaces are smooth. Grit is the tempering agent.

Probable Related Type: Weaver Plain*(Wray and MacNeish, 1961, p.56-7).*

**Vessel 8**
*(Figure 30c)*
The lip is square and slightly thickened with paired semicircular impressions 1 cm apart. Punctations of this sort are made with a round stick that has an incision across its diameter and have been referred to, in conversation, as "cow tracks". The exterior surface is smooth with a 1.2 cm diameter boss 2 cm below the lip. The vessel is tempered with medium to large grit.
Vessel 9 (Figure 30b)
The lip is square with a slight exterior bevel. The rim is straight and vertical with a thickness of 5 mm. The exterior surface is roughly smoothed and exhibits widely spaced, irregular crosshatching. The temper is grit.

Vessel 10 (Figure 30d)
The lip is flat with an exterior bevel. The rim is straight and vertical with a thickness of 4 mm. The exterior decoration consists of vertical bands of horizontal, fine rectangular-toothed, dentate rocker stampings. The strokes are long with a narrow rocker interval and the apex of the arc is to the top. The vessel is grit tempered.

Vessel 11 (Figure 30e)
This grit-tempered vessel has a square to slightly rounded lip. The rim is straight and vertical with a diameter of 7 mm. On the exterior surface are oblique to the left, parallel, long, thin, rectangular-tooth linear dentate impressions extending 1.6 cm below the lip. The impressions are 5 mm apart.
Probable Related Type: Naples Stamped.

Vessel 12 (Figure 32a)
The grit-tempered vessel has a flat lip with an interior bevel. The rim is straight and vertical with a diameter of 9 mm. The exterior decorations consist of slightly oblique to the right linear dentate stampings. Several impressions are made in
tandem to create the illusion of a single, long stamp. This stamping extends to 6 cm below the lip at which point there is a horizontal incised line. Within the area of stamping and 4 cm below the lip is a single row of 1 cm diameter bosses spaced 3 cm apart. Below the stamped area and 7 cm below the lip is a horizontal row of paired, horizontal, rectangular punctates. These punctates are 4 mm apart.

Probable Related Type: Naples Stamped.

Vessel 13
(Figure 30f)

The grit-tempered vessel has a round lip with flat tool impressions 6 mm apart and applied at a slight angle across the lip, giving it a jagged appearance. The rim is straight and vertical with a diameter of 7 mm. The exterior decoration consists of 1 cm diameter bosses on a roughly smoothed surface 1.4 cm below the lip and 1.6 cm apart.

Vessel 14
(Figure 32b)

This grit-tempered vessel has a rounded and thickened lip. The rim is straight and vertical with a thickness which varies from 6 to 8 mm. The exterior decoration consists of slightly oblique to the right and parallel cordwrapped stick impressions that extend to 1 cm below the lip and 6 mm apart.

Vessel 15
(Figure 32c)

This grit-tempered vessel has a flat lip with an interior bevel. The rim is straight and vertical
with a diameter of 7 mm. The exterior decorations are slightly curved linear dentate stamps with the arc to the right and spaced 7 mm apart. These stamps extend to 2 cm below the lip at which point there is a horizontal incised line. A small fragment of the body decoration exhibits two inverted V-shaped design elements. The element is created by two linear dentate stamp impressions. The point of the "V" is towards the rim and is 3.4 cm below the lip.

Type: Hummel Stamped.

Vessel 16
(Figure 31a)
The grit-tempered vessel has a rounded lip with a slope to the interior and exterior splaying. The rim is straight and slightly everted with a thickness of 6 mm. The exterior surface of the vessel to 2 cm below the lip is corded with the impressions horizontal to the lip. The remainder of the exterior surface is smoothed. The impressions have been partially obliterated. Extending to 2.2 cm below the lip are oblique to the right, thick, irregularly spaced incised lines. Also on the exterior at 3 cm below the lip, is a single row of 1.4 cm diameter bosses spaced 3 cm apart.

Vessel 17
(Figure 31b)
The grit-tempered vessel has a rounded lip. The rim is straight and vertical with a diameter of 8 mm.
The exterior is roughly smoothed with cordwrapped stick impressions applied vertically to the upper rim. These impressions extend 1.7 cm below the lip and are spaced 2 cm apart. Occurring 2 cm below the lip is a single row of 1 cm diameter bosses spaced 2 cm apart. 

Probable Related Type: Naples Stamped, variety cordwrapped stick.

Vessel 18 (Figure 31c) 
This grit-tempered vessel has a flat lip, beveled to the interior. The rim is straight and vertical and has a thickness of 7 mm. The exterior decoration consists of oblique to the left and parallel linear dentate stamping. These impressions start 1 cm below the lip, are spaced 1 cm apart and are partially obliterated. At 5 cm below the lip is an incised line which is parallel with the lip. Type: Naples Stamped.

Vessel 19 (Figure 33) 
The grit-tempered vessel has a square lip. The rim is straight and vertical with a diameter of 8 mm. The vessel form appears to be straight walled. 

The exterior decoration consists of cordwrapped stick impressions applied vertically to the upper rim spaced 1 cm apart and extending 1 cm below the lip. The body is decorated with horizontal rows of small, round punctates. These rows occur at 4 cm,
5.4 cm, 7 cm, 10 cm, and 11 cm below the lip and probably covered the entire body. The punctations are obliterated in many areas.

Vessel 20
(Figure 30)

This heavily grit-tempered vessel has a square to slightly interior beveled lip. The rim is straight and vertical with a thickness of 1 cm. The walls are straight and the base was probably concoidal.

The exterior surface is corded with large, vertical impressions which are wiped smooth 1 cm below the lip. Cordwrapped stick impressions are applied vertically to the lip approximately 1 cm apart and extend to the edge of the corded area. There is a single row of 8 mm diameter bosses occurring from 4.6 cm to 3 cm below the lip.

Type: Havana Cordmarked.

The Middle Woodland body sherds that were available for inspection exhibited a wide variety of decorative traits. Although frequencies were not tabulated, many of the sherds exhibited zoning with lines ranging from very thin to 1 cm wide. The zones were filled with fine to large-toothed linear dentate stamping, cordwrapped stick impressions, or fine-toothed dentate rocker stamping. Brushing was found on the interior of many sherds while the exteriors were burnished. Punctation and the use of barred ovoid stamps were also noted.
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 34

Figure 28 : Percentage of Single Attributes

Moccasin Bluff Site
Figure 29: Moccasin Bluff Site Ceramic Vessels
Figure 30: Moccasin Bluff Site Ceramic Vessels
Figure 31: Moccasin Bluff Site Ceramic Vessels

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Figure 33: Moccasin Bluff Site Ceramic Vessels

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Figure 34: Moccasin Bluff Site Ceramic Vessels
The Grand River Basin

The Spoonville Site

The Spoonville site (200T1) is located in the NW 1/4, NW 1/4 of Section 34, Crockery Township, T.8N., R.17W., Ottawa County, Michigan, on a bench above a marshy area at the junction of Crockery Creek and the Grand River (Flanders, 1965). There are three mounds associated with the site and both the mounds and the habitation site have been the object of much disturbance from various commercial activities and "potting".

Quimby (1941a, p.86) reports that early excavations at the site by Abel Anderson of Muskegon recovered "copper celts, copper awls, large plates of mica, shells (Busycon perversum containers), pipes and pottery". This material would indicate active participation in the Hopewell Interaction Sphere (Struever, 1964). Excavations were conducted at the site in 1962 and 1966 under the direction of Dr. Richard Flanders and radiocarbon dates of A.D. 110±120 (M-1428) and A.D. 215±110 (M-1427) were obtained (Fitting, 1975, p. 240-41).

A total of 242 rimsherds and 3,383 bodysherds were recovered from the site (Flanders, 1965, p.339). This count is from the 1962 excavations only. The 1966 totals were not available to the investigator at the time of this writing. Both Early Woodland and Late Woodland/Upper Mississippian materials, as well as Middle Woodland, are represented in the ceramic assemblage.

The bulk of the ceramic material from the Spoonville village
area falls under the category of Crockery ware (Flander, 1965, p. 343). This ware, on the basis of vessel rim profiles, can be broken into two categories, Crockery Flared Rim and Crockery Cambered Rim. The flared rims are represented by 146 rims and the cambered by 85 (Flanders, 1965, p. 345, 349). Although only a few rims of the Crockery flared type were viewed by this researcher, it is his opinion that they are associated with a later occupation of the site. While an occasional everted rim has been found at other Middle Woodland sites, the angle is not as extreme as those found at Spoonville. The majority of this rim style found at this site exhibit few traits that could be considered as Middle Woodland decorative styles. Of the 146 rims of this type, only three show the combination of cross-hatching with punctation below it (Flander, 1965, p. 345). Several of the sherds exhibit an interior scraping which creates a striated appearance. This trait is also seen at the Hacklander site in Allegan County (Kingsley, 1978) which has a radiocarbon date of A.D. 690±110 (GaK 5948) (Garland, E. Personal communication, December, 1980) and on five body sherds from the Mushroom site which has a date of A.D. 865±75 (UGa 3554). Fitting (1975, p. 105) concurs with this argument stating that "... this is a Late Woodland assemblage with some earlier Middle Woodland artifacts mixed in with the later materials."

The material reviewed during this investigation was definitely Middle Woodland and represented 24 vessels.
**Vessel 1**  
(Figure 36a)  
This grit-tempered vessel has a rounded and flattened lip. The rim is straight and cambered. The neck and upper shoulder area are constricted. The shoulders are rounded and the body slightly globular.

The upper rim is decorated with fine cross-hatching which extends 6 mm below the lip at which point there is a deeply incised, horizontal, 2 mm wide line. The body decoration commences on the upper shoulder and consists of 1.2 cm wide bands of vertical incised lines spaced approximately 5 mm apart. The bands are not bounded but are separated by undecorated areas.

Probable Related Type: Hopewell Zoned Incised  
(Griffin, 1952, p.118)

**Vessel 2**  
(Figure 36b)  
The lip is rounded. The rim is straight and slightly everted and has a thickness of 5 mm. The body is probably globular and is grit tempered.

The upper rim is decorated with oblique to the right, incised lines spaced approximately 5 mm apart and extending to 6 mm below the lip. There is a single row of hemiconical punctates from the left and 5 mm apart occurring 1 cm below the lip. Commencing on the upper shoulder is a horizontal incised line. Below the line are vertical bands of
Vessel 3 (Figure 36c)

This heavily, white grit-tempered vessel has a square lip with round interior notches or impressions spaced 6 mm apart. The rim is straight and vertical with a thickness of 5 mm. The exterior surface is corded with the impressions horizontal to the lip. A single 1 cm diameter boss occurs 2.5 cm below the lip.

Probable Related Type: Havana Cordmarked

Vessel 4 (Figure 37a)

This grit-tempered vessel has a rounded lip. The rim is straight and vertical and thins slightly towards the lip with the largest diameter being 7 mm. The exterior exhibits vertical cordmarking which is partially obliterated. The interior is corded with oblique to the right, fine cord impressions.

Proposed Type: Mushroom Cordmarked

Vessel 5 (Figure 37b)

This grit-tempered vessel has a rounded and slightly pointed lip. The rim is straight and vertical with a thickness of 8 mm. The decoration consists of horizontal plain rocker stamping. The strokes are 2 cm long with a narrow rocker interval with the arc towards the lip. The stamping extends...
Vessel 6  
(Figure 37c)  
This heavily, white grit-tempered vessel has a square lip. The rim is straight and vertical with a thickness of 7 mm. The decoration consists of widely spaced, irregular crosshatching extending 1.6 cm below the lip. At that point, there is a single row of small, hemiconical punctates applied from below and 1.1 cm apart. 
Probable Related Type: Norton Crosshatched.

Vessel 7  
(Figure 38c)  
This grit-tempered vessel has a flat lip with an exterior bevel. On the flat surface of the lip are ovate punctates. The rim is straight and vertical with a thickness of 6 mm. The exterior decoration consists of vertical and wide incised lines approximately 1.8 cm long. The rim is very fragmentary and further comment would be inappropriate.

Vessel 8  
(Figure 41)  
This limestone-tempered vessel has a slightly rounded lip. The rim is slightly cambered. The neck is constricted and the shoulders rounded. The body is basically globular with a rounded base. The overall height of the vessel is 7 cm and an est-

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mated orifice diameter of 8 cm.

The upper rim is decorated with a 6 mm wide band of plain rocker stamping with the arc to the lower right. Below the thickened portion of the rim is a single row of vertically rectangular punctates applied from the right and 5 mm apart. Commencing at the upper shoulder and 1.9 cm below the lip is a band of fine-toothed dentate rocker stamping. This band is 9 mm wide and bounded on the top and bottom by incised lines. The arc is to the lower right and the rock interval is closely spaced. Below this is a band of horizontal brushing. This band is 1 cm wide and bounded on the bottom by an incised line. The entire bottom of the vessel up to the lowest incised line is covered with fine to medium-toothed dentate rocker stamping.

Type: Hopewell Zoned Dentate Rocker Stamped (Flanders, 1965, p.324).

Vessel 9 (Figure 37d)

This grit-tempered vessel has a rounded lip. The rim is straight and vertical with a slight camber. The decoration consists of a 9 mm wide band of crosshatching on the upper rim. This band is bounded on the bottom by a 4 mm wide, shallow incised line.

Probable Related Type: Norton Crosshatched.
Vessel 10 (Figure 39a)  
This grit-tempered vessel has a rounded and slightly pointed lip. The rim is straight and slightly everted with a thickness of 4 mm. A single row of very fine, round punctates occurs 5 mm below and parallel with the lip. An incised, horizontal line is found 1.3 cm below the lip. Associated with this line and attached to it is a curvilinear incised line. This probably is a portion of zoning but the information is too fragmentary for further description.

Vessel 11 (Figure 39b)  
This limestone-tempered vessel has a square lip which, due to the manipulation of the rim, bevels inward. The rim has been given the appearance of cambering by sharply bending the rim into an arc. The thickness of the rim is 4 mm. The decoration consists of plain rocker stamping. The strokes are 2.5 cm long with a very narrow rock interval and the arc, which is quite flat, is to the upper right. A horizontal, incised line occurs at the base of the "camber", 1.2 cm below the lip.

Vessel 12 (Figure 40b)  
This limestone-tempered vessel has a rounded lip. The upper rim is cambered and the lower rim and neck, which is quite long, are constricted. The shoulders are rounded and the body is globular with a rounded bottom.
The upper rim is decorated with plain rocker stamping. The stamping has been applied in two directions creating the appearance of crosshatching. Directly below the stamping and 1.1 cm below the lip is a single row of fine, shallow punctates. The area between these punctates and an incised line 2.3 cm below the lip, which starts the body decoration, is highly burnished. The body decoration consists of curvilinear zones bounded by thin, incised lines and filled with plain rocker stamping. Between the filled zones are wide, linear to curvilinear, plain areas which act like large zone lines. The bottom of the vessel is also decorated with plain rocker stamping.

**Type:** Hopewell Zoned, plain rocker stamped.

This limestone-tempered vessel has a slightly rounded lip. The rim is straight and vertical with a shallow interior channel. The thickness of the rim is 6 mm. The decoration consists of plain rocker stamping which extends 7 mm below the lip. The stroke is 7 mm long with a narrow rocker interval with the arc to the right. Below the stamping is a single row of hemiconical punctates applied from below and 4 mm apart.
Vessel 14  
(Figure 42a)  
This grit-tempered vessel has a rounded lip and a cambered upper rim that is straight and vertical. The decoration consists of plain rocker stamping on the cambered area of the rim. The strokes are 3 cm long with a narrow rocker interval, almost flat in curvature and with the arc towards the rim. Below the cambered area and 1.2 cm below the rim is a single row of triangular punctates with the apex towards the lip and 5 mm apart. Occurring 2.6 cm below the lip is a single row of 8 mm diameter bosses spaced 3.1 cm apart.

Vessel 15  
(Figure 42b)  
The grit-tempered vessel has a square lip. The rim is slightly cambered and vertical. The decorations consist of vertical bands of plain rocker stamping. The strokes are 1.2 cm long with a narrow rocker interval and the arc towards the rim.

Vessel 16  
(Figure 42c)  
This grit-tempered vessel has a rounded lip and a vertical and cambered rim. The cambered area is decorated with plain rocker stamping. The strokes are 2.5 cm long with a medium rocker interval and the convex is towards the lip.

Vessel 17  
(Figure 42d)  
This grit-tempered vessel has a rounded and flattened lip and a straight and cambered rim. The cambered area of the upper rim exhibits plain rocker stamping with long strokes, a narrow rocker interval.
and convex towards the lip. Below the cambered area and 9 mm from the lip is a single row of triangular punctates with the apex towards the lip and 4 mm apart. This vessel is almost identical in upper rim decoration with vessel 14.

**Vessel 18**  
(Figure 39d)

The grit-tempered vessel has a square lip with parallel lines incised and the rim is straight and vertical with a thickness of 7 cm. The rim is decorated with plain rocker stamping. The strokes are 1.6 cm long with a wide rocker interval and the apex is to the right. Occurring 3 cm below the lip is a single row of 9 mm diameter bosses spaced 2.2 cm apart.

**Vessel 19**  
(Figure 38a)

This grit-tempered vessel has a square to slightly rounded lip. The rim is everted and has a diameter of 5 mm. The upper rim is decorated with widely spaced, irregular crosshatching. Below the crosshatching and 1.1 cm below the lip is a single row of oval punctates applied from below and spaced 1 cm apart. A single row of 8 mm diameter bosses occur 2.3 cm below the lip and spaced 3 cm apart.

**Vessel 20**  
(Figure 38b)

This grit-tempered vessel has a slightly rounded lip. The rim is straight and vertical with a thickness of 7 mm. The rim is plain with a single row of ovate to rectangular punctates 2.8 cm below the
lip, applied from the left and 5 mm apart.

Vessels 1 - 20 are curated by the University of Michigan.

Vessel 21

(Figure 40a)

This grit-tempered vessel has a rounded lip and a cambered upper rim. The rim is quite long and the area from the lower rim to the upper shoulder is slightly constricted. The shoulder is rounded, the body is slightly globular and the base rounded. The overall height of the vessel is 10 cm and the orifice diameter is 6 cm. The surface is burnished.

The upper rim is decorated with fine cross-hatching. A single row of hemiconical punctates applied from the right occurs 6 mm below the lip with punctates spaced 5 mm apart. There is a horizontal incised line 1.2 cm below the lip which begins the body decorations. The body decorations are divided into two areas by a horizontal incised line 5 cm below the lip. Both zones are decorated with curvilinear lines and each zone is different. Type: Hopewell Zoned.

Vessel 21 is curated by Grand Valley State Colleges.

The Norton Mound Group

The Norton Mound Group is located in Sections 3 and 4 of Wyoming Township, Kent County, Michigan, between the cities of Grandville
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 21

Figure 35: Percentage of Single Attributes

Spoonville Site
Figure 36: Spoonville Site Ceramic Vessels
Figure 37: Spoonville Site Ceramic Vessels

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Figure 38: Spoonville Site Ceramic Vessels
Figure 39: Spoonville Site Ceramic Vessels
Figure 40: Spoonville Site Ceramic Vessels
Figure 41: Spoonville Site Ceramic Vessels

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Figure 42: Spoonville Site Ceramic Vessels

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and Grand Rapids and is situated on a small rise. The three largest mounds were arranged in a line parallel to and south of the Grand River, with the remaining 14 mounds positioned in a slightly curved line behind the larger mounds. The village site, if one is actually associated with the mounds, has never been investigated, and may now be destroyed by the construction of Interstate 196, other road construction activity and/or the mining of gravel to the west of the group which also destroyed at least one mound. In 1963, 11 of the original 17 mounds were relocated and observed to be only minimally disturbed, 3 mounds had been totally destroyed and 3 had been partially destroyed (Flanders, 1965; Griffin, et al., 1970).

As is the norm for most mound groups, the Norton Group has been the object of archaeological curiosity and excavation for over a century. However, it is fortunate that the early investigators, especially W. L. Coffinberry, were very professional in their work and all excavated materials went to the Kent Scientific Institute (now the Grand Rapids Public Museum). Of all the major mound groups discussed in this investigation, the Norton Group is the only one for which this researcher can be confident of having seen all of the recovered vessels. Some vessels were not physically handled but information was drawn from photographs and drawings.

Modern excavations were conducted in 1963 and 1964 under the direction of the University of Michigan. During these excavations, three radiocarbon dates were obtained: A.D. 160±120 (M-1488); A.D. 100±100 (M-1489) and 10 B.C. ±120 (M-1493) (Griffin, et al., 1970, p.158). The finding of copper, mica, platform pipes, and
marine shells (Busycon contrarium)(Flanders, 1965) indicate active participation in the Hopewell Interaction Sphere (Struever, 1964).

A total of 21 vessels were examined by this investigator, of which 20 were complete or restored. Only one rimsherd from the mound fill was observed. Although more are known to have existed, they were not available to this researcher. Four vessel descriptions were derived from other sources.

**Vessel 1**
(Figure 51a)

This description is based on information provided by Quimby (1941a, p.92).

The lip is flattened. The rim is straight to slightly flaring, quite short, and the upper portion is cambered. The vessel is short-bodied, quadrilobate, rounded bottom jar with a slight constriction of the upper shoulder. The shoulders are rounded. No information was available on vessel measurements.

On the cambered upper rim is a narrow band of fine crosshatching. Beneath this is a row of small, closely spaced, hemiconical punctates applied from the right. The body decoration commences on the upper shoulder and consists of curvilinear zones which are either empty and the surface smoothed to burnished or filled with rocker dentate stampings. The pattern appears on alternate lobes. The interlobate area is smoothed to burnished.

Type: Hopewell Zoned, dentate stamped.
Vessel 2
(Not Illustrated)

This description is based on information provided by Quimby (1941a, p.92-3).

The lip is flattened with an interior bevel. The rim is straight to slightly everted. The upper rim is cambered. The vessel is short-bodied, round-bottomed, quadrilobate jar with a slight constriction of the upper shoulder area and the shoulders are rounded. Physical measurements of the vessel are not available.

The cambered upper rim is decorated with fine crosshatching. Directly below this is a single row of closely spaced, small hemiconical punctates applied from the left. The upper shoulder to lower rim area is smoothed to burnished and at the upper shoulder is a horizontal incised line. The body decoration consists of curvilinear zones, the upper portion of which is traversed by a horizontal, narrow smoothed to burnished band bounded by incised lines. The zones are filled with rocker dentate stampings. The interlobate areas are smoothed to burnished.

Type: Hopewell Zoned, dentate stamped.

Vessel 3
(Figure 51b)

This description is based on information provided by Quimby (1941a, p.93-4).
The lip is flat with an interior bevel. The rim is straight to slightly everted and the upper rim is cambered. The vessel is a short-bodied, quadrilobate jar with a semiconcoidal but truncated base. The shoulder is rounded. Physical measurement of the vessel was not available.

The cambered rim is decorated with fine crosshatching. Below this is a row of closely-spaced, medium-sized hemiconical punctates applied from the left. The lower rim and upper shoulder areas are limited by incised lines and filled with small triangular incised zones. The body decorations are large curvilinear zones and filled with closely spaced rows of closely spaced, medium-sized hemiconical punctates and small angular zones that were left undecorated. The pattern appears on alternating lobes and the interlobate areas are smooth to burnished.

Type: Hopewell Zoned Punctate.

This grit-tempered vessel has a flat lip which has an interior bevel. The rim is short and straight to slightly everted and the upper rim is cambered. The vessel form is that of a short-bodied, quadrilobate jar with rounded shoulders. The upper shoulder area is high and the base is semiconcoidal and truncated. The upper shoulder area is slightly con-
The vessel is 9 cm high with an orifice diameter of 8.6 cm.

The cambered rim is decorated with fine cross-hatching with closely spaced, medium-sized hemiconical punctates made from the right below the cambered area. The body is decorated with three broad, closely spaced incised lines which curve over the lobes and down through the interlobate areas.

Probable Related Type: Hopewell Zoned Incised.

This vessel is grit tempered, has an interior beveled and flat lip and a straight to slightly cambered and short rim. The form is a short-bodied and round-shouldered jar with a slight constriction of the upper shoulder area and a semi-conoidal base. The rim diameter is 5 mm and the vessel height is 13.2 cm. The diameter of the orifice is 11.3 cm.

The rim decoration consists of somewhat irregularly spaced crosshatching extending 2 cm below the lip with a single row of hemiconical punctates spaced 6 mm apart. The rest of the vessel is plain.

Type: Norton Crosshatched.
Vessel 6
(Figure 45d)

This grit-tempered vessel has a rounded lip. The rim is very high and straight to slightly everted. The upper rim is cambered and everted. The vessel is short-bodied with a rounded and low shoulder, a round bottom and a slight constriction at the upper shoulder. The height of the vessel is 11.9 cm. The orifice diameter is 10.9 cm.

The cambered upper rim is decorated with oblique to the left, plain rocker stamping. The strokes are closely spaced with the arc to the lower left. Superimposed over this are right to left diagonal incised lines occurring in groups of four creating the impression of crosshatching. Below this and 1 cm below the lip is a single row of small hemiconical punctates spaced 4 mm apart. A horizontal incised line occurs 5 cm below the lip. The lower rim and body are decorated with curvilinear zones filled with plain rocker stamping or left empty.

Vessel 7
(Figure 45b)

The grit-tempered vessel has a rounded and thinned lip. The rim is short and flaring with a thickness of 5 mm. The form of the vessel is a short-bodied, rounded-bottom, quadrilobate jar with rounded shoulders and a slight constriction of the upper shoulder area. The overall height of

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the vessel is 10.4 cm with an orifice diameter of 8.8 cm.

The rim is decorated with a 1.5 cm wide band of widely spaced crosshatching bounded at the bottom by an incised line. The body decoration consists of paired and somewhat parallel incised lines which cross the entire body either vertically or oblique to the left. These lines are not well executed and in places hard to distinguish.

Probable Related Type: Norton Crosshatched.

This description is based on information provided by Quimby (1941a, p. 96-7).

The rim is straight and vertical. The vessel is long-bodied with a high and rounded shoulder with a conoidal base. The jar has a well-constricted upper shoulder area. Physical measurements of the vessel were not available.

The exterior surface of the vessel is corded. The rim is decorated with rows of closely spaced, small, round punctates arranged in a crosshatched pattern. This band is bounded at the bottom by a single row of small round punctates.
Vessel 9
(Figure 52)
This grit-tempered vessel has a flat lip that is beveled to the interior with ovate impressions on the inner lip. The rim is straight and vertical with a thickness of 1 cm. The exterior decoration consists of vertical and parallel impressions of a linear dentate stamp.
Type: Naples Stamped.

Vessel 10
(Figure 45a)
This grit-tempered vessel has a flat lip with an interior bevel and transverse dentate stamp impressions 3 mm apart. The rim is slightly everted with a thickness of 8 mm. The vessel has a slightly constricted neck and the body is sub-conoidal with a rounded base. The overall height of the vessel is 15.1 cm and an orifice diameter of 12.8 cm.

The exterior decoration consists of vertical, parallel, slightly curved dentage stamping extending 2.5 cm below the lip. Below this is a 6.4 cm wide band of concentric incised triangles. The rest of the vessel is plain.

Vessel 11
(Figure 46a)
This grit-tempered vessel has a rounded and flattened lip which is also slightly insloping. The rim is slightly everted with a thickness of 7 mm.
The neck is slightly constricted and the body is subconoidal with a rounded base. The height of the vessel is reconstructed at 14 cm and with a reconstructed orifice diameter of 12.6 cm.

The rim decoration consists of linear dentate stamping applied horizontally along the outer lip, then a 2 cm wide band of vertical linear dentate stamping. This band is bounded on the bottom by a heavily impressed, horizontally applied, linear dentate stamp and an incised line. The body decoration is limited to oblique to the left, linear dentate stamped impressions extending to an undecorated base. There are other faint incised lines but the pattern is too vague for interpretation.

Type: Norton Zoned Dentate (Griffin, et al., 1970, p. 137)

Vessel 12 (Figure 46b)

This grit-tempered vessel has a flat lip with an interior bevel. The rim is vertical and slightly cambered with a distinct interior channel. The neck is slightly constricted below the cambered area. The body is globular with a flat and indented base. The height of the vessel is 7.6 cm and the orifice diameter is 10.2 cm.

The rim decoration consists of lightly applied,
vertical linear dentate stamp impressions extending 1.7 cm below the lip. The rim is bounded by a lightly incised, horizontal line. Below this is a 2 cm wide plain band bounded on the bottom by a horizontal incised line. The remainder of the vessel is decorated with vertical rows of large punctations applied to create the impression of linear dentate stamping.

Type: Norton Zoned Punctate (Griffin, et al., 1920, p. 137).

Vessel 13 (Figure 46c)

This sand and grit-tempered vessel has a rounded and interior beveled lip. The rim is very slightly cambered. The vessel is a subconoidal jar with a slightly flattened base and slightly constricted neck. The height of the vessel is 12.6 cm with an orifice diameter of 10.8 to 11.1 cm.

The lip is decorated with longitudinal linear dentate stamp impressions. The rim decoration consists of vertical linear dentate stampings extending 1.9 cm below the lip. Below this is a single row of hemiconical punctates applied from the right and spaced 4 mm apart. A plain, 3.2 cm wide band covers the neck and upper shoulder area and is bounded on the bottom by a single row of hemiconical punctates similar to those bounding the rim. Below this are four
Vessel 14  
(Figure 44b)

This grit and sand-tempered vessel has a rounded and interiorly flattened lip. The rim is slightly everted and the upper rim is slightly thickened. The form is that of a subconoidal jar with a flat bottom and a constricted neck. The height of the vessel is 4 cm and the orifice diameter is 5.5 cm.

The decoration consists of notches spaced 5 mm apart on the exterior edge of the lip. Commencing 4 mm below the lip is a band of paired hemiconical to rectangular punctates applied from the left and spaced 1.3 cm apart. The body is covered with closely spaced oval punctates applied from the left. The base is undecorated. The rim decoration is similar to vessel 3, Mushroom site, (Figure 11d).

Type: Norton Punctate (Griffin, et al., 1970, p.143).
Vessel 15  
(Figure 47b)  
This grit-tempered vessel has an interior beveled, flat lip. The rim is straight and vertical. The form is that of a conoidal jar with a slightly constricted neck. The vessel is 16.8 cm high and the orifice diameter is 14.0 cm.

The outer rim has vertical linear dentate stamp impressions spaced 4 mm apart and extending 2.5 cm below the lip. Heavier pressure has been applied to the lower portion of the stamp so that the lowest dentate tooth forms a boundary to the rim decoration. The rest of the vessel is plain.

Type: Norton Dentate Stamped (Griffin, et al., 1970, p.156).

Vessel 16  
(Figure 48)  
This grit-tempered vessel has an interior beveled, flat lip. The vertical rim is slightly cambered with a slight interior channel. The vessel is a conoidal jar with a constricted neck. The height of the jar is 25.9 cm. The orifice diameter is 18.3 cm.

The decoration consists of vertical, fine linear dentate stamp impressions extending 3.5 cm below the lip and spaced 5 mm apart. Below this was a 4 cm wide plain band bounded at the bottom by a row of right to left diagonal, parallel and 1 cm long fine linear dentate stamp impressions. Beneath these stamps and contiguous to them is a
horizontal incised line. The body decoration is represented by five units of four lobed curvi-linear design elements which are partially filled with the same type of fine dentate stamping.

Type: Norton Zoned Dentate Stamped

(Griffin, et al., 1970, p.156).

Vessel 17
(Figure 49b)

This grit-tempered vessel has an interior beveled, flat lip. The rim is high, straight and vertical with a thickness of 7 mm. The form of the vessel is that of a jar with a flat bottom. The vessel is 12 cm high with an orifice diameter of 8.3 cm.

The rim decoration consists of vertical rows of hollow reed impressions. Each row has five impressions that were made by a 7 mm hollow reed or tube. The interior and exterior surfaces exhibit brush marks.

Type: Norton Punctate (Griffin, et al., 1970, p.171).

Vessel 18
(Figure 44c)

This grit-tempered vessel has a thickened, flat to slightly rounded lip. The rim is straight and vertical with a thickness of 6 mm. The form is that of a small jar with definite shoulders and a concave bottom. The height is 5 cm with a restored orifice diameter of 4.5 cm.

The interior lip has angular notches spaced
approximately 5 mm apart. The exterior decoration consists of vertically applied linear dentate stamp impressions spaced approximately 5 mm apart and extending 9 mm below the lip. Commencing 1.4 cm below the lip is a single row of hemiconical punctates applied from the left. The body has oblique to the left trapezoidal zones bounded by incised lines. These zones are 6 to 9 mm wide and alternating zones are filled with two single long cord impressions. The other zones are plain.

Type: Norton Zoned Corded


Vessel 19 (Figure 49d)

This grit-tempered vessel has a flat to slightly rounded lip with an interior slope. The rim is straight, vertical, and slightly thickened to a diameter of 8 mm. The vessel is a round-bottomed jar. The height of the vessel is 8.2 cm with an estimated orifice diameter of 7.6 cm.

There are angular notches on the exterior lip spaced 5 mm apart. These notches are partially obscured by vertical and parallel rows of linear dentate stamp impressions which extend 9 mm below the lip and are spaced 5 mm apart. At the base of the stampings is a horizontal, incised line. The neck is decorated with a single
row of oval to conical punctates made from the left and 4 mm apart. The body decorations are six elements of three concentric or nested triangles covering approximately 75 percent of the body surface. The bottom is undecorated.

Type: Norton Incised

(Griffin, et al., 1970, p.174)

This grit-tempered vessel has a flat to slightly rounded lip. The rim is straight and vertical with a thickness of 7 mm. The form is that of a jar with a slight shoulder and a semiconoidal base which appears to have been flattened slightly, possibly accidentally, prior to firing. The height of the vessel is 14 cm and the orifice diameter is estimated at 7.3 cm.

The decoration consists of tool impressions applied vertically on the exterior lip. These are 3 to 5 mm apart and 3 mm long. The rest of the vessel exhibits brushing on both the exterior and interior surfaces but are lightly applied and indistinct in places.

Type: Norton Plain (Griffin, et al., 1970, p.174).

Probable Related Type: Weaver Plain (Wray and MacNeish, 1961, p.56-7).
Vessel 21 (Figure 50a)  
This vessel is tempered with grit mixed with a small amount of sand and has an interior beveled, flat lip. The rim is slightly cambered and slightly everted. The form of the vessel is that of a globular jar with rounded shoulders and a slightly constricted neck. There are four semi-conoidal feet extending from a slightly flattened base. The height of the vessel is estimated at 18.5 cm with an estimated orifice diameter of 16.3 cm.

There are notches on the exterior lip spaced 4 mm apart. These are partially obscured by vertical and parallel linear dentate stamp impressions extending 1.6 cm below the lip. The upper rim is bounded by a horizontal, incised line at the base of the stampings. Commencing 3.8 cm below the lip is another horizontal, incised line with pendant semicircles 3 cm in diameter and 3 cm apart. These semicircles are contained within a 4 cm wide zone, bounded on the bottom by a horizontal, incised line and the background is filled with horizontal rows of linear dentate stampings.

Type: Norton Zoned Dentate Stamped  

Vessel 22 (Figure 50b)  
This vessel is tempered with grit and sand and has a flat and interior beveled lip. The rim is slight-
ly everted and slightly cambered. The form is that of a jar with a slight shoulder and semiconoidal base. The neck is slightly constricted. The height is estimated to be 17 cm and the diameter of the orifice is estimated at 17.2 cm.

There are notches on the exterior lip 5 mm apart which are partially obscured by fine cross-hatching that extends to 2.2 cm below the lip. The upper rim is bounded by a horizontal, incised line at the base of the crosshatching. At the neck is a horizontal row of "rabbit track" stamps. The hind feet are 5 mm long and the front 3 mm and the stamps are spaced 2 cm apart. Commencing 5.2 cm below the lip is a horizontal incised line. This starts a zone that varies from 4 to 5 cm wide and contains a four-lobed linear dentate filled design element with a circle in the upper lobe. The surface is smoothed to burnished and it appears that the crosshatching extended another 1.5 cm but was eliminated by the artist.

Type: Norton Zoned Dentate Stamped


Vessel 23
(Figure 49a)

This vessel is tempered with sand and grit and has a rounded lip. The rim is slightly everted and has a thickness of 6 mm. The vessel is a short-bodied jar with rounded shoulders, a slightly con-
Vessel 24
(Figure 49c)

This grit and sand-tempered vessel has a flat to slightly rounded, interior beveled lip. The rim is everted. The vessel form is a short-bodied, round-shouldered, quadrilobate jar with a slightly constricted neck. The lobes are quite prominent and the base is constructed to resemble the lobes. The height of the vessel is 9.5 cm and the orifice diameter is 9 cm.

There are tool impressions on the exterior edge of the lip and they are spaced 5 mm apart. Commencing 5 mm below the lip are vertical, parallel and 1.3 cm long cordwrapped stick impressions.
that are 2 mm wide and spaced 4 mm apart. Each lobe contains two ovate zones which are 3.3 to 4.1 cm long by 1.8 to 3 cm wide and are filled with cordwrapped stick impressions. Prior to the delineation of the zones, cordwrapped stick impressions had been made on the upper portion of each lobe. The impressions are vertical, almost parallel and 1 cm long.

Type: Norton Zoned Cordwrapped Stick

(Giffin, et al., 1970, p.775).

This vessel is tempered with sand with a small portion of grit. The lip is flat with an interior bevel. The rim is slightly cambered and straight. The form is that of a short-bodied, round-shoulder jar with a slightly constricted neck and flat to slightly concave base. The height of the vessel is 12 cm and the orifice diameter is 12.5 cm.

There are notches on the exterior edge of the lip spaced 5 mm apart. These notches are partially obscured by vertical linear dentate stamp impressions. These impressions are spaced 3 mm apart and are bounded 1.5 cm below the lip by a horizontal incised line. This is followed by a 2 to 2.4 cm wide plain zone bounded on the bottom by a horizontal, incised line. A 5.2 cm wide band follows that contains three units of a four-lobed
design element which are alternately filled with horizontal linear dentate stampings or left empty. The base is undecorated.

Type: Norton Zoned Dentate Stamped  

The Muskegon River Basin

The Jancarich Site

The Jancarich site (20NE113) is located in the SW 1/4, SE 1/4 of Section 22, Brooks Township, Newaygo County, Michigan. It occupies a low flat terrace bordering an abandoned channel of the Muskegon River and was selected for inclusion in this investigation due to its similarities in location with that of the Mushroom site. The number of sherds recovered from each site are also quite similar, 3,741 from Jancarich(Prahl, 1970, p.273) and 3,539 from Mushroom.

Directly associated with this site are the Palmiteer Mounds, 600 feet (182.9 m) to the north on a higher terrace. This group of four mounds ranges from 16 to 18 feet (4.9 to 5.5 m) in diameter and 12 to 30 inches (40.6 to 76.5 cm) high(Prahl, 1970, p.210). A radiocarbon date of 10 B.C.±140 (M-1985) was obtained from Palmiteer Mound 2(Prahl, 1970, p.224). Only two vessels were recovered from the four mounds and are not included in this report. Brooks, Parson and Schumaker mound groups are also within 2 km of the Jancarich Site. A date of 80 B.C.±140 (M-1938) came from the Schumaker Mound (Prahl, 1970, p.228).
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 25

Figure 43: Percentage of Single Attributes

Norton Mound Group
Figure 44: Norton Ceramic Vessels

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Figure 45: Norton Ceramic Vessels
Figure 46: Norton Ceramic Vessels
Figure 47: Norton Ceramic Vessels
Figure 48: Norton Ceramic Vessels

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Figure 49: Norton Ceramic Vessels

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Figure 50: Norton Ceramic Vessels

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Figure 51: Norton Ceramic Vessels
Figure 52: Norton Ceramic Vessels
Jancarich was excavated in 1965 and 1966 by the University of Michigan under the direction of Earl Prahl. The main excavations total 1,600 ft.\(^2\) (148.7 m\(^2\)). A radiocarbon date of 310 B.C.-140 (M-1982) was obtained from this area.

A total of 35 vessels are represented by 37 rim sherds. Not all of these vessels were available for study. Any description other than those made from direct observation will be so noted.

Vessel 1  
(Figure 54a)  
This grit-tempered vessel has a square lip and a straight and vertical rim with a thickness of 7 mm. Cordwrapped stick impressions are applied obliquely to the right and widely spaced. There is a fragmentary boss 3.6 cm below the lip.

Vessel 2  
(Figure 54b)  
This grit-tempered vessel has a square lip and a straight and vertical rim with a thickness of 8 mm. The interior is brushed. The exterior is plain with a fragmentary boss 2.1 cm below the lip.

Vessel 3  
(Figure 54c)  
This grit-tempered vessel has an interior beveled lip and a straight and vertical rim with a thickness of 9 mm. The interior lip is notched. The exterior is malleated with fine vertical cord with paired, vertical incised lines. Part of the exterior surface is exfoliated and further information is unavailable.
Vessel 4  
(Figure 55a) 
This grit-tempered vessel has a rounded to pointed lip and a straight, vertical rim with a thickness of 6 mm. There are oblique to the right, cord-wrapped stick impressions on the interior lip and oblique to the right and parallel impressions on the exterior upper rim. The lower rim is plain. The exterior surface is cordoned to 1.8 cm from the lip. At 2.3 cm below the lip, there is a fragmentary boss.

Vessel 5  
(Figure 54d) 
This grit-tempered vessel has a rounded and interiorly flattened lip and a cambered rim. The cambered area is decorated with crosshatching. This extends to a single row of hemiconical punctates applied from the right which are spaced 7 mm apart and are 1.3 cm from the lip. 
Type: Norton Crosshatched.

Vessel 6  
(Figure 55c) 
This grit-tempered vessel has a square lip with a strong splaying to the exterior and a straight and vertical rim with a thickness of 6 mm. There are fine linear dentate stamp impressions right to left diagonally across the lip. The same dentate stamp was used to produce oblique to the right and parallel impressions on the exterior. These impressions are approximately 4 mm apart.
Vessel 7  
(Figure 54f)  
This grit-tempered vessel has a rounded to slightly pointed lip. The rim is cambered and slightly everted. Upon the cambered area are faint, vertical bands of plain rocker stamping. The strokes are 1.8 cm long with a wide rocker interval and the arc towards the lip. There is a fragmentary boss occurring 2.5 cm below the lip.

Vessel 8  
(Figure 54g)  
This grit-tempered vessel has a slightly rounded lip with an interior bevel and a rim that is straight and vertical with a thickness of 4 mm. The exterior decoration consists of paired vertical rows of hemiconical punctates applied from below with a slight dragging motion giving the impression of dentate stamping.

Vessel 9  
(Figure 55d)  
This grit-tempered vessel has a flat lip with an exterior bevel and slight exterior splaying. The rim is straight and vertical with a thickness of 6 mm. The exterior rim is decorated with widely spaced crosshatching.

Vessel 10  
(Figure 55b)  
This grit-tempered vessel is missing the lip and the interior surface but some information can still be derived. It has a cambered rim exhibiting widely spaced and irregular crosshatching with small round punctates below the cambering.  
Type: Norton Crosshatched.
Vessel 11
(Figure 54e)

This grit-tempered vessel has a square to slightly rounded lip. The rim is cambered with a thickness at the cambering of 1.4 cm. The only decoration is a fragmentary boss which is estimated to be 1 cm in diameter and is 2 cm below the lip.

This description is based upon information provided by Prah1(1970, p.277; Plate LV).

Vessel 12
(Not Illustrated)

This grit-tempered vessel has a square to slightly rounded lip. The rim is straight and vertical with a thickness of 1 cm. There are dentate impressions on the lip. The exterior decoration consists of vertical and parallel linear dentate stamp impressions spaced 5 mm apart. The rim is bounded by a horizontal, incised line 2 cm below the lip. A single row of bosses occur 2.5 cm below the lip.

Probable Related Type: Naples Stamped.

Vessel 13
(Not Illustrated)

This description is based upon information provided by Prah1(1970, p.280,285, Plates LVII and LIX).

This grit-tempered vessel has a flat and interior beveled lip. The rim is straight and vertical with a thickness of 8 mm. The exterior decoration consists of vertical and parallel...
linear dentate stamp impressions spaced 8 mm apart and extending 4.6 cm below the lip. Occurring within the stamped area at 2.5 cm below the lip is a 1.2 cm diameter boss. A row of hemiconical punctates applied from the left and 1.2 cm apart is 4.8 cm below the lip.

The body sherds that were observed contain curvilinear and angular zoning filled with linear dentate stamping, punctation, incising and combing. Some empty zones are also represented. A single sherd showing rows of round punctations may represent a vessel with patterns similar to Montezuma or Steuben Punctated (Griffin, 1952, p.111).

The Toft Lake Site

The Toft Lake village site (20NE110) is located in the SW 1/4, NW 1/4 of Section 27, Everett Township, Newaygo County, Michigan, and is situated on a sandy beach on the southwest shore of Toft Lake and on both sides of a small, unnamed creek which drains the lake (Losey, 1967). The nearest mound group, Brooks, is 6.4 km to the south.

Toft Lake site was excavated by Timothy Losey, a member of the Newaygo chapter of the Michigan Archaeological Society, and excavations total 400 ft.$^2$ (37.2 m$^2$) (Losey, 1967, p.129). A total of 350 sherds and 19 stone artifacts were recovered (Ibid.) and are currently curated by Grand Valley State Colleges.

That the site was probably occupied sporadically or seasonally is suggested by the sparsity of cultural material. The material was
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 35

Figure 53 : Percentage of Single Attributes

Jancarich Site
Figure 54: Jancarich Site Ceramic Vessels
Figure 55: Jancarich Site Ceramic Vessels
found only to a depth of 10 inches (25.3 cm) and was mixed due to cultivation (Ibid.). A minimum of 11 vessels can be established from the recovered rim sherds. Several may or may not be of the Middle Woodland period and any questionable vessel will not be included in this discussion. The importance of this ceramic assemblage is the combination of Havana-like traits and interior/exterior cordmarked vessels, very similar to those found at the Mushroom site in Allegan County. These interior/exterior cordmarked sherds comprise almost 50 percent of the assemblage.

Vessel 1
(Figure 57a)
This vessel is tempered with large quantities of white grit. The lip is L-shaped with the protrusion to the exterior. The rim is straight and vertical. The decoration consists of smooth, ovate impressions that are 5 mm in diameter and 1 cm apart. These impressions are placed on both the interior and exterior edges of the lip.

Vessel 2
(Figure 57b)
This grit-tempered vessel has a round lip and a straight to slightly everted rim with a thickness of 6 mm. Finger impressions have been placed on the lip giving it a slight scalloped effect.

Vessel 3
(Figure 57c)
This vessel is tempered with large quantities of white grit. The lip is rounded and slightly thinned and the rim is straight and vertical with a thickness of 5 mm. There is a portion of a plain rocker stamped design element 1.2 cm below
the lip and indicates vertical rocking with the arc to the right.

**Vessel 4** *(Figure 57d)*

This grit-tempered vessel has a rounded lip with a slight exterior slope. The rim is straight and vertical. The exterior is smooth and the interior surface shows smoothed-over horizontal cordmarking. On the exterior and 1.1 cm below the lip is a single hemiconical punctate from the right.

**Vessel 5** *(Figure 58a)*

This vessel is tempered with large, angular pieces of hornblende. The lip is rounded and the rim is straight to slightly flared with a thickness of 6 mm. The lip has transverse cordwrapped stick impressions creating a slight scalloping of the lip. The interior surface is corded with the impressions horizontal to the lip. The exterior surface is corded with the impressions vertical to the lip. The vessel appears to be globular with a slightly constricted neck.

Proposed Type: Mushroom Cordmarked.

**Vessel 6** *(Figure 58b)*

This vessel is tempered with large quantities of white grit. The lip is square and the rim is straight with a thickness of 9 mm. The interior surface exhibits cordmarking that is horizontal to the lip. The exterior surface is corded with the impressions vertical to the lip.
Proposed Type: Mushroom Cordmarked.

Vessel 7  
(Figure 58d)  
This vessel is tempered with large quantities of white grit. The lip is thickened and concave and the rim is straight with a thickness of 8 mm. The thickness at the lip is 1.3 cm. The interior surface is cored with the impressions horizontal to the lip. The exterior is cored with the impressions applied vertical to the lip.

Proposed Type: Mushroom Cordmarked.

Vessel 8  
(Figure 58c)  
This grit-tempered vessel has a rounded lip with a slight interior bevel. The rim is slightly everted with a thickness of 8 mm. There are cordwrapped stick impressions on the lip. The interior is smooth and the exterior is vertically cored.

Vessel 9  
(Figure 57e)  
This grit-tempered vessel has a flat lip with an interior bevel. The rim is straight with a thickness of 1 cm. The interior surface is brushed. There are cordwrapped stick impressions on the lip giving it a slight scalloped effect. On the exterior are vertical cordwrapped stick impressions 4 mm apart and extending 3.8 cm below the lip.

The body sherds exhibit 8 mm wide, shallow, curvilinear zone lines filled with very fine dentate stamping applied at a slight angle.
Burnishing on the exterior surface of body sherds was also present. Corded body sherds comprise the majority of the assemblage. The cordage is tightly twisted and fairly fine. Coil breaks are present on the interior/exterior cordmarked sherds but not in the quantity seen in the Mushroom site assemblage.

The Kankakee River Basin

The Wilson Site

The Wilson site (La46) is located in the SE 1/4, SE 1/4 of Section 10, T.32N., R.8W., Eagle Creek Township, Lake County, Indiana. The site is on a large sand hill which was probably an island in a large, shallow lake (Bellis, et al., 1979). The western portion of the site was highly disturbed by the construction of the farm house and associated buildings. In the late 1960s, a large barrow pit was opened near the center of the site approximately 200 yards (182.9 m) northeast of the present farmhouse. Mr. Wilson, in the early months of 1978, sold the rights to the sand from the remainder of the hill.

The site had been collected for many years by numerous individuals, including the owner's son and Donald Flatt of Shelby, Indiana. In 1978, Mr. Wilson's son, in order to recover as many artifacts as possible prior to the start of sand mining, chiseled plowed the remaining sodded portion of the site. Shortly after sand mining commenced, the site was visited by the University of Notre Dame Field School in an attempt to salvage any possible information. Their excavations did reveal features; however, no diagnostic cultural material was contained in them. The prehistoric material was basi-
DECORATION

A. Punctuation  
B. Crosshatching  
C. Plain Rocker Stamping  
D. Dentate Rocker Stamping  
E. Linear Dentate Stamping  
F. Cordwrapped Stick Stamping  
G. Incised Line  
H. Brushing  
I. Bossing  
J. Burnishing  
K. Red Slip  
L. Crescent Stamp  
M. Zoning  
N. Cord Impression  
O. Bar Stamp  
P. Tool Impression on Lip  
Q. Fingernail Impression

FORM

W. Cambered Rim  
X. Interior Beveled Lip  
Y. Straight and Vertical Rim  
Z. Everted Rim

\[ N = 11 \]

Figure 56 : Percentage of Single Attributes

Toft Lake Site
Figure 57: Toft Lake Site Ceramic Vessels

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Figure 58: Toft Lake Site Ceramic Vessels
cally confined to the plowzone (Bellis, et al., 1979).

The artifactual evidence indicates that the Wilson site was occupied sporadically from Early Archaic through Mississippian times. However, according to Bellis (1979, p.38); "If a simple count is made of this artifact assemblage, it appears that well over half of the diagnostic pieces are Middle Woodland."

A minimum of 21 vessels represent the Middle Woodland ceramic assemblage. Only three vessels have sherds large enough to describe any portion of the decoration applied to the body.

Vessel 1
(Figure 60a)
This vessel is tempered with large quantities of white grit. The lip and the interior surface is not present. The rim is straight and vertical. On the rim is a double row of vertical crescent stamp impressions that are 2 cm long with the convex to the right. Beneath the stamping is a 5 mm wide, horizontal incised line which bounds the rim decoration. Coming off this line is a portion of a curvilinear line. The zone on the left side of the line is filled with slightly curved dentate stamping and the other zone is empty.
Probable Related Type: Neteler Stamped.

Vessel 2
(Figure 60b)
This vessel is tempered with large quantities of white grit. The lip is flat with an interior bevel and the rim is straight and vertical with a thickness of 1 cm. The decoration consists of slightly
curved dentate stamp impressions applied vertically and with two impressions in tandem giving the illusion of a single, long stamp. The overall length of the impression is 5.2 cm with the individual stamp appearing to be approximately 2.7 cm long.

Type: Naples Stamped.

Vessel 3
(Figure 60c)

This grit-tempered vessel has a square lip and a straight and vertical rim that has a thickness of 5 mm. The interior lip is notched with the notches 7 mm apart. The interior surface is brushed.

The exterior decoration consists of vertical dentate stamp impressions extending 2.3 cm below the lip. The stamp used had a slight curvilinear arrangement of the teeth and was 2 mm wide. The stamping extends into a horizontal incised line which bounds the rim decoration indicating the line was created prior to the stamping. From the horizontal line are two oblique to the right, incised lines approximately 2.3 cm apart. The zones alternate being filled with closely spaced, round punctates or left empty. In the undecorated zone, there is a single, round finger impression.

Vessel 4
(Figure 61a)

This vessel is tempered with sand mixed with grit. The lip is flat to round with splaying to both the interior and exterior. The rim is straight and ver-
tical with a thickness of 1 cm.

The exterior surface is cored with the impressions vertical and partially obliterated. The interior is brushed with the markings at an oblique to the left. There are oblique to the right 1 cm long cordwrapped stick impressions spaced 2 cm apart on the interior lip.

Vessel 5 (Figure 61b)

This grit-tempered vessel has a square and slightly thickened lip with a straight and vertical rim that has a diameter of 5 mm. The exterior surface is roughly smoothed and a single 8 mm diameter boss occurs 3.5 cm below the lip.

Vessel 6 (Figure 61c)

This heavily grit-tempered vessel has a square lip. The rim is straight and short. The body appears to be globular in form.

The interior surface is brushed. The rim is basically plain and a row of hemiconical punctates applied from the right and spaced in groups of three occurs at the neck. Vertical brushing can be seen from the lower rim to 3.2 cm below the lip where it is terminated by a horizontal incised line.

Vessel 7 (Figure 62b)

This vessel is tempered with large quantities of white grit. The lip is flat with a steep interior bevel. The rim is straight to slightly everted with
Vessel 8  
(Figure 62c)  
This vessel is tempered with large quantities of white grit. The lip is square and slightly thickened. The rim is straight and vertical with a thickness of 5 mm. On the exterior are oblique right and parallel cordwrapped stick impressions spaced 6 mm apart.

Vessel 9  
(Figure 63a)  
This grit-tempered vessel has a square lip and a cambered rim. The body is globular. The exterior is plain and the interior brushed.

Vessel 10  
(Figure 62e)  
This vessel is tempered with large quantities of white grit. The lip is flat and slightly splayed to the exterior. The rim is straight except for the upper rim which is slightly everted. The thickness of the rim is 1 cm. A row of 1.2 cm diameter bosses occur 4 cm below the lip and are spaced 1.5 cm apart. This vessel is very similar to vessel 4 of the Mushroom site (Figure 11d) but slightly larger in proportions.
Vessel 11
(Figure 65a)

This vessel is tempered with large quantities of white grit. The lip is square. The rim is straight, vertical and quite high and has a thickness of 8 mm. The form of the vessel appears to be that of a round-shouldered, probably semiconoidal jar.

The upper rim is decorated with vertical linear dentate stamp impressions spaced 6 mm apart. The upper rim is bounded by a horizontal incised line 3.5 cm below the lip. Below this is a 4 cm wide band containing oblique to the right incised lines spaced 2.3 cm apart. The zones are alternately filled with oblique to the right and parallel linear dentate stamp impressions or left empty. Below this band is a small fragment of a curvilinear line associated with fragmentary dentate stamping. The interior edge of the lip has notches spaced 1 cm apart.

Type: Naples Stamped.

Vessel 12
(Figure 64a)

This vessel is tempered with large quantities of white grit. The lip is rounded. The rim is slightly everted and quite short and has a thickness of 1 cm. The body appears to be globular. The exterior is corded to 1.5 cm from the lip. The rim is decorated with widely spaced crosshatching.
Probable Related Type: Hopewell Plain

(Griffin, 1952, p. 119).

Vessel 13
(Figure 64b)

This vessel is tempered with large quantities of white grit. The lip is flat with a steep interior bevel. The rim is straight to slightly inverted and has a thickness of 1 cm. The interior edge of the lip has round, smooth notches or tool impressions spaced 7 mm apart. There are 1.3 cm long slightly curved dentate stamped impressions spaced 5 mm apart.

Type: Hummel Stamped.

Vessel 14
(Figure 64c)

This vessel is tempered with large quantities of white grit. The lip is square to slightly rounded. The rim is straight to slightly everted and has a thickness of 9 mm.

The rim is plain. The interior edge of the lip contains 8 mm wide, shallow, round tool impressions. At the neck and 2.5 cm below the lip is a row of 1.2 cm diameter bosses spaced 2.2 cm apart. There is a horizontal incised line on the upper shoulder 3.8 cm below the lip. Below this line are vertical rows of horizontal fingernail impressions with the convex towards the lip.

Vessel 15
(Figure 63b)

This vessel is tempered with large quantities of white grit. The lip is flat and has an interior
bevel. The rim is straight and vertical with a thickness of 1.4 cm. The interior edge of the lip exhibits small, round, smooth tool impressions spaced 1.5 cm apart. On the exterior are two rows of 3.5 cm long, slightly curved dentate stamp impressions with the convex to the right.
Type: Hummel Stamped.

Vessel 16
(Figure 62d)
This grit-tempered vessel has a rounded lip with a slight exterior bevel. The rim is straight with a diameter of 1.1 cm. There are notches on the exterior edge of the lip. The rim is decorated with widely spaced crosshatching and a fragmentary boss 3.6 cm below the lip.

Vessel 17
(Figure 62a)
This grit-tempered vessel has a rounded lip. The rim is straight with a crudely executed fold to the exterior and a thickness of 7 mm. There are cordwrapped stick impressions on the lip and spaced 1 cm apart. Below the fold, the exterior surface is corded with the impressions vertical to the lip. There are vertical rows of horizontal crescent stamp impressions with the arc towards the rim within the corded area.
Probable Related Type: Neteler Stamped.

Vessel 18
(Figure 65b)
This grit-tempered vessel has a square to slightly splayed lip. The rim is straight and interiorly
thickened on the upper rim. The rim thickness is 7 mm and the lip 1.1 cm. There are cordwrapped stick impressions on the interior edge of the lip and spaced 1.5 cm apart. The exterior surface exhibits partially smoothed cordmarking.

Only a small fraction of the probable total of body sherds recovered over the years were available for study. Of the observed sherds, eight show definite zoning with seven having linear dentate stamping with teeth ranging from very fine to large. Of the eight zoned sherds, one appears to be a decorated part of the lobed area of a small vessel. The remaining zoned sherd is associated with cord-wrapped stick impressions. Other decorated body sherds exhibit a fine, incised line with a red slip, a single incised line and a sherd with a brushed exterior. Neck sherds included one with a vertical row of V-shaped punctates with the apex towards the lip, a boss among cordwrapped stick impressions and curvilinear incised lines, a boss among cord with two horizontal incised lines below it and an irregularly spaced crosshatched sherd with a zone line which may be a rim but not positively identifiable.

The Hajek I Site

Hajek I (Le34) is located in the NE 1/3, NW 1/4 of Section 34, Dewey Township, LaPorte County, Indiana, and is located on the lower and middle terraces above the Kankakee River adjacent to what is now an oxbow lake. It ranges in elevation from 665 to 675 feet (202.7 to 205.7 m) and covers approximately 20 acres (8.1 ha) most
DECORATION

A. Punctation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 20

Figure 59 : Percentage of Single Attributes

Wilson Site
Figure 60: Wilson Site Ceramic Vessels
Figure 61: Wilson Site Ceramic Vessels

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Figure 62: Wilson Site Ceramic Vessels

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Figure 63: Wilson Site Ceramic Vessels
Figure 64: Wilson Site Ceramic Vessels
Figure 65: Wilson Site Ceramic Vessels
of which is cultivated. The site is reported to have a mound associated with it, but this feature could not be located by the author. Skeletal material has been found on the surface, scattered by cultivation and construction.

The site has only been surface collected by two amateurs; originally by Harold Haman of Kouts and currently by Mrs. Phil (Bonnie) Hajek of LaCrosse. Although the site has been surface collected since 1960, pottery has only been retained for the last three years, commencing after a discussion between this author and the landowner, Mrs. Hajek. There appears to be no apparent concentrations of prehistoric material. The recovered material represents cultural phases from Early Archaic through Mississippian. The Mississippian is poorly represented by a few shell-tempered sherds. The Middle Woodland period is known from lithic tools including blades and a variety of ceramics and is the best represented in the site assemblage.

A total of 387 sherds have been recovered. Of these, 24 are rims, representing a minimum of 19 vessels, and 19 are decorated body and neck sherds.

Vessel 1 (Figure 67b)  This grit-tempered vessel has a rounded lip with an interior bevel. The rim is straight with a thickness of 1 cm. On the exterior are vertical rows of parallel, linear dentate stamp impressions extending 2.8 cm below the lip. The upper rim is bounded by a horizontal, incised line. From this line, a right to left diagonal line emerges. One
zone is filed with cordwrapped stick impressions and the other, although very fragmentary, appears to be plain. The entire exterior surface is covered with a red slip.

Probable Related Type: Naples Stamped or Hopewell Red Filmed.

**Vessel 2** (Figure 68b)

This vessel is tempered with a mixture of sand and grit. The lip is rounded with a steep interior bevel. The rim is straight with a thickness of 8 mm. The decoration consists of slightly right to left diagonal cordwrapped stick impressions extending 3.6 cm below the lip. The entire exterior surface is covered with a red slip.

Probable Related Type: Naples Stamped or Hopewell Red Filmed.

**Vessel 3** (Figure 68a)

This grit-tempered vessel has a flat lip with an interior bevel. The rim is straight with a thickness of 1 cm. The decoration consists of vertical and parallel rows of slightly curved, medium-toothed dentate stamp impressions extending 3.1 cm below the lip.

Type: Hummel Stamped.

**Vessel 4** (Figure 68c)

This grit-tempered vessel has a square lip with slight splaying to the interior. The rim is straight with a diameter of 5 mm. The exterior sur-
face is corded with fine and vertical impressions. There are two incised horizontal lines on the exterior surface just below the lip. The lip has notches transversing it.

Vessel 5  
(Figure 67a)

This grit-tempered vessel has a flat, interior beveled lip. The rim is straight with a thickness of 1.3 cm. The rim is decorated with a 3.5 cm wide band of linear dentate stamp impressions arranged in a chevron pattern with the apex to the left and bounded on the bottom with a horizontal, incised line. Below this are vertical rows of crescent stamp impressions with the convex towards the lip. The rows are 2.3 cm apart and the stamps are 5 to 7 mm apart.

Type: Fettie Chevron (Cantwell, 1977, p.270).

Vessel 6  
(Figure 69a)

This grit-tempered vessel has a square lip. The rim is slightly everted and very short. The body appears to be globular. The exterior surface exhibits vertical cord. There is a faint incised line parallel to and just below the lip. Cordwrapped stick impressions are lightly applied on the lip.

Vessel 7  
(Figure 69b)

This grit-tempered vessel has a rounded lip. The rim is probably straight and has a thickness of 7 mm. There is a pair of fine, incised lines on the lip running parallel with the edges. On the
exterior surface are lightly incised or brushed lines obliquely to the left to the lip.

Vessel 8 (Figure 69d) This grit-tempered vessel has a flat lip with an interior bevel. The rim is straight and vertical with a thickness of 8 mm. The interior lip has square notches spaced 1 cm apart. On the exterior are slightly curved dentate stamp impressions applied vertically and parallel.

Type: Hummel Stamped.

Vessel 9 (Figure 69c) This grit-tempered vessel has a rounded and thickened lip. The rim is straight with a thickness of 7 mm. The lip diameter is 1 cm. The decoration consists of oblique to the right and parallel incised lines on the rim extending 1 cm below the lip.

Vessel 10 (Figure 69e) This grit-tempered vessel has a square lip. The rim is straight and vertical with a thickness of 8 mm. The decorations consist of right to left diagonal and parallel linear dentate stamp impressions which are rather deep and extend 2.2 cm below the lip. Occurring 2.5 cm below the lip is a single, 1.1 cm diameter boss.

Type: Naples Stamped.
Vessel 11  
(Figure 69f)
This grit-tempered vessel has a square lip. The rim is straight and has a thickness of 7 mm. There are light cord impressions on the lip and the exterior. The interior of the rim is decorated with oblique to the right and parallel linear dentate stamp impressions.
Proposed Type: Mushroom Cordmarked.

Vessel 12  
(Figure 70b)
This grit-tempered vessel has a rounded and slightly pinched lip. The rim is straight and has a thickness of 9 mm. On the interior edge of the lip are cordwrapped stick impressions. There is a fragmentary, oblique to the left, incised line 1 cm below the lip on the exterior.

Vessel 13  
(Figure 70a)
This grit-tempered vessel has a rounded and pinched lip. The rim is straight and has a thickness of 9 mm. On the exterior edge of the lip are plain bar stamp impressions which are irregularly applied. There is a horizontal incised line 4 cm below the lip.

The body sherds exhibited punctuation and incised lines as the most prominent attributes. Only two sherds have definite zones; and one of the two is associated with either vessel 1 or 2 as it is red slipped and is of similar thickness. Fingernail impressions, plain rocker stamping, and punctuation using a 1.3 cm diameter hollow reed or tube into cord impressions occur on one sherd each. One neck
DECORATION

A. Punctuation  
B. Crosshatching  
C. Plain Rocker Stamping  
D. Dentate Rocker Stamping  
E. Linear Dentate Stamping  
F. Cordwrapped Stick Stamping  
G. Incised Line  
H. Brushing  
I. Bossing  
J. Burnishing  
K. Red Slip  
L. Crescent Stamp  
M. Zoning  
N. Cord Impression  
O. Bar Stamp  
P. Tool Impression on Lip  
Q. Fingernail Impression  

FORM

W. Cambered Rim  
X. Interior Beveled Lip  
Y. Straight and Vertical Rim  
Z. Everted Rim

N = 14

Figure 66: Percentage of Single Attributes

Hajek I Site
Figure 67: Hajek I Site Ceramic Vessels

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Figure 68: Hajek I Site Ceramic Vessels

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Figure 69: Hajek I Site Ceramic Vessels

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Figure 70: Hajek I Site Ceramic Vessels

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sherd exhibits paired horizontal, hemiconical punctates and may be from a vessel similar to vessel 3 from the Mushroom site (Figure 12d).

The Alt I Site

The Alt I site (Le22) is located in the SE 1/4, SW 1/4 of Section 27 of Dewey Township, LaPorte County, Indiana. It is located on a large sand hill immediately north of and adjacent to an original channel of the Kankakee River which is now an oxbow lake. The extreme southern end of the site was destroyed by road construction over 50 years ago (Bellis, et al., 1979). The major portion of the site is in oak trees and heavy secondary growth. The site is less than 1 km northwest of the Hajek I site and the occupations of the two sites are probably related. A total of 72 m² were excavated by the 1978 Notre Dame Archaeological Field School (Bellis, et al., 1979, p. 52, 54).

Although few ceramics were found, several of them show strong Middle Woodland traits. Three vessels from this site are described:

Vessel 1
(Figure 71a)

This heavily grit-tempered vessel has a flat lip that is beveled to the exterior with a slight splaying to the exterior. The rim is straight and vertical with a thickness of 1 cm. The interior is brushed with cordwrapped stick impressions on the interior lip. The exterior is smooth with cordwrapped stick impressions applied obliquely to the right on the lip.
Vessel 2  
(Figure 71b)  
This fine grit-tempered vessel has a square lip.  
The rim is straight and vertical with a thickness  
of 9 mm. The exterior is corded with a 3 cm wide  
smooth band on the upper rim. Within this band is  
widely spaced, irregular crosshatching.

Vessel 3  
(Figure 71c)  
The vessel is tempered with fine black grit and has  
a rounded lip. The rim is slightly everted with a  
thickness of 1 cm. The interior surface has cord  
impressions applied horizontally to the lip. The  
exterior has cord impressions vertically applied.  
There are round tool impressions on the interior  
lip.  
Proposed Type: Mushroom Cordmarked.

There is only one decorated body sherd in the ceramic assemblage.  
That sherd exhibits curvilinear zones alternatingly filled with ver-  
tical and parallel linear dentate stamping or left empty. Within the  
remainder of the assemblage, there are four interior/exterior cord-  
marked sherds.

The Harper Site

The Harper site (La202) is located in the SE 1/4, SE 1/4  
of Section 35, T.32N., R.9W., Eagle Creek Township, Lake County, In-  
diana. It occupies a large sand hill approximately 1 km north of the  
original Kankakee Marsh and was probably surrounded by marshlands at  
the time of occupation. The site was approximately 200 m in diameter.
Figure 71: Alt I Site Ceramic Vessels
Unfortunately, this site is the victim of sand mining.

The mining operations began in 1977. Mr. Don Flatt of nearby Shelby, monitored the site's demise and salvaged the contents of many of the features as they were exposed. Bellis (et al., 1979, p.41) reports that during an October 1977 visit, he counted over 40 features exposed in the walls of the excavation. The top of the hill had been stripped of topsoil and vegetation and the mining operations were begun near the center of the site and radiating in all directions. When the Notre Dame Field School arrived in June of 1978, 95 percent of the site had been destroyed. The remains of six features were exposed in the rim of the sand pit and one possible feature was found on the last vestige of the original hill surface. There were no diagnostic materials recovered from any of these features (Bellis, et al., 1979, p.46).

While the vast majority of the material recovered from this site is Mississippian, there are Middle Woodland materials present. The recovered material is only a fraction of the probable total assemblage and may not accurately reflect the occupation of the site. Only two vessels are described herein:

Vessel 1 (Figure 72a) This vessel is tempered with a mixture of decomposed granite and hornblende. The lip is rounded. The rim is straight except for the upper portion which is sharply everted and the thickness is 1.6 cm. The interior surface is heavily brushed with no logical pattern of application.
The exterior decoration consists of vertical to oblique to the left and parallel incised lines 1 cm long and spaced 1 cm apart. Below this is a 1 cm wide band of strongly oblique to the right and parallel incised lines. Occurring 2.7 cm below the lip and spaced 1.5 cm apart is a row of 5 mm diameter, round punctates.

Vessel 2
(Figure 72b)

This grit-tempered vessel has a rounded lip with an interior slope. The rim is straight to slightly everted with a thickness of 8 mm. The exterior has vertical cord to the rim with a row of 7 mm diameter round punctates spaced 2.5 cm apart and occurring 1 cm below the lip. The interior lip exhibits hemiconical punctations applied from the right and spaced 1 cm apart.

Among the ceramic assemblage were six interior/exterior cord-marked sherd s similar to Mushroom Cordmarked. Brushing and/or incising occurred on five of the six sherds. The sixth exhibited crescent stamped impressions. All the sherds range from 1 to 1.2 cm in thickness.

**The Brown Site**

The Brown site is located approximately 4 km north of the Kanka-kee River in the NE 1/4 of Section 21, T.32N., R8W., Cedar Creek Township, Lake County, Indiana. The terrain is fairly flat with a
Figure 72: Harper Site Ceramic Vessels
with a single rise to the east of Indiana 55. There are two mounds associated with the site. One was partially excavated by two avocational archaeologists, Don Flatt and Philip Dickey. Copper artifacts were found associated with one burial. Most of the site has been maintained as pasture and alfalfa for at least the last 50 years (Flatt, D. Personal communication, December, 1980). For a brief period, starting around 1970, the site was cultivated, and during this time, it was surface collected by Don Flatt who has been the only individual allowed access to the site by the owner. The collection is temporarily curated by the University of Notre Dame.

The site is located approximately 3 km southwest of the Wilson site and 9 km northeast of the Harper site. The mounds and the occupation of these three sites may be related.

The site was primarily occupied during the Middle Woodland period, with some occupation extending into the Early/Late Woodland period. There are 11 Middle Woodland vessels represented by 13 rims among a total of 120 sherds.

Vessel 1  
(Figure 74a)  
This vessel is tempered with fine to medium grit. The lip is rounded and the rim is straight to slightly everted with a thickness of 6 mm. The decoration consists of paired, long and narrow tool impressions on the exterior edge of the lip.

Vessel 2  
(Figure 74c)  
This vessel is tempered with large quantities of white grit. The lip is flat with an interior bevel. The rim is cambered by bending the rim and
Vessel 3
(Figure 74d)

This vessel is tempered with large quantities of white grit. The lip is flat with an interior bevel. The rim is straight with a thickness of 1.5 cm. The interior lip is notched every 1.5 cm. The exterior is decorated with vertical, parallel and curvilinear dentate stamped impressions. The impressions are probably created by tandem applications of the same slightly curved dentate stamp, but placing the convex first to the left and then to the right.

Probable Related Type: Hummel Stamped.

Vessel 4
(Figure 74e)

This grit-tempered vessel has a rounded lip. The rim is straight to slightly everted. The only decoration is round, smooth tool impressions/notches spaced approximately 7 mm apart on the interior edge of the lip.

Vessel 5
(Figure 75a)

This grit-tempered vessel has a square lip and the rim is straight and vertical. The interior surface is missing. The exterior surface is 3 cm apart. There is a single row boss of 2.5 cm below the lip and smooth.

has a thickness of 1 cm. The decoration consists of faint, vertical to slightly left to right diagonal, parallel linear dentate stamp impressions extending 2.2 cm below the lip.
Vessel 6  
(Figure 76a)

This grit-tempered vessel has a flat lip with a steep interior bevel. The rim is straight and vertical and is slightly thickened. The thickening occurs 1.5 cm below the lip and the diameter increases from 6 mm to 9 mm.

The exterior decorations consist of vertical and parallel linear dentate stamped impressions extending 2 cm below the lip. The upper rim is bounded by a horizontal incised line 3.5 cm below the lip. From this line is an oblique to the left incised line. The zones are alternately filled with horizontal and parallel, linear dentate stamping or left plain.

Type: Naples Stamped.

Vessel 7  
(Figure 76b)

This vessel is tempered with large quantities of white grit. The lip is square. The rim is straight and vertical and thickened from 8 mm to 1.2 cm with the thickest area occurring 1.7 cm below the lip. The interior lip is notched every 1 cm with a rounded tool. The exterior decoration is badly eroded but appears to be vertical and parallel linear dentate stamped impressions extending 2 cm below the lip. There are brush marks on the lower exterior rim.
Vessel 8  
(Figure 76c)  
This white grit-tempered vessel has a square lip. The rim is straight and vertical with a thickness of 8 mm. The exterior surface is vertically cord-marked. Occurring 3.6 cm below the lip is a row of 1.5 cm diameter bosses spaced 3 cm apart. Type: Havana Cordmarked.

Vessel 9  
(Figure 75b)  
This grit-tempered vessel has a flat lip with an interior bevel. The rim is straight and has a thickness of 1.3 cm. The decoration consists of a double row of hemiconical punctates applied from the right. Extending 1.8 cm below the lip, similar punctates occur on the flat lip surface.

Vessel 10  
(Figure 74b)  
This grit-tempered vessel has a rounded lip. The rim is everted with a thickness of 6 mm. The interior surface is brushed. The exterior decoration consists of vertical and parallel linear dentate stamped impressions extending 2 cm below the lip and spaced 5 mm apart. There is a row of fragmentary bosses 2.3 cm below the lip and 2 cm apart.

Vessel 11  
(Figure 77)  
This grit-tempered vessel has a square to slightly rounded lip. The rim is straight and vertical with a thickness of 8 mm. The vessel is a short-bodied, round-shouldered jar with a very slight constriction at the neck. Its height is 16 cm with an orifice diameter of 14 cm.
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing,
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 12

Figure 73 : Percentage of Single Attributes

Brown Site
Figure 74: Brown Site Ceramic Vessels

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Figure 75: Brown Site Ceramic Vessels
Figure 76: Brown Site Ceramic Vessels
Figure 77: Brown Site Ceramic Vessels
The upper rim is decorated with a 3.6 cm wide band of oblique to the right and parallel cordwrapped stick impressions bounded on the bottom by an incised line. Associated with this line are six pendant design elements consisting of three roughly semicircular and concentric incised lines.

This vessel is in the possession of Donald Flatt, Shelby, Indiana.

The DeMotte Site

The DeMotte site is located in the SE 1/4, SW 1/4 of Section 20, Keener Township, T.32N., R7W., Jasper County, Indiana, on a sand hill approximately 1 km south of the Kankakee River and on the southern boundary of the Kankakee Marsh. The site is less than 2 acres (.8 ha) in size and has been almost totally destroyed by wind erosion (Nesius, R. Personal communication, December 1980).

The owner, Mr. Robert DeYoung, was the sole collector and the material from the site is now curated by Robert Nesius of Wheatfield, Indiana.

The occupation of the site includes all periods from Archaic through Mississippian. Sherds from the Middle Woodland period are present and total approximately one half of the 200 sherds recovered.
Vessel 1
(Figure 79a)
This grit-tempered vessel has a flat to slightly rounded lip with an interior bevel. The rim is straight and vertical with a thickness of 1.1 cm. The interior lip is notched. The exterior decoration consists of slightly left to right diagonal linear dentate stamp impressions.
Type: Naples Stamped.

Vessel 2
(Figure 79c)
This fine grit-tempered vessel has a square lip. The interior surface is missing. The interior lip is finely notched with the impressions spaced 2 mm apart. The lip and exterior surface are highly burnished.

Vessel 3
(Figure 79b)
This fine grit-tempered vessel has a rounded and pinched lip. The rim is straight and vertical with a thickness of 8 mm. The interior decoration consists of a fragmentary fingernail impression with the arc to the lower right and extending 1 cm below the lip. There is a single, fragmentary punctate 2.8 cm below the lip on the exterior. The exterior surface is cordmarked.

The decorated body sherds exhibit such traits as burnishing, exterior brushed and punctations. One sherd has a curvilinear incised line with a zone filled with dentate stamping. Three sherds also have a red slip on the exterior.
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing,
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 5

Figure 78: Percentage of Single Attributes

DeMotte Site
Figure 79: DeMotte Site Ceramic Vessels

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The Mud Lake Site

The Mud Lake site is located in the SE 1/4, SW 1/4 of Section 33, Lincoln Township and the NE 1/4, NW 1/4 of Section 4, Johnson Township, LaPorte County, Indiana, (Young n.d.) on the shore of now extinct Mud Lake. Little is known about this site except for the fact that there were 11 mounds situated on a sandy bank (Brown, 1964, p.121). Materials recovered from the site by Ernest W. Young of South Bend are curated at the Illinois State Museum, Springfield. From these materials, it can be gathered that the site was multicomponent with the heaviest occupation occurring in the Middle Woodland and Archaic periods.

A total of 301 sherds from the Mud Lake site were examined and a minimum of 17 vessels are estimated from the rims.

Vessel 1
(Figure 81a)
This grit-tempered vessel has a flat lip with an interior bevel. The rim is straight and vertical with a thickness of 8 mm. On the exterior edge of the lip are widely spaced oval tool impressions. The upper rim is decorated with widely spaced, irregular crosshatching.

Vessel 2
(Figure 81c)
This grit-tempered vessel has a rounded lip and a cambered rim. The only decoration is a fragmentary boss 2.5 cm below the lip.

Vessel 3
(Figure 81e)
This grit-tempered vessel has a square and thinned lip. The rim is straight and vertical
Vessel 4  
(Figure 82a)  
This grit-tempered vessel has a square lip. The rim is straight and vertical with a thickness of 7 mm. There are, on the exterior edge of the lip, oval tool impressions. These impressions are partially obscured by vertical and parallel, fine dentate stampings. The upper rim is bounded by a horizontal row of hemiconical punctates applied from the right and 2.8 cm below the lip. 
Probable Related Type: Naples Stamped.

Vessel 5  
(Figure 82c)  
This grit-tempered vessel has a rounded lip. The rim is straight and everted with a thickness of 8 mm. The only decoration present is a fragmentary boss occurring 2.6 cm below the lip.

Vessel 6  
(Figure 81b)  
This grit-tempered vessel has a square lip. The rim is straight and vertical with a thickness of 8 mm. The exterior surface is roughly smoothed. The exterior decoration consists of a 3 cm wide band containing a double row of vertical crescent stamp impressions with the convex to the left. Below this is a 2.6 cm wide band of vertical and
parallel linear dentate stamped impressions. Although the information is very fragmentary, there appears to be another band of crescent stamp impressions with the convex to the left. All bands are unbounded.
Type: Neteler Stamped.

Vessel 7
(Figure 81d)
This grit-tempered vessel has a round lip. The rim is straight and vertical with a thickness of 8 mm. The upper rim is decorated with an unbounded band of a double row of crescent stamp impressions with the convex towards the bottom.
Type: Neteler Stamped.

Vessel 8
(Figure 82b)
This grit-tempered vessel has a square lip. The rim is straight and vertical with a thickness of 7 mm. The exterior surface is brushed but obscured by large linear dentate stamp impressions applied vertically to the lip and with heavy pressure. Occurring 2.3 cm below the lip is a 1 cm diameter boss.
Type: Naples Stamped.

Vessel 9
(Figure 82d)
This grit-tempered vessel has a flat, interior beveled lip. The rim is straight and vertical with a thickness of 9 mm. The interior lip is notched with the impressions spaced 8 mm apart. The exterior is decorated with vertical and
parallel, linear dentate stamp impressions.

Type: Naples Stamped.

Vessels 10 - 12 (Figures 82e, f, g) These grit-tempered vessels have square lips, rims that are straight and vertical with thicknesses that range from 7 mm to 1 cm, and are decorated on the rim with vertical to slightly diagonal linear dentate stamp impressions.

Type: Naples Stamped.

The body sherds show a predominance of curvilinear and angular zones filled with linear dentate stamping or left empty. Over 50 percent of these zoned body sherds have a burnished surface. Plain rocker and dentate rocker stamping are present but in very small numbers. Punctations were not noted.

The Goodall Site

The Goodall site, a habitation area with 22 associated mounds, occupies the eastern portion of Section 20 and the western portion of Section 21, Union Township, LaPorte County, Indiana, and is approximately 4 km north of the Kankakee River along a small tributary. The mounds were arranged in a semicircle on a small ridge on the southern and eastern side of the creek. The largest and northernmost mound was 6 rods (30.1 m) in diameter and 26 feet (7.9 m) high (Chapman, 1980, p. 886). The site was superficially examined by this author and it appears that the mounds have been totally destroyed by amateur excavations, pot hunting, and agricultural and building activities.
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing,
J. Bossing
K. Burnishing
L. Red Slip
M. Crescent Stamp
N. Zoning
O. Cord Impression
P. Bar Stamp
Q. Tool Impression on Lip
R. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 17

Figure 80 : Percentage of Single Attributes

Mud Lake Site
Figure 81: Mud Lake Site Ceramic Vessels

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Figure 82: Mud Lake Site Ceramic Vessels

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The mounds were the object of much non-professional excavation in the last century. Unfortunately, the majority of the artifacts are now widely scattered and it would be practically impossible to locate all the material. Among those collections that can be studied is the material gathered by Ernest W. Young of South Bend, Indiana. This material is now curated by the Illinois State Museum in Springfield and was examined by this author in March, 1980, through a research grant from the Graduate College of Western Michigan University. Other items were found at the Grand Rapids Public Museum and the Fort St. Joseph Museum in Niles, Michigan. Among these items were cut and ground wolf jaws, platform effigy pipes, copper, mica, marine shells and galena (Foster, 1878, p.143-44), indicating active participation in the Hopewell Interaction Sphere (Struever, 1964).

Several other mounds and mound groups in the Kankakee Basin, such as Union Mills, Upp-Wark and LaCount, show similar activities (Brown, 1964; McAllister, 1932).

As the investigation of the Goodall ceramic material took place in several locations and research space did not allow for all sherds to be viewed as a single assemblage, the sometimes slight nuances that are needed to separate similar vessels could have been overlooked and this may have altered the actual vessel count.

A total of 767 sherds including 134 rimsherds from various collections were examined and a minimum vessel count of 131 was established. As the majority of the vessels have been classified as Naples or Hummel Stamped, they will be described through the use of Brown's (1964, p.111) Table II.
**Ware and Type Distributions in a Series of 102 Rimsherds**  
**Representing the Minimal Number of Vessels**  
**From the Goodall Site**

### Havana Ware (100 rims)
- **Naples Stamped (98 rims)**
  - Dentate Variety or Hummel Stamped (91 rims)
    - 78 Dentate stamped (vertical) on the upper rim border, including:
      - 4 with lower bounding line,
      - 2 without lower bounding line,
      - 2 with double dentate row, and
      - 2 with stamps slanting diagonally to the left
    - 2 Dentate stamped (vertical) on the upper rim border, with bosses
    - 6 Dentate stamped (vertical) on the lower rim
    - 2 Dentate stamped on the lower rim border, with bosses
    - 3 Undecorated (small sherds, possibly stamped on the lower border)
  - Plain Variety (3 rims), plain vertical stamp, lower border
  - Punctate Variety (1 rim), reed stamped, vertical rows (dia. 7mm.) on upper border, with bosses
  - Cord-wrapped Stick Variety (3 rims)
    - 1 Cord-wrapped stick stamped on upper border, single row with lower bounding line
    - 1 Cord-wrapped stick stamped on upper border, double row
    - 1 Cord-wrapped stick stamp used as outer lip notch, with bosses

### Havana Ware other than Naples Stamped (2 rims)
- Trailed line, slanting to left, and upper rim border (1 rim)
- Cordmarked, small and undecorated (1 rim)

### Hopewell Ware and Unclassified (2 rims)
- Brangenburg Plain (1 rim), T-shaped and grog-tempered
- Other (1 rim), with band of vertically incised lines on the upper rim, bordered with hemiconical punctates impressed from the left, tempered with fine grit

### Other vessels from the Goodall site can be described as:

**Vessel 1**  
(Figure 84a)  
This grit-tempered vessel is missing the lip and upper, interior rim surface. The rim is straight and vertical with a thickness of 8 mm. The form of the vessel is probably that of a straight-walled jar with a semiconoidal base.

The upper rim is decorated with an approximately 3.5 cm wide band bounded on the bottom by a horizontal incised line. Within the band are vertical and parallel, fine-toothed, linear dentate stamp impressions. There are bosses occurring
within the stamped area and are spaced 2.5 cm apart. Beneath this is a band containing a horizontal row of paired, square punctates spaced 2 cm apart. This band is 2.5 cm wide and is bounded on the bottom by an incised line. The body decoration consists of curvilinear zones defined by paired incised lines and alternatingly filled with vertical and parallel linear dentate stampings or left plain.

Type: Havana Zoned Dentate.

This vessel is tempered with large quantities of white grit. The lip is square. The rim is straight and vertical with a thickness of 7 mm. The form of the vessel is that of a straight-walled jar with a semiconoidal base.

The decorations consist of the notching, at 1.3 cm intervals, of the interior edge of the lip with a small, round tool. The upper rim is decorated with a 2 cm wide band. This band contains widely spaced, vertical and parallel linear dentate stamp impressions. Within this band and 1.3 cm from the lip is a row of 7 mm diameter bosses. The band is bounded on the bottom by a horizontal incised line. Beneath this is a 2 cm wide plain band which is bounded on the bottom by an incised line. This is followed by a 6.7 cm wide band that contains
oblique to the left, incised lines going halfway around the vessel and oblique to the right, incised lines continuing for the remainder of the circumference. This left two triangular areas on opposite sides of the vessel that were filled with horizontal and parallel linear dentate stamp impressions. This band was bounded on the bottom with an incised line and the base of the vessel was undecorated.

Type: Havana Zoned Dentate.

Vessel 3
(Figure 86b)

This vessel is tempered with large quantities of white grit. The lip is square. The rim is straight and vertical with a thickness of 1 cm. The interior lip is notched with round tool impressions spaced 8 mm apart. The exterior rim is decorated with vertical cordwrapped stick impressions.

Type: Naples Stamped, variety cordwrapped stick.

Vessel 4
(Figure 86a)

This grit-tempered vessel has a square lip. The rim is slightly cambered. The upper rim is decorated with oblique to the right, paired, fine cordwrapped stick impressions. Under casual observation, this appears to be a single impression. The upper rim is bounded by a 4 mm wide, interrupted, horizontal line. The interior lip has irregularly-
spaced, round notches.

Probable Related Type: Naples Stamped, variety cordwrapped stick.

Vessel 5
(Figure 84b)

This vessel is tempered with large quantities of white grit. The lip is flat with an interior bevel. The rim is straight with a thickness of 8 mm. The exterior is decorated with slightly curved, convex to the right, dentate stamp impressions spaced 8 mm apart.

Type: Hummel Stamped.

Vessel 6
(Figure 88a)

This grit-tempered vessel has a square lip. The rim is straight and slightly everted with a thickness of 9 mm. The interior is brushed with cordwrapped stick impressions on the interior lip edge. The same cordwrapped tool was used to decorate the exterior. The impressions are applied at a diagonal from the right and extending 5 cm below the lip.

Type: Naples Stamped, variety cordwrapped stick.

Vessel 7
(Figure 88b)

This grit-tempered vessel has a flat lip with a steep interior bevel. The rim is straight and vertical with a thickness of 1 cm. The upper rim is left plain and bounded on the bottom by a horizontal incised line 3 cm below the lip. Below this are fragmentary cordwrapped stick impressions.
Vessel 8 (Figure 86c)  This fine grit-tempered vessel has a rounded lip with a slight interior slope. The upper rim is straight, vertical and short with a thickness of 9 mm. The lower rim is constricted. There is a row of 7 mm diameter bosses spaced 1.8 cm apart and 1.5 cm below the lip.

Vessel 9 (Figure 89c)  This vessel is tempered with large quantities of decomposed granite. The lip is flat with an exterior bevel. The rim is straight and vertical with a thickness of 9 mm. The exterior is corded with the impressions vertical to the lip. The lip is incised. The interior rim is decorated with oblique to the right, incised lines extending 2 cm below the lip.

Vessel 10 (Figure 85a)  This vessel is tempered with fine grit with a possible small amount of limestone. The lip is flat with a bevel to the exterior. The rim is straight and vertical with a thickness of 1 cm. The lip surface is lightly corded and impressed with large hemiconical punctates applied from the right and spaced 1.5 cm apart.

Vessel 11 (Figure 85b)  This grit-tempered vessel has a rounded lip. The rim is straight and vertical with a thickness of 1 cm. The exterior surface is malleated with vertical cord impressions. There are two fragmentary
bosses 3 cm apart and 2.7 cm below the lip. Occurring 4 mm below the lip and spaced 1 cm apart is a row of vertical fingernail impressions with the convex to the right.

Probable Related Type: Havana Cordmarked.

Vessel 12
(Figure 87a)

This vessel is tempered with large quantities of white grit. The lip is square with a splaying to the exterior. The rim is straight and vertical with a thickness of 7 mm. A 2 cm wide interior channel occurs 2.5 cm below the lip.

The interior lip is notched. The upper rim is decorated with a band of oblique to the right fine-toothed linear dentate stamp impressions spaced 7 mm apart. The band is bounded on the bottom with a horizontal incised line 2.5 cm below the lip. Below this is a plain 2 cm wide band bounded on the bottom by an incised line. Below this plain band are curvilinear incised lines and the zones are alternatingly filled with vertical, fine linear dentate impressions or left undecorated.

Vessel 13
(Figure 89a)

This grit-tempered vessel has a flat, interior beveled lip. The rim is straight and vertical with a thickness of 9 mm. The lip surface is decorated with diagonal dentate impressions. The exterior
Vessel 14  
(Figure 88c)  
This vessel is tempered with large quantities of white grit. The lip is flat and beveled to the interior. The rim is straight and vertical with a thickness of 8 mm. The decorations consist of vertical to slightly oblique to the left, parallel, large-toothed linear dentate stamp impressions spaced 7 mm apart and extending 2.3 cm below the lip. There is a row of 9 mm diameter bosses occurring 2.7 cm below the lip and spaced 2.7 cm apart.  
Type: Naples Stamped.

Vessel 15  
(Figure 89b)  
This vessel is tempered with large quantities of white grit. The lip is square. The rim is straight and vertical with a thickness of 6 mm. The interior lip is notched with the impressions 1.3 cm apart. The exterior decoration consists of vertical cordwrapped stick impressions extending 3 cm below the lip.  
Type: Naples Stamped, variety cordwrapped stick.

Vessel 16  
(Figure 87b)  
This grit-tempered vessel has a square lip. The rim is straight and vertical with a thickness of 8 mm. The exterior rim is decorated with vertical
and parallel cordwrapped stick impressions extending 4 cm below the lip.

Type: Naples Stamped, variety cordwrapped stick.

Vessel 17 (Figure 94)

This limestone-tempered vessel has a rounded and flattened lip. The rim is straight to slightly everted and has a very slight cambering. The form of the vessel is that of a short-bodied, round-shouldered, round-bottomed, quadrilobate jar. There is a slight constriction in the upper shoulder area. The vessel height is 12 cm and the orifice diameter is 10 cm.

The cambered area is decorated with fine crosshatching and below that at 1.5 cm below the lip is a row of hemiconical punctates applied from the left and spaced 5 mm apart. The body decoration consists of curvilinear zones which were either left empty or filled with closely spaced dentate rocker stamping. The pattern is repeated on each lobe. The body decoration is bounded at the top by a horizontal incised line 3.7 cm below the lip. Parts of the surface show burnishing.

Type: Hopewell Zoned Dentate.

Vessels 1 - 17 are curated by the Grand Rapids Public Museum.
Vessel 18  
(Figure 90a)  
The information for this description was provided by Quimby(1941a, p.124).

This grit-tempered vessel has been flattened. The rim is straight, vertical and quite short with a thickness of 9 mm. The vessel is a short-bodied, round-shouldered jar with a semiconoidal base. The height is 17.7 cm and the orifice is 13 cm in diameter.

The inner lip is notched or impressed with closely spaced, ovoid, and shallow. On the rim is a band of closely spaced, curved dentate stamp impressions with the convex to the right. The band is bounded on the bottom by a horizontal incised line. The body decorations consist of angular and curvilinear zones, either empty or filled with horizontal fine linear dentate stampings. The pattern is repeated twice.

Type: Hopewell Zoned Dentate.

Vessel 19  
(Figure 90b)  
This grit-tempered vessel has a flattened lip. The rim is somewhat short, straight and vertical with a thickness of 8 mm. The vessel is a round-bottomed, round-shouldered, short-bodied jar with a very slight constriction of the upper shoulder area. The height is 16.3 cm and the orifice diameter is 13.4 cm.

The rim is decorated with a 4 cm wide band of
vertical, linear dentate impressions spaced 5 mm apart. The body decoration consists of curvilinear zones which are either left undecorated or filled with horizontal linear dentate stampings. The pattern appears twice.

Type: Havana Zoned Dentate.

This vessel is curated by the Fort St. Joseph Museum, Niles, Michigan.

Vessel 20 (Figure 91)

This grit-tempered vessel has a flattened lip. The rim is quite short and everted with a thickness of 9 mm. The vessel is a short-bodied, round-shouldered jar with a conoidal base and a very slight constriction of the upper shoulder area. The height is 20.1 cm and the diameter of the orifice is 14.5 cm.

The decorations consist of a 1.5 cm wide band on the upper interior rim containing vertical, fine linear dentate stamp impressions spaced 4 mm apart. On the exterior and varying from 4 to 6 cm below the lip is a row of 9 mm diameter bosses spaced 2.5 cm apart on the lower rim. The body decoration exhibits curvilinear zones which are either left undecorated or filled with fine linear dentate stampings. The design alternates and the pattern occurs twice.
This vessel is curated by the Indiana Historical Society, Indianapolis.

Vessel 21
(Not Illustrated)

This description is based upon information provided by Quimby (1941a, p. 125-6).

This grit-tempered vessel has a flattened lip. The rim is straight, vertical and rather short. The vessel is a short-bodied, round-shouldered jar with a semiconoidal base and a very slight constriction in the upper shoulder area.

The rim is decorated with vertical and parallel linear dentate stamp impressions and bounded on the bottom by a rather broad, horizontal incised line. Two more lines of this type occur on the lower rim with the lowest limiting the top of the body decoration. The body is decorated with curvilinear zones which are either left empty or filled with horizontal, linear dentate stampings.

Vessel 22
(Figure 92c)

This grit-tempered vessel has a rounded lip. The rim is slightly cambered. The decorations consist of horizontal brushing applied to the cambered area with a row of hemiconical punctates applied from the right and 9 mm apart occurs 1.4 cm below the lip.
Vessel 23
(Figure 92a)

This grit-tempered vessel has a round and pinched lip. The rim is straight and vertical with a thickness of 7 mm. The rim is decorated with horizontal brushing just below the exterior lip. Occurring 2.3 cm below the lip are vertical and parallel cordwrapped stick impressions.

Vessel 24
(Figure 93)

This grit-tempered vessel has a square to slightly rounded lip. The rim is straight and vertical to slightly everted with a thickness of 6 mm. The vessel body is very globular with four bulbous lobes. The body constricts down to a rounded base which is constructed to resemble one of the lobes. The surface is smoothed to burnished. The height of the vessel is 21 cm and it has an orifice diameter of 18 cm.

The decorations consist of three rows of crescent stamp impressions with the convex to the right and spaced 6 mm apart. These rows cover the entire rim surface. The body decorations exhibit curvilinear zones defined by single or double, 5 mm wide incised lines. The pattern alternates on each lobe. The zones are filled with horizontal and parallel, long narrow-toothed, linear dentate stamp impressions.
Vessel 25  
(Figure 92b)  
This grit-tempered vessel has a square lip with a slight interior bevel. The rim is slightly cambered and is decorated with vertical and parallel incised lines spaced 3 mm apart. Occurring at 1.8 cm below the lip is a single row of hemiconical punctates applied from the left and 6 mm apart.

Vessels 22 - 25 are curated by the Illinois State Museum, Springfield.

The body sherds exhibit a fairly restricted range of variability. Over 50 percent of the sherds have either linear dentate stamp impressions or linear dentate stamp impressions associated with zone lines. An additional 10 percent have incised lines that may be portions of undecorated zones. Plain rocker stamping, dentate rocker stamping and punctation are each represented by less than 2 percent of the assemblage. Burnishing is found in conjunction with linear dentate stamping in many cases. Interior/exterior cordmarked sherds similar to Mushroom Cordmarked are also noted but in an extreme minority.

Miscellaneous Kankakee Vessels

Vessel 1  
(Figure 95a)  
This heavily grit-tempered vessel has a square and slightly thinned lip. The rim is straight and vertical with a thickness of 1.5 cm. The decoration consists of oblique to the left and parallel cord-wrapped stick impressions extending 2 cm below the
DECORATION

A. Punctuation
B. Crosshatching
C. Plain Rocker Stamping
D. Dentate Rocker Stamping
E. Linear Dentate Stamping
F. Cordwrapped Stick Stamping
G. Incised Line
H. Brushing,
I. Bossing
J. Burnishing
K. Red Slip
L. Crescent Stamp
M. Zoning
N. Cord Impression
O. Bar Stamp
P. Tool Impression on Lip
Q. Fingernail Impression

FORM

W. Cambered Rim
X. Interior Beveled Lip
Y. Straight and Vertical Rim
Z. Everted Rim

N = 131

Figure 83 : Percentage of Single Attributes

Goodall Site
Figure 84: Goodall Site Ceramic Vessels
Figure 85: Goodall Site Ceramic Vessels
Figure 86: Goodall Site Ceramic Vessels

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Figure 87: Goodall Site Ceramic Vessels

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Figure 88: Goodall Site Ceramic Vessels

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Figure 90: Goodall Site Ceramic Vessels
Figure 91: Goodall Site Ceramic Vessels
Figure 92: Goodall Site Ceramic Vessels
Figure 93: Goodall Site Ceramic Vessels
Figure 94: Goodall Site Ceramic Vessels
Vessel 2
(Figure 95b)

This grit-tempered vessel has a flat lip with an interior bevel. The rim is straight and slightly everted with a thickness of 1.4 cm. The decoration consists of curved dentate stamp impressions extending 4 cm below the lip.

Probable Related Type: Hummel Stamped.

Vessel 3
(Figure 96b)

This grit-tempered vessel has a rounded and thickened lip. The rim is straight and vertical with a thickness of 8 mm. The interior is mal-leated with horizontal cord impressions. The exterior surface is cord impressed with a slight oblique to the right application except for the upper 1 cm of the rim which was left plain.

Proposed Type: Mushroom Cordmarked.

Vessel 4
(Figure 95c)

This grit-tempered vessel has a square lip. The rim is straight and vertical with a thickness of 8 mm. The decorations consist of rows of horizontal linear dentate stamp impressions on the rim. The exterior surface is covered with a red slip.

Probable Related Type: Naples Stamped, variety cordwrapped stick.

This vessel is from the James Lambert Collection, Kouts, Indiana.
Type: Havana Red Filmed.

Vessels 2 - 4 are from the Harold Kohley Collection of Rensselaer, Indiana.

**Vessel 5**
(Figure 96a)

This grit-tempered vessel has a flat lip with an interior bevel. The rim is straight, high, and vertical with a thickness of 8 mm. The decorations consist of barred ovoid stamp impressions on the interior lip. The entire exterior rim surface is decorated with long, closely spaced almost flat, dentate rocker stamping with the convex towards the lip. Partially obliterating these is a single row of crescent stamps that are 1.5 cm long with the convex to the right and applied 4 to 6 mm apart on the upper rim.

**Vessel 6**
(Figure 96c)

This grit-tempered vessel has a square lip. The rim is straight, vertical and slightly thickened with a thickness that varies from 8 mm to 1 cm. The thickest point occurs 2 cm below the lip. The neck of the vessel is slightly constricted and the exterior surface is brushed with the impressions vertical to the lip.

On the rim are small-toothed dentate rocker stamp impressions with the convex to the right and the base approximately 1.8 cm below the lip. The pressure is greatest at the lip in soft clay and
the impression is very faint towards the base. A single row of hemiconical punctates applied from below and irregularly spaced occur 2 cm below the lip.

Vessel 7
(Figure 96d)

This grit-tempered vessel has a rounded lip with a slight interior slope. The rim is straight and slightly everted. The interior surface is brushed.

The rim is decorated with widely spaced cross-hatching with a single row of very fine punctates beneath and 1.5 cm from the lip. These punctates are 2 - 3 mm apart. Occurring 3 cm below the lip is a single row of hemiconical punctates applied from the right.

Vessels 5 - 7 are from the Robert Nesius Collection, Wheatfield, Indiana.
Figure 95: Miscellaneous Kankakee Ceramic Vessels
Figure 96: Miscellaneous Kankakee Ceramic Vessels

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CHAPTER 4

SUMMARY AND CONCLUSIONS

The object of this investigation has been to define regional variation in ceramic decoration. A severe limiting factor is that temporal controls at many of the sites are very poor. Stratigraphy at most sites is not well defined and, if more than a single phase of Middle Woodland period is represented, it is difficult to separate them. The possibility must also be considered that a single phase of Middle Woodland incorporates a greater variety of ceramic motifs than generally assumed.

In this study, only the Mushroom site and the Goodall site can be seen as having an occupation during a particular Middle Woodland phase intensive enough to be readily identifiable. Although beset with chronological uncertainties, this investigation has brought out information that may be useful in future studies.

Certain attributes have been established as being temporally significant (Table 2). Brushing seems to have started in the Pike-Hopewell phase in Baehr wares (Flanders, 1965, p. 195). Crescent stamping seems to be primarily restricted to the Early Havana phase (Griffin, 1952, p. 104). Other attributes such as the interior notching and/or beveling of the lip and linear dentate stamping decrease as the Middle Woodland period progresses but are not restricted to specific periods (Braun, 1977). While this does not provide cultural
Figure 97: Site Chronology as Derived From Ceramic Attributes
markers as clear as some of the other attributes, they are helpful in restricting the span of time during which the vessels were probably made. A problem with attributes as markers is that an individual potter does not have to use all the attributes available in the decorative repertoire. This could result in certain attributes being found at a site during a specific period of time and totally absent in another, contemporaneous site.

The attributes of plain rocker stamping and dentate rocker stamping are found established within the Havana-Hopewell phase where they are used primarily as a decoration to fill zoned areas. The strokes at this time are also quite short. During the Pike-Hopewell phase, plain and dentate rocker stamping can be found as decoration on any area of the vessel and the strokes have increased in length. The type called Sumnerville Incised, Sumnerville vessels 5, 6 and 7 (Figures 26e, 26b, 26d), which is characterized by fine, horizontal, parallel incised lines on the rim of vessels, and the use of brushing as an external decoration on rims, appears to be an attempt to imitate the pattern created by long-stroked, plain rocker stamping.

While decorative techniques can provide insights into the temporal assignment of ceramic vessels, other methods are under consideration. Braun(1977) has presented evidence that the thickness of the rim of Woodland vessels, measured at a point below the first band of decoration, decreases over time; a trend which he suggests correlates with changes in cooking. Thinner vessel walls increase their thermal conductivity. The greater utilization of starchy seed
food, which require some form of heat-processing to make their starch content fully digestible, parallel the decreasing vessel wall thickness. Braun(1978, p.6) suggests that ceramic changes indicate changes in cooking practices that are related to long-term changes in subsistence practices and diet.

While considering that the vessels are constructed by hand and the thickness of the rim may vary slightly from one portion of the vessel to another, the time placement of a vessel by this criterion, in addition to the assessment of decorative attributes, can be useful. Braun's(1977, p.173) breakdown of rim thickness chronology is as follows:

11-15 mm . . . Early Woodland, pre-200 B.C.
9-11 mm . . . Early Middle Woodland, 200 B.C. - A.D.1
7-9 mm . . . . Hopewell Middle Woodland, A.D.1 - A.D.200
5-7 mm . . . . Terminal Middle Woodland, A.D.200 - A.D.400
4-6 mm . . . . Early Late Woodland, A.D.400 - A.D.600
3-5 mm . . . . Middle Late Woodland, A.D.600 - A.D.800+

In comparing the thickness of the rims in this study that were clearly assignable to specific periods with the values established by Braun, most of the chronological placements were identical. There were some exceptions, such as Miscellaneous Kankakee vessels 1 and 2.

An active participation in the Hopewell Interaction Sphere by the occupants of the Kankakee basin is seen through the presence of copper pan pipes and other copper objects, marine shells and platform pipes(Seeman, 1979). While this particular area of Indiana had no specific, non-consumable commodity such as copper to contribute, it may have acted as a distribution center between the Illinois re-
gion and the occupations in Michigan, especially in the Grand River region.

The width of the band of decoration on the rim decreases in size with the later Middle Woodland periods. The band on an Early Havana vessel, such as Hajek I vessel 5 (Figure 67a), is 3.5 cm wide, whereas, the band on vessel 1 from Summerville (Figure 25b), probably Pike-Hopewell phase, is only 1 cm wide. There is a preference for the use of finer decorative attributes, such as finer punctuation or plain rocker stamping.

The Kankakee has examples of what could be described as Havana-Gone-Wild. Goodall vessel 24 (Figure 93) and Miscellaneous Kankakee vessel 5 (Figure 96a) would be examples of this. Nowhere else in the region have vessels of such complex and cluttered designs been noted. The total appearance is that of a textured surface as individual design elements are lost. Although the two vessels were found over 32 km apart, they appear similar enough in use of attributes to be the creation of the same prehistoric Picasso.

Texturing can also be seen as the filling of zones with closely spaced dentate stamping, punctuation or plain rocker stamping. It is possible that the texturing of areas of a vessel is functional as well as artistic. A roughened surface is easier to handle when either the surface of the vessel or the hands of an individual are slippery, wet or greasy, as from food processing and/or cooking.

Two vessels from the Spoonville site and the Mushroom site also exhibit very strong similarities. Spoonville vessel 5 (Figure 37b) and Mushroom vessel 16 (Figure 11c) are, again, probably the products
of the same artist.

The type Griffin (1952, p.118) calls Hopewell Red Filmed occurs throughout the research area. Griffin categorizes it as "infrequent", but it is found in the majority of the collections examined by this author. The slip is not tightly bonded and is often found flaking from the exterior or interior surface. This is the main distinguishing feature of a slip from natural oxidation that can occur during firing. The color is also slightly darker and more intense than what would occur from other processes. It requires very careful examination to distinguish the slip from oxidation. This type may be more widespread than previously thought but not readily identified.

The interior/exterior cordmarked ceramics, Mushroom Cordmarked and related types, have been found among the ceramic assemblages from many of the sites investigated. It is the author's opinion that these ceramics are firmly entrenched in the Middle Woodland period. The Goodall site as well as the Mushroom site and the Alt I site, where these ceramics occur, have little or no evidence of earlier or later occupations. Therefore, it must be assumed that the association of these cordmarked types with the Middle Woodland ceramics is correct, rather than the product of poor or disturbed stratigraphy.

The proposition that the Middle Woodland occupations of Michigan grow more recent in age the further north one advances, as hypothesized by Quimby (1941b) many years ago, can no longer be considered valid. The consistently early radiocarbon dates for sites exhibiting Havana/Hopewell ceramics in the Grand and Muskegon river basins (see
Appendix II) must be seen as representing an early settlement in Michigan. Flanders (1965, p. 310) states that,

"the Norton complex represents the earliest large-scale Middle Woodland movement into western Michigan from northern Illinois and northwestern Indiana during the first century B.C., a physical migration of people who retained strong ties with the Illinois homeland."

One must also consider the possibility that Havana/Hopewell traits were grafted onto existing Early Woodland cultures. To date, neither theory has been satisfactorily proven.

Analysis of ceramic decorative attributes shows a strong use of linear dentate stamping in the Grand-Muskegon region, heavier than at any other sites with the exception of the Schultz site in the Saginaw area (Fitting, 1972). Since this attribute decreases in frequency with the chronological progression of the Middle Woodland period (Fowler, 1955), it can, therefore, be associated with the earlier periods represented by Naples or Hummel Stamped vessels.

The Grand-Muskegon area may have been the first to receive Havana/Hopewell cultural traits. These traits seem to radiate from this area in western Michigan, extending possibly as far north as the Straits of Mackinaw (McPherron, 1967) and on the south to the Kalamazoo basin.

The initial Havana/Hopewell influences in the St. Joseph River basin appear to have come from the Goodall site. The information, to date, shows the Middle Woodland period to be represented in the middle and upper reaches of the St. Joseph basin. The Marantette site in the upper St. Joseph basin produced a bicymbal earspool; the only other similar occurrence of this item in the research area was
at the Goodall site. In addition, the arrangement and physical setting for the Summerville mounds very closely resembles that of the Goodall site.

In order to delineate style zones, the author first plotted by region (Kankakee and Michigan) the occurrence of attributes present on each vessel. A total of 23 attributes were utilized (Table 4). The results of this single attribute analysis were a fairly uniform distribution over the entire study area. Certain attributes such as crescent and ovoid stamping were restricted to the Kankakee and combing was found only in Michigan.

Paired and triple attribute clusters were then plotted. The joining of attributes were done on a judgemental basis and are listed in Tables 5 and 6. The results of the paired attribute analysis showed a slight clustering and triple attribute analysis provided an even tighter clustering. A level of statistical significance could not be obtained due to factors described in the Introduction, principally differing sample size and lack of control in data recovery.

Based on the evidence provided by the paired and triple attribute clustering, two style zones are proposed (Figure 98). The Goodall style zone is represented by attributes characteristic of Havana styles, i.e., linear dentate stamping, curved dentate stamping, straight and vertical rim shape, interior beveled lip and notching of the interior lip. These attributes occur only minimally in Michigan sites.

The stylistic patterns of the Goodall style zone include stronger and larger design elements arranged in a wider variety of combina-
Figure 98: Map Showing Goodall and Norton-Converse Style Zones
Burnishing over other decorative elements is common. The tooth size of linear dentate stamps is usually quite large. The ceramic decorative traits associated with Havana appear to have been retained for a much longer period of time than previously assumed. While decorative styles of Hopewell and Baehr types are present, they are not widespread and occur infrequently.

### TABLE 4

**Single Attributes**

<table>
<thead>
<tr>
<th>Punctation</th>
<th>Combing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoning</td>
<td>Notching of lip</td>
</tr>
<tr>
<td>Incised line</td>
<td>Bar stamp</td>
</tr>
<tr>
<td>Crosshatching</td>
<td>Crescent stamp</td>
</tr>
<tr>
<td>Bossing</td>
<td>Ovoid stamp</td>
</tr>
<tr>
<td>Burnishing</td>
<td>Plain rocker stamp</td>
</tr>
<tr>
<td>Exterior brushing</td>
<td>Dentate rocker stamp</td>
</tr>
<tr>
<td>Linear dentate stamp</td>
<td>Cambered rim</td>
</tr>
<tr>
<td>Curved dentate stamp</td>
<td>Interior beveled lip</td>
</tr>
<tr>
<td>Red slip</td>
<td>Straight rim</td>
</tr>
<tr>
<td>Fingernail impressions</td>
<td>Everted rim</td>
</tr>
<tr>
<td>Cordmarking</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 5

**Paired Attributes**

- Cambered Rim, Crosshatched
- Brushed
- Burnished
- Dentate rocker stamped
- Bossing
- Plain rocker stamp
- Punctuation
- Incised line
<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punctuation, Hemiconical</td>
<td>Other</td>
</tr>
<tr>
<td>Plain Rocker Stamp, Short stroke</td>
<td>Long stroke</td>
</tr>
<tr>
<td>Dentate Rocker Stamp, Short stroke</td>
<td>Long stroke</td>
</tr>
<tr>
<td></td>
<td>Fine tooth</td>
</tr>
<tr>
<td></td>
<td>Large tooth</td>
</tr>
<tr>
<td>Straight Rim, Interior bevel</td>
<td>Linear dentate stamp</td>
</tr>
<tr>
<td></td>
<td>Curved dentate stamp</td>
</tr>
<tr>
<td></td>
<td>Brushed</td>
</tr>
<tr>
<td></td>
<td>Bossed</td>
</tr>
<tr>
<td></td>
<td>Red Slip</td>
</tr>
<tr>
<td></td>
<td>Crescent stamp</td>
</tr>
<tr>
<td></td>
<td>Incised line</td>
</tr>
<tr>
<td></td>
<td>Notched lip</td>
</tr>
<tr>
<td>Incising, Fine line</td>
<td>Bold line</td>
</tr>
<tr>
<td>Notching, Interior lip</td>
<td>Exterior lip</td>
</tr>
<tr>
<td></td>
<td>Smooth tool</td>
</tr>
<tr>
<td></td>
<td>Ovoid stamp</td>
</tr>
<tr>
<td></td>
<td>Corded tool</td>
</tr>
<tr>
<td>Linear Dentate Stamp, Bossed</td>
<td>Incised line</td>
</tr>
<tr>
<td></td>
<td>Punctuation</td>
</tr>
<tr>
<td>Zoning, Plain rocker stamp</td>
<td>Dentate rocker stamp</td>
</tr>
<tr>
<td></td>
<td>Punctuation</td>
</tr>
<tr>
<td></td>
<td>Plain</td>
</tr>
<tr>
<td></td>
<td>Cord</td>
</tr>
<tr>
<td></td>
<td>Brushed</td>
</tr>
<tr>
<td></td>
<td>Incised line</td>
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<td></td>
<td>Combed</td>
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# TABLE 6

**Tripled Attributes**

<table>
<thead>
<tr>
<th>Cambered Rim, Crosshatched, punctation</th>
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</thead>
<tbody>
<tr>
<td>Plain rocker stamp, punctation</td>
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<tr>
<td>Incised line, punctation</td>
</tr>
<tr>
<td>Dentate rocker stamp, punctation</td>
</tr>
<tr>
<td>Burnished, punctation</td>
</tr>
<tr>
<td>Crosshatched, incised line</td>
</tr>
<tr>
<td>Plain rocker stamp, long stroke</td>
</tr>
<tr>
<td>Dentate rocker stamp, short stroke</td>
</tr>
<tr>
<td>Dentate rocker stamp, incised line</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Straight Rim, Linear dentate stamp, bossed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curved dentate stamp, bossed</td>
</tr>
<tr>
<td>Crescent stamp, linear dentate stamp</td>
</tr>
<tr>
<td>Interior beveled lip, notched lip</td>
</tr>
<tr>
<td>Linear dentate stamp, interior beveled lip</td>
</tr>
<tr>
<td>Curved dentate stamp, interior beveled lip</td>
</tr>
<tr>
<td>Linear dentate stamp, red slip</td>
</tr>
<tr>
<td>Plain rocker stamp, short stroke</td>
</tr>
<tr>
<td>Dentate rocker stamp, short stroke</td>
</tr>
<tr>
<td>Dentate rocker stamp, long stroke</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zoning, Plain rocker stamp, burnished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dentate rocker stamp, burnished</td>
</tr>
<tr>
<td>Linear dentate stamp, burnished</td>
</tr>
<tr>
<td>Cord, burnished</td>
</tr>
<tr>
<td>Plain rocker stamp, short stroke</td>
</tr>
<tr>
<td>Plain rocker stamp, long stroke</td>
</tr>
<tr>
<td>Dentate rocker stamp, short stroke</td>
</tr>
<tr>
<td>Dentate rocker stamp, long stroke</td>
</tr>
<tr>
<td>Incised line, bold line</td>
</tr>
<tr>
<td>Incised line, fine line</td>
</tr>
</tbody>
</table>

The Norton-Converse style zone is represented by attributes characteristic of Hopewell and Baehr styles. These include cambered rims, crosshatched rims, plain and dentate rocker stamping and hemi-conical punctation. Plain rocker stamping is the dominant attribute in this zone. It is used to create the impressions of other types of
other types of decoration such as crosshatching. The effort required to create a crosshatched pattern using a plain rocker stamp is much greater than if incised lines were used. This would indicate a definite preference for that particular tool. Plain rocker stamping is also the dominant tool used at the Schultz site on Green Point ware (Fitting, 1972). The decorative patterns also have a tendency to have been produced using finer tools. Dentate rocker stampings, punctations and incised lines are quite fine in nature and occur widely. The relationship between the two zones are shown in Figure 99.

The concentration of major sites, the number of mound groups and the location of major mound groups (Figure 100), reinforce the breakdown of the research area into two spheres (Figure 98). The Goodall style zone would include the St. Joseph River basin, the Kankakee River basin and parts of the Yellow and Iroquois River basins. The Norton-Converse style zone would include the lower Muskegon River basin, the lower and middle Grand River basin and the lower Kalamazoo River basin.

The area of western Michigan was not as evenly occupied as northwestern Indiana appears to have been. There is an apparent gap in the Havana/Hopewell influence in the area between the St. Joseph River and the Grand River. The only large Middle Woodland site on the lower Kalamazoo River, where intensive surveys have been done, is the Mushroom site (Mangold and Garland, 1979). Kingsley (1978) advances an ecological model to account for the avoidance of the Kalamazoo by Hopewellian people. This investigation has shown that the gap between the Goodall style zone and the Norton-Converse style zone in-
<table>
<thead>
<tr>
<th>TIME</th>
<th>GOODALL SPHERE</th>
<th>NORTON/CONVERSE SPHERE</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
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<td></td>
</tr>
<tr>
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<tr>
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<td>SUMNERSVILLE PHASE</td>
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<tr>
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<td>Pike-Hopewell ceramic traits</td>
<td>MUSHROOM PHASE</td>
</tr>
<tr>
<td>300</td>
<td>GOODALL PHASE</td>
<td></td>
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<tr>
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Figure 99: Relationships Between Goodall and Norton-Converse Style Zones
1. Brown (2)
2. Upp-Wark (12)
3. LaCount (6)
4. Knox (4)
5. Union Hills (11)
6. Goodali (22)
7. Mud Lake (11)
8. Bobinski (3)
9. Moccasin Bluff (1)
10. Summerville (9)
11. Marantette (?)
12. Scott (?)
13. Spoonville (3)
14. Norton (16)
15. Converse (?)
16. Gratten (6)
17. McNeal (1)
18. McAllion (8)
19. Palmeteer (4) / Parsons (?)
20. Brooks (18)
21. Christianne (8)
22. Weise (1)

(1) = Number of Mounds

Figure 100: Map of Mound Groups in the Research Area

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cludes most of the Kalamazoo basin and reinforces the concept of the Kalamazoo as an area basically unfavorable to Hopewellian peoples.
CHAPTER 5

RECOMMENDATIONS FOR FURTHER STUDY

It is disturbing to realize how much of the excavated material and, therefore, the prehistory of the Middle Woodland period remains a jumbled mass of disjointed bits of information. In a time when the wisdom of continued excavation and resultant depletion of the number of remaining prehistoric sites is being seriously questioned, it is appropriate that more energy be devoted to what has already been excavated. Some questions can only be resolved through further excavation, but it would be most desirable if these excavations could be limited and selective. Based upon the author's experiences in preparing this report, the following recommendations are put forth:

1. Eliminate, if possible, the overwhelming number of names used to categorize vessels. In an examination of some of the literature, over 75 Middle Woodland types are described. These are just the major type groupings and do not include the varieties associated with them. Parameters should be established to define the range of variation that may occur in a vessel and still be accepted as an example of a previously defined type. Many types are very similar and are separated by only slight variations, such as Steuben Punctated and Montezuma Punctated. It may be possible to reduce the number of types by a thorough re-investigation of the various Middle
Woodland ceramic series.

2. The majority of the Middle Woodland sites examined in this report also exhibited collared vessels among the ceramic assemblage. While these vessels have been thought to be a Late Woodland type (Fitting, 1975), it may be that they are terminal Middle Woodland. The Brems site in Starke County, Indiana, which has both Havana traits and small-collared vessels, has been dated at A.D. 555 (Bettarel and Smith, 1973, p. 152). The "step" in design from a cambered rim to a collared one is small. Many of these collared vessels also exhibited tool impressions on the interior lip similar to Middle Woodland vessels. While difficult to prove at this time, the assessment of collared vessels as pertaining to a late Middle Woodland time period should be considered.

3. Prehistoric clay sources should be located and their clays subjected to trace element analysis. The "fingerprint" then obtained from the clay can be used to identify the clay source for various ceramic vessels. We would then be able to single out imported vessels from those made locally. Middle Woodland vessels from mounds in western Michigan have been declared to be imported vessels because their decorations are too well executed to have been produced locally (Quimby, 1943, p. 546). If the clay, after analysis, proved to be of local derivation, the artisan was probably a local resident, possibly adding credence to a physical migration of peoples from Illinois.

Any attempt to establish local patterns in ceramics and cera-
mic decorations requires some method of defining these regions. An objective of this investigation has been to break down northwestern Indiana and western Michigan into smaller decorative zones. To some extent, this objective has been achieved, however, the problem of imported wares is difficult to treat. The ability to establish sources of vessel manufacture would be a major step forward. Barbara Luedtke (1976) has done similar work with lithic sources and the importance of such research on clay sources cannot be overemphasized.

4. The wide dispersion of excavated materials makes research difficult. For example, in order to see materials from the Goodall site, travel throughout Michigan, Indiana, and Illinois was necessary. Only two vessels from the Goodall site remain in the state of Indiana. Although the control by a university over materials it has excavated cannot be disputed, it would make research in an area far easier if the materials could be left in the area of the site. For example, excavated materials from Spoonville can be found at both Grand Valley State Colleges and the University of Michigan, both having undertaken excavations at the site. Grand Valley State Colleges are less than 27 km from the site. Some agreement should be worked out so that the institution closest to the site could have all the excavated material, possibly on permanent loan. For accurate interpretation of the material, it is important that all items be viewed together.

5. The investigation into style zones previously delineated needs to be continued. Comparisons of Middle Woodland ceramic styles
from western Michigan and the Saginaw Bay area are needed. Most of
the material from these areas has been recovered under more ideal con-
ditions than data from the Kankakee basin used in this report. The
Saginaw region also has produced several radiocarbon dates which pro-
vide tighter chronological control over the data.

6. The primary problem that needs to be addressed is the lack
of temporal control. In the entire area covered by this researcher,
only eight radiocarbon dates pertaining to the Middle Woodland per-
id have been obtained (see Appendix II). All the dates are from
Michigan, reflecting the lack of professional excavation in north-
western Indiana.

7. Finally, there is a wealth of archaeological and historical
information that is being neglected. The information that has been
gathered by avocational archaeologists can be invaluable to the pro-
fessional. Few individuals know their regions as well, and most are
eager to share any information they may have in return for a better
understanding of the cultural and chronological placement of their
sites and guidelines for assessing their surface findings. As re-
sidents of specific areas, they can be "watch dogs" for the potential
destruction of sites. The joint efforts of avocational and profes-
sional archaeologists can do nothing but increase the knowledge and
understanding of a region.
APPENDIX I

CERAMIC TYPE DESCRIPTION

Type: Mushroom Cordmarked (N=6)

Paste/temper:

Paste is well compacted, silty clay, tempered with mixed grit; grit is usually fine granitic material including quartz and feldspar with 1 mm to 7 mm particles of angular hornblende. Variations in amount of temper, consistency of paste, hardness and color is marked.

Texture:

Hard and compact.

Construction:

Coiling with marked tendency for breakage along coils; convex coil surfaces exhibit scoring used in securing one coil to another; coils average 6 mm to 1.2 cm in diameter; poorly scraped; interior and exterior surfaces coated with a 1 mm thick slip of a different clay composition prior to vessel clay reaching leather hardness. The thickness of the walls is reduced an average of 3 mm at the lip. This thinning commences 7.5 mm below the lip.
Surface finish:

Exterior: Cordmarked with fine, tightly twisted cordage applied vertically or slightly oblique to the lip. Cordmarking well defined and carefully applied.

Interior: Cordmarked with fine, tightly twisted cordage applied horizontal or oblique to the lip with occasional obliteration.

Lip: Cordmarked (N=5) or smoothed (N=1).

Decoration:

Exterior punctation (N=1) and incised line (N=1).

Form:

Rim: Modal cross-section is straight; orientation is vertical; orifice diameter ranges from 18 cm to 21 cm.

Lip: Square to slightly rounded or beveled to the exterior. Modal shape is square (N=4).

Body: Straight-walled; no shoulder.

Base: Unknown

Geographical Range:

Muskegon River basin, Michigan, south to Kankakee River basin, Indiana; also, Saginaw Bay area of Michigan.
Chronological Position:

Late Middle Woodland, ca. A.D. 150 to A.D. 400.

References:

### APPENDIX II

**MICHIGAN RADIOCARBON CHRONOLOGY FOR MIDDLE WOODLAND**  
*(after Fitting, 1975, p.240-41)*

<table>
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<tr>
<th>Date</th>
<th>Site</th>
<th>Lab. No.</th>
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<td>80 B.C. + 140</td>
<td>Schumaker Mound, Newaygo County</td>
<td>M-1983(XIII)</td>
</tr>
<tr>
<td>10 B.C. + 120</td>
<td>Norton Mound C, Kent County</td>
<td>M-1493(XI)</td>
</tr>
<tr>
<td>10 B.C. + 140</td>
<td>Palmiteer Mound, Newaygo County</td>
<td>M-1985(XII)</td>
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<td>A.D. 100 + 100</td>
<td>Norton Mound H, Kent County</td>
<td>M-1490(XI)</td>
</tr>
<tr>
<td>A.D. 110 - 120</td>
<td>Spoonville Site, Ottawa County</td>
<td>M-1428(IX)</td>
</tr>
<tr>
<td>A.D. 160 + 120</td>
<td>Norton Mound H, Kent County</td>
<td>M-1488(XI)</td>
</tr>
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<td>A.D. 215 + 110</td>
<td>Spoonville Site, Ottawa County</td>
<td>M-1427(IX)</td>
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<tr>
<td>A.D. 295 + 65</td>
<td>Mushroom Site, Allegan County</td>
<td>UGa 3427</td>
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*The Roman numeral in parenthesis following the laboratory number refers to the group of University of Michigan Radiocarbon Dates with which the particular date was published.*

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