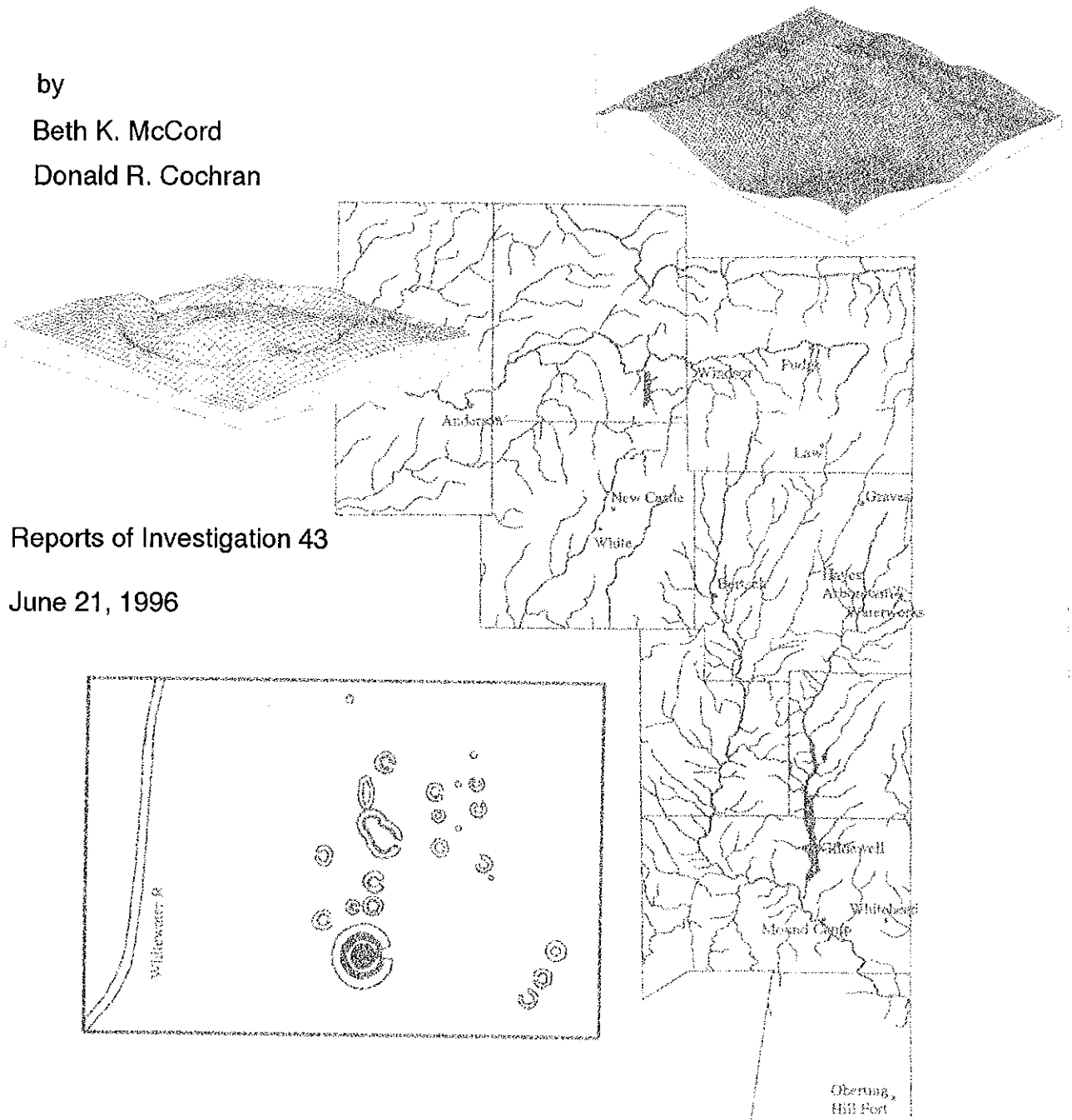
WOODLAND SITES IN EAST CENTRAL INDIANA:
A SURVEY AND EVALUATION

by
Beth K. McCord
Donald R. Cochran



Reports of Investigation 43

June 21, 1996

Archaeological Resources Management Service
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This project would not have been possible without the assistance of the many landowners who so generously allowed access to their property. We are truly grateful for their interest and enthusiasm for these sites.

The members of the Upper White River Archaeological Society have long been interested in Woodland sites in east central Indiana. Members have donated time and effort over several years in recording collections, documenting sites, restoring mounds, discussing and sharing their passion for Indiana archaeology. In general they have provided inspiration for the continued documentation and interpretation of the archaeology of the region. Special thanks to Bill Deilkes, Pat Ray, Rowana Foster, Larry Perkins, and all the other members.

Mr. James Keesling graciously allowed us to document the artifacts from the Law site and shared his knowledge of regional archaeology.

John Waldron contacted landowners, surveyed sites, filled out site forms and documented the astronomical alignments. Mike Angst carried out much of the preliminary work on the project. Eric Scuoteguazza wrote the Ray site testing report. Field crew for the project included Joe Schmidt, Chris Villemez, and Tiffany Webb. Amanda Yonally created the database for the earthworks. Angie Rittenhouse drew the map of the Birch site. Karla Carmichael kept the office running smoothly. Ms. Lola Miller of Contracts and Grants had the onerous task of once again efficiently handling the grant accounting.

The following individuals and institutions helped track down site information:

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Abstract

A survey and planning grant project was proposed by the Archaeological Resources Management Service to conduct an inventory of Woodland earthworks in east central Indiana. The inventory would be used to update the documentation of the sites and determine their survival rate. Four sites were proposed for testing and a review of regional habitation sites would be undertaken to develop a model of Woodland settlement in the region. The inventory documented 295 earthworks within the project area. Most of these sites appear to have been destroyed and fewer than 88 appear likely to exist. Testing of the Woodland habitation and ceremonial sites was impeded by a lack of landowner authorization and inclement weather, but one habitation, the Ray site, was partially tested. A model for Woodland habitation in the region indicates that sites should occur in the flood plain. It is hypothesized that the earlier Woodland sites are buried and not visible on the surface. In general the project was successful in documenting the wealth of information on Woodland settlement in the region.

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INTRODUCTION

The Archaeological Resources Management Service (ARMS), Ball State University, was awarded a Survey and Planning Grant to document Woodland sites in east central Indiana by the Division of Historic Preservation and Archaeology of the Indiana Department of Natural Resources. The project was developed in response to recent surveys of Brookville Lake in Fayette and Union counties (Kolbea 1992), Fayette County (Angst 1994), and Dearborn County (Parish and McCord 1995). These surveys discovered that reported earthwork sites had not been systematically investigated since they were first reported in the literature. Therefore, some of these sites had not been documented since the late 1800's. Since these sites were all potentially significant and seriously threatened, documenting them was considered very important. In addition, in order to address the debate about whether the large Hopewell ceremonial centers were occupied or empty, the Fudge site and the Graves earthwork were proposed for systematic survey and limited testing. Two habitation sites with Woodland components were also scheduled for testing in an attempt to add information on Early and Middle Woodland habitation sites in the region. Information is lacking on Early and Middle Woodland habitation sites (Swartz 1971, Kellar 1983).

The project focused on answering the following three research questions:

1. What is the distribution, content, and age of Woodland mound and enclosure sites within the region?

2. Are the large ceremonial centers at Fudge (12-R-10) and Graves (12-Wy-39) "empty" or do they show evidence of internal use?

3. Where are Woodland habitation sites in the region and why are they so rare?

The proposed project goals were:

1. Create a catalog of all reported earthwork sites within the study area.

2. Investigate a sample of the earthwork sites to document the condition and significance of the sites and create a predictive model.

3. Test 2 Woodland habitation sites in an effort to create a locational model for Early and Middle Woodland habitation sites.

4. Systematically survey the 2 large ceremonial centers and testing the embankment of Fudge.

5. Conduct collector interviews.

STUDY METHODOLOGY

The project was completed through extensive literature and site file review, and field reconnaissance of a sample of earthwork sites. The survey and test excavations proposed for Fudge and Graves were not conducted due to abnormally wet weather and the lack of landowner permission. One of the Woodland habitation sites, the Ray site, was partially tested, but landowner permission could not be obtained for the other proposed site.

Literature Review

A review of the literature on the natural setting and recorded earthwork sites in the Whitewater and Upper White River drainage was undertaken to establish the background for the project. This research utilized soil surveys, historical documents and other sources containing information on flora and fauna for the natural setting. Archaeological information was obtained from archaeological survey reports, site forms, site reports, theses and other historical materials.

The research materials were complied mainly from sources located at the Archaeological Resources Management Service (ARMS) and Bracken Library on the Ball State campus. Additional sources were obtained through interlibrary loan and private individuals.

Collector Interviews

Collector interviews were conducted with individuals who had collections from mounds or knew of earthwork locations and members of the Upper White River Archaeological Society (UWRAS) for information on Woodland habitation sites.. Unfortunately, only one collection from a mound was documented. The collection was photographed. Considerable information was documented by UWRAS members and has been incorporated into the section on Woodland settlement.

Survey Methods

After the literature review, a complete catalog of all the reported mound and enclosure sites was compiled. The goal of this grant was to investigate a 25% sample of reported earthwork sites. The sample was stratified by county, to represent the entire study unit.

The sample was selected by first choosing a 20% sample from each county from random number tables. After completing this list, the entire county was examined and a 5% sample was chosen at the author's discretion. While this approach may be viewed as biasing the sample, it was used in an effort to represent unique sites which would not otherwise have been selected. In addition to the 25% sample, a further 10% sample was selected by random number tables. This additional sample was taken to fill in for sites where landowner permission was denied. While selecting the sample, all fractions were rounded to the next

whole number. A 25% sample of all reported earthworks would have been 74 sites; due to the rounding of fractions, 81 sites were actually to be sampled.

While efforts were taken to have a random sample, this could not be maintained, due to the disappointing lack of landowner permission. In many cases, a 25% sample for a county could not be obtained through the methods described above. Therefore, to achieve a 25% sample, sites that ARMS had previous knowledge of were sometimes used. The 25% sample of sites, while stratified by county, became a grab sample.

Locating landowners and obtaining permission was more difficult than had been anticipated. Using the recorded locations of mounds obtained from the literature review, a search of landowners was undertaken at the county seat of each county in the project area. Following this, letters explaining the project goals and objectives were sent to the identified landowners with a self addressed post card enclosed for their response. Many landowners asked for additional information about the project and these were followed with a phone call to address their concerns and to provide information.

The investigation of the earthwork sites was generally conducted by a two-person crew. The area where the site was reported was walked looking for any evidence of an earthwork. If the site was found, photographs were taken, the dimensions were measured and comments about the site's condition were made.

Excavation Methods

Only one site of the four proposed was partially tested during the project. A description of the field methods used at the Ray site is in Appendix C.

Laboratory Methods

Artifacts collected during the project were taken to the ARMS lab. The artifacts were cleaned, identified and catalogued. Classification of prehistoric artifacts was based on the standardized system used by ARMS. Point types were identified using Justice (1987) and other sources. Raw materials were identified for all lithic material. Metrical attributes were recorded for all points and ground stone.

Level records and feature forms from the test excavations were verified and maps were redrawn.

All material generated from this project was given accession # 96.8. All documentation and artifacts were curated at ARMS unless the artifacts were returned to the landowners.

NATURAL SETTING

Location

The study area encompasses portions of the Whitewater River and Upper White River drainage (Kingsbury 1970:18). Specifically the area includes all or portions of the following counties: Madison, Delaware, Randolph, Wayne, Henry, Fayette, Union, Franklin and Dearborn (Figure 1). The study area encompasses approximately 1,828,000 acres (Nickell 1981, Blank 1987, Schermerhorn 1967, Neely 1987, Hillis and Neely 1987, Shively 1989, Huffman 1972). Other counties in the Upper White and Whitewater drainage contained very few or no earthworks and were not included in this study. A few sites from the Upper Wabash River drainage located in Randolph and Delaware counties were included since it was more convenient to record sites from the whole county then to separate them by drainage basin. The study area, therefore, contains the concentration of earthwork sites in east central Indiana.

Geology

The study area lies within the geologic structural feature known as the Cincinnati Arch (Gutschick 1966:17) (Figure 2). This feature is described as a large, broad and platform-like anticline with its axis to the northwest (DeWitt 1989:19, Schmidt 1990:17). Westward and southwestward from the axis of the arch the rocks dip into the Illinois Basin and northeast and northward on the axis the rocks dip into the Michigan Basin (Gutschick 1966:17).

On the Cincinnati Arch the Paleozoic strata have been stripped away exposing Ordovician rocks south of Richmond, Wayne County, and Silurian rocks on the crest of the Arch along its axis (Gutschick 1966:10) (Figure3). The exposed Ordovician rocks consist of shale, limestone and dolomite and the Silurian rocks consist of dolomite, limestone, chert, siltstone and shale (Gutschick 1966:3). Devonian rocks are also noted as present in Henry County (Schmidt 1990:22). The study unit is contained within portions of the Bluffton Plain, Dearborn Upland, and the Muscatatuck Regional Slope bedrock physiographic units (Schneider 1966:54)(Figure 4).

Chert resources within the study are found in primary sources and secondary sources. Outcrops of Laurel chert have been noted within the study unit in Franklin, Union and Fayette counties (Cantin 1994:22-23, Angst 1994:45, Kolbe 1992a:47). Laurel outcrops are also noted in the surrounding counties of Decatur, Jennings, Bartholomew, Clark, Jefferson, Ripley and Shelby in southeastern Indiana (Cantin 1994:22-23). Outcrops of Jeffersonville chert are noted southwest of the study unit in Jennings and Jefferson counties (Cantin 1994:20-21). An outcrop of Liston Creek chert is identified in Hamilton County west of the study unit (Cree 1991:44) although Liston Creek is more noted from outcrops north of the study unit in Huntington and Wabash counties (Cantin 1994:25).

Secondary sources of chert resources are found in the glacial till. Fall Creek chert has

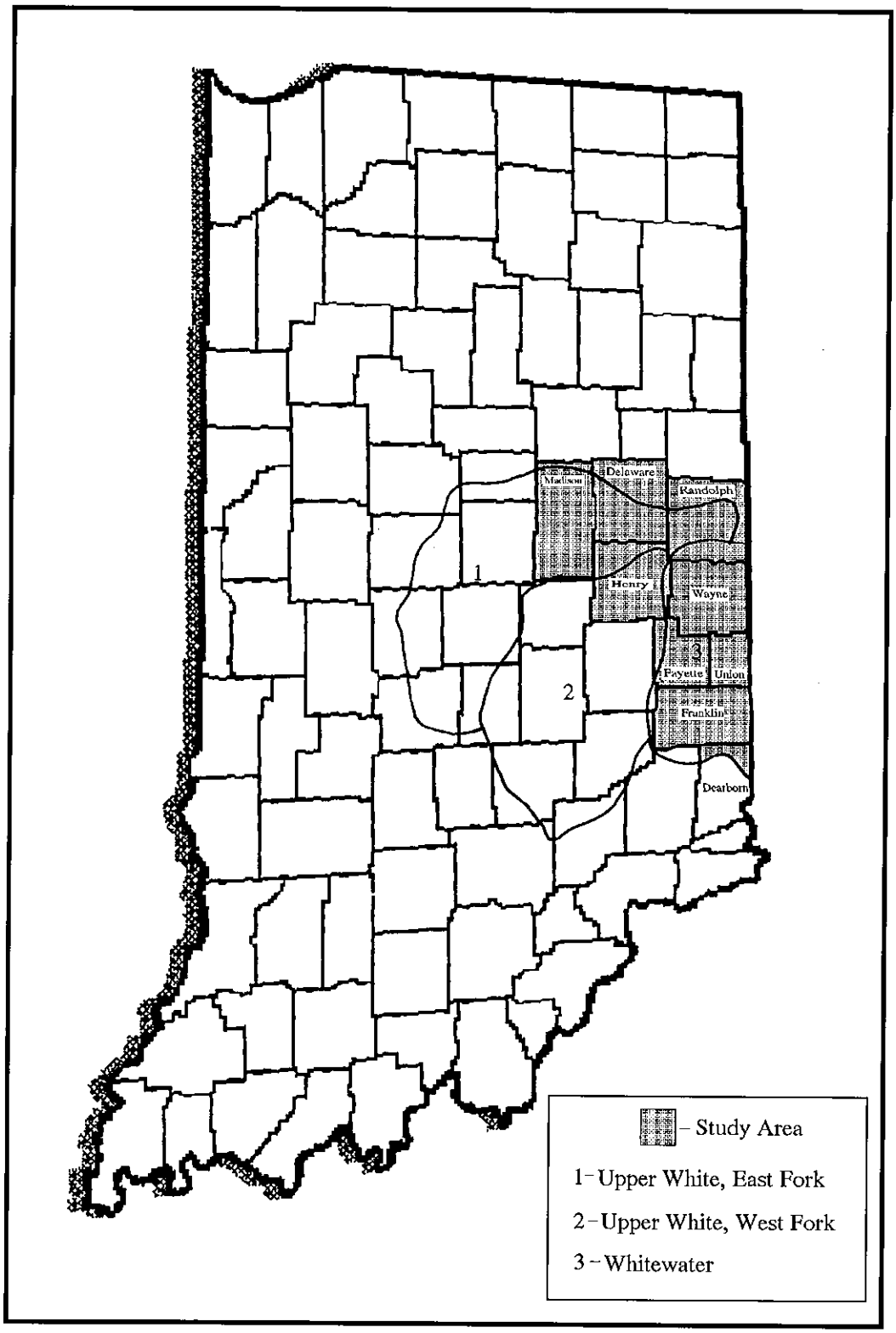


Figure 1. Location of the study area

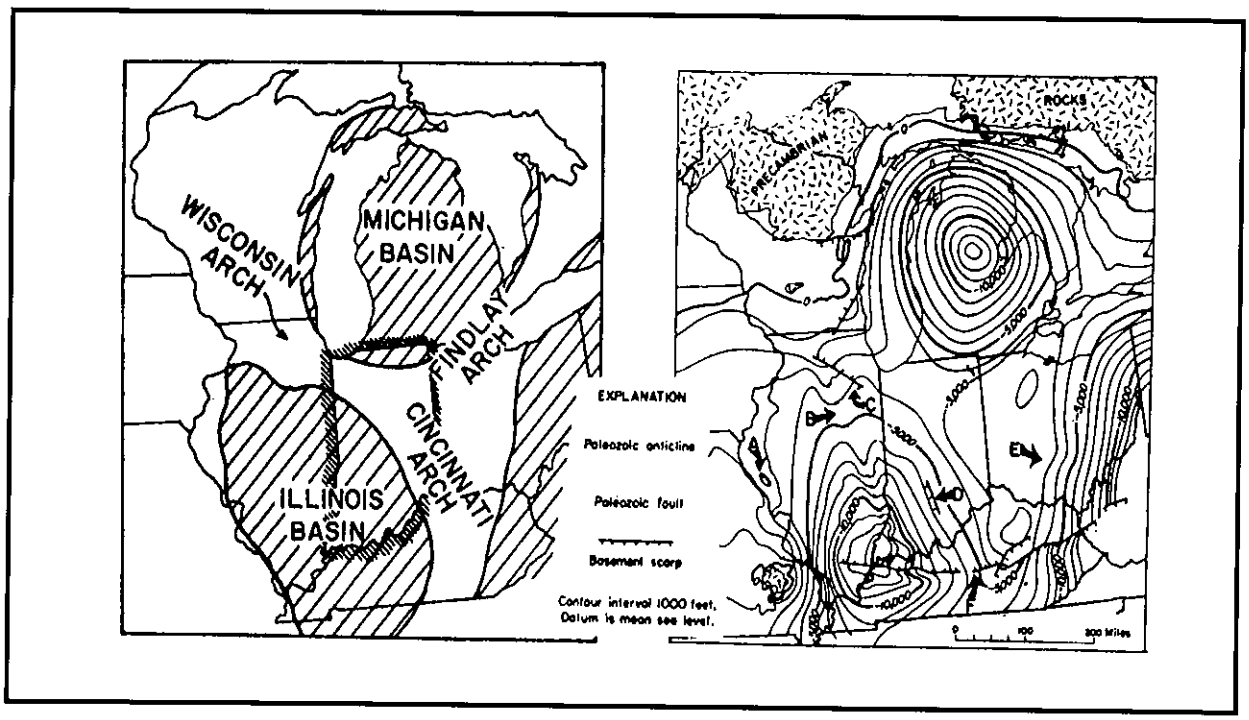


Figure 2. Geologic Structure of the Cincinnati Arch (Gutschick 1966:17).

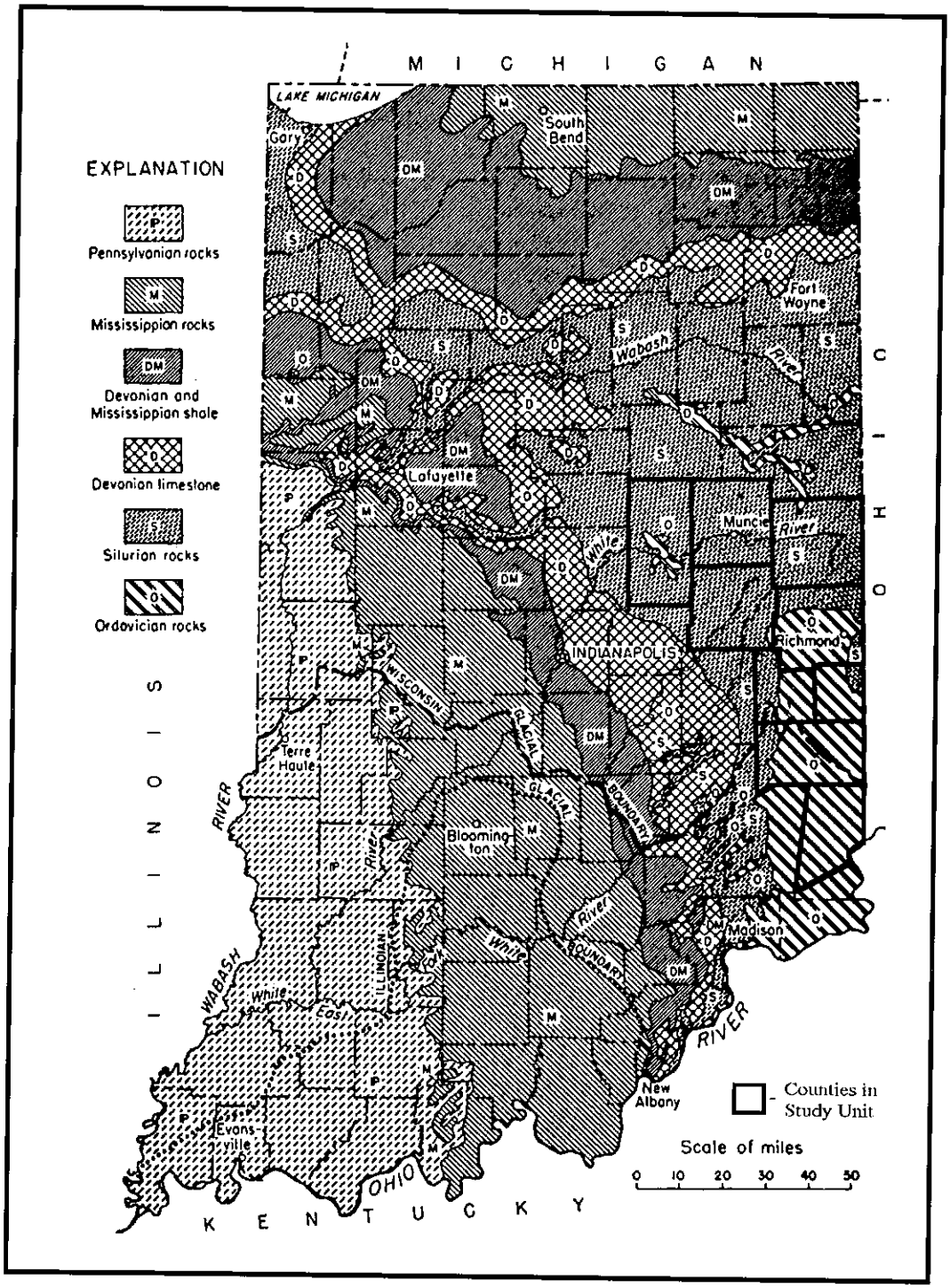


Figure 3. Bedrock geology of the Study Unit (Gutschick 1966:5).

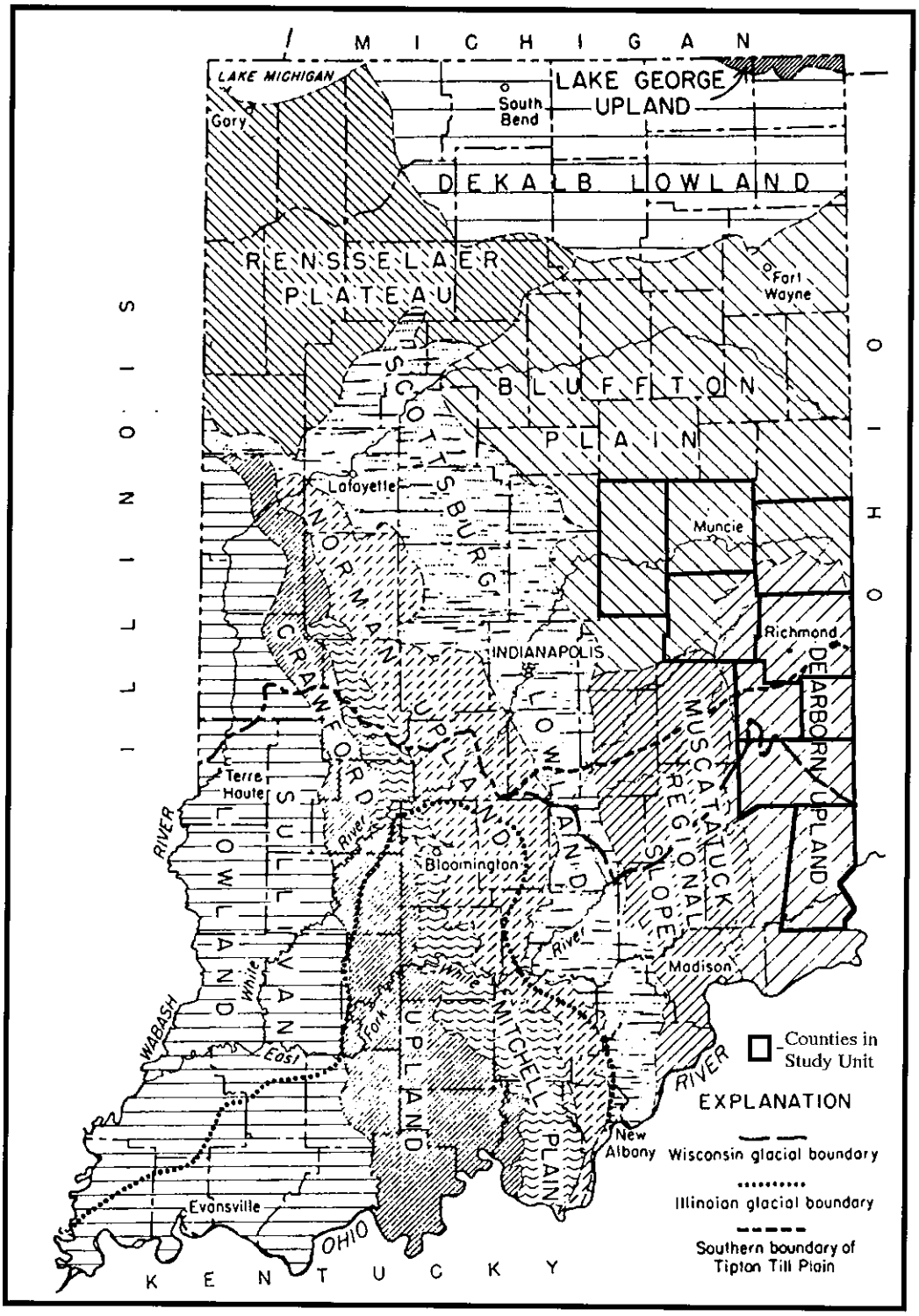


Figure 4. Bedrock physiography of the study unit (Schneider 1966:54).

not been identified in a bedrock source but is very localized in southeastern Hamilton and southwestern Madison counties (Cantin 1994:13). "Gravel cherts account for a significant portion of cherts used in archaeological assemblages" (Cantin 1994:14). Some till cherts are identifiable to known primary types and others are unknown (Cree 1991:44). The majority of chert resources within the study unit are expected to be from secondary sources since few outcrops occur in the area. In Gooding's (1973: 20) study of Wisconsin tills in eastern Indiana, he found that the tills had decreasing amounts of chert and increasing amounts of shale from south to north. The relatively high chert content in the southern tills resulted from the large amount of chert residual weathering from the Laurel Member of the Salamonie Dolomite that outcrops around the Whitewater Basin (Gooding 1973:20).

Glacial History

The Pleistocene Epoch is characterized by great climatic changes and large scale expansions and contractions of glaciers. Portions of Indiana have been covered by glacial ice three times (Wayne 1966). The Kansan ice entered Indiana approximately 400,000 years ago and covered the entire study area filling the valleys with till. Deposits of Kansan till are known as are part of the Jessup Formation (Wayne 1966). The Kansan ice retreated approximately 200,000 years ago and the Yarmouth interglacial period began. During this period intense erosion eroded away nearly all of the Kansan deposits in the study area (DeWitt 1989). The Illinoian ice advanced approximately 125,000 years ago and again covered the entire study area. The materials deposited by the Illinoian ice form the upper section of the Jessup Formation (Wayne 1966). The Illinoian ice retreat approximately 100,000 years ago and the state entered another interglacial period known as the Sangamon which weathered the Illinoian till. The Wisconsin glaciation began approximately 65,000 years ago. The Wisconsin ice covered most of the study unit but not the south central portion of Fayette County, the western or central portions of Franklin County or Dearborn County (Figure 5). The Wisconsin sediments are known as the Trafalgar Formation and the Atherton Formation (Wayne 1966). As the Wisconsin ice retreated another recent interglacial period began.

The ice laid sediments are more definitively delineated by Wayne (1963, 1966) (Figure 6). The Butlerville Till Member of the Jessup Formation is Illinoian in age. Wisconsin sediments consist of the Cartersburg and Center Grove Till Members of the Trafalgar Formation and the outwash and dune facies, and lacustrine facies of the Atherton Formation. The Atherton Formation consists of materials created by the retreat of the Wisconsin ice. The glacial drift in the study area ranges from a few feet up to 450' (Schmidt 1990:33).

Nonglacial sediments of the Martinsville Formation of Recent age are also found in the study area (Wayne 1966). The alluvial facies consists of silt, sand and gravel and is found mainly in floodplains while the paludal facies are deposited in areas of quiet water and consist of the high organic peat, muck and marl (Schmidt 1990).

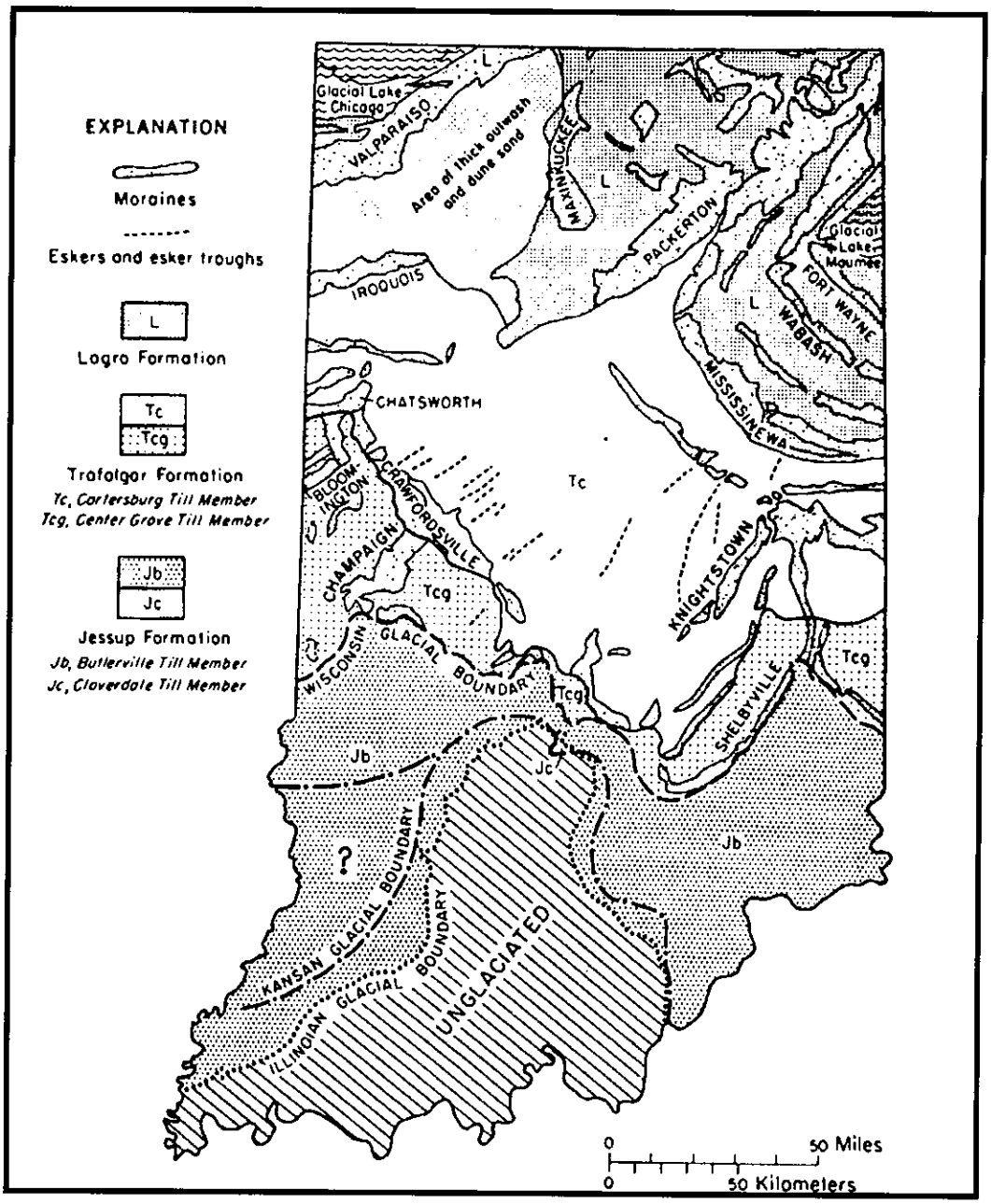


Figure 5. Glaciation of Indiana (Wayne 1966:22).

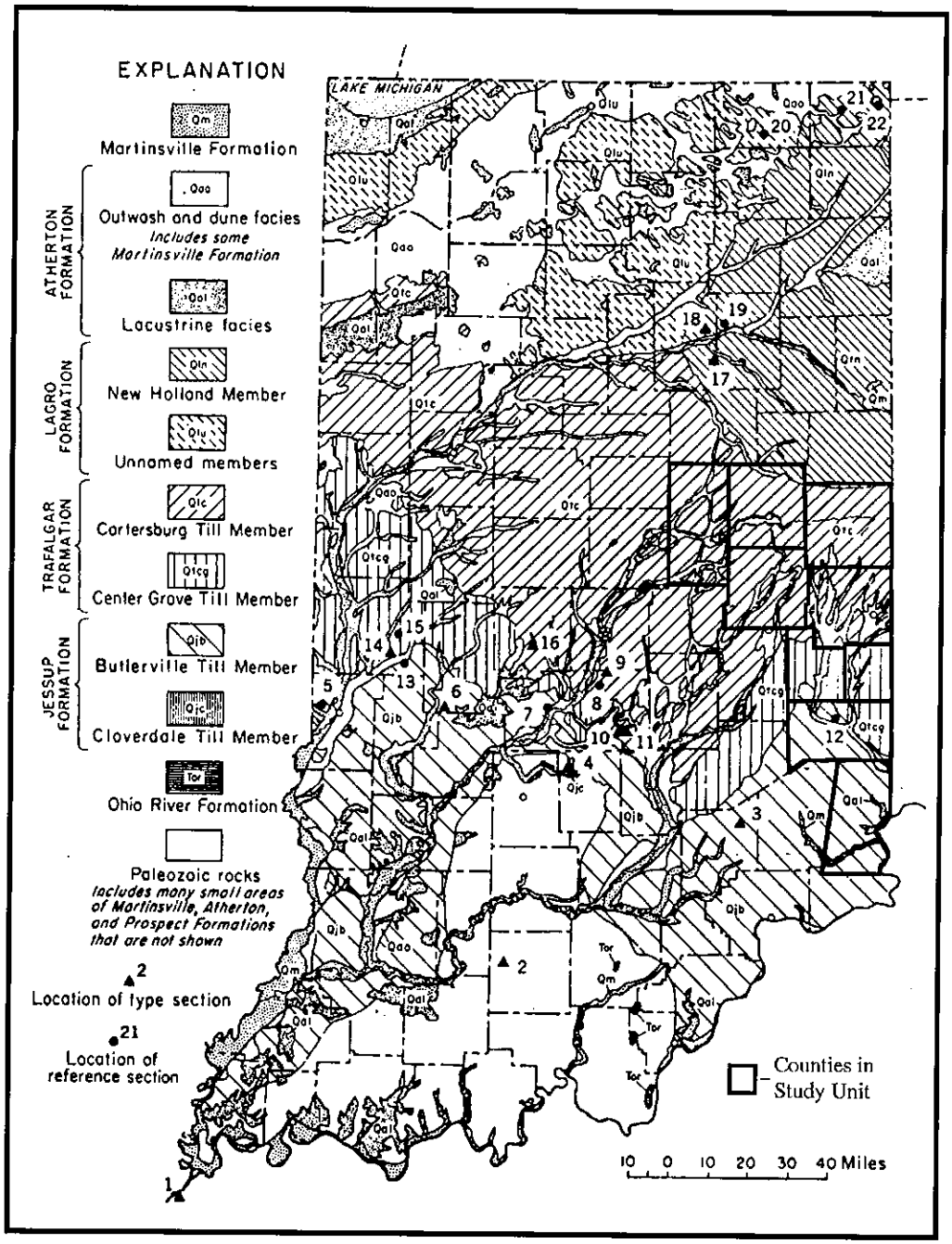


Figure 6. Glacial sediments within the study unit (Wayne 1966:26).

Physiography and Topography

The largest section of the study area is located in the general physiographic unit known as the Tipton Till Plain (Figure 7). The Tipton Till Plain is characteristically a nearly flat ground moraine plain (Malott 1922:105, Schneider 1966:49). The topography is virtually featureless except for the end moraines. Glacial features which provide relief are knolls, basins and ridges of terminal moraines, eskers, kames and fluvio-glacial features (Malott 1922:106). The Tipton Till Plain as a constructional feature of the glaciers was a plain without valleys until the ice began melting and cut broad sluiceways leading southward and southwestward across the plain (Malott 1922:109).

The southern portion of the study unit is located in the Dearborn Upland. The Dearborn Upland is a dissected plateau (Schneider 1966:42). Streams have trenched this upland from 200 to 500 feet below the general upland surface, but much of the upland surface still exists (Malott 1922:84). The area is marked by considerable relief diversity (Malott 1922:84).

A small portion of the Muscatatuck Regional Slope is located in western Fayette County. This area is characterized as a gently sloping plain (Schneider 1966:43). This area merges rather indistinctly into the glacial plain to the north and to the east is the Dearborn Upland (Malott 1922:86).

The highest elevation for the study unit is 1,257 feet above mean sea level near Bethel, Wayne County (Blank 1987:1). This elevation is also the highest elevation recorded in the state. The lowest elevation is approximately 500' feet above mean sea level in West Harrison, Dearborn County (USGS 7.5' Harrison, Indiana Quadrangle).

Drainage

The study unit is located in four drainage basins: the Whitewater; the Upper White, west fork; the Upper White, east fork; and the Upper Wabash (Kingsbury 1970:18) (Figure 8). As previously mentioned, the study is focussed on the Whitewater River and Upper White River drainage and a few sites from the Upper Wabash River drainage located in Randolph and Delaware counties. The main drainages within the study area are the White River, the Whitewater River (east and west forks), Big and Little Blue Rivers, and the Flatrock River. The river and stream valleys in the study unit were largely formed by glacial meltwaters.

The rivers present in the Tipton Till Plain are on a low gradient and form a well developed sub-parallel drainage pattern (Chen 1992:15, Schmidt 1990:7). Most of the stream valleys have been unmodified since the glaciers retreated in the Tipton Till Plain (Malott 1922:109). Many streams do not have much valley development but the tributaries do become entrenched upon their approach to the main valleys (Malott 1922:110).

In the Dearborn Upland in areas of Wisconsin till, the drainage pattern is dendritic and

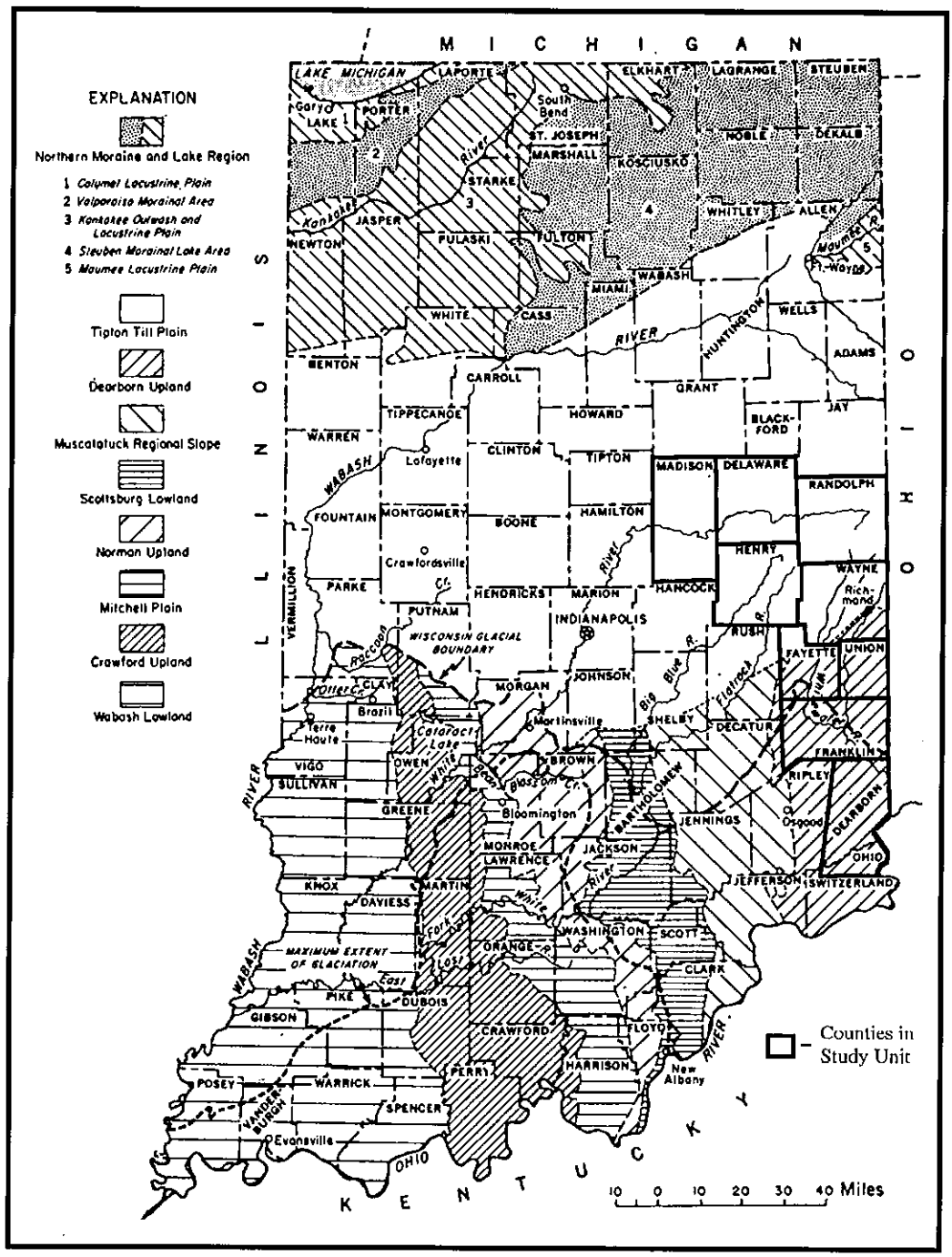


Figure 7. Physiography of the study unit (Schneider 1966:41).

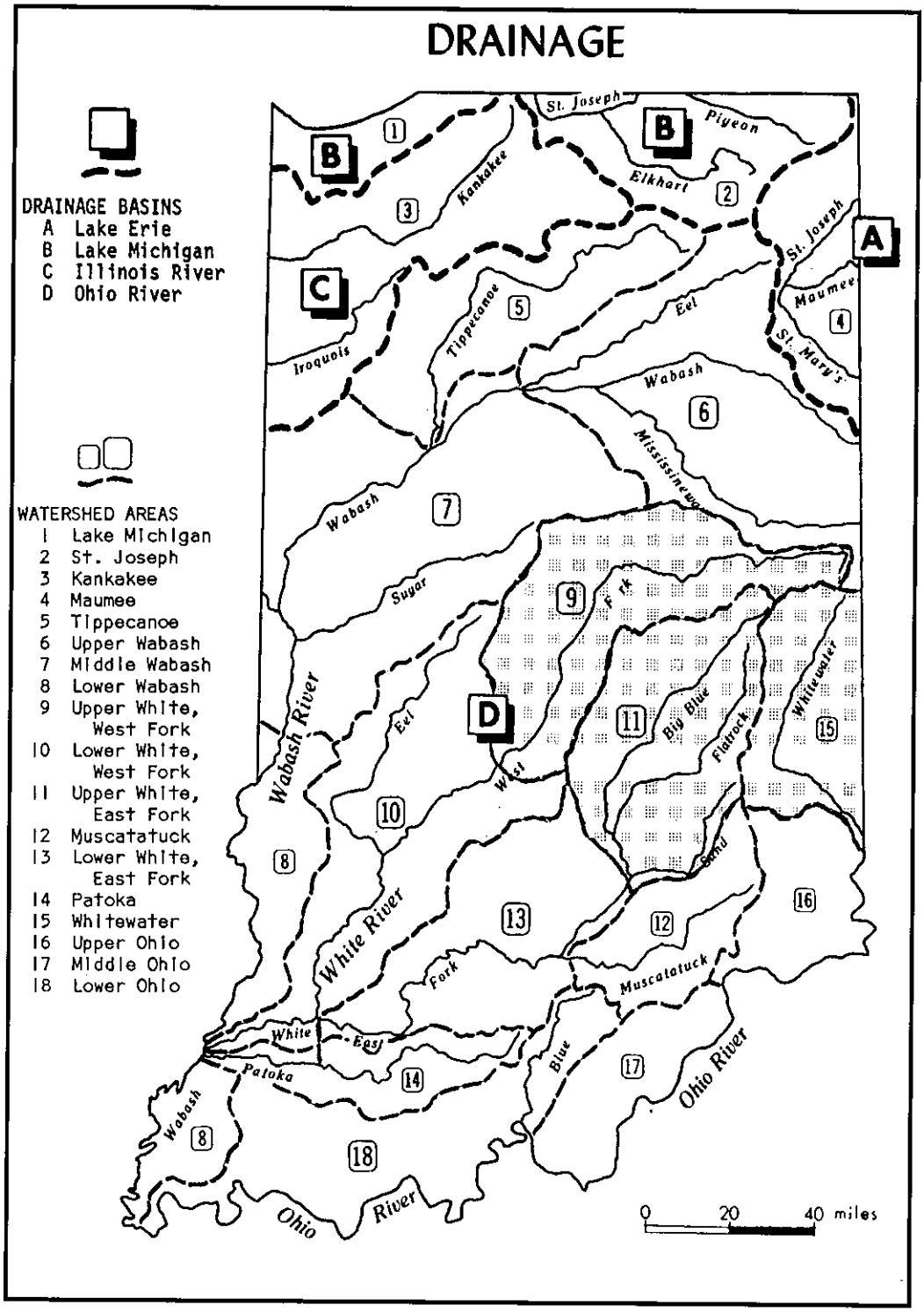


Figure 8. Drainages within the study unit (Kingsbury 1970:18).

in areas of Illionian till highly dissected drainages have dendritic or sub-parallel patterns (DeWitt 1989:10-11). Since most of the streams are short and the fall from upland headwaters is relatively great, the upland plain is deeply trenched (Malott 1922:85). Valley lands are frequently well developed but not very wide, but the Whitewater Valley averages more than a mile in width (Malott 1922:86, DeWitt 1989:11). Terraces of glacial outwash are found along the valley walls of the Whitewater River (Malott 1922:86).

Climate

Indiana is characterized as having a humid, continental climate. The southern half of the state is termed mesothermal meaning a warm temperature climate. The northern half is microthermal meaning a cool temperature climate. The statewide climate is an example of a macro-scale climate. But meso-scale climates also exist within the state in the major river valleys, the shore area around large lakes, and exceedingly high plateau areas. The dominate controlling feature of meso-scale climates is the wind (Newman 1966).

The growing season for the study area is between 150 and 170 days (Newman 1966:172). Individual county records were examined in reference to temperature and precipitation. The average temperature for the study unit in the winter ranges from 27 to 30 degrees Farenheit and the average daily minimum temperature ranges from 19 to 20 degrees. The average temperature in the summer ranges from 71 to 72 degrees and the average daily maximum temperature ranges from 82 to 84 degrees. The total annual precipitation for the study area ranges from 37 to 40 inches (Nickell 1981; Shively 1989; Alfred, Ulrich & Zachary 1960; Blank 1987; Schermerhorn 1967; Neely 1987; Huffman 1972).

Flora

The natural vegetation of the study area ca. 1816 includes 3 types: beech-maple forest, oak-hickory forest and western mesophytic (Figure 9). The beech-maple forest developed from the mesophytic forest as northward postglacial migration occurred. In a beech-maple association beech is usually the dominant canopy tree with sugar maple co-dominate in the canopy and dominating the understory. Other species occurring in beech-maple forests include; black walnut, white oak, burr oak, red oak, tulip poplar, white ash, american elm, slippery elm, cork elm, basswood, black gum, hickory, sassafras, and black cherry. Small tree understory is generally redbud-dogwood-blue beech or dogwood-hop hornbeam. Shrub layers can include pawpaw, spicebush, greenbriar, elderberry, leatherwood, wahoo and maple-leaf viburnum. The most prominent herbaceous representations occur in the spring with rue anemone, jack-in-the-pulpit, spring beauty, cutleaf toothwort, pretty bedstraw, mayapple, false Solomon's seal and wild ginger (Petty and Jackson 1966).

The oak-hickory association is found in balance with both beech-maple and western mesophytic types. The oak-hickory forests are usually found on south-facing and west-facing slopes while beech-maple forests usually occupy north-facing and east-facing slopes. The moisture content of oak-hickory forests is consistently lower than in beech-maple forests. It

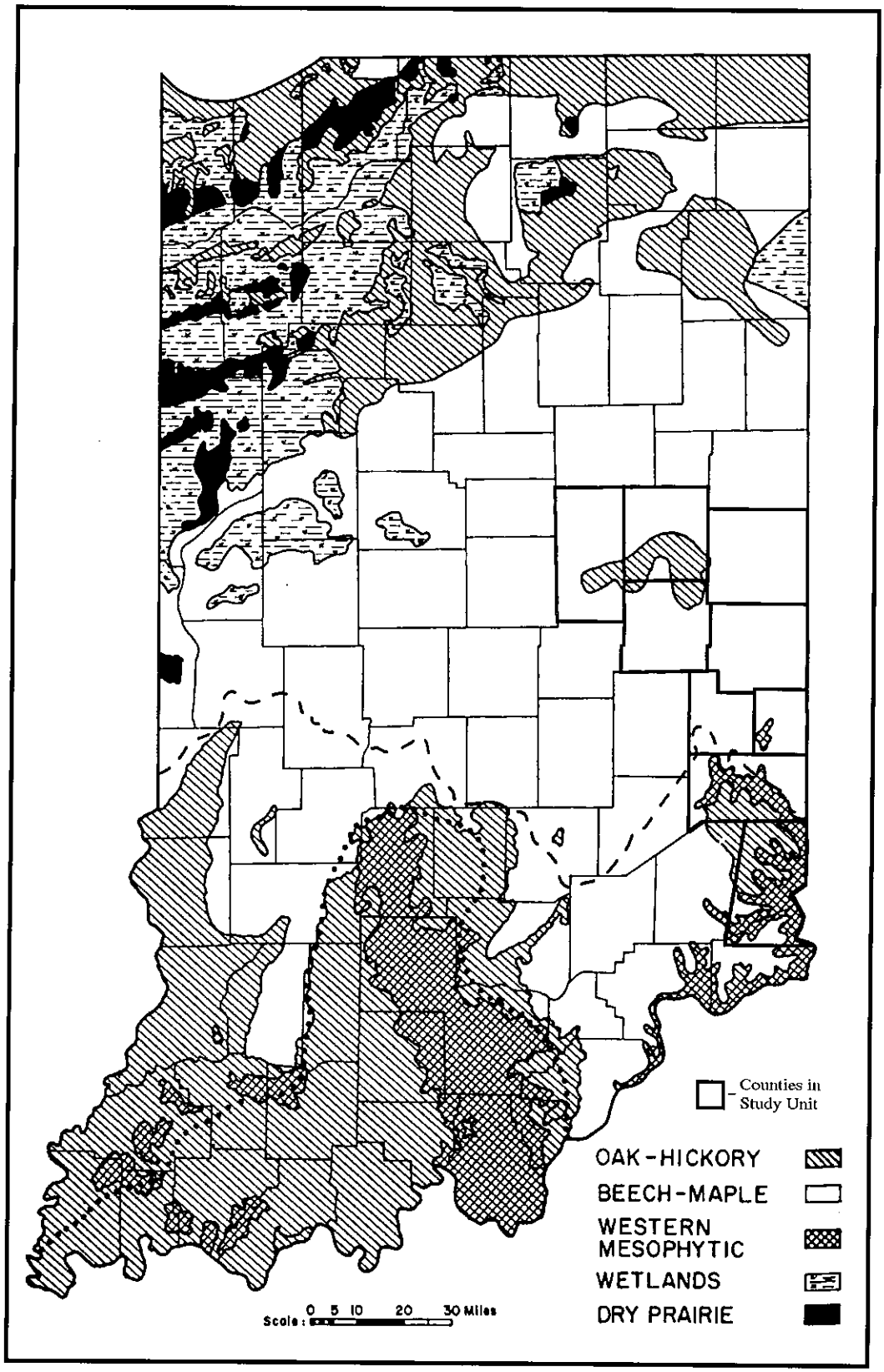


Figure 9. Vegetation within the study unit (Petty and Jackson 1966:280).

appears that the oak-hickory forests at the time of European settlement were undergoing a gradual replacement by more mesic species. The principal species of the oak-hickory association are white oak, black oak, red oak, pignut hickory, shagbark hickory, sugar maple, american beech, white ash, swamp white oak, chinquapin oak, bur oak, mockernut hickory, american elm, slippery elm and black gum. The understory frequently are less well developed than the beech-maple and western mesophytic associations with one or two species such as hop hornbeam, blue beech, service berry or dogwood dominating the layer. The most common herbs present in the oak-hickory associations are pussy-toes, common cinquefoil, wild licorice, tickclover, blue phlox, waterleaf, bloodroot, Joe-pye-weed, woodland asters and goldenrods, wild geranium and bellwort occur in late summer and autumn (Petty and Jackson 1966).

The western mesophytic association is found in the southeastern portion of the study area in Union, Franklin and Dearborn counties. This is a rich, mixed forest in which a great number of species share dominance. In the study unit, the mixed forests have beech as the dominant species along with sugar maple, tulip poplar, white ash, basswood, walnut, white oak, red oak, red elm and black gum. The understory frequently consists of flowering dogwood, redbud and blue beech. Pawpaw, spicebush, greenbriar and leatherwood are common shrubs. The herb layer is prominent, especially in the spring. Typical plants are wake robin, slender toothwort, rock larkspur and twinleaf (Petty and Jackson 1966).

Indiana flora has undergone many changes since the retreat of the glaciers. Table 1 shows a model for the vegetation sequence of east central Indiana. The deciduous forests discussed above are representative of the vegetation during the Woodland period.

Fauna

Several species of Pleistocene megafauna have been recorded in Indiana. The Pleistocene mammals reported include giant sloth, giant beaver, musk-ox, mastodon, mammoth, horse, dire wolf, bison, tapir, Virginia deer, peccary, elk and probably moose, caribou and some form of bear (Moodie 1929:77-96). Richards (1984) has additionally documented moose, caribou, 2 forms of bear, white-tailed deer, Canadian goose, armadillo, jaguar, sabertooth tiger and camel. Several Pleistocene species have been documented in the study area although most refer to mastodons (Quick 1888, Warder 1872, Haymond 1869, Phinney 1882, Helm 1881, Greene 1969).

Man has altered the Indiana environment toward a single type habitat. In the process, many species have moved into new territories or have become restricted or extinct. It was estimated that approximately 66 species of mammals were present in Indiana in 1816. The following species have since been exterminated: Porcupine, gray (timber) wolf, red wolf, black bear, fisher, wolverine, eastern spotted skunk, river otter, mountain lion, lynx, elk, bison and possibly bobcat. Some of the mammals found in all or most Indiana counties include: opossum, short-tailed shrew, least shrew, eastern mole, little brown bat, red bat, hoary bat, evening bat, eastern cottontail, eastern chipmunk, woodchuck, gray squirrel, fox squirrel,

Table 1

Vegetation Sequence of East Central Indiana

AD 2000	Historic	Deciduous Forest
AD 1000	Late Woodland	
0	Middle Woodland	
1000 BC	Early Woodland	
2000 BC	Late Archaic	
3000 BC		
4000 BC	Middle Archaic	
5000 BC		Praires and Open Vegetation
6000 BC		
7000 BC	Early Archaic/ Late Paleo-Indian	Decidous Forest
8000 BC		
9000 BC	Early Paleo-Indian	Pine Maximum
10,000 BC		Connifer-Deciduous Woodland
11,000 BC		
12,000 BC		Boreal Forest
13,000 BC		Park Tundra
		Tundra or Open Areas
14,000 BC		Periglacial Zone
15,000 BC		Wisconsin Ice

southern flying squirrel, beaver, deer mouse, white-footed mouse, meadow vile, pine vole, muskrat, southern bog lemming, Norway rat, house mouse, meadow jumping mouse, coyote, red fox, gray fox, raccoon, long-tailed weasel, mink, striped skunk, and white-tailed deer. Beaver and white-tailed deer were once extirpated and reintroduced (Mumford 1966:475-476).

The fish fauna has also changed over the last several thousand years. During the Wisconsin glaciation, coldwater species such as trout, grayling, whitefish and cisco probably inhabited the southern part of the state. As the glaciers retreated, the coldwater fish migrated north and warmwater fish migrated into the state from the south. A total of 177 species of fish have been described in Indiana waters. Ten of the species have not been seen since 1900 and may be extinct and 20 species are rare. Several species have been introduced by man or man's intervention including carp, goldfish, brook trout, rainbow trout, brown trout, smelt, sea lamprey, alewife, and threadfin shad (Gammon and Gerking 1966:402-404).

Approximately 200 species of mollusks and 400 species of crustaceans occurred in Indiana waters (Young 1966:321-335). Call (1900:342) identified 131 species of mollusks in 1900 and reported the mollusks from southern Indiana were larger than those found in northern Indiana.

Between 1947 and 1957, 82 species of amphibians and reptiles were recorded for the state. The composition and distribution of the herpetofauna was influenced by environmental changes since the retreat of the Wisconsin glaciers. With the shifting environmental patterns, immigrations of new species occurred becoming dominant but the prior residents were not completely replaced. Man has introduced no new species, but has altered the distribution of most species and a species of semiaquatic snake is no longer found in the state (Minton 1966:426).

Approximately 366 species of birds have been reported in Indiana since 1816. This number includes transients and migratory species. The Passenger Pigeon and Carolina Parakeet, two common species of the nineteenth century, are now extinct. Nine species found in Indiana in the nineteenth century no longer occur in the state; the Wood Ibis, Trumpeter Swan, Prairie Chicken, Whooping Crane, Eskimo Curlew, Mississippi Kite, Swallow-tailed Kite, Ivory-billed Woodpecker and Raven (Webster 1966:455).

Soils

The formation of soils is influenced by several factors; parent material, climate, flora and fauna, topography and time. Most of these factors have been discussed in the preceding section. The parent materials found in the study are composed of glacial till, alluvium, loess, outwash, lacustrine sediments, bedrock residuum and organic material (Nickell 1981, Blank 1987, Schermerhorn 1967, Neely 1987, Hillis and Neely 1987, Shively 1989, Huffman 1972). Since the study unit covers several counties, listing individual county soil associations is cumbersome. Therefore, general soil regions were used.

The study unit is comprised of several general soil regions (Ulrich 1966) (Figure 10). The soil associations found in the area are Miami-Crosby (E), Blount-Morley-Nappanee-Pewamo (F), Russell-Fincastle (G), Cincinnati-Avonburg-Jennings-Trappist (J), Switzerland-Fairmount (K) and soils found on alluvial terraces and floodplains (H). Each of the soil regions will be discussed below.

The Miami-Crosby silt loam association is a region of nearly level to very gently undulating till plain. This region occurs in the north and central portions of the study unit. The soils developed in a thin silt mantle and clay loam till. The soils found in this region are the well drained Miami, the moderately well drained Celina, the somewhat poorly drained Crosby, the poorly drained Bethel silt loams, the very poorly drained Brookston and Kokomo silty clay loams of the depressions, and minor areas of Hennepin soils on the steep slopes of deeper valleys (Ulrich 1966:88).

The Blount-Morley-Nappanee-Pewamo association is found at the northern edge of the study unit. This region is a nearly level to gently undulating till plain. The principal soils developed in silty clay loam till. This region consists of the well to moderately well drained Morley, the somewhat poorly drained Blount silt loams and the very poorly drained Pewamo silty clay (Ulrich 1966:89).

The Russell-Fincastle association is a nearly level to sloping, moderately stream-dissected region on the border of the Wisconsin till plain in the central portion of the study unit. The soils developed in the thin covering of silt and clay loam till. The principal soils in this region are the well drained Russell, the moderately well drained Xenia, the somewhat poorly drained Fincastle, the poorly drained Delmar silt loam and the poor to very poorly drained Cope and Brookston silty clay loams (Ulrich 1966:89).

The Cincinnati-Avonburg-Jennings-Trappist association occurs in southern Fayette and eastern Franklin counties in the eastern lobe of the Illinois till plain. This region is a stream-dissected till plain that has broad flat divides. The soils developed in glacial till and bedrock residuum. The principal soils in this region are the well drained Cincinnati and Hickory soils, the moderately well drained Rossmoyne, the somewhat poorly drained Avonburg, and the poorly drained Clermont. The Jennings, Cana and Whitcomb soils constitute a catena that developed in a thin silt mantle and leached glacial till overlying bituminous shale. The Colyer and Trappist soils developed in areas of Devonian Shale or in areas with insignificant amounts of glacial till (Ulrich 1966:83-84).

The Switzerland-Fairmount association is a region of highly dissected upland areas in southeastern Indiana. Within the study unit, this region is in a small portion of Union County, central Franklin County and eastern Dearborn County. These soils are formed only on slopes near the valley. On the unglaciated ridge tops the soils formed in a thin mantle of loess and interbedded flaggy limestone and soft shales. The principal soils in this region are the well drained Switzerland and Fairmount (Ulrich 1966:80).

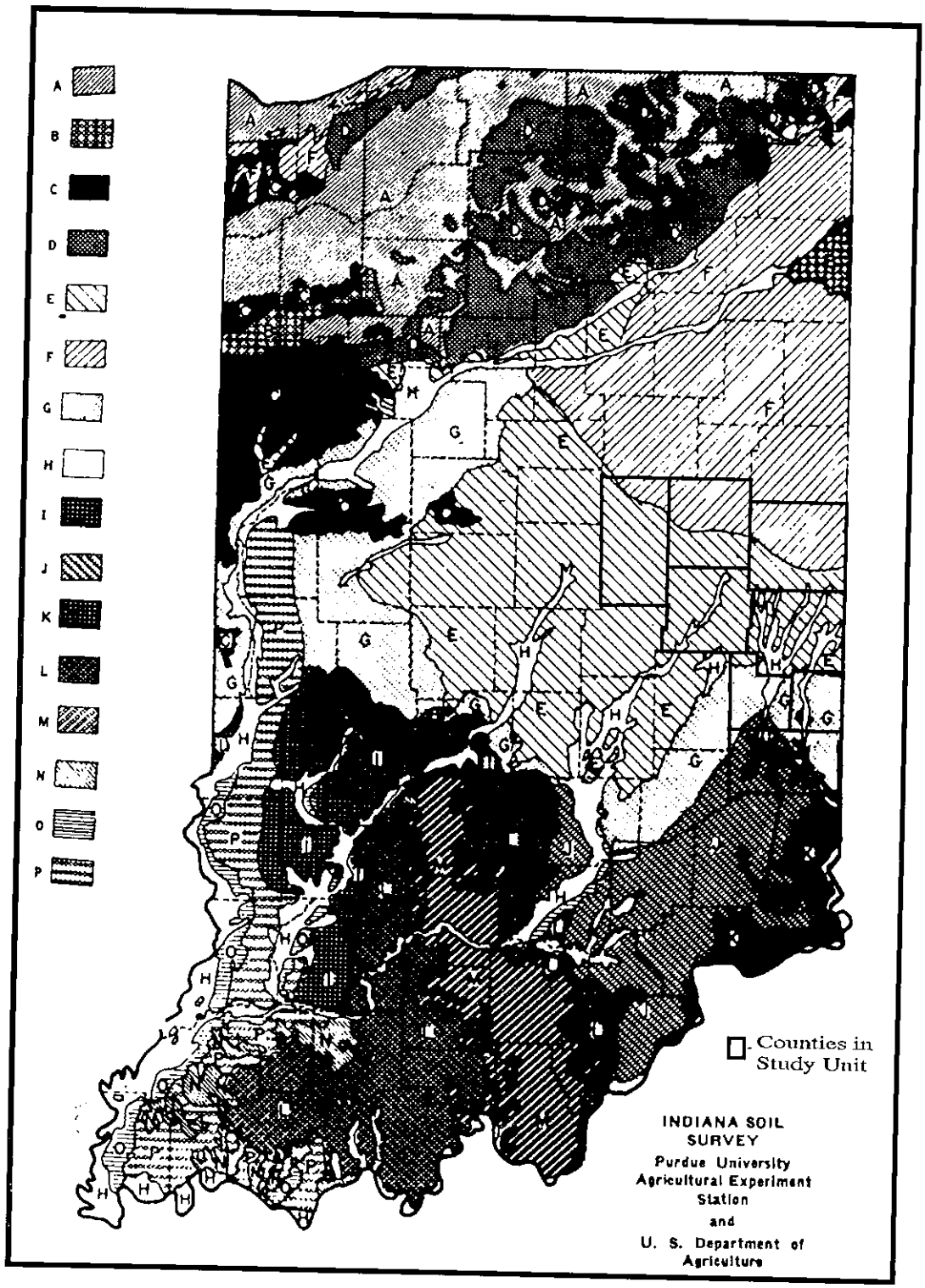


Figure 10. Soils within the study unit (Ulrich 1966).

The soils of floodplains and alluvial terraces are found in the river valleys of the study unit. The alluvial soils occur on the flood plains of present day streams. The principal alluvial soils include the dark colored Huntington, Allison, Armiesburg, Huntsville, Ross and Abscot and the light colored Genesee, Haymond, Lindside and Morganfield soils. The soils of alluvial terraces of former glacial streams occur on 2 or more levels of terraces ascending from the flood plain to the uplands. The principal soils of the terraces areas in the study unit are the Fox, Ockley, Rush, Martinsville, Camden, Elston, Warsaw, Wea and Elkinsville (Ulrich 1966:66-73).

ARCHAEOLOGICAL SETTING

Previous Research

The study area has a long history of archaeological investigation. Much of the early work in the area has focused on the prominent sites, especially mounds. Early investigators were intrigued with earthworks and current researchers are still drawn to them. It is unfortunate in some instances that the mounds were such popular targets for excavation, since valuable information has been lost to curiosity.

Early Investigations

The earliest published reference to mounds in the study area is a drawing of the Fudge site in *Ancient Monuments in the Ohio Valley* (Squier and Davis 1848). The majority of the early published work appears in the Indiana Geologic Reports which included drawings of major sites and descriptions (Haymond 1869; MacPherson 1879; Cox 1879; Phinney 1882, 1883, 1886; Brown 1884). Franklin County, which has the highest recorded number of earthworks of the counties in the study unit, was of particular interest to the early researchers (Quick 1880 and 1885, Stoops n.d.a and n.d.b, Butler n.d.a and n.d.b, and Homsher 1884a). The excavation of Glidewell Mound, in Franklin County, was the first to be published in detail within the study area (Homsher 1884b). Henry County also received early attention (Redding 1892). County histories, such as Helm (1881) and Walker (1892) also provided information on the archaeological sites within the county. Much of this early work was summarized by Thomas (1891).

Twentieth Century Investigations

Professional archaeological surveys and excavation began in the 1930's with Setzler's (1930a, 1931) work in the Whitewater Valley and Randolph County and Black's (1934) investigations in Dearborn and Ohio counties. The 1960's and 70's were really a boon period for archaeological investigation. The projects ranged from salvage excavations (Johnston 1962), to reservoir surveys (Kellar 1967, 1976) to county surveys (Rodeffer 1967, Harlos 1967, Hobson 1968 and 1969, Stepleton 1969, Morris 1970, Brieschke 1970, Koleszar 1972, Hellar 1974, Heilman 1976). Substantial excavations at several of the earthwork sites also took place in the late 60's and 70's (White 1969, Vickery 1970, Swartz 1973 and 1976, Heilman 1976, Berg, Cox and Reseigh 1979). Research oriented survey and excavation projects continued in the 1980's and 90's (Kirchner et al. 1981; Reseigh 1984; Buehrig and Hicks 1982; Cochran 1988; Kolbe 1992a, 1992b; McCord 1994). Numerous culture resource management projects have also been conducted within the study unit (ARMS files).

RESULTS

Completion of this project resulted in several products. These are presented in the following section of the report and include the results of archival research, field survey, site testing, and a review of Woodland ceremonial sites, and settlement patterns within the project area. Each of these areas is described below.

Archival Research Results

The literature review resulted in the identification of 295 earthwork sites within the study area. Of the sites recorded, 5 were listed as complexes due to the size of the site, 14 were reported as isolated circular enclosures, 1 was recorded as a rectangular enclosure, 1 embankment was reported and 274 mounds were recorded. These sites were reported in archaeological reports, county histories, geologic reports, sites forms and/or county records. Several of these sites had not been assigned state site numbers because they were already reported as destroyed or had never been investigated since they were reported. The complete catalogue of these sites is presented in Appendix A. Some sites that have been professionally identified as natural in origin were not presented in this catalogue. This is not to say that some natural features are not in the catalogue, but they had not been professionally examined and could not be eliminated. The survey portion of this project did find a few of the sites reported as mounds to be natural features. Some of the reports of earthworks were very sketchy since the sites were already destroyed.

Correspondence

In some cases during the literature review, a mention was made that the artifacts or notes were stored at a specific location. Several inquires were made to institutions and individuals in an effort to track artifacts or notes from some of the sites. Of special interest, were the collections from excavated sites. The following summarizes the results of this effort.

The first problem was trying to find the artifacts from Frank Setzler's (1930a, 1931) excavation of 4 mounds in the Whitewater drainage and Fudge Mound in Randolph County. Letters of inquiry were sent to the Glenn A. Black Laboratory at Indiana University, the Museum of Anthropology at the University of Michigan and the Department of the Anthropology at the University of Chicago. No response was received from the University of Michigan. The contact at the University of Chicago replied that he knew of no such material. The Glenn A. Black Laboratory does have the artifacts from Setzler's surveys and excavation. The notes and photos from Setzler's excavations are located at the Indiana State Archives. The State Museum also has some notes in the form of index cards that were from Setzler's work and were donated by Mrs. Setzler.

Artifacts and notes from excavations of several mounds in Wayne County were also sought. In the late 1960's, James Heilman (1976) working with Earlham College excavated 3 mounds in the county. The Joseph Moore Museum of Natural History at Earlham College

and James Heilman at the Dayton Museum of Natural History were queried concerning these sites. The Joseph Moore Museum has the catalog and field records, and the radiocarbon samples from Heilman's (1976) study. The artifacts from that study are currently on loan to the Dayton Museum of Natural History. Mr. Heilman answered that the artifacts from these sites are available for study.

References for 2 sites in Henry County stated that collections were donated to the Smithsonian Institute. The first site inquired about is now known as the White Site, 12-Hn-10. Apparently, one of the mounds was dug into by a family member and some artifacts were recovered. The artifacts were reportedly donated to the Smithsonian by the family at a later date (Harlos 1967). The Smithsonian Institute does not have this material.

The other site in Henry County is known as the New Castle complex, 12-Hn-1. Redding (1892) states that artifacts excavated from this site by Mr. Reynolds of the Smithsonian and Joshua Holland from North Carolina were taken to the Smithsonian. According to the Smithsonian Institute's records, Mr. Allen J. Reynolds of Connersville, Indiana did not work for the Smithsonian but corresponded with curators. Mr. Reynolds did donate some artifacts to the Smithsonian, but none are from Henry County.

The only collection from Henry County, Indiana at the Smithsonian was donated by E. Pleas of Dunreith, Indiana. The exact site locality of this collection of chipped stone tools was not known. In a letter on file at the Smithsonian, dated January 15, 1889 Mr. Pleas described his investigation of a mound in Franklin County. Mr. Pleas also described a group of mounds located near the center of Henry County (12-Hn-1). The following is an excerpt of that letter:

> Near the centre [sic] of this county is one of the most remarkable collection of mounds and earthworks some 14 within a space of 10 or 15 acres. These are being rapidly demolished by cultivation. About 10 years ago, the largest mound about 120 feet by 60 was near 10 high measuring from the ditch which was still 18 to 24 inches deep. The most remarkable fact connected with these works were that when the white men arrived about 1819 or 1820, the Indians were using them and had timbers (palisades) on some of the ditch banks to keep their ponies within (National Museum of Natural History, accession # 21440).

The county museums for Henry, Wayne and Union counties were consulted on any material relating to earthwork sites in the study unit. Neither museum had any artifacts from local mounds. For Franklin County, the Brookville Society of Natural History was acquired by the Indiana Academy of Science in 1889. The Indiana State Library acquired the Indiana Academy materials but they have no artifacts. The Indiana State Archives does not have these materials. Where the artifacts went is unknown. But, the collection of Theopilus Dickerson, the curator of the Brookville Museum, is located at the Indiana State Museum. The other county museums are open on odd schedules and were never contacted.

The results of the inquires varied. At least locations for some of the materials are now known. Unfortunately, collections from local early excavations of mounds are virtually untraceable. Excavations recorded by Homsher (1884a, 1884b) Redding (1892) and others appear lost.

Collector Interviews

Only one collection from a mound was documented by the collector interviews. While several people contacted during the survey maintained prehistoric artifact collections, only the one collection was from a mound. While private collections from mounds were once more common (Dickerson 1915, Setzler 1930a, Setzler 1931, Black 1934), many of those collections have probably been lost or people just are not willingly to talk about them. One private collection from Windsor Mound (12-R-1) has been previously documented by McCord (1994).

The mound collection documented during this study is from the Law Mound (12-R-31). The mound was reported to Morris (1970) by Mr. James Keesling. Mr. Keesling had done some testing of the mound and found a burned area. In 1970, Morris (1970), Keesling and 2 other men tested the mound more extensively. All of the artifacts recovered from the excavation were kept by Mr. Keesling. The artifacts included a reported 217 plain grit tempered sherds, a slate celt blank, an undrilled center bar gorget, a point tip, numerous crescent-shaped mica strips, a fragment of a human parietal, animal bones, and 7 sandstone and 4 slate tablets. Some of the artifacts were pictured in an *Ohio Archaeologist* article (Keesling 1970).

The artifacts were examined and several of them were photographed. A sample of the mica strips and a sample of pottery were photographed. Rim profiles of 2 sherds were recorded. Some of the ceramics had smoothed over cordmarking but the majority were plain. The collection contained at least 15 tablets all of sandstone. Twelve of the tablets were photographed and measured with calipers. The other tablets, the undrilled expanded center gorget, and other pottery rims were enclosed in a display case that Mr. Keesling preferred to not open.

Mr. Keesling also reported that he had carried out limited test excavations at the smaller Johnson Mound (12-R-18). A line of post holes oriented slightly east of north was found, but the excavation was discontinued because of the passage of Indiana legislation requiring an excavation permit.

Mr. Keesling reported another mound that has been destroyed. The Huffman Mound, named by Mr. Keesling, was located in Section 3, Township 19 North, Range 14 East. Mr. Keesling had just started excavating the mound in the 1970's, when the Randolph County crews removed a fence row, cleaned out the drainage ditch and pushed the mound over the hill. Mr. Keesling recovered some grit tempered pottery, 2 slate celts and 2 bifaces from the mound.

Members of the Upper White River Archaeological Society were actively involved with the project. The group has established an ongoing project to record diagnostic artifacts from private collections within the study area. Woodland points used in this study were reviewed and that information included in the Woodland settlement section of the report. In addition, the membership was queried about the locations of other types of Woodland artifacts, particularly pottery and Middle Woodland bladelets. Several members provided specific information on Woodland sites and two collections were photographed as part of this project. Bill Deilkes, Pat Ray, Larry Perkins and Rowena Foster were particularly instrumental in providing specific information.

Survey Results

This section includes two parts: the mapping of Chrysler enclosure in Henry County and the survey of the sample of mounds. Each of these is discussed below.

Chrysler Enclosure

During the 1995 BSU archaeological field school, the site known as the Chrysler Enclosure, 12-Hn-16, was the focus of an instrument survey in order to prepare an accurate topographic map of the site. The work was accomplished and the resulting maps are shown as Figures 11 & 12. One interesting feature of the site that was discovered during the mapping was a small mound present on the interior platform just to the west of the center. As previously noted, the gateway of this enclosure is oriented toward sunrise at the winter solstice (Cochran 1996). In addition, it was discovered that the parking lot on the west edge of the enclosure encroaches slightly onto the embankment. It is worth pointing out that this is the only isolated circular enclosure that still survives within the region. The others on record appear to have been destroyed.

Mound Survey

The results of the survey will be discussed by county. Each of the surveyed sites is presented as site summaries. Locations on USGS topographic maps of each of the sites that were relocated are available in Appendix B.

The survey investigated 68 (23% sample) earthwork sites within the study area. A site summary for each site in the sample is included below (n=83, 28% sample). The discrepancy between the number of sites in the sample and the number of sites surveyed is due to the lack of landowner permission to survey some of the sites in the sample. Some of the sites in the sample did not have state site numbers. State site numbers were not assigned to these sites during this project because they were not relocated. Therefore, site forms were not completed for these sites. Site forms were only completed for sites that were investigated and had state site numbers. In the following section, each county in the study unit is discussed individually.

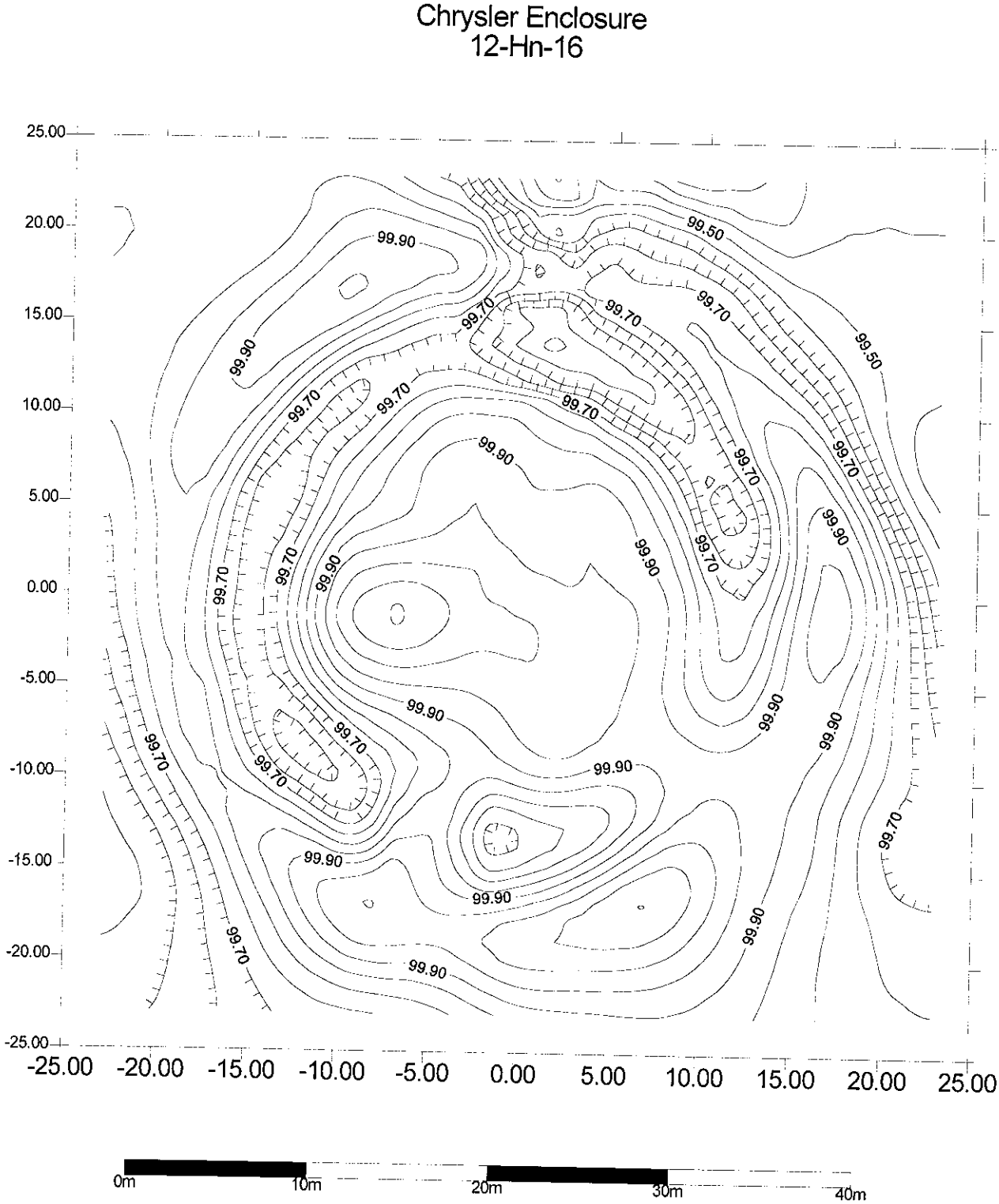


Figure 11. Contour map of Chrysler enclosure.

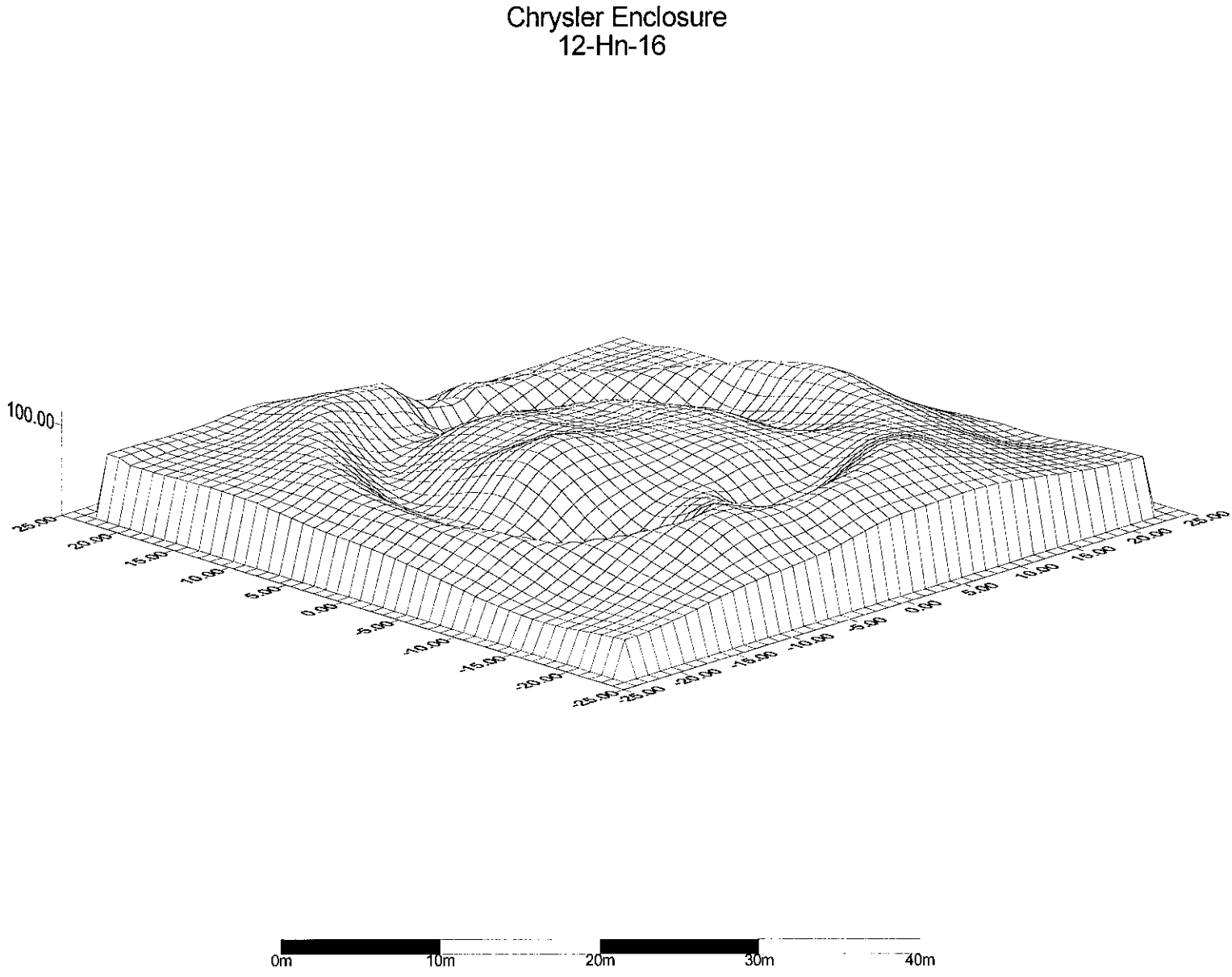


Figure 12. Surface map of Chrysler enclosure showing site features.

Dearborn County

Only 3 mounds in Dearborn County are reported for the Whitewater drainage. Site 12-D-1, Steele Mound, was salvaged in 1962 for construction of I-74 (Johnston 1962). Site 12-D-6 was reported by Black (1934:186-187) to be a group of 6 mounds, but the site is actually located in Hamilton County, Ohio. Therefore, the only site investigated in Dearborn County during this project was 12-D-5. The site was found to be destroyed, and no further work was recommended. No mounds reported in the Whitewater drainage in Dearborn currently exist. The survey found all the mounds (n=2) to be destroyed.

Site No.: 12-D-5 Name: Other Name:

Type: Mound

County: Dearborn

Location: [redacted]

Quadrangle: Harrison

Topography: Floodplain

Soil: Unknown

Drainage: Whitewater

Water: Whitewater River Distance: Unknown Direction: Unknown

Original Size: 75' in diameter, 18 - 20' high

Artifacts: Human bone

Site Condition: Destroyed

Comments: Brown (1817) reported a large mound 20' high and 60' in diameter that contained a great proportion of bones. Black (1934) reported the mound was destroyed by a road prior to his survey [in 1876].

This survey was conducted on 2-14-96 and attempted to relocate any remnants of the mound, but found none. The area is now completely urban with sidewalks and houses on both sides of the road.

References: Black 1934:186, Brown 1817:56, Shaw 1915:171

Recommendations: Since the site has been destroyed and the area has been heavily disturbed, no further work is recommended.

Delaware County

In Delaware County, 14 earthwork sites were reported. The 25% sample was to survey 4 of the sites. Unfortunately, landowner permission was a hinderance in achieving this sample. Three of the sites, 12-Dl-12, 12-Dl-21 and 12-Dl-24 were documented from the road. The fourth site, 12-Dl-18, was not documented due to lack of landowner permission, but a summary was included. From the sample of 4 sites, 2 (50%) were found to still exist, 12-Dl-12 and 12-Dl-21. Limited testing to document significance and preservation were recommended for these sites. One (25%) of the sites, 12-Dl-24, was determined to be a natural feature. Site 12-Dl-18 was believed to be destroyed (25%) but further survey is required. In reviewing the literature for all 14 sites recorded in Delaware County, it is believed that 12-Dl-12 and 12-Dl-21 are the only sites that still exist. Of the remaining sites, 9 appear to be natural features and 3 appear to be artificial features that have been destroyed. Further survey is required to verify this assumption. However, if this is the case then 40% of the prehistoric earthworks still exist and 60% are destroyed, which is comparable to what the sample discovered.

Site No.: 12-Dl-12 Name: Parkinson Mound Other Name:

Type: Mound

County: Delaware

Location: [redacted]

Quadrangle: Muncie West

Topography: Terrace

Soil: Ockley silt loam, 0 to 2% slopes

Drainage: Upper White West Fork

Water: White River Distance: 200' Direction: South

Original Size: 48' in diameter and 3.5' high

Artifacts: FCR, lithics, fragments of human bone

Site Condition: Badly disturbed from prior excavation and potting. The site is currently in the front yard of a private residence in a new housing development.

Current Size: ca 40' north-south by 25' east-west

Comments: Phinney (1882:148) made a brief reference to the mound. Setzler (1930b:2) noted that the site had been previously excavated. Rodeffer (1967:72) reported that the eastern portion had been bulldozed and the west side was extensively potholed. The 1980 BSU field school excavated a small portion of the remainder of the mound (Kirchner et al. 1980). No radiocarbon dates or *in situ* diagnostic artifacts were found in the excavation. The site has been considered a Newtown mound based on the presence of the stone capping (Cochran et al. 1988:116), but our current thinking suggests that it is more likely Adena (see Kellar 1960). The site is well outside the currently defined distribution of Newtown.

The mound was field checked on 4-16-96. The remainder of the site is located in the yard of a house in a relatively new housing project. Landowner permission to measure and map the site was not obtained, but it was photographed from the road. Apparently, the remaining portion of the mound has been relatively undamaged following the 1980 field school.

References: Setzler 1930b:2, Rodeffer 1967:72, Kirchner et al. 1980, Phinney 1882: 148

Recommendations: The remaining portion of the site needs to be preserved. However, given the lack of diagnostic artifacts, a limited test excavation should be made to obtain carbon for dating the site. The landowner also needs to be appraised of the fact that the site is protected under state law.

Site No.: 12-Dl-18 Name: Elihu Cecil Mound Other Name:

Type: Mound

County: Delaware

Location: [redacted]

Quadrangle: Farmland

Topography: Rolling moraine/valley edge overlooking White River

Soil: Miami silt loam

Drainage: Upper White River, West Fork

Water: White River Distance: 300' Direction: South

Original Size: 30' in diameter and 2.5' high

Artifacts: Sherds photographed by Setzler

Site Condition: Unknown

Current Size: Unknown

Comments: Setzler (1930b:4) reported this site in a dense woods. It had been trenched by Mr. Moore and Rev. Sparling of Selma and a few sherds were found. Setzler (1930b:4) reported that the sherds were photographed. They were in the collection of Dr.Rogers from Parker. In the survey of Randolph County conducted the next year, Setzler (1931:43) shows a photograph of sherds from Dr. Roger's (of Parker) collection. He (1931:26) noted that " pottery was found in only one collection." It would therefore appear that the sherds illustrated in the Randolph County survey are those from 12-Dl-18.

The nine sherds illustrated in Plate 9 (Setzler 1931:43) are predominantly cord marked (6). Three sherds have surface decoration consisting of simple stamped , and zoned designs. One of the stamped sherds is a rim. In general, the sherds appear to be Middle Woodland and most similar to Chillicothe Rocker-stamped, Plain rocked and Turner Simple-stamped (Prufer 1968:38, 44, 60). The apparent rim sherd also corresponds to those shown for Turner Simple-stamped sherds (Prufer 1965:43, 50). Prufer (1977:49) lists the Turner site with Late Hopewell manifestations in Ohio.

If the sherds illustrated by Setzler (1931:43) are from the Elihu Cecil Mound (12-Dl-

18) as seems probable, this is the only example of Hopewell ceramics being reported from a mound outside of an enclosure complex in east central Indiana (Cochran 1996). Certainly the information cited above strongly suggests that the sherds were from the mound. However, we cannot be certain of the context of the sherds within the mound since no data exists to illustrate their context.

When an attempt to field check the site was made on 4-17-96, it was found that the wrong landowner had been identified and the correct landowner did not respond to our request for permission to survey the site. At the least, the woods noted by Setzler have been cleared in the intervening years and the site area appears to be in cultivation.

References: Setzler 1930b, Rodeffer 1967:67

Recommendations: This site still needs to be field checked to ascertain its current status. In addition, efforts to locate the sherds that were in the Rogers collection need to be made, although there is only a remote possibility of finding a collection that was originally documented over 60 years ago.

Site No.: 12-Dl-21 Name: Stewart Mound Other Name: Bell Creek Md.

Type: Mound

County: Delaware

Location: [redacted]

Quadrangle: Muncie West

Topography: Bluff edge overlooking Bell Creek

Soil: Miami silt loam

Drainage: Upper White West Fork

Water: Bell Creek Distance: 300' Direction: South

Original Size: 42' in diameter and 3.5' high

Artifacts: None

Site Condition: Excellent

Current Size: Not measured

Comments: Setzler (1930b:5) recorded this mound in a pasture. Rodeffer (1967:76) noted that the mound appeared undisturbed. Conover (1984:213-214) quoted the site files as noting that the landowner's will stipulated that the mound is not to be disturbed.

When field checked on 4-16-96, the site apparently remained in excellent condition. Landowner permission to map and measure the site was not obtained. However, the mound was photographed from the road. The only apparent disturbance was from a bird bath located on top of the mound.

References: Setzler 1930b:5, Rodeffer 1967:76, Conover 1984: 213-214

Recommendations: Limited test excavations should be conducted to document the site's significance. The mound should be continue to be preserved.

Site No.: 12-Dl-24 Name: None Other Name:

Type: Reported Mound

County: Delaware

Location: [redacted]

Quadrangle: Eaton

Topography: Rolling knob and kettle type terrain on south facing slope of Mississinewa Moraine.

Soil: Morley silt loam

Drainage: Upper Wabash

Water: Rees Ditch Distance: 800' Direction: SE

Original Size: 10' long, 5' wide and 3' high

Artifacts: 2 points, 1 gorget, 1 bannerstone (landowner's collection)

Site Condition: Cultivated field

Current Size: See comments section

Comments: This site was known only from a site form on file at BSU. The form is not dated, but appears to predate Rodeffer's 1967 Delaware County survey report. The site number is listed on tabulated information from the county, but not discussed in the text. The site was field checked in 1980 and a new site form filled out. The form indicates that there are a number of small rises behind the residence at the site location. Each rise had a scattering of chipped stone artifacts, but the rises did not appear to represent mounds. In fact, "mounds" are commonly reported along the south front of the Mississinewa moraine from Eaton to Upland. The most convincing evidence for mounds in this area are those that were reported destroyed by the construction of the courthouse at Marion (Phinney 1884:153). Mounds are exceedingly rare in the Upper Wabash drainage (Wepler 1982).

References: Site form for 12-Dl-24

Recommendations: While the rises at this location appear to contain evidence of prehistoric habitation, they are not artificial mounds. No further work is recommended.

Fayette County

A total of 8 earthwork sites were reported in Fayette County. The 25% sample was to survey 3 sites. An extra site, Homsher's #31, was also surveyed because of its proximity to 12-F-29. The survey found 2 (50%) sites still in existence; 12-F-17 and 12-F-29. It was recommended that limited testing be conducted at these sites to document significance and that the sites should be preserved. The other two sites (50%) were not relocated and were assumed to be destroyed. Testing of site 12-F-18 was recommended to determine if intact subsurface features survive. No further work was recommended for Homsher's site #31 because of insufficient information on the location of the mound. It appears from the literature review and survey conducted by Angst (1994) that only 2 (25%) mounds of the 8 recorded for the county still exist.

Site No.: 12-F-17 Name: Elephant Hill Other Name:

Type: Mound

County: Fayette

Location: [redacted]

Quadrangle: Connersville

Topography: Till Plain

Soil: Russel silt loam, 2 to 6% slopes, eroded

Drainage: Whitewater

Water: Lick Creek Distance: 2000' Direction: WNW

Original Size: 40' diameter, 3' 8" high

Artifacts: Slate gorget, arrowhead

Site Condition: Disturbed

Current Size: 37' in diameter, 2 to 3' high (according to Angst 1994)

Comments: Setzler (1930a) actually places this mound 11/2 miles to the east of Elephant Hill in Section 13. Angst (1994) believed a remnant of the mound still existed on the highest point of Elephant Hill.

The site was reexamined on 2-29-96 to take photos during this survey. It appears

that a possible remnant of the mound does exist. It has probably been cultivated at some time. No potholes were observed.

References: Setzler 1930a:421, Angst 1994:85-86

Recommendations: Because the site is not known to be artificial in construction, testing is recommended to determine its origin.

Site No.: 12-F-18 Name: Herron Mound Other Name:

Type: Mound

County: Fayette

Location: [redacted]

Quadrangle: Connersville

Topography: Unknown

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 25' in diameter, 3' high

Artifacts: Unknown

Site Condition: Not located

Comments: Setzler (1930a) reported the mound had been dug into and it had been in cultivation for a number of years.

The current landowner related that, from her memory, the location Setzler reported had always been in cultivation. Within the last 5 years, the area surrounding the field had been bulldozed to remove trees and brush. The survey found no trace of the mound on 10-30-95

References: Setzler 1930a:421, Angst 1994:86

Recommendations: Even though the mound was not relocated by this survey, there is potential for submound features to exist that would not be discovered by a surface investigation. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-F-29 Name: W. Hanson Mound Other Name: Homsher #32

Type: Mound

County: Fayette

Location: [redacted]

Quadrangle: Everton

Topography: Till Plain

Soil: Russell soils, 6 to 12% slopes, severely eroded

Drainage: Whitewater

Water: Intermittent drainage Distance: 1800' Direction: SW

Original Size: 57' diameter, 11' high

Artifacts:

Site Condition: Good, but 1 large pothole.

Current Size: 25.2 m (82.6') in diameter, 3.03 m (9.9') high

Comments: Site is believed to be Homsher's (1884a) site number 32 although the location differs. The location also differs slightly from Setzler's (1930a) location. Homsher (1884a) stated #32 had a pit in the center, but Setzler (1930a) saw no evidence of previous digging.

The survey found the mound to be in good condition on 2-2-96, except for a large pothole in the center of the mound. The majority of the mound appeared to be intact. Unfortunately, the land is under development and the woods where the mound is located is being cleared.

References: Homsher 1884a:737-738, Setzler 1930a:425, Angst 1994:85.

Recommendations: Limited testing of the mound should be conducted to determine its significance. The mound should be preserved.

Site No.: Name: Other Name: Homsher #31

Type: Mound

County: Fayette

Location: [redacted]

Quadrangle: Everton

Topography: Unknown

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 46' in diameter, 7 1/2' high

Artifacts: Unknown

Site Condition: Destroyed

Comments: Homsher (1884a) stated that the mound was trenched from the west side to the center. Homsher's (1884a) location for this mound is confused. Angst (1994) surveyed the area in Section 11 to the north based on Homsher's (1884a) description of the mound being located near Mr. Dungan's residence. Angst (1994) did not find any trace of the mound.

This survey examined the area given in Homsher's (1884a) quarter section description of the mound on 2-2-96. The only mound found in this area was the Hanson mound (12-F-29). Homsher's #31 is therefore assumed to be destroyed.

References: Homsher 1884a:737, Angst 1994:87-88

Recommendations: Since the site is destroyed and there is insufficient information on the correct location of the mound, no further work is recommended.

Franklin County

Franklin County contained the highest number of mounds recorded for any of the counties within the study unit (n=116). Unfortunately, Franklin County also had the highest number of landowners that would not give permission for the survey or did not respond to our request for permission. Of the 30 sites to be surveyed in the sample, only 19 were actually surveyed. Eleven additional sites that were either previously surveyed by Kolbe (1992) or excavated by Setzler (1930a) were included to bring the sample number to 30 so that Franklin County would be comparable to the other counties. Franklin County also posed an additional problem: obtaining the correct state site numbers. Previous surveys did not use the correct state site numbers (eg. Kolbea 1992, Kellar 1967, Kellar 1976). This report contains the corrected site numbers.

From the 30 sites used in the sample for Franklin County, 9 (30%) are believed to still exist; 12-Fr-18, 12-Fr-22, 12-Fr-91, 12-Fr-102, 12-Fr-123, 12-Fr-129, 12-Fr-136, 12-Fr-143, and 12-Fr-232. Limited testing and preservation were recommended for most of these mounds. Site 12-Fr-22, Glidewell Mound, has already been recommended for listing on the State and National Registers (Kolbe 1992a). Within the sample, 3 (10%) sites reported as mounds were documented as natural features. The remaining 18 sites are believed to be destroyed. However, some of these sites were recommended for testing to determine if subsurface features still exist. One was recommended for further survey because not all landowner permission for a given site area was obtained and therefore was not completely surveyed. From the literature review, it appears that 5 of the sites reported in the county were natural features, so 111 sites were artificial constructions. It is possible that 40 (36%) sites still exist in Franklin County.

Site No.: 12-Fr-1/65 Name: Other Name: Homsher #4

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Unknown

Soil: Unknown

Drainage: Whitewater

Water: Whitewater Distance: Unknown Direction: Unknown

Original Size: 50 ft. in diameter, 6 ft. high.

Artifacts: None

Site Condition: Under Brookville Lake

Current Size:

Comments: Reported destroyed by Setzler and Kellar. Homsher reported this site in the NE 1/4 of the SE 1/4. Butler reports the mound on the land of J. McCarty. Setzler states that only a barren spot remains and locates the mound in the SW 1/4 of the SE 1/4. The site is apparently listed under dual site numbers, 12-Fr-1 and 12-Fr-65.

References: Homsher 1884a: 730-731, Setzler 1930a: 394, Kellar 1967: n.p., Kolbe 1992a: C-39, Butler n.d.b: 1.

Recommendations: As this mound no longer exists, and is currently located under Brookville Lake, no further work is recommended.

Site No.: 12-Fr-7 Name: Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Wolf Creek Distance: Unknown Direction: South

Original Size: 15 ft. diameter X 1 ft. high

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Kellar reported this mound had been so extensively potted that it been destroyed. Kolbe could not relocate the site at the given coordinates. The site was not surveyed during this project.

References: Kellar 1967, Kolbe 1992a: C-45

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-11 Name: Other Name: Homsher #3

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Wolf Creek Distance: Unknown Direction: Unknown

Original Size: Unknown

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Kellar reported the mound had been bulldozed and was only 1 ft. high. Kolbe could not locate mound and thought it might be natural given its location half-way down the slope of a hill.

The area is currently wooded and was surveyed on March 8, 1996. The survey did not locate the mound.

References: Homsher 1884a: 430, Kellar 1967, Kolbe 1992a: C-49, Setzler 1930a: 393, Butler n.d.b: 1

Recommendations: It is still unclear if this mound did indeed exist as a cultural feature. Further testing might be conducted to determine the origin of this site.

Site No.: 12-Fr-18 Name: Laurel Mound Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Alpine

Topography: Ridge top

Soil: Princeton fine sandy loam, 4-12% slopes

Drainage: Whitewater

Water: Unnamed creek Distance: 200' Direction: NW

Original Size: 12 Feet

Artifacts: None

Site Condition: The site is damaged by the presence of a bandstand.

Current Size: 1.98 m (6.5') at highest point, 26 m (85.3') in diameter

Comments: The site is currently protected as a feature within a local park. The structure on top of the mound provides some protection. It does not appear as though the mound is in any imminent danger from pothunting, erosion, or other factors which might lead to its destruction.

References: Setzler 1930a: 377-378, Kellar 1976: 29

Recommendations: This site is considered to be potentially eligible for listing on the State and/or National Registers of Historic Places. Testing should be carried out to document the significance of this site. In addition, the owner should be notified of Indiana law that protects the site so that further construction on it would be stopped.

Site No.: 12-Fr-21/97 Name: Klipple Mound Other Name: Homsher #16

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Wolf Creek Distance: Unknown Direction: Unknown

Original Size: 60 ft. in diameter, 8 ft. high.

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Setzler and Kellar reported the mound was eroding away. Kolbe could not locate mound.

The reported mound area is currently wooded and located on the west side of Brookville Lake within the Mounds State Recreational Area. The area in which the mound was reported was surveyed on March 8, 1996 and was determined to have probably been destroyed by erosion.

The site is apparently recorded under dual site numbers, 12-Fr-21 and 12-Fr-97.

References: Homsher 1884a: 732-733, Setzler 1930a: 383-384, Kellar 1967.

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-22 Name: Glidewell Other Name: Homsher #12

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Till Plain

Soil: Russell silt loam

Drainage: Whitewater

Water: Unnamed intermittent stream Distance: 500' Direction: North

Original Size: 60 ft. diameter X 15 ft. high

Artifacts: Copper bracelets, copper ring, bone awl, points, celt, 25+ human burials, fire pits, pottery, shell beads, gorget, hammerstone, lithic flakes and cores, ash, charcoal.

Site Condition: Disturbed by excavations and pothunting

Current Size: 1.3 m high X 18.4-19.1 m diameter (1991)

Comments: This site was excavated in 1879, 1880, and 1881 by Homsher, Dickerson, and Glidewell. Kolbe tested two potholes in 1991 and recommended the site for listing on the State and National Registers of Historic Places. A radiocarbon date of 10 BC +/- 110 was obtained. The site was not surveyed during this project.

References: Homsher 1884a: 732, 1884b, Dickerson 1915: 52-53, Kellar 1967, Kolbe 1992a: 68-94, C-61.

Recommendations: The artifacts and notes from the Homsher excavations should be tracked down and kept on record. The site appears to be eligible for listing on the State and/or National registers of Historic Places and efforts should ensue to protect the site from further destruction.

Site No.: 12-Fr-23 Name: Johnston Mound Other Name: Homsher #13

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Saltwell Creek Distance: Unknown Direction: Unknown

Original Size: 40 ft. diameter; 8 ft. high

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Setzler notes previous digging and a height of 4 ft. Kellar saw no evidence of digging and found the mound to be relatively intact.

The area in which the mound is reported is within the Mounds State Recreation Area in the vicinity of Brookville Lake. The area is currently wooded, and is halfway between a fence to the south and Saltwell Creek to the North. The mound was surveyed on March 12, 1996. It appeared as though the mound was eroded as a result of slope compounded by pothole disturbance.

References: Homsher 1884a: 732, Setzler 1930a: 384, Kellar 1967, Kolbe 1992a: C-60

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-63 Name: Templeton's Fortified Mound Other Name: Homsher #2

Type: Mound and enclosure

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Whitewater Distance: Unknown Direction: Unknown

Original Size: Mound - 10 ft. high, 40 ft. diameter. Embankment - 3 ft. high. Ditch=2-2.5 ft. deep.

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Reported destroyed by Setzler.

The reported location of the mound was surveyed on March 4, 1996. The area is currently wooded and in the Brookville Lake region. It seems the mound was destroyed by cultivation.

References: Quick 1880: 371 and 373, Haymond 1869: 198, Homsher 1884a: 729, Setzler 1930a:392-393, Kellar 1967, Kolbe 1992a: C-58.

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-67 Name: Other Name: Homsher #7

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Cedar Creek Distance: Unknown Direction: Unknown

Original Size: 30 ft. in diameter 4.5 ft. high.

Artifacts: None

Site Condition: Not located

Current Size: Unknown

Comments: Setzler reported mound destroyed.

The reported location of the mound was surveyed on March 8, 1996. The area consisted of a plowed agricultural field. No remnant of the mound was observed. The mound was apparently destroyed by erosion and cultivation.

References: Homsher 1884a: 731, Setzler 1930a: 390

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-72 Name: Other Name: Homsher #15

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Wolf Creek Distance: Unknown Direction: Unknown

Original Size: 35 ft. in diameter, 4 ft. high.

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Reported destroyed by Kellar and Setzler.

The reported mound area is currently wooded and located on the west side of Brookville Lake within the Mounds State Recreational Area. The area in which the mound was reported was surveyed on March 8, 1996. No evidence of the site was found and it was probably destroyed by plowing and erosion.

References: Homsher 1884a: 732, Setzler 1930a: 392, Kellar 1967, Kolbe 1992a: C-56

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-81 Name: Other Name: Homsher #47

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: New Fairfield

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Bath Creek Distance: Unknown Direction: Unknown

Original Size: 35 ft. in diameter, 5 ft. high.

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Reported destroyed by Kellar.

The area was surveyed on March 4, 1996. The area in which the mound once existed was a fallow field. The mound was most likely destroyed by cultivation. Because of the height of the weeds, it was impossible to see any remnants of the mound if any existed.

References: Homsher 1884a: 740, Setzler 1930a: 386, Kellar 1967, Kolbe 1992a: C-64

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-83 Name: Weber Other Name: Homsher #50

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: New Fairfield

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 25 ft. diameter X 5 ft. 9 in. high

Artifacts: None

Site Condition: Unknown

Current Size: Unknown

Comments: Homsher excavated this mound. He reported it was composed of five strata with a cobble-stone covering and consisting of burnt clay, coal, and ashes. Setzler noted evidence of previous digging,.Kellar noted severe disturbance. Kolbe did not locate the site at the given coordinates. The site was not surveyed during this project.

References: Homsher 1884a: 741-742, Setzler 1930a: 382-383, Kellar 1967, Kolbe 1992a: C-66.

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-87 Name: Other Name: Homsher #77

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: New Fairfield

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Blue Lick Creek Distance: Unknown Direction: Unknown

Original Size: 28 ft. in diameter, 4 ft. 6 in. high

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: The area was surveyed on March 4, 1996. The project area was in a fallow field to the west of the road and a plowed agricultural field to the east of the road. The reported mound was not found and is presumed to have been destroyed by cultivation.

References: Homsher 1884a: 742, Setzler 1930a: 386

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-91 Name: Wiley Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Metamora

Topography: Ridge top

Soil: Bonnell clay loam, 12-18% slopes, severely eroded

Drainage: Whitewater

Water: Sane's Creek Distance: 500' Direction: West

Original Size: 40 ft. diameter, 8 ft. high

Artifacts: None

Site Condition: Potholed, eroded

Current Size: 9.6 m (31.50 ft.) in diameter, 0.36 m (11.81 ft.) high

Comments: The mound was surveyed on March 3, 1996. The area where the mound was located was at the crest of a ridge top just before it began to slope down. The area was wooded, but no flora grew around the mound. A large pothole was recorded 0.96 m deep from top of mound. It appeared as though the mound had been eroding for some time.

References: Setzler 1930a: 378

Recommendations: This site is considered to be potentially significant for listing on the State and/or National registers of Historic Places. As this is the case, further testing should take place to determine the significance of this mound and develop a plan for preservation.

Site No.: 12-Fr-102 Name: Battle Point Other Name:

Type: Mound and enclosure

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Till Plain

Soil: Fairmount silty clay loam

Drainage: Whitewater

Water: Unnamed intermittent stream Distance: 200' Direction: North

Original Size: Unknown

Artifacts: None

Site Condition: Heavily disturbed

Current Size: mound was 37 ft. diameter X 2 ft. high (1991)

Comments: Dickerson called this a fortification or entrenchment. Setzler reported this site as a crescent-shaped earthwork. During the time of Setzler's survey, the area was a cultivated field and only an outline of the embankment was still visible. A mound once stood 75 ft. from the embankment. Kellar noted the area was in pasture and could not locate the embankment. Kolbe relocated the site and noted that it was heavily disturbed, but contained intact deposits. The site was not resurveyed during this project.

References: Dickerson 1915: 52, Setzler 1930a: 393-394, Kellar 1967, Kolbe 1992a: C-57, Butler n.d b:1

Recommendations: Although this site is disturbed, it appears to have intact deposits. As this is the case, further testing should occur to evaluate the site significance for listing on the State and/or National Registers of Historic Places.

Site No.: 12-Fr-103 Name: Pierson Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Terrace

Soil: Unknown

Drainage:Whitewater

Water: Whitewater Distance: Unknown Direction: South

Original Size: 15 ft. diameter X 4 ft. high

Artifacts: Bundle burial, cache of burials, lithic flakes, antler points, shell tempered potsherd, two triangular points, broken point, bone artifacts

Site Condition: Unknown

Current Size: Unknown

Comments: Setzler reports this as a stone mound. Setzler's excavation found it to be composed of earth and stone piled on an undisturbed layer of limestone. Stones had been removed by the landowner. Setzler's notes are at the State Archives and the artifacts are at Indiana University. The site was not resurveyed during this project.

References: Setzler 1930a: 395, 502-505

Recommendations: This mound needs to be field checked to determine the precise location and condition. Furthermore, some limited testing should be conducted to determine if any intact remnants of the mound exist.

Site No.: 12-Fr-105 Name: Precht Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: West Fork Whitewater Distance: Unknown Direction: South

Original Size: 25 ft. diameter X 1 ft. 6 in. high

Artifacts: Burned and unburned human bone

Site Condition: Unknown

Current Size: Unknown

Comments: This is a large stone mound excavated by Setzler in 1928. Setzler's notes of the excavation are at the State Archives. No artifacts were uncovered. The site was not resurveyed during this project.

References: Setzler 1930a: 396, 501-502

Recommendations: This mound needs to be field checked to determine the precise location and condition. Furthermore, some limited testing should be conducted to determine if any intact remnants of the mound exist.

Site No.: 12-Fr-110 Name: C.B. Martin Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: West Fork Whitewater Distance: Unknown Direction: North

Original Size: 20 ft. N/S X 30 ft. E/W

Artifacts: Human bone, celt.

Site Condition: Unknown

Current Size: Unknown

Comments: Setzler describes the site as a rectangular stone mound. The mound was excavated by Setzler, who recovered human bone. Setzler's notes are at the State Archives and the artifacts are at Indiana University. The site was not resurveyed during this project.

References: Setzler 1930a: 398, 505-508

Recommendations: This mound needs to be field checked to determine the precise location and condition. Furthermore, some limited testing should be conducted to determine if any intact remnants of the mound exist.

Site No.: 12-Fr- 123 Name: Stoops Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Ridge

Soil: Unknown

Drainage: Whitewater

Water: Wolf Creek Distance: Unknown Direction: South

Original Size: 50 ft. diameter X 4 ft. 3 in. high

Artifacts: Cache: blade, 3 gorgets, 4 points, celt; point, celt, burned clay.

Site Condition: Unknown

Current Size: Unknown

Comments: The first known excavation of the site was in 1890 by Quick. Butler reports the mound having been explored. Setzler states the mound location is on the highest point of the ridge. Setzler excavated the mound and then restored it. Stoops reports that Quick and Fogel opened the mound but quit almost as soon as they had started. Setzler's artifacts are at Indiana University and his notes are at the State Archives. The site was not surveyed for this project.

References: Butler n.d b: 2, Setzler 1930a: 403-404, 482-487, Stoops n.d a:4

Recommendations: This mound needs to be field checked to determine the precise location and condition. Furthermore, some limited testing should be conducted to determine if any intact remnants of the mound exist.

Site No.: 12-Fr-125 Name: Magnesia Springs Group Other Name:

Type: Mounds and enclosure

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Whitewater Distance: Unknown Direction: Unknown

Original Size: 1200 sq. ft. area

Artifacts: None

Site Condition: Not located

Current Size: Unknown

Comments: The site was surveyed on March 27, 1996. Current land use is agricultural. No evidence of this mound grouping was found. Apparently, they were destroyed by cultivation.

References: Quick 1880: 371, Setzler 1930a: 405-406, Butler n.d b:2

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Fr-129 Name: Brown's Stone Mound Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Ridge top

Soil: Eden flaggy silty clay, 15-25% slopes, eroded

Drainage: Whitewater

Water: Whitewater Distance: 1000' Direction: West

Original Size: 30 ft. wide, 40 ft. long, 4 ft. high

Artifacts: Human bone

Site Condition: Damaged

Current Size: 18.8 m (61.68 ft.) in diameter, 0.80 m (2.62 ft.) high

Comments: The site was surveyed on March 12, 1996. The site exists in a cattle pasture. There are depressions evident of past excavation. The mound is near the edge of a ridge and is contiguous to the slope of the ridge to the north and south. The site has evidently been diminished in size due to past excavations and erosion.

References: Quick 1885: 4, Setzler 1930a: 407-408, Butler n.d. b: 3, Stoops n.d. b: 3-4

Recommendations: This site is considered to be potentially significant for listing on the State and/or National registers of Historic Places. As this is the case, further testing should take place to determine the significance of this mound and develop a plan for preservation.

Site No.: 12-Fr-134 Name: Mound Camp Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Whitewater Distance: Unknown Direction: West

Original Size: 83 ft. diameter X 12 ft. high

Artifacts: Charcoal, post holes, lithic debitage, burials, bone awls, gorgets, points, shell beads, bone beads, pottery.

Site Condition: Unknown

Current Size: Unknown

Comments: Butler reported this mound as being partly covered with a layer of stone. It was explored exposing nine burials. Setzler reports this as one of the largest mounds in the county. He states a flood in 1913 washed away a large part of the bank, taking part of the mound with it. Setzler excavated the mound before highway construction would have destroyed the remaining portion. At the time of Setzler's excavation, the mound was 20 ft. wide, 63 ft. long, and 3 ft. high. Setzler's notes are at the Indiana State Archives and the artifacts are currently stored at Indiana University. The site was not resurveyed during this project.

References: Butler n.d. b; 4, Setzler 1930a: 409, 467-481

Recommendations: This site needs to be field checked to determine its current condition. Furthermore, some limited testing should be conducted to determine if any intact remnants of the mound exist.

Site No.:12-Fr-136 Name: Murray Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Rolling

Soil: Cincinnati silt loam, 2-6% slopes, eroded

Drainage: Whitewater

Water: Whitewater Distance: 6500' Direction: South

Original Size: 75 ft. in diameter, 10 ft. high

Artifacts: None

Site Condition: Damaged

Current Size: 25 m (82.02 ft.) in diameter, 2.92 m (9.58) high

Comments: The mound was surveyed on March 15, 1996. A road runs along the western edge and several potholes are scattered on the mound. This is one of the largest mounds found in the county. The mound is at the edge of a woods, various brush and small trees are on and around the mound.

References: Setzler 1930a: 411

Recommendations: This site is considered to be potentially significant for listing on the State and/or National registers of Historic Places. As this is the case, further testing should take place to determine the significance of this mound and develop a plan for preservation.

Site No.: 12-Fr-143 Name: Hubbard Mound Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Metamora

Topography: Ridge spur

Soil: Cincinnati silt loam, 6-12% slopes, eroded

Drainage: Whitewater

Water: Pipe Creek Distance:1000 Direction:West

Original Size: 38 ft. 9 in. diameter, 3 ft. 6 in. high

Artifacts: None

Site Condition: severely disturbed

Current Size: 8 m (26.25 ft.) in diameter, 0.24 m (0.79 ft.) high

Comments: Setzler notes a large pit had been excavated in the center.

The area was surveyed on March 27, 1996. The mound was located on a ridge spur in a woods and appeared to be disturbed by erosion and potholing.

References: Setzler 1930a: 416

Recommendations: This mound is considered to be potentially significant for listing on the State and/or National Registers of Historic Places. Testing should occur to determine the sites eligibility and devise a plan for protection.

Site No.: 12-Fr-144 Name:Whitehead Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Reily

Topography: Floodplain

Soil: Unknown

Drainage: Whitewater

Water: Syers Run Distance: Unknown Direction: North

Original Size: 80 ft. diameter X 6 ft. 7 in. high (18 ft. high)

Artifacts: Pottery, charcoal, burned clay, post holes, ash, antler point, gorget celt.

Site Condition: Unknown

Current Size: Unknown

Comments: Setzler reports the mound originally stood 18 ft. high, but was 6'7" high at the time of his survey. In 1928, Setzler excavated the mound. Griffin analyzed some of the ceramics and categorized them with the Adena materials. The site was not resurveyed during this project

References: Setzler 1930a: 417, 488-496, Griffin 1942: 347-350

Recommendations: This mound needs to be field checked to determine the precise location and condition. Furthermore, some limited testing should be conducted to determine if any intact remnants of the mound exist.

Site No.: 12-Fr-232 Name: Other Name: Homsher #70

Type: Mound

County:Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Terrace

Soil: Fox silt loam

Drainage: Whitewater

Water: East Fork Whitewater Distance: 1200' Direction: East

Original Size: Unknown

Artifacts: None

Site Condition: Heavily disturbed

Current Size: 50 ft. in diameter (1991)

Comments: Homsher listed this site as a camping ground. Setzler and Kellar both list this site as a mound and report it as having been destroyed. Kolbe located the mound and recommended it for listing on the State and National Registers of Historic Places. This site was not resurveyed during this project.

References: Homsher 1884a: 749, Setzler 1930a: 388, Kellar 1967, Kolbe 1992a: C-76.

Recommendations: This site needs to be resurveyed to obtain accurate site measurements. Limited testing should be conducted to document the site's significance.

Site No.: Name: Other Name: Homsher #10

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Whitcomb

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Templeton Creek Distance: Unknown Direction: Unknown

Original Size: Unknown

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Reported destroyed by Setzler and by Kellar. The reported mound area is currently wooded and located on the east side of Brookville Lake within the Mounds State Recreational Area. The area in which the mound was reported was surveyed on March 4, 1996 and was determined to have probably been destroyed by plowing and erosion.

References: Homsher 1884a: 731, Setzler 1930a: 388, Kellar 1967, Kolbe 1992a: C-75

Recommendations: Some mound sites are known to have features that might survive cultivation or leveling. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: Name: Other Name: Homsher #11

Type: Reported Enclosure

County: Franklin

Location: [redacted]

Quadrangle: New Fairfield

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Templeton's Creek Distance: Unknown Direction: Unknown

Original Size: 28 ft. in diameter, 4.5 ft. high.

Artifacts: None

Current Site Condition: Destroyed/Natural

Current Size: Unknown

Comments: Setzler reports mound as having been destroyed.

This mound was surveyed on March 4, 1996 and was determined to have been a natural feature based on the surrounding topography. The area in which the reported enclosure is located is rolling and currently a field.

References: Homsher 1884a: 742, Setzler 1930a: 386

Recommendations: This reported enclosure was not found by the survey and is determined to potentially have been a natural feature within the landscape. No further work is recommended.

Site No.: Name: Other Name:

Type: Mound

County: Franklin

Location: [redacted]

Quadrangle: Cedar Grove

Topography: Ridge

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: Unknown

Artifacts: Bone, ash, button

Site Condition: Unknown

Current Size: Unknown

Comments: Landowner permission was only obtained for the eastern half of the SE 1/4. The mound may have existed in the western half of the 1/4 section. From the western edge of the surveyed property, it appeared as though the other side was a good location for a mound. The landowner for the surveyed area reported finding points made from a blue-grey colored chert.

References: Butler n.d. b: 4

Recommendations: As the reported location of the mound could not be surveyed, it is recommended that additional survey be conducted to determine whether this mound exists.

Site No.: Name: Other Name:

Type: Reported Mound

County: Franklin

Location: [redacted]

Quadrangle: Brookville

Topography: Floodplain

Soil: Unknown

Drainage: Whitewater

Water: McCarty Run Distance: Unknown Direction: Unknown

Original Size: Unknown

Artifacts: None

Site Condition: Destroyed/Natural

Current Size: Not Located

Comments: Setzler questioned the origin of this mound because of its location in the floodplain. Setzler's testing of the feature showed no signs of artificiality.

The reported location of the mound was surveyed on March 8, 1996. No evidence of the site was found. The land is currently in pasture. Setzler reported that it appeared as though the mound-like formation had been washed out from the ridge above.

References: Setzler 1930a: 404, Anonymous 1882: 32

Recommendations: This site no longer exists, and previous testing revealed no signs of artificiality. No further work is recommended.

Site No.: Name: Other Name:

Type: Reported Mound

County: Franklin

Location: [redacted]

Quadrangle: Spades/Cedar Grove

Topography: Rolling till plain

Soil: Unknown

Drainage: Whitewater

Water: Gobles Creek Distance: Unknown Direction: Unknown

Original Size: Unknown

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Setzler mentions the mound may have disappeared.

> The area, which consisted of a plowed agricultural field, was surveyed on March 27, 1996. No evidence of a mound was found. Because of the rolling topography, the reported mound may have been a natural feature.

References: Butler n.d. a, Setzler 1930a: 418

Recommendations: Given that the site location was recorded only within 160 acres and Setzler's comments quoted above, no further work is recommended for this site. However, future archaeological work in this area should be sensitive to the previously reported mound.

Henry County

A total of 38 earthworks sites are reported for Henry County. The sample surveyed 10 sites. Only 1 (10%) site, 12-Hn-48, was relocated. A portion of this site is in cultivation and being destroyed. Limited testing and preservation of the site was recommended. The survey determined that 3 (30%) of the sites reported as mounds were natural features. Of the 6 (60%) sites not relocated, 3 were recommended for testing to determine if subsurface features still exist. The other 3 sites were in areas that were heavily disturbed and it was unlikely that submound features survived. From the literature, of the 38 sites reported it is probable that 12 were natural features (32%). If this is the case, it appears that only 6 prehistoric earthworks (23%) still exist and 20 (73%) are destroyed.

Site No.: 12-Hn-4 Name: Other Name:

Type: Reported Mound

County: Henry

Location: [redacted]

Quadrangle: New Castle East

Topography: Terrace

Soil: Eldean silt loam, 0 to 2% slope

Drainage: Upper White, East Fork

Water: Big Blue River Distance: 2800' Direction: West

Original Size: 100' diameter, 2' high

Artifacts: None

Site Condition: Natural/destroyed

Current Size: Not measured

Comments: Harlos (1967) described the site as comprised of depressions and slight rises with a small mound. It was located across from the Colony 2 State Hospital entrance. The east side was possibly disturbed by SR 103.

The survey found no remnants of this mound on 2-12-96. Given Harlos' description

of the site, the mound was probably a natural formation. The area is now located next to the Wilbur Wright Department of Natural Resources offices.

References: Harlos 1967:36

Recommendations: Because of the natural origin of this site, no further work is recommended.

Site No.: 12-Hn-5 Name: Other Name:

Type: Reported Mound

County: Henry

Location: [redacted]

Quadrangle: New Castle East

Topography: Terrace

Soil: Eldean silt loam, 0 to 2% slopes

Drainage: Upper White, East Fork

Water: Big Blue River Distance: Unknown Direction: East

Original Size: Unknown

Artifacts: None

Site Condition: Natural/Destroyed

Current Size: Not measured

Comments: This was a small mound reported due north of the Administration Building of the State Hospital (Harlos 1967).

The survey did not located any remnant of this mound on 2-12-96. The area where this mound was reported was developed by the State Hospital. The mound was likely a constructional feature from this development. Across this area many small rises and depressions were observed, but none could be considered of prehistoric origin.

References: Harlos 1967:36

Recommendations: Since this site is not considered to be of prehistoric origin, no further work is recommended.

Site No.: 12-Hn-10 Name: White Site Other Name: Green Street School Mound

Type: Mounds

County: Henry

Location: [redacted]

Quadrangle: New Castle West

Topography: Moraine

Soil: Losantville silt loam, 6-12% slopes, eroded

Drainage: Upper White, East Fork

Water: Big Blue River Distance: 1400' Direction: West

Original Size: Not reported

Artifacts: Points, debitage, scrapers, a graver, 2 slate choppers, 2 slate hoes, an expanded bar gorget, an undrilled expanded bar gorget, a pendent, 8 copper bracelets, 88 copper beads, 2 copper pins, a copper sheet, pottery, clamshell disk beads, 3 log tombs, and burials.

Site Condition: Destroyed

Comments: Two mounds and part of a third were destroyed by the construction of the Greenstreet School and bulldozing operations in 1967. The original landowner, Mr. Hobson, excavated into 1 of the mounds and the material recovered was reportedly donated to the Smithsonian.

The location of Mound 3 was excavated by BSU and is now a parking lot for the New Castle Community Schools building. This building is the old Hobson house.

Additional Info.: From the plan and profile drawing from the excavation, Mound 3 would have been approximately 70' in diameter and 8' in height. The Smithsonian Institution does not have the artifacts reportedly donated by the Hobson family. Radiocarbon dates obtained from the site include: AD 40 +/- 140, AD 30 +/-140, AD 90 +/- 200, AD 210 +/- 140, AD 550 +/-130, AD 400 +/-150 and AD 460 +/-130.

References: Harlos 1967:34, Swartz 1973, Current 1974:14-15

Recommendations: Since the site has been destroyed, no further work is recommended.

Site No.: 12-Hn-34 Name: Other Name:

Type: Enclosure

County: Henry

Location: [redacted]

Quadrangle: New Castle East

Topography: Unknown

Soil: Unknown

Drainage: Upper White, East Fork

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 150' diameter, 5 to 6' high

Artifacts: None reported

Site Condition: Destroyed

Comments: This enclosure was reported by Redding (1892) as almost obliterated by cultivation.

The reported location of the site was surveyed on 2-12-96, but no evidence of the site was found. If the site was not destroyed by cultivation, it was probably destroyed by the construction of the State Hospital buildings. The floodplain and the slopes were not investigated, since these areas are not likely locations for an enclosure.

References: Redding 1892:103, DeRegnacourt 1979:14

Recommendations: Since the site is destroyed and the area has been extensively disturbed, no further work is recommended.

Site No.: 12-Hn-39 Name: Other Name:

Type: Mound

County: Henry

Location: [redacted]

Quadrangle: Cambridge City

Topography: Till plain

Soil: Miami silt loam, gravelly substratum, 2-6% slopes, eroded

Drainage: Whitewater

Water: Roy Run Distance: Unknown Direction: South

Original Size: 50' in diameter, 10' high

Artifacts: None

Site Condition: Natural

Current Size: Not measured

Comments: Redding (1892) did not visit the site and thought the mound could be natural.

> We did not obtain permission to survey the area, so the area was investigated from the road on 2-28-96. Given the topography, the site was believed to be a glacial feature. A natural rise which may have been mistaken as a mound was observed in the NW 1/4, of the SW 1/4 of the NE 1/4 of the section. It was under cultivation.

References: Redding 1892:103-104

Recommendations: Since the feature is natural, no further work is recommended.

Site No.: 12-Hn-40 Name: Other Name:

Type: Mound

County: Henry

Location: [redacted]

Quadrangle: Dunreith

Topography: Terrace

Soil: Eldean silt loam, 0 to 2% slopes

Drainage: Upper White, East Fork

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 20' in diameter, 4' high

Artifacts: Ashes and coal

Site Condition: Not located

Comments: Redding (1892) stated that this small mound was almost obliterated by cultivation.

Surface features of the mound were apparently destroyed by cultivation, since the survey was unable to relocate it on 2/28/96.

References: Redding 1892:104, DeRegnacourt 1979:19

Recommendations: Even though the mound was not located by the survey, there is potential that submound features could have survived cultivation. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Hn-42 Name: Other Name:

Type: Mound

County: Henry

Location: [redacted]

Quadrangle: New Castle West

Topography: Unknown

Soil: Unknown

Drainage: Upper White, East Fork

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 50' in diameter, 3' high

Artifacts: Flints, ashes and coal

Site Condition: Destroyed

Comments: Redding (1892) reported that the mound was once over 6' high but had been reduced from over 50 years of cultivation. The mound had been dug into.

Currently a housing development encompasses most of the SE 1/4 of the section. If the mound did survive cultivation, it was destroyed by development.

References: Redding 1892:104, DeRegnacourt 1979:16

Recommendations: Since the site is destroyed and the area has been heavily disturbed, no further work is recommended.

Site No.: 12-Hn-47 Name: Other Name:

Type: Mound

County: Henry

Location: [redacted]

Quadrangle: Cambridge City

Topography: Till Plain

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 70' diameter, 8-10' high

Artifacts: Ashes, coals, burned stones, burned earth

Site Condition: Not located

Comments: Redding (1892) reported that the site was also a historic cemetery. Heller (1974) visited the site in 1938 and noted several log beams. The mound was located in a cultivated field.

The survey did not locate any sign of the mound on 2-12-96. The current landowner is in his forties and stated he had always farmed the field where the mound was supposed to be located, but he had never found anything. He and his family have always lived near the area and had heard rumors of a mound, but had never found anything.

References: Redding 1892:105, Heller 1974:11

Recommendations: Even though the survey did not relocate the mound, there is a potential for submound features to still exist. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Hn-48 Name: Other Name:

Type: Mounds

County: Henry

Location: [redacted]

Quadrangle: New Castle East

Topography: Terrace

Soil: Eldean silt loam, 0-2% slopes

Drainage: Upper White, East Fork

Water: Colony Run Distance: 2800' Direction: East

Original Size: The largest mound was 60' in diameter and 10' high. The smaller ones were 30' in diameter and 3 to 4' high.

Artifacts: None reported

Site Condition: One of the smaller mounds appears to be destroyed, since it is no longer distinguishable from the natural topography. The largest mound is almost destroyed by plowing. The other small mound located in a woods appears to be fairly intact.

Current Size: The largest mound in the agricultural field is 18.5m (60.1') in diameter E-W. It is longer N-S due to plowing. It is approximately 0.12m (0.4') in height. The existing small mound is 14.7 m (48.2') in diameter and 0.43m (1.4') in height.

Comments: This site was reported by Redding (1892) to be three mounds arranged in a crescent shape. The mound in the center, the largest one, was dug into but nothing was found. Heller (1974) reported that the mounds were separated by about 200' and the large mound and the smaller mound to the south were in cultivation.

The area was surveyed on 2/12/96. Two of the mounds were relocated.

References: Redding 1892:105, Heller 1974:11-12.

Recommendations: The large mound in the agricultural field will be destroyed by cultivation. The mound in the woods is preserved for now and should continue to be. The small mound not relocated was apparently plowed down, but submound features might still exist. Testing is recommended for all three mounds to determine their significance.

Site No.: 12-Hn-63 Name: Other Name:

Type: Mound

County: Henry

Location: [redacted]

Quadrangle: Cambridge City

Topography: Till Plain

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 60' diameter, 5' high

Artifacts: Ash, charcoal, burnt earth

Site Condition: Destroyed

Comments: Heller (1974) stated that the county road dividing Henry and Wayne County went over the western half of the mound. The mound had been dug into but no relics were found.

We did not obtain permission to survey the property where this mound was reported. But, since it was located adjacent to the road, we surveyed the area from the road on 2-12-96. We found nothing that looked like a mound remnant. If only the eastern portion remained as reported, the mound would technically be located in Wayne County, (see 12-Wy-47). Site 12-Wy-47 was a mound that was reported as destroyed by Setzler (1930a) in 1929.

References: Heller 1974:12, Anonymous 1978:81, Setzler 1930a:448

Recommendations: Since the mound was destroyed and the road construction disturbed the area, no further work is recommended.

Madison County

Madison County proved to be interesting in the high number of reported sites that were natural features. The sample surveyed 3 reported sites, but no earthworks were documented. Two of the sites (67%) were natural formations and one site (33%) was believed destroyed but could have been a natural feature. Site 12-M-31 consisted of glacial formations and were not recommended for further work. While site 12-M-113 was also a natural feature, it was utilized as a prehistoric cemetery that would require additional work if more burials were encountered. The other site was not relocated and may also have been a natural formation although this is not known. No further work was recommended due to the imprecise location. From the literature review for this county, it appears that a total of 4 reported sites were natural features. Only 1 prehistoric site (33%), Anderson Mounds, still exists and the other 2 sites (67%) have been destroyed.

Site No.: 12-M-31 Name: Other Name:

Type: Reported mounds

County: Madison

Location: [redacted]

Quadrangle: Anderson South

Topography: Till plain

Soil: Miami silt loam, 6 to 12% slopes, moderately eroded

Drainage: Upper White, West Fork

Water: White River Distance: 500' Direction: South

Original Size: Unknown

Artifacts: Detritus and fire-cracked rock

Site Condition: Natural hillocks in the UAW park

Current Size: Not measured

Comments: Hobson (1969) reported this site made up of 6 small mounds. Conover (1988) believed this site to be significant and discussed a nomination to the State and National Registers.

The site was surveyed by ARMS in 1991. It was determined that these "mounds" were left around the bases of large trees during landscaping.

References: Hobson 1969:36, Conover 1984:215, Conover 1988:69-72

Recommendations: Since the site is of natural origin, no further work is recommended.

Site No.: 12-M-113 Name: Other Name:

Type: Reported Mound

County: Madison

Location: [redacted]

Quadrangle: Gilman

Topography: Till plain

Soil: Rodman soils, 12 to 15% slopes, eroded

Drainage: Upper White, West Fork

Water: Killbuck Creek Distance: Unknown Direction: North

Original Size: 210 to 300' in diameter, 20' high

Artifacts: Burials, pottery, points

Site Condition: Natural gravel ridge in a cultivated field

Current Size: Not measured

Comments: This site was reported as a " mound washout" on a site form on file at ARMS. Conover (1984) believed the site to be natural but never investigated the site.

The area of this "mound washout" is on a gravel ridge. Apparently this ridge was utilized prehistorically as a cemetery, but the formation is natural. The area was surveyed on 2-28-96.

References: Conover 1984:216

Recommendations: Since the site is a prehistoric cemetery, additional work would be required if the site were impacted.

Site No.: Name: Other Name:

Type: Mound

County: Madison

Location: [redacted]

Quadrangle: Lapel

Topography: Till plain

Soil: Unknown

Drainage: Upper White, West Fork

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 50 to 80' in diameter, 6' high

Artifacts:

Site Condition: Natural/destroyed

Current Size: Unknown

Comments: Brown (1884) stated that this mound was in a cultivated field and was rapidly being plowed down. Conover (1984) stated this appeared to be a natural feature, but never investigated the area. Unfortunately, the location of this mound was very imprecise.

The section was inspected from the road on 2/28/96, since landowner permission could be obtained. The topography and soils of the area do not indicate that glacial knolls or kames occurred in this section. But, since the mound was not relocated, it is difficult to know if this was a natural feature or an artificial mound that was destroyed by cultivation and urban development.

References: Brown 1884:39, Conover 1984:218-219

Recommendations: No further work is recommended on this site due to insufficient information.

Randolph County

A total of 30 reported earthwork sites were documented in Randolph County. The sample was to survey 8 sites, but due to a lack of landowner permission only 7 sites were surveyed. Windsor Mound, 12-R-1, was used to bring the sample size to 8. Of these 8 sites, 4 (50%) were documented to exist; 12-R-1, 12-R-17, 12-R-18 and 12-R-19. Site 12-R-1 has been recommended as eligible for listing on the State and National Registers of Historic Places (McCord 1994). The other 3 mounds were recommended for preservation and limited testing to document significance. The survey also documented 2 of the sites as destroyed (25%) and recommended that testing be conducted to document if submound features remain. The remaining 2 sites (25%) were documented as natural features. From the literature review of the 30 reported sites, it appears that 11 of the reported sites (37%) in the county are natural features. In this case, only 6 prehistoric sites (32%) still exist and 13 (68%) are destroyed.

Site No.: 12-R-1 Name: Windsor Mound Other Name:

Type: Mound

County: Randolph

Location: [redacted]

Quadrangle: Farmland

Topography: Terrace edge, ridge spur

Soil: Losantville loam, 18 - 25% slopes

Drainage: Upper White, West Fork

Water: Stoney Creek Distance: 400' Direction: Southwest

Original Size: 150' in diameter and 15' high

Artifacts: Burials, tablets, pottery, shell beads, bone, points, flakes

Site Condition: Disturbed. Central portion was extensively excavated in the 1980's. The excavation was backfilled in 1993.

Current Size: Not measured

Comments: The mound was excavated sometime prior to 1882 (Phinney 1882, Tucker 1882). Except for minor potholing, the mound remained in excellent condition until 1986 when it was extensively excavated by amateurs. However, profiles and a radiocarbon

date of 70 B.C. +/- 70 were obtained from the excavation (McCord 1994). The mound has been recontoured and is currently preserved.

References: Phinney 1882:194, Tucker 1882:14, Smith and Driver 1914:58, Morris 1970:22, Conover 1984:204-205, McCord 1994.

Recommendations: The site is eligible for listing on the State and National Registers.

Site No.: 12-R-11 Name: C.E. Shultz Mound Other Name:

Type: Mound

County: Randolph

Location: [redacted]

Quadrangle: Winchester

Topography: Flat till plain

Soil: Fincastle-Crosby silt loam, 0 to 1 % slopes

Drainage: Upper White River West Fork

Water: Owl Creek Distance: ca. 150 m (500 ') Direction: west

Original Size: 50' in diameter and 3.5' high

Artifacts: None reported

Site Condition: The site area is currently in cultivation

Current Size: Unknown

Comments: The site was originally reported by Setzler (1931:21-22). He noted that the top of the mound was once used for fire pits associated with cooking maple sap. At the time of his survey, the site was in cultivation and being plowed down. He predicted the site would soon be destroyed. Morris (1970:13) reported that the site had been destroyed.

When the site area was field checked on 4-17-96, no evidence of the mound was found. The field was in cultivation, had 80% visibility and appeared obviously eroded. Two areas were checked. Setzler (1931:32) noted that the mound was south of the two gravel pits. He also noted that the site was "400' west of the east section line road, and 1200 feet north of the south section line road." The measured location is actually north of the gravel pits. Thus, there is a discrepancy in the site location.

References: Setzler 1931:21-22, Morris 1970:13

Recommendations: Although the exact site location is unknown, Setzler's report seems valid. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-R-13 Name: Frazier Mound Other Name:

Type: Mound

County: Randolph

Location: [redacted]

Quadrangle: Carlos

Topography: Rolling moraine

Soil: Celina Silt loam

Drainage: Upper White West Fork

Water: Mortar Run Distance: ca. 1,000' Direction: West

Original Size: 38' in diameter and 3' high

Artifacts: None

Site Condition: No surface indications of a mound

Current Size: Unknown

Comments: Setzler reported the mound in the corner of an orchard.

When field checked on 4-17-96, the site area was in a cultivated field with 80% visibility. The location was surveyed from the road. No surface indication of a mound was found.

References: Setzler 1931:22

Recommendations: Although no indication of the mound was found on the surface, the possibility exists that features may remain below the plow zone. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-R-17 Name: Johnson Mound Other Name: Earth Mound No. 2

Type: Mound

County: Randolph

Location: [redacted]

Quadrangle: Lynn

Topography: Rolling till plain

Soil: Losantville silt loam, 2 to 6% slopes, eroded

Drainage: Whitewater

Water: Mud Creek Distance: 1000' Direction: East

Original Size: 200' in diameter and 25' high (Setzler 1930a:458)

Artifacts: None reported

Site Condition: Excellent. Damage appears limited to woodchuck burrows.

Current Size: 200' diameter and 15' high

Comments: Setzler reports that the mound is slightly elliptical.

This mound, Baxter (12-R-19) and Windsor Mound (12-R-1) are the three largest in east central Indiana.

When field checked on 4-16-96, the mound was found to be in an excellent state of preservation. It is covered in trees and small brush. Cultivation occurs up to the base of the mound. Woodchuck burrows were numerous over the surface of the site.

References: Setzler 1930a:458, Morris 1970:8, Phinney 1884:194, Tucker 1882:15

Recommendations: Continued protection of the mound. It and Baxter appear to remain the best preserved in east central Indiana. Limited test excavations should be conducted to document significance.

Site No.: 12-R-18 Name: Johnson Mound Other Name: Earth Mound No. 3

Type: Mound

County: Randolph

Location: [redacted]

Quadrangle: Lynn

Topography: Rolling till plain

Soil: Losantville silt loam, 2 to 6% slopes, eroded

Drainage: Whitewater

Water: Mud Creek Distance: 1000' Direction: East

Original Size: 40' in diameter and 6' high (Setzler 1930a:458)

Artifacts: None reported

Site Condition: Good. Damage appears limited to cultivation.

Current Size: ca 40' diameter and 3-4' high

Comments: Setzler (1930a:459-460) reports that the mound was in a cultivated field and was considerably reduced. Morris (1970:8) noted that it was rapidly eroding. The majority of the site is still in cultivation and is thus eroding. James Keesling (personal communication 1995) conducted test excavations at the mound prior to passage of IC 14. He reports finding a row of post holes oriented slightly east of north. Testing was discontinued because of the passage of IC 14..

References: Setzler 1930a:459-460, Morris 1970:8, Phinney 1884:194, Tucker 1882:15

Recommendations: Continued protection of the mound. Limited test excavation to document significance.

Site No.: 12-R-19 Name: Baxter Mound Other Name:

Type: Mound

County: Randolph

Location: [redacted]

Quadrangle: Lynn

Topography: Flat till plain

Soil: Losantville silt loam

Drainage: Whitewater

Water: Mud Creek Distance: 1700 ' Direction: East

Original Size: 110' north-south and 85' east-west. More than 15' high.

Artifacts: None

Site Condition: Excellent

Current Size: As originally reported.

Comments: Setzler (1930a:458) states that this is one of the largest mounds in the Whitewater Valley. Morris (1970: 8) notes that the mound is well preserved.

When field checked on 4-16-96, the site was surrounded by a cultivated field. The surface of the mound is covered with small brush and large rocks, the latter apparently piled around the mound from the surrounding fields. The site appears to be in an excellent state of preservation.

References: Setzler 1930a: 458, Morris 1970: 8, Phinney 1882: 193, Tucker 1882: 15

Recommendations: The site should continue to be preserved. Limited test excavations to document significance should be carried out.

Site No.: 12-R-40 Name: Other Name:

Type: Reported mound

County: Randolph

Location: [redacted]

Quadrangle: Spartansburg

Topography: Flat till plain

Soil: Losantville clay loam, 6 to 12 percent slopes, severely eroded

Drainage: Miami River

Water: Elson Ditch Distance: 100' Direction: west

Original Size: Unreported

Artifacts: None reported but burials were reported when the house was built.

Site Condition: Currently a farm complex

Current Size: Not measured

Comments: This site was reported by Morris (1970: 14) as a large mound with a 2-story brick house built on it. Burials were apparently found when the house was built. Another "mound" located 500 yards NW was reported leveled several years earlier. Unfortunately, Morris did not identify the source of his information.

When field checked on 4-17-96, the site was found to be a large natural feature similar to a kame, not an artificial mound. Not only is the hill too large to be a mound, it is in a completely anomalous setting from other mounds in the region. Other verified mounds in the region are located adjacent to natural water courses. This hill is not near a natural water course. In addition, the house built on the hill appears to be a late 19th century structure, so the report of burials being found when the house was built is almost 100 years after the fact. Burials would be expected, however, from such a prominent natural feature.

References: Morris 1970

Recommendations: Since burials are reported from the site, further assessment would be required if the site is impacted.

Site No.: 12-R-58 Name: None Other Name:

Type: Reported mound

County: Randolph

Location: [redacted]

Quadrangle: Modoc

Topography: On the edge of a shallow drainageway on the flat till plain

Soil: Fincastle-Crosby silt loam

Drainage: Upper White West Fork

Water: Intermittent branch of Stoney Creek Distance: ca. 300' Direction: N

Original Size: Unknown

Artifacts: Morris (1970:23) reports "three crude core knives".

Site Condition: Unknown

Current Size: Unknown

Comments: The site was reported as a mound by Morris (1970:23) but without citation to the origin of the report. Morris reported that it no longer existed in 1970.

The site was field checked on 4-17-96. The field was planted in winter wheat. The topographic location did not appear consistent with other mound sites. It is suspected that this is not the location of a mound, but it is impossible to ascertain the origin of the report.

References: Morris 1970:23

Recommendations: No further work is recommended.

Union County

Forty-four earthwork sites were reported for Union County. The sample was to survey 12 sites, but 13 were actually surveyed due to the close proximity of 12-Un-162 to 12-Un-110. The survey found 3 (23%) of the 13 reported sites; 12-Un-34, 12-Un-35 and 12-Un-101. Each of these sites were recommended for limited testing and preservation. Site 12-Un-34 is severely threatened by erosion due to the fluctuating water table of Brookville Reservoir. Only 1 site (8%), 12-Un-64, was recorded as possibly being a natural formation. The remaining 9 sites (69%) were not relocated. Testing to document the presence of submound features was recommended for sites 12-Un-5, 12-Un-65, 12-Un-107, 12-Un-110, 12-Un-159, 12-Un-162, and 12-Un-164. Based on the literature review for the county, it appears that 9 of the reported sites are natural features. It also appears that 9 (26%) of the earthworks still exist and the remaining 26 (74%) have been destroyed.

Site No.: 12-Un-4 Name: Brookbank Other Name: Homsher #40

Type: Mound

County: Union

Location: [redacted]

Quadrangle: New Fairfield

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 42' in diameter, 5'8"high

Artifacts: None reported

Site Condition: Not located

Current Size:

Comments: Three different locations were given for this mound by previous researchers (Homsher 1884a, Setzler 1930a, Kellar 1967, Koleszar 1972). Koleszar (1972)

reported that the mound was located next to a gas pipeline constructed in 1969. The mound had been excavated prior to his survey and reduced in size. One previous attempt to locate this mound had failed (Kolbe 1992a).

This survey also failed to find the mound. The area along the pipeline was surveyed on 3/13/96 and no mound was observed. Perhaps the mound was destroyed by the excavation Koleszar mentioned. The powerline right-of-way has also shifted after 1960 based on the topo, and the new right-of-way may have destroyed the mound.

References: Homsher 1884a:739, Setzler 1930a:435, Kellar 1967:n.p., Koleszar 1972:40, Kolbe 1992a:C5.

Recommendations: Since the mound was not located and the reported location is heavily disturbed, it is assumed that the mound has been destroyed. No further work is recommended.

Site No.: 12-Un-5 Name: Jenkins Mound Other Name: Homsher #28

Type: Mound

County: Union

Location: [redacted]

Quadrangle: Everton

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Whitewater River Distance: Unknown Direction: Unknown

Original Size: 35' in diameter, 4.5' high

Artifacts: None reported

Site Condition: Not located

Current Size: Unknown

Comments: Homsher (1884a) reported that he trenched the mound, which was stratified, but found nothing. Setzler (1930a) reported that the mound was in cultivation. Both Kellar (1967) and Koleszar (1972) noted that the site was destroyed.

This survey found that Setzler's (1930a) location for the mound is now flooded by Brookville Reservoir and Homsher's location is in a cultivation field. No mound was found in the cultivated field on 2-21-96.

References: Homsher 1884:736-737, Setzler 1930a:435, Kellar 1967, Koleszar 1972:76, Kolbe 1992a:C6

Recommendations: If the mound were located in the cultivated field, there is a potential for submound features to exist. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Un-34 Name: Candal Mound Other Name: Homsher #34

Type: Mound

County: Union

Location: [redacted]

Quadrangle: New Fairfield

Topography: Low terrace

Soil: Milton silt loam, 2 to 6% slopes, slightly eroded

Drainage: Whitewater

Water: Hannah Creek Distance: 300' Direction: North

Original Size: 60' diameter, 14 1/2' high

Artifacts: None reported

Site Condition: The mound is located in a woods but is heavily disturbed.

Current Size: 24.9 m (81.7') in diameter, but height was indeterminate from the natural topography but was over 1' high in places.

Comments: Homsher (1884a) commented that the mound was unexplored. Setzler (1930a) noted the mound was used for the foundation of a house. Koleszar (1972) noted the basement of a house still existed but the house was gone.

The survey on 2/26/96 found it hard to separate the mound's boundaries from the natural terrace, but portions of the mound appeared intact. A portion of the stone foundation of the old house was still visible in the center of the mound. The mound is threatened by erosion from Hanna Creek and another small tributary. Since the impoundment of Brookville Reservior, the water levels have apparent risen and are eroding the banks of the tributaries toward the mound.

Additional Info.: A local landowner remembered that the old house had burned. When the land was purchased for Brookville Reservoir, the Corps of Engineers pushed in part of the mound to fill an old well associated with the house.

References: Homsher 1884a:738, Setzler 1930a:435, Koleszar 1972:38-9, Kolbe 1992a:C10.

Recommendations: Limited test excavations should be conducted to determine the mound's significance. The remaining portions of the mound should be protected from erosion and further disturbance.

Site No.: 12-Un-35 Name: Connell Mound Other Name:

Type: Mound

County: Union

Location: [redacted]

Quadrangle: New Fairfield

Topography: Ridge spur on till plain

Soil: Russell silt loam, 6-12% slopes, moderately eroded

Drainage: Whitewater

Water: Dubois Creek Distance: 400' Direction: East

Original Size: 35' 6" in diameter, 5' high

Artifacts: None reported

Site Condition: Disturbed from previous excavation

Current Size: 13.2 m (43.3') in diameter, 0.8 m (2.6') high

Comments: Setzler (1930a) reported a depression in the center of the mound. Koleszar (1972) reported the mound was reduced in size being 40' in diameter and 3' high.

The current survey on 3-13-96 found the mound to be in the middle of a ridge spur above Dubois Creek in a second growth woods. The mound has been excavated, but substantial portions of the mound remain.

References: Setzler 1930a:435-436, Koleszar 1972:39

Recommendations: Limited test excavations should be conducted to determine the mound's significance. The mound should be preserved.

Site No.: 12-Un-64 Name: Other Name:

Type: Mound and enclosure

County: Union

Location: [redacted]

Quadrangle: New Fairfield

Topography: Unknown

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 40' diameter, 4 1/2' high

Artifacts: None reported

Site Condition: Destroyed/natural

Current Size: Unknown

Comments: Koleszar (1972) stated the mound was reported by Smith (1968). Around the mound was an embankment 110' in diameter. Koleszar reported that some earth had been pushed onto the site making the embankment difficult to distinguish.

The survey did not obtain permission to survey the site, but we drove by the area on 2-26-96. No mounds or embankments were visible. It is possible this was a natural formation located in an intermittent stream channel.

Additional Info.: The property owner wrote that they had destroyed the mounds hauling away truck loads of dirt to other locations.

References: Koleszar 1972:56

Recommendations: No further work is recommended.

Site No.: 12-Un-65 Name: Other Name:

Type: Mound

County: Union

Location: [redacted]

Quadrangle: Fairhaven

Topography: Till Plain

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: Unknown

Artifacts: Bone and other artifacts

Site Condition: Not located

Current Size: Unknown

Comments: Koleszar (1972) reported the mound was destroyed about 10 years prior to his survey by bulldozer operations.

The area was investigated for any remnant of the mound on 2-26-96, but none was observed. The mound may have been removed for improvements to the county road.

References: Koleszar 1972:56

Recommendations: There is a possibility that submound features still exist at this site. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Un-101 Name: Smith Mound Other Name: Homsher #33

Type: Mound

County: Union

Location: [redacted]

Quadrangle: New Fairfield

Topography: Ridge spur in the Till Plain

Soil: Russel silt loam, 2 to 6 % slopes

Drainage: Whitewater

Water: Hannah Creek Distance: 600' Direction: East

Original Size: 65' diameter, 15' high

Artifacts: Bone, slate, and fcr

Site Condition: The mound is located in a small woods bordering a cultivated field and overlooking Hanna Creek to the south. It has been greatly reduced by previous excavations, but is still impressive in size.

Current Size: 20.5 m (67.24') in diameter, 2.37 m (7.8') high

Comments: Homsher (1884) reported this as the largest mound in Union County. Setzler reported the mound as elliptical in shape and reduced to 6' 2" high due to pothunting. Koleszar reported considerable excavation but a height of 8'.

Although the mound has been disturbed it is one of the better preserved mounds in the survey area as of 2-26-96.

References: Homsher 1884a:738, Setzler 1930a:433, Koleszar 1972:71-72, Kolbe 1992a:95.

Recommendations: Limited testing should be conducted to document the site's significance. Continued preservation is also recommended.

Site No.: 12-Un-107 Name: Crawford Mound Other Name:

Type: Mound

County: Union

Location: [redacted]

Quadrangle: Everton

Topography: Till Plain

Soil: Unknown

Drainage: Whitewater

Water: Intermittent drainage Distance: Unknown Direction: North

Original Size: Unknown

Artifacts: None reported

Site Condition: Not located

Current Size: Unknown

Comments: Setzler (1930a) reported that the mound was destroyed to allow for cultivation.

During this survey, the area was investigated on 2-21-96. The east side of the road was in cultivation and no mound was observed. Permission was not obtained to survey the west side of the road, but the area was observed from the road. The area was in pasture and no mound remnants were observed.

References: Setzler 1930a:431-432, Koleszar 1972:74

Recommendations: Although no surface indications of a mound were found, there is a possibility that submound features might still exist at the site. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Un-110 Name: Hughes Mound Other Name: Homsher #36

Type: Mound

County: Union

Location: [redacted]

Quadrangle: New Fairfield

Topography: Till Plain

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 38' in diameter, 4 1/2' high

Artifacts: Copper and slate ornaments and human remains

Site Condition: Not located

Current Size: Unknown

Comments: Homsher (1884a) reported that the mound was trenched. Setzler (1930a) stated that the mound had been reduced from 8' to 1' high and the owner had found a stone grave while cultivating the mound.

During this survey on 3-31-96 while talking with the owner and his neighbors, the neighbor remembered that in the 1970's Purdue University recovered a burial in the area of Setzler's location of the mound. Mr. Mel Thurman of Purdue apparently did some work on the mounds in the Brookville area, but all of the records were lost in a fire (R. Criss Helmkamp, personal communication 1996). No evidence of a mound was found by this survey in either Homsher's or Setzler's locations. Both locations were in agricultural fields, so the mound was probably destroyed by cultivation.

References: Homsher 1884a:738, Setzler 1930a:434-435, Koleszar 1972:75-76, Kolbe 1992a:C17

Recommendations: There is potential that submound features still exist. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Un-159 Name: Other Name: Homsher #27

Type: Mound

County: Union

Location: [redacted]

Quadrangle: Everton

Topography: Till Plain

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 48' in diameter, 7' high

Artifacts: Pendant, celt, a few bones, gorget preform, and hearths

Site Condition: Not located

Current Size: Unknown

Comments: Homsher (1884a) reported that the mound had been excavated before his survey and he also trenched it. From his description, individual basket loads were apparent. Koleszar (1972) reported the mound destroyed.

This survey did not relocate the mound on 2-21-96. The area had been cleared and cultivated at one time. Perhaps the mound was destroyed by cultivation.

References: Homsher 1884a:736, Koleszar 1972:79-80, Kolbe 1992a:C22

Recommendations: There is potential for submound features to still exist at the site. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Un-162 Name: Other Name: Homsher #35

Type: Mound

County: Union

Location: [redacted]

Quadrangle: New Fairfield

Topography: Till Plain

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 38' in diameter, 4' high

Artifacts: None reported

Site Condition: Destroyed

Current Size: Unknown

Comments: Homsher (1884a) reported that the mound was composed of brick clay. Koleszar (1972) reported the mound was destroyed.

The mound was not relocated during this survey on 3-13-96. It was apparently destroyed by cultivation.

References: Homsher 1884a:738, Koleszar 1972:80-81, Kolbe 1992a:C25

Recommendations: Although no surface indications of the mound were found, there is a possibility that submound features exist. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Un-164 Name: Other Name: Homsher #42

Type: Mound

County: Union

Location: [redacted]

Quadrangle: New Fairfield

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction:Unknown

Original Size: 32' in diameter, 4 1/2' high

Artifacts: None reported

Site Condition: Destroyed

Current Size: Unknown

Comments: Homsher (1884a) reported the mound was composed of compact clay. Koleszar (1972) reported the mound was destroyed.

The mound was not relocated during this survey. It may have been destroyed by construction of a gas pipeline or it may be under water now if it was located on a low terrace.

References: Homsher 1884a:739, Koleszar 1972:81, Kolbe 1992a:C27

Recommendations: There is a possibility that submound feature exist at the site. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: Name: Other Name: Homsher #84

Type: Mound

County: Union

Location: [redacted]

Quadrangle: Liberty

Topography: Till Plain

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 42' in diameter, 6' high

Artifacts: None reported

Site Condition: Destroyed

Current Size: Unknown

Comments: Homsher's (1884a) location for this mound is confusing. He stated the mound was located in Range 2 West, but there is no Section 5 in Range 2 West. He also stated the mound was on Henry Ruse's farm, which was located in Range 1 W.

The survey investigated Section 5 in Range 1 West on 3-13-96, but the mound was not relocated. The mound was probably destroyed by cultivation.

References: Homsher 1884a:743

Recommendations: No further work is recommended due to insufficient information.

Wayne County

In Wayne County, 37 earthwork sites have been recorded. The sample was to survey 10 sites, but due to the lack of landowner permission only 8 sites were surveyed. Two mounds that Heilman (1976) excavated, 12-Wy-1 and 12-Wy-12, were included to bring the sample to 10. Of the 10 sites, the Bertsch complex is actually recorded under 2 site numbers, 12-Wy-45 and 12-Wy-46 and counts as 2 sites. Three sites out of 10 (30%) were recorded as existing, 12-Wy-39, 12-Wy-45 and 12-Wy-46. Each of these sites were located in cultivated fields. Some were visible only on aerial photographs; the tallest were only ca. 2' in height. Each of the sites was recommended for limited testing. The remaining 7 sites were believed to be destroyed. Taken from the literature review of the county, it would appear that 4 of the 37 reported earthworks are natural features. It also appears then that 12 of the reported sites (36%) are still in existence and 21 (64%) are destroyed.

Site No.: 12-Wy-1 Name: Hayes Arboretum Other Name:

Type: Mound

County: Wayne

Location: [redacted]

Quadrangle: New Paris

Topography: Unknown

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: Unknown

Artifacts: Pottery, points, celt, post holes, ash, burnt human bone, burnt clay platform.

Site Condition: Unknown

Current Size: Unknown

Comments: Heilman states that the mound had previously been explored by Mr. Hayes and then recontoured. Heilman's account of his excavation is very brief.

No description of the original size or structure of the mound is to be found. Stepleton gives a brief account of the excavation in 1965. The notes of the excavation are at Earlham College. The artifacts are currently on loan to Heilman at the Dayton Museum of Natural History. This mound was not resurveyed during the project.

References: Heilman 1976: 49, 54-68, Stepleton 1969: 24-26

Recommendations: This site should be field checked to determine if it is still in existence and to find an exact location for the mound.

Site No.: 12-Wy-12 Name: Waterworks Other Name:

Type: Mound

County: Wayne

Location: [redacted]

Quadrangle: New Paris

Topography: Unknown

Soil: Unknown

Drainage: Whitewater

Water: Unknown Distance: Unknown Direction: Unknown

Original Size: 35 ft. diameter X 5 ft. 8 in. high

Artifacts: Points, scrapers, drills, ground stone gorget, copper beads, pottery, burial pit.

Site Condition: Unknown

Current Size: Unknown

Comments: Setzler's description has the mound overgrown with trees and bushes. Heilman excavated the mound while associated with Earlham college in 1966. Heilman gives the mound's dimensions as 50 ft. diameter X 4 ft. high. Stepleton describes the 1966 excavation. The notes from the excavation are at Earlham and the artifacts are currently on loan to Heilman at the Dayton Museum of Natural History (James Heilman, personal communication 1996).

References: Setzler 1930a: 453, Heilman 1976: 49, 69-92, Stepleton 1969: 26-26

Recommendations: This site should be field checked to determine if it is still in existence and find an exact location for the mound.

Site No.: 12-Wy-39 Name: Graves Other Name:

Type: Enclosure

County: Wayne

Location: [redacted]

Quadrangle: Fountain City

Topography: Terrace

Soil: Ockley silt loam, 0-2% slopes

Drainage: Whitewater

Water: Noland's Fork Distance: 750' Direction: West

Original Size: 810 ft. 10 in. Sq. X 6 in. high

Artifacts: None

Site Condition: Damaged

Current Size: Embankment ca. 2' high

Comments: MacPherson first describes the site as a 780 ft. square with a gateway 50 ft. wide to the West. Setzler says the enclosure is still visible after all the years of cultivation. Heilman says the walls are a little less distinct now due to continued cultivation.

A drive-by survey noted that some of the embankment is still visible.

References: MacPherson 1879: 219-221, Setzler 1930a: 442-443, Heilman 1976: 43-44.

Recommendations: This site should be field checked and surveyed to determine its current condition and record its current dimensions. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Wy-43 Name: Teetor Mound Other Name:

Type: Mound

County: Wayne

Location [redacted]

Quadrangle: Hagerstown

Topography: Rolling Terrace

Soil: Unknown

Drainage: Whitewater

Water: Whitewater Distance: Unknown Direction: West

Original Size: 43 ft. 8 in. diameter X 8 ft. high

Artifacts: Slate Celt

Site Condition: Not located

Current Size: Unknown

Comments: Setzler (1930a) reported observing the owner level the mound with a bulldozer.

The survey on April 24, 1996 found no evidence of this mound. It is presumed to have been built upon by one of three houses in the survey area.

References: Setzler 1930a:446, Heilman 1976: 45

Recommendations: As this site was destroyed during house construction, there is not considered potential for any remains to be existent and/or accessible. No further work is recommended.

Site No.: 12-Wy-45 and 12-Wy-46 Name: Bertsch Other Name:

Type: Complex

County: Wayne

Location: [redacted]

Quadrangle: Cambridge City

Topography: Terrace

Soil: Eldean loam, 0-2 % slopes

Drainage: Whitewater

Water: West Fork Whitewater Distance: 500' Direction: West

Original Size: Unknown

Artifacts: Burials, daub, lithics, pottery

Site Condition: Earthworks are no longer visible on surface due to cultivation.

Current Size: Unknown

Comments: MacPherson records seven circles at the site. Wissler reports a mound west of the small circles which was destroyed by a gravel pit. Setzler comments on the two southern circles. Heilman excavated the largest southern circle but only provides a brief report. Stepleton discusses the 1968 excavation. A BSU fieldschool in 1978 tested the area and found nothing. Another fieldschool (1980) tested an area located between the two southern circles and found it to have been an earthwork leveled by plowing. USDA aerial photographs (1936) of the area show approximately 16 circular earthworks.

A drive by survey could not distinguish any enclosures.

References: MacPherson 1879: 223-225, Setzler 1930a: 447-448, Shetrone 1930: 249, Heilman 1976: 93-103, Berg et al 1979: 6-9, Reseigh 1984:1 -7, Stepleton 1969: 26-33, Wissler 1921.

Recommendations: This site should be field checked to determine its current condition. Testing should occur to determine the nature and significance of the site as well as to determine the damage caused by cultivation.

Site No.: 12-Wy-50 Name: Secrist Mound Other Name:

Type: Mound

County: Wayne

Location: [redacted]

Quadrangle: Jacksonburg

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Dry Branch Distance:Unknown Direction: West

Original Size: 42 ft. diameter/ 8 ft. high

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Setzler notes the mound is located in a woods. Heilman notes the mound had been potholed.

The survey for this mound, completed on April 2, 1996, did not relocate the site. The area in which the mound was reported is currently mixed agricultural, woods, and farmstead. The mound may have ben destroyed by cultivation or construction of farm buildings.

References: Setzler 1930a: 448-449, Heilman 1976: 46

Recommendations: Some mound sites are known to contain submound features which would not be recognized by a surface investigation. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Wy-57 Name: Other Name:

Type: Mound

County: Wayne

Location: [redacted]

Quadrangle: Richmond

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Whitewater Distance: Unknown Direction: East

Original Size: Unknown

Artifacts: Stone axes, copper rings, pottery

Site Condition: Not located

Current Size: Unknown

Comments: Setzler reports the mound completely destroyed. Heilman reiterates Setzler.

The survey of the area on April 2, 1996 found the area in grass. The mound was not relocated.

References: Setzler 1930a: 453, Heilman 1976: 49

Recommendations: Some mound sites are known to contain submound features which would not be recognized by a surface investigation. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Wy-58 Name: Levi Myers Mound Other Name:

Type: Mound

County: Wayne

Location: [redacted]

Quadrangle: Richmond

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Lick Creek Distance: Unknown Direction: East

Original Size: Unknown

Artifacts: Pottery, ashes, charcoal

Site Condition: Not Located

Current Size: Unknown

Comments: MacPherson notes the mound was opened by President Moore of Earlham College. Setzler and Heilman repeat Macpherson. Stepleton comments on the excavation.

The area was surveyed on April 2, 1996. There are two depressional areas near the given location of the mound. One of these depressions is being utilized as a campfire, and the other as a motorized dirt bike ramp. The land owner reports that one of these two spots was a pit dug by some children, the other, may have been the location of the mound.

References: MacPherson 1879: 221, Setzler 1930a: 453-454, Heilman 1976: 49, Stepleton 1969:23

Recommendations: Some mound sites are known to contain submound features which would not be recognized by a surface investigation. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Site No.: 12-Wy-59 Name: Wilson Mound Other Name:

Type: Mound

County: Wayne

Location: [redacted]

Quadrangle: Cambridge City

Topography: Terrace

Soil: Unknown

Drainage: Whitewater

Water: Whitewater Distance: Unknown Direction: East

Original Size: 49 ft. 6 in. diameter/ 5 ft. 4 in. high

Artifacts: None

Site Condition: Not Located

Current Size: Unknown

Comments: Setzler describes this mound as being built on the most prominent point along the west bank of the Whitewater River. Heilman found the mound located in a pasture.

The area was surveyed on April 2, 1996. Currently, the land is in agricultural use. The mound was not relocated during the survey and is believed to have been destroyed by cultivation.

References: Setzler 1930a: 454-455, Heilman 1976: 49-50

Recommendations: Some mound sites are known to contain submound features which would not be recognized by a surface investigation. Therefore, an intensive survey, consisting of either machine stripping of the plow zone or closely spaced shovel tests, is recommended to determine whether subsurface mound features remain.

Conclusions

During this portion of the project, 68 reported earthwork sites were surveyed. A total of 83 summaries were included to provide a stratified 25% sample of each county. The results varied slightly from county to county, but overall the results were poor in terms of the percentage of mounds documented as still existing. Within the sample of 83 sites discussed, only 24 or 29% were actually found to exist. The preservation of sites that were found ranged from well preserved to almost obliterated. Almost all of the sites had suffered some damage from pothunting. Two sites within the sample, Glidewell Mound (12-Fr-22) and Windsor Mound (12-R-1), have been documented to be eligible for listing on the State and National Registers of Historic Places. The remaining 22 sites that were relocated were recommended for limited testing to document significance and for preservation if possible. Unfortunately, mounds like 12-R-18 that are located in cultivated fields will continue to be eroded. The survey did not relocate 47 sites. Even though no surface evidence of a mound was discovered, 32 mounds were recommended for intensive survey to determine if possible submound features still exist. Five of the sites were recommended for further survey. No further work was recommended for 6 sites, because the area was too disturbed by development. No further work was recommended for 4 sites, because of insufficient information usually pertaining to the location. Twelve sites were documented to be natural features.

Testing Results

The proposal for this project called for testing of four sites within the project area. The four sites were to include two earthworks and two habitation sites. The earthworks, Fudge and Graves, were to be mapped, surveyed for evidence of habitation sites, and limited test excavations conducted in the embankments to obtain samples for radiocarbon dating. The two habitation sites were to be tested to determine the presence of features and potential for buried deposits. However, in spite of our best efforts, only one site, a habitation, was tested, and then only partially. A combination of an unusually wet spring and lack of landowner permission prevented our completing this part of the proposal. Each site is discussed below.

Fudge Mound

Fudge Mound (12-R-10) is the largest enclosure in east central Indiana and ranks as one of the largest in the state. The rectangular walls enclosed an area of approximately 31 acres and was originally mapped by Squire and Davis (1848). A mound in the center of the enclosure was excavated by Setzler (1931) just prior to its destruction. A more detailed description of the site is contained in the section on Woodland Ceremonial Sites.

Testing of the site was proposed to obtain radiocarbon samples from the embankment to determine its age. The mound in the center had typical Adena artifacts and there has long been a question of the age of the embankment since it appears more typical of Hopewell constructions (Griffin in Swartz 1971:136).

The site is currently in very poor condition. Portions of the west, north and south walls are visible although they are badly eroded from cultivation (Figure 13). The walls appear to be between two and three feet high. The east wall has been almost completely obliterated by quarrying, but a small section remains at the northeast corner. Surface evidence of the mound appears to have been completely removed by Setzler's (1931) excavation. The majority of the site is currently under cultivation, but the northern part is divided among a number of small land holdings. The best preserved section of the embankment appears to be the small triangle at the road intersection on the western embankment (Figure 13).

To say that the site is threatened would be an understatement. Cultivation and landscape alteration are continually reducing the remaining portions of the site. Testing and mapping of the embankment are critical to obtain information on size and orientation before it is completely obliterated.

During the summer of 1995, we intended to conduct the testing and mapping during the BSU archaeological field school. However, the area we proposed for testing, the northwest corner, was partially occupied by a large TV tower and owned by a company from Richmond. Although it initially appeared that permission would be granted, the process

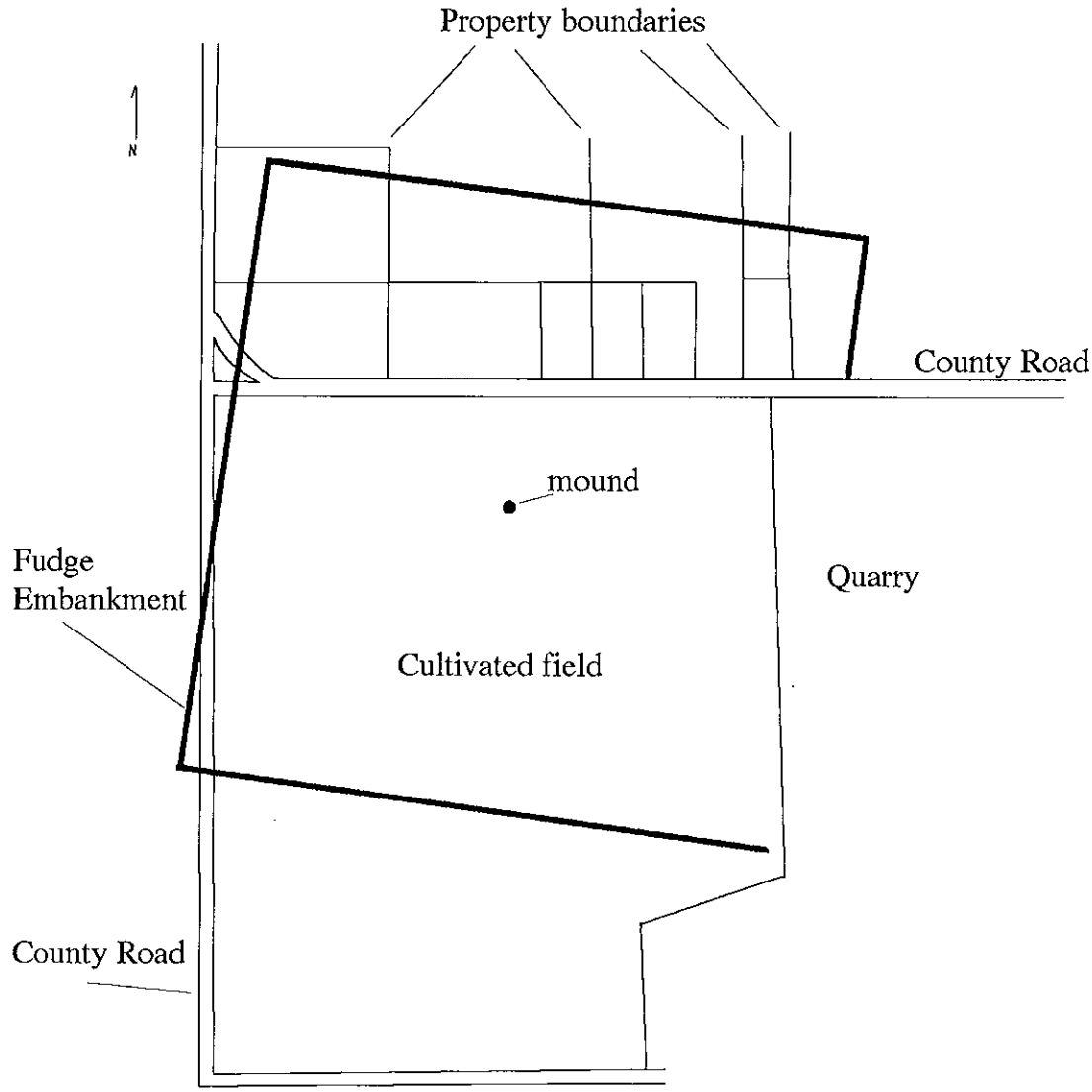


Figure 13. Map of Fudge enclosure. Redrawn from 1991 aerial photo. Scale: 1" = 400'.

continually required another letter or form and no permission was ultimately obtained. It seemed that the prospect of liability was the final stumbling block. By the time the process had dragged on for several months, the field school was over.

Through members of the Upper White River Archaeological Society, permission to test two parts of the embankment were finally obtained during the winter of 1996. We were prepared to start as soon as the spring rains stopped; the only difficulty was that the rains have not yet stopped (as of May 27) . We were thus stymied from testing the site under this grant.

However, even though the testing was not conducted, new information was acquired. Members of the UWRAS have surveyed the interior of the embankment over several years. They report few artifacts from the site and none that are diagnostic of Early or Middle Woodland. Even fire-cracked rock was infrequently noted. Given the location of the site, at least some evidence of habitation would be expected, although not necessarily from Woodland components. There is a possibility that the prominence of the site in local history has resulted in wholesale removal of surface artifacts and while the site was part of the Winchester fair grounds. We have been able to prepare a relatively accurate map of the site based on aerial photographs.

For future reference, the testing proposed as part of this project needs to be carried out. In addition, subsurface remains of the ditches associated with the wall surrounding the west entranceway should still survive and should also be tested and dated if possible. There is also a possibility that some submound structure remains from Setzler's excavations. This possibility should be investigated in order to add significant details to the record for this important site. One further bit of data that needs to be gathered is a detailed documentation and reanalysis of the artifacts from the site. They are curated at the Glenn A. Black Laboratory of Archaeology (Noel Justice, personal communication 1996). The landowners with portions of the site on their property need to be informed of the importance of the site and an overall effort to preserve the remainder of the site needs to be organized.

Graves Earthwork

Graves Earthwork (12-Wy-39) is another larger rectangular enclosure (see Figure 20). It is not as large as Fudge but still encloses an area of approximately 13 acres. This site has not been professionally excavated and little is known about it except for early descriptions (Setzler 1930a:442). It is described in more detail in the Woodland Ceremonial Sites section.

The site does show up on USDA 1936 aerial photographs. It is currently in a cultivated field and appears considerably reduced in height. From the road, the site is visible when crops are not in the field. The south wall may have been taken out by a driveway.

The current owners of the site are amenable to testing, survey and mapping. The difficulty for this project was that the site is in winter wheat. ARMS has been granted

permission to work at the site after the wheat has been harvested in July. However, as with Fudge, had permission been granted to conduct the work this spring, the wet conditions would have prevented it.

The current owners of the site report that a number of artifacts have been found in the field where it is located. This situation is opposed to the findings at Fudge and may have important implications for the use of the site. Graves Earthwork is an important site in the region as it is the only one of its kind. Although the shape and construction suggest a Hopewell structure, the age is currently unclear. Testing, survey and mapping are critical first steps in understanding the role of the site within the regional ceremonial system. It is also crucial that artifact collections from the site be identified as a further step in documenting its past use.

Delaware County Area

This vaguely named area is not the location of a single site, but contains several sites of various ages. The specific location is not given here to protect the privacy of landowners, the resource base and the confidentiality of the information reported to us. The area is recorded on site forms and topographic maps. The area was first brought to our attention a few years ago by Bill Deilkes of the UWRAS. He reported and donated ceramics, animal bone and chipped stone artifacts from a site located within the flood plain of White River. He continued to monitor the site and continued to donate and report artifacts found there. Later, he took the authors to the site and it was eventually surveyed during a previous grant project (cf. 12-Dl-317). More recently, another member of the UWRAS reported a large Woodland site area in the vicinity of the earlier site. This area contained ceramics, lithic debris, triangular points, bone, and fire-cracked rock. Cochran was invited to visit the area last year and it was nonsystematically walked. Since then, the collection from the site has been reviewed and photographed. The UWRAS member continues to monitor the site and report finds. A sample of artifacts from the site has been donated to ARMS.

This locality is in the river valley and Ross soils are present. Most of the Woodland artifacts are found on the Ross soils. Buried deposits are present as was demonstrated by artifacts eroding out of an artificial drainage ditch and a feature that was found in a flood channel below the base of the plow zone. In addition to the Woodland artifacts, a large Riverton site is reported nearby and the surrounding terraces and valley margins are known to contain many sites.

It was proposed to excavate test units within one of the floodplain sites in this area. However, a combination of exceedingly wet weather and lack of landowner permission prevented the testing. This area is however, an invaluable resource and deserves additional attention. It is recommended that systematic survey be conducted of the whole valley to locate discrete sites and collect representative samples of artifact classes. In addition, since the buried deposits are known to exist, a program of subsurface sampling should be undertaken to delineate buried resources. Subsurface sampling might best be undertaken

through systematic hand augering and screening of sediments through fine mesh. Such an approach would be less disruptive of farming and still provide a viable record of subsurface materials. There is no doubt that the sites in the area are potentially of National and State Register quality and should be treated appropriately.

Ray Site

The Ray site (12-Dl-297) was one of two Woodland habitation sites scheduled for testing during this project. The site was brought to our attention by Mr. Patrick Ray, a member of the UWRAS. Mr. Ray had collected artifacts from the site for several years and recognized its importance due to the unusual number and variety of Woodland artifacts. Prior to submission of the proposal for this project, we discussed the possibility of testing the site with Mr. Ray and he was enthusiastic. His help has been instrumental in the current understanding, as limited as that is, of Woodland settlement in central Indiana. A report of the work at the site is presented in Appendix C in order to protect the confidentiality of the site location. A summary of the site information is given here.

The Ray site is unique in the regional data base for the range of Woodland components present, the numbers of diagnostic artifacts representing each component, and the spatial segregation of the components across the site. Mr. Ray has collected a complete range of diagnostic artifacts representing Early, Middle and Late Woodland components. Each component is represented by several diagnostic points and the Late Woodland component is represented by points, ceramics and slate artifacts. To date, this site has the greatest concentration of Early Woodland Adena points of any site on record for the region although that amounts to only 7 points. Four Middle Woodland Snyders points and two bladelets are also known from the site. Early and Late Archaic components are also present. None of these clusters, however, contain dense concentrations of artifacts. Most consist of thin scatters of material, which, in contrast with the numbers of diagnostic artifacts, is unique within the region also. Most multicomponent sites in the river valleys are concentrated on one landform and thoroughly mixed together. The various components are segregated across the surface of the Ray site with the Woodland components clustered near the confluence of the river and the stream while the Early Archaic components are located farthest from the stream.

The spatial segregation of the various components and the density of material associated with them has important implications for subsurface reconnaissance within the region. First, given the distribution of components across the surface of the site, there appears to be little reason to expect that buried components will be vertically stacked within a site. Rather, based on the Ray site, we should expect that the deposits will be horizontally distributed at various locations. This situation is analogous to the distribution of archaeological deposits at the All Seasons site (Cochran and James 1986). Second, the potential for midden at these types of sites is likely to be minimal. In the upper reaches of the river valleys in the study area, subsurface reconnaissance should be more concerned with identifying the horizontal and vertical locations of artifacts and features and less concerned with the presence of midden or buried A horizons to evaluate the potential significance of

buried sites. The Early and Middle Woodland zones at All Seasons were neither associated with buried A horizons nor midden.

Unfortunately our testing was less productive than anticipated. As the excavations were limited to the edge of the field to avoid crop damage, the potential for subsurface features within the various clusters was not determined. It is still anticipated that features are likely to remain at the base of the plow zone. There does not appear to be much potential for deeply buried deposits within the site except perhaps along the margin of the plowed field near the river. A natural levee was detected in this area during field work.

The Ray site is currently the best model for the Woodland occupation of the region. In general, the occupation appears to have been fairly short term and was most likely periodic. A model of shifting horticulture employing slash and burn techniques appears appropriate for the archaeological evidence from the Ray site. However, until we have a more adequate sample of the buried deposits within the region, our explanations of Woodland settlement patterns will be incomplete.

Conclusions

In spite of the inability to carry out the testing of the Woodland sites as planned, valuable information was collected during this phase of the project. There appears little doubt that the ceremonial sites, Fudge and Graves, still contain important features and additional research has been recommended. Of the two Woodland habitation sites proposed for testing, only the Ray site was partially investigated. However, testing of Woodland habitation sites in the region remains as a priority for research.

Woodland Ceremonial Sites in Study Area

Introduction

For the purposes of this project, Woodland habitation sites and mortuary/ceremonial sites are discussed separately. The following discussion focuses on the mortuary and ceremonial sites. Since only 16 of the 295 Woodland mortuary/ceremonial sites on record in east central Indiana have been professionally excavated, and most of the professional excavation occurred prior to 1935, it is difficult to generate a regional model on these data alone. Some of the excavated sites cannot be dated. Therefore, much of this discussion has been derived from comparable information from Ohio and Kentucky.

Eight sites in the study area have been defined as Adena: Mound Camp, Whitehead, Glidewell, Law, Windsor, White, Hayes Arboretum and Waterworks Mound. Four sites in the region have both Adena and Hopewell components: New Castle, Anderson, Bertsch and Fudge. Two sites, Graves and Oberting Hill Fort, are believed to be purely Hopewell in nature but the sites have never been excavated. Late Woodland mounds are difficult to discuss since none have been identified as Late Woodland in the study area. Each of these sites is summarized below.

Adena Sites

Mound Camp

In 1928, Setzler (1930a) excavated Mound Camp (12-Fr-134) in Franklin County. The mound was situated on a high terrace overlooking the Whitewater River to the west. The mound was originally reported to be 83' in diameter and 12' high . It was reported to have been partly covered with a layer of stone. Unfortunately, due to railroad construction at the foot of the bank where the mound stood, a 1913 flood of the Whitewater River washed away a large portion of the mound. When Setzler first visited the site it measured 20' wide, 63' long and 3' high. The remnant was about to be destroyed by construction of SR 1, so he excavated it. Setzler documented the mound was constructed on the natural gravel strata on area was filled-in with village debris averaging 9 inches thick. A smooth, hard burnt floor was then constructed with numerous post holes in the floor. The artifacts, burials and log molds were found on the floor. All of the material was covered with a thick lime or silicious material. The area was then capped with a uniform layer of clay.

The remainder of the mound was too disturbed to document any other construction episodes. Setzler recovered 2 burials, 5 bone awls, 2 bone paddles, 1 deer bone scraper, 3 center bar gorgets, 2 rectangular gorgets, 6 points, 120 Marginella shell beads, 14 bone beads and several fragments of incised and utilitarian pottery. Based on the findings, the mound was identified as Adena (Butler n.d.b:4, Setzler 1930a:409,467-481).

Whitehead Mound

Setzler (1930a) also excavated the Whitehead mound (12-Fr-144) in Franklin County. This mound was located in an upland setting on the south side of a small tributary known as Sayers Creek. Setzler reports this mound once stood 18' high, but the landowner had tried to reduce it for cultivation. At the time of his survey, the mound was 80' in diameter and 6' 7" in height. Setzler found that the mound consisted of a burned clay floor on which was built a primary mound that did not encompass the entire area of the clay floor. On the clay floor were found heavy grey ash deposits, log molds and a few post holes. Most of the artifacts and all of the burials were found in the primary mound. The materials recovered included a large quantity of pottery, a small slate gorget, a broken drilled gorget, a broken celt, a broken antler point, 5 undisturbed skeletons, and 3 reburied skeletons. Due to scanty diagnostic evidence, Setzler was reluctant to assign an age to this mound (Setzler 1930a). Griffin (1942:347-350) analyzed some of the pottery and attributed it to Adena.

Glidewell Mound

Glidewell Mound (12-Fr-22) was first recorded in 1871 as 60' in diameter and 15' in height by Homsher (1884b). However, Dickerson (1915:52-53) reported the mound as originally 30' high. Homsher began excavation of the mound in 1879 with T. Dickerson and Thomas Glidewell. He continued excavations with T. Dickerson in 1880-81. From these excavations, Homsher reported that below a limestone covering were five strata consisting of clay, clay and ashes, ashes and coal, burnt clay, and clay and burnt stone. He recovered 25 skeletons, 2 copper bracelets, pottery, a bone needle, 2 arrow points, animal bone, an incised pendent, 2 shell beads, flint chips, a celt and 2 gorgets. Two hearths were recorded and 2 of the burials were surrounded by flat stones (Homsher 1884a:732, Homsher 1884b).

Setzler (1930a:385) reported the mound as 58' in diameter and 5' 3" high. Based on the artifacts, Setzler (1930a:500) thought this mound fit into Adena. The mound was not professionally reported again until the late 1960's where it was described as 50' in diameter and 4' high (Kellar 1967:n.p.). According to a local informant, 3 skeletons were recovered from Glidewell in the late 1950's and 60's by private excavation (Kolbe 1992a:3-4).

In 1991, the Archaeological Resources Management Service conducted limited test excavations of the mound. The testing resulted in a contour map of the mound, a profile which documented 4 construction episodes and a radiocarbon date of 10 BC +/- 110. The testing documented that significant intact portions of the mound still exist. The site was considered to be eligible for listing on the State and National Register of Historic Places (Kolbe 1992a).

Law Mound

The Law Mound (12-R-31) was tested in 1970. The mound was reported to Morris (1970) by a local resident, James Keesling. Mr. Keesling had tested the mound earlier and

had found a burned area. Morris and Keesling excavated more extensively. The mound measured 28' in diameter and 4' high at the time of their excavation. An apparent borrow pit for the mound was located 35' south. The description of the mound construction was described as, "an Adena house site which prior to being covered with earth was burned. The poorly defined, relatively debris free, homogenous soils covering the site suggest that little time elapsed between the beginning and the end of the dirt covering process" (Morris 1970:9). The excavation documented a charcoal lens, two post holes and a fire pit. They recovered 217 plain grit tempered sherds, a slate celt blank, an undrilled center bar gorget, a point tip, numerous crescent-shaped mica strips, a human parietal fragment, animal bones, and 7 sandstone and 4 slate tablets (Morris 1970:9)(Keesling 1970:232). Rim sherds were sent to Dr. James Griffin and he identified them as late Adena in age (MS on file at ARMS). Mr. Keesling maintains the artifacts recovered from the mound and was interviewed during this project (see Collector Interviews).

Windsor Mound

As one of the largest mounds in Randolph County, Windsor Mound (12-R-1) was documented in several accounts. Tucker (1882) described the mound as oval in shape, 450 yards around the base and 25 or 30' high. An excavation from "the top vertically downward" revealed "soil mixed with ashes and coal" (Tucker 1882:14). Phinney (1882) described Windsor Mound as nearly circular, 15' high and 150' in diameter. He stated, "at a depth of nine feet a skeleton was found [and] beneath it was a pile of stone two feet high and three feet in diameter" (Phinney 1882:194). The first published photo of Windsor Mound appeared in a 1914 county history (Smith and Driver 1914:56, 58). Setzler (1931:19) recorded the mound as 113' east-west, 111' north-south and 15' in height.

In 1986, extensive excavations at Windsor Mound were started by 2 local residents and continued until 1988. Unfortunately, the notes taken during this excavation have never been available for review. Fortunately, a radiocarbon date of 70 BC +/- 70 was obtained from the top of a cremation layer found near the base of the mound and profile drawings of the excavation were obtained. Six construction sequences were documented. All of the inhumations recovered were loaned to ARMS and the artifacts from an extended burial and an intrusive burial were retained by the landowner (McCord 1994).

The excavations recovered a minimum of 44 individuals. Of this number, 34 were represented as isolated crania mainly found in a rock structure surrounding 1 to 3 individuals in an extended position on a cremation floor. One or 2 individuals were intrusive and the remainder were probably in mound fill.

The artifacts recovered from unknown contexts in the mound fill included pottery, lithics, marine shell, disc shell beads, daub, burned clay, fire-cracked rocks, red ocher, ash, fish bone and scales and animal bone. Diagnostic points from the mound fill included a Brewerton, a Charleston corner notched, 2 Kramer-like, and, interestingly, a Snyders.

Artifacts associated with the extended burial(s) were 4 plain sandstone tablets, a unique limestone object (Figure 14), a bone scraper and 276 disc shell beads. The limestone object was very unusual. The only artifacts this object has been related to were the effigy stones discussed by Converse (1978:61) and the turtle effigy tablet found in Cresap Mound (Dragoo:1963:89-91). While the limestone object is not tabular, it does have a groove on the "neck" similar to the grooves illustrated on the back of the turtle effigy tablet.

With the intrusive burial(s), 3 Jack's Reef points, 1 biface, 1 pendent, 1 antler drift, 5 cut antler tines, a bone scraper, a modified scapula, 4 bone needles, 1 beaver incisor and 16 fragments of turtle carapace were recovered.

White Site

This site (12-Hn-10) was reported as a complex of three mounds, but two were destroyed by the time the third mound was partially salvaged. One mound was apparently destroyed by the construction of the Green Street School, the second and part of the third were destroyed by bulldozing operations. The remnant of the third mound was designated 12-Hn-10. From measurements taken of the remnant, the original mound size would have been at least 70' in diameter and 8' in height (Swartz 1973).

Although 3 mounds were reported, only one was confirmed. The salvage of 12-Hn-10 revealed the following construction features: construction of three log tombs, burial of human remains within the tombs, burning of the tombs, earth fill over the collapsed tombs forming primary mounds, and formation of secondary mounds by primary mound increment building. The excavation recovered lithics including points from the Late Archaic to Early Woodland [1 can be identified as an Adena], debitage, scrapers, a graver, 2 slate choppers, 2 slate hoes, an expanded bar gorget, an undrilled expanded bar gorget, and a pendant. Copper artifacts included 8 bracelets, 2 pins, 85 rolled beads, and a copper sheet with irregular edges. A total of 164 pottery sherds and 70 clamshell disk beads were recovered. Seventeen individuals were recovered during the salvage. Seven radiocarbon dates of A.D. 40 +/- 140, A.D. 30 +/- 140, A.D. 90 +/- 200, A.D. 210 +/- 140, A.D. 550 +/- 130, A.D. 400 +/-150, and A.D. 460 +/- 130 were obtained from wood or bark charcoal (Swartz 1973).

Hayes Arboretum Mound

The Hayes Arboretum Mound (12-Wy-1) was excavated in 1965 by Earlham College. In the early 1900's Stanely Hayes excavated into the mound but exactly what he found was unknown. The mound had also been damaged by plowing. Mr. Hayes reconstructed the mound by adding about 3' of gravel (Heilman 1976:54-68).

The Earlham excavation documented a crematorium in the center of a concentration of post molds. Below the crematorium, the earth was baked for 6 inches and the area around it was oxidized red. The post molds did not form an overall pattern, but did form a regular line in several places. It was hypothesized that the posts were a foundation for a screen around

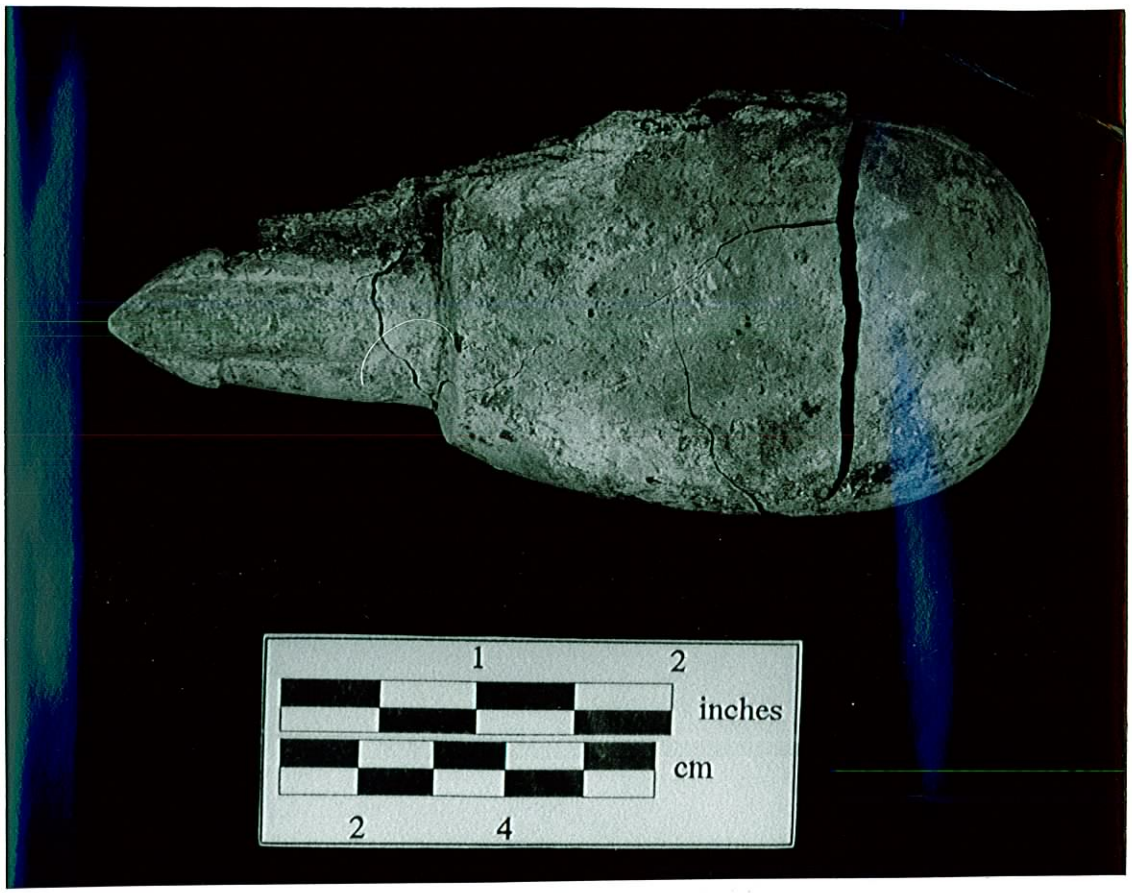


Figure 14. Limestone object from Windsor Mound.

the crematorium. Recovered from the mound fill were 3 points, a small end scraper, a small hammerstone, and over sixty pieces of pottery. On the mound floor or just above it were found a Robbins style and a Hopewell point [Snyders] in a cache, a small piece of worked slate and a small celt (Heilman 1976:54-68, Stepleton 1969:24-26).

No reliable radiocarbon dates were obtained from the site, but Heilman (1976:59) related the site to the New Castle and Anderson sites. Based on the ceramic descriptions, mound structure, and evidence that Snyders points occur in Adena complex mounds (i.e. Windsor Mound), Hayes Arboretum appears to be of Adena affiliation.

Waterworks Mound

The Richmond City Waterworks Mound (12-Wy-12) was first reported by Setzler (1930a:453) as 35' in diameter and 5' 8" in height. The mound was excavated in 1966 by Earlham College (Heilman 1976:69-92). The mound had apparently escaped significant damage from pothunting, but Heilman (1976:69) reports the mound as about 50' in diameter and 4' tall.

The Earlham excavation documented that the mound had no prepared floor. There was a primary mound covered by secondary fill. Nine features of charcoal and burned earth were recorded and they clustered mainly around the top of the primary mound. A burial pit was also documented which contained poorly preserved fragments of human bone. There was a trace of a white ash substance along the bottom of the burial pit and above the burial. Recovered in the mound fill were 7 McWhinney points, 4 Archaic side notched points, 5 unclassified points, 3 knives, 3 drill fragments, 2 hafted scrapers, 7 end scrapers, a fragment of a flake knife, an unfinished biconcave gorget, a finished biconcave gorget with 44 tally marks (11 on each side), 3 slate fragments, a celt, a pitted hammerstone, 11 copper beads and 27 pottery sherds (Heilman 1976:69-92).

No radiocarbon dates are available for this site. Heilman (1976:104) relates the site to the Hayes Arboretum mound, which in turn is related to the New Castle and Anderson sites. The ceramics and biconcave gorget suggest, like Hayes Arboretum, an Adena affiliation.

Adena/Hopewell Sites

New Castle Site

The New Castle site (12-Hn-1) was reported to contain 12 earthworks (Swartz 1976) (Figure 15). Redding (1892) reported 9 well defined earthworks and an additional 1 or 2 that were obliterated by plowing. Around 1908, Earthworks 5 and 11 and portions of 3 were destroyed by the construction of a state hospital complex (Swartz 1976). Excavations of the complex were conducted by the Ball State University field schools from 1965 to 1972. Mound 1, Mound 4 and Earthwork 7 were the focus of these excavations (Swartz 1976).

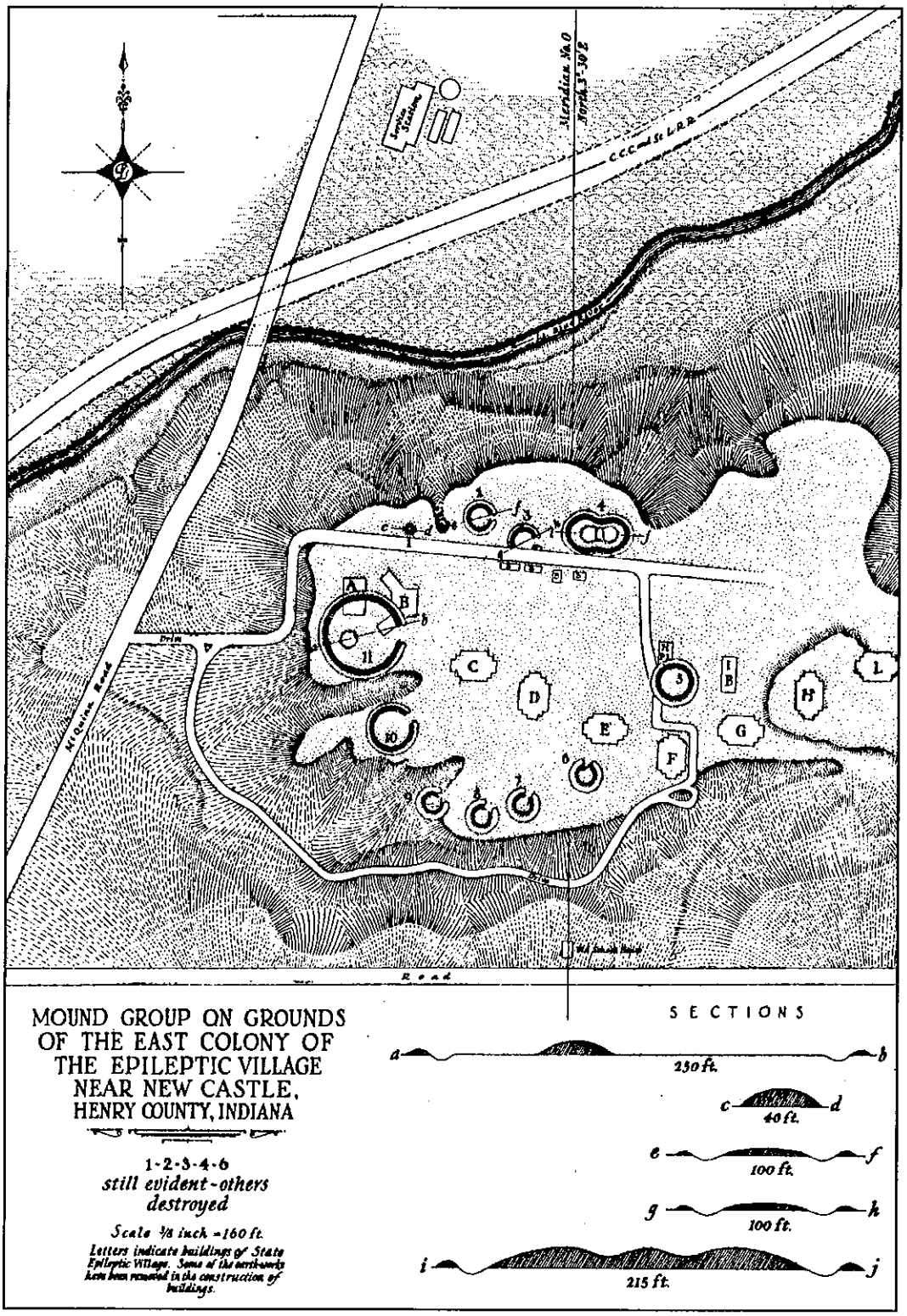


Figure 15. The New Castle Site (12-Hn-1) (Lilly 1937).

Mound 1 was first described as 40' in diameter and 1' high with the south edge lying in a cultivated field (Redding 1892:101). Redding also noted the mound had been previously excavated. The BSU field schools excavated 3 - 5' x 5' units and documented the mound was constructed on sterile clay with a primary mound of banded soil and a second capping of soil containing charcoal, red ocher and burnt bone. A sheet of untrimmed mica was found surrounded by fragmented bone, human cranial and long bone fragments were found, flakes, a muller and ash were also recovered (Swartz 1976:22-23).

Mound 4 was described by Redding (1892:100) as an elliptical shaped enclosure of 215' east-west, 150' north and ditch depth of 6' with a mound 140' east-west, 100' north-south and about 10' high that appeared to be 2 two mounds joined together. The south embankment was located in a cultivated field and Redding (1892:100) noted 4 or 5 excavations in the mound. Redding (1892:100) also dug 2 trenches into the mound. The BSU field schools excavated the majority of the mound. They documented that each lobe of the mound had a primary mound core and complex stratigraphy of features (Swartz 1976). The excavations recovered 16 individuals (3 were intrusive), 617 chipped stone artifacts, 9 ground stone artifacts, 2 untrimmed sheets of mica, several thousand ceramic sherds which included 1 complete plain vessel and 1 portion of a Hopewell Zoned Rocker Dentate Stamped vessel, 1 clay platform pipe, 27 split turkey bone pins, 1 bone awl, 2 drilled lynx mandibles, 2 cut long bones, 1 antler rod, 2 bird claws, 5 conch containers, 31 circular shell beads, 462 drilled pearl beads, 4 copper covered bear canine effigies, 1 dog burial, and unmodified animal bone (Swartz 1976). Fragments of a copper panpipe were also recovered (Cree 1990). Radiocarbon dates from Mound 4 include A.D. 40 +/- 140, A.D. 10 +/-160, and A.D. 230 +/- 300 (Swartz 1976).

Earthwork 7 was described by Redding (1892:102) as an enclosure 120' in diameter with a mound in the center from 3 to 5' high. The interior platform of this earthwork and a trench across the embankment was excavated by the BSU field school. The only artifacts recovered were in the ditch and consisted mainly of ceramics (Swartz 1976:24).

While Swartz (1976) placed the New Castle site within the Scioto Tradition of Hopewell, there are Adena ceramics (New Castle Incised) present in Mound 4. The Adena ceramics occurred only in the cremation area in the west lobe of Mound 4 with the associated date of A.D. 10 +/- 160 and the Hopewell artifacts occur in the east lobe and center of the mound (Cochran 1992:36). Also a Robbins point was recovered from the west lobe of the mound. Other earthworks at this site have not been dated, and excavations of Mound 1 and Earthwork 7 do not conclusively indicate either Adena or Hopewell. Therefore, the New Castle complex can be seen as a prime example of the Adena/Hopewell continuity that occurs in eastern Indiana (Cochran 1992).

Anderson Site

Mounds State Park encompasses the best preserved earthwork complex (12-M-2) in the study area. The site consists a southern complex of 8 reported and 4 confirmed earthworks, a

northern complex of 3 subrectangular enclosures and an isolated mound located between the two complexes (Figures 16 & 17). The site has a long history of excavation and documentation.

The principal feature of the southern complex is the Great Mound, an enclosure over 380' in diameter with a 9' high embankment and 10.5' deep ditch. On the central platform a small mound 30' in diameter and 4' high existed (Cox 1879). The first in depth professional excavations on the complex were conducted by Indiana University at the Great Mound (White 1969, Vickery 1970a).

Excavation of the small mound revealed that a prepared silt area was constructed and a primary mound consisting of alternating layers of burned clay and ash was built. A post hole pattern, associated with the first clay floor, occurred interior and on the edge of the primary mound. The next construction sequence was the construction of a log tomb that contained a bundle burial and a cremation. With the burials were fragments of mica, a platform pipe that dates to about A.D. 50, and 13 split deer bone awls. Two crematory basins were also encountered. The mound was capped and at a later date 4 intrusive burials occurred. Within the mound fill, ceramics that included the New Castle Incised type, a fragment of a rectangular slate gorget, drilled bone objects that may be shaped like bear canines, hammerstones, scrapers, knives, points [1, possibly 2 of the points are Synders], flakes, burned bone and shell. In addition to the post molds associated with the primary mound, 450 post molds were recorded on the central platform. Radiocarbon dates from 2 posts associated with the primary were 60 B.C. +/-140 and A.D. 230 +/-130 (White 1969; Vickery 1970a 1979; Kellar 1969; Buehrig and Hicks 1982).

The Fiddleback enclosure was also excavated by IU. The excavation consisted of a 5' x 10' trench excavated 8" deep. The excavation documented 2 ash concentration, smaller pieces of ash and burned earth, rocks, flint chippage, animal bone, snail shells, burned clay and pottery of which the majority was New Castle Incised (Vickery 1970a).

Ball State University field schools tested the northern complex. In 1979, the 2 badly damaged enclosures were documented. The earthworks were more rectangular than previously depicted in Cox (1879)(Lilly 1937, Buehrig and Hicks 1982). A burnt earth layer found on the central platform of the smaller earthwork was interpreted to be similar to the Great Mound. No diagnostic artifacts or dates for these works were obtained. Testing of "Circle Mound" of the northern complex was conducted in 1980. The southern of the 2 small mounds flanking the gateway of this earthwork was investigated. From profiles, the mound was documented to have been constructed after the embankment (Donald Cochran, personal communication 1996). Radiocarbon dates from the mound were 5 B.C. +/- 75, A.D., A.D. 70 +/- 60, and A.D. 80 +/- 60. A radiocarbon date from the embankment was A.D. 390 +/- 80 which is considered erroneous. Hicks believed the mound and embankment to be contemporaneous (Buehrig and Hicks 1982:24-25).

In 1987 and 1988, BSU field schools conducted more excavations (Cochran 1988,

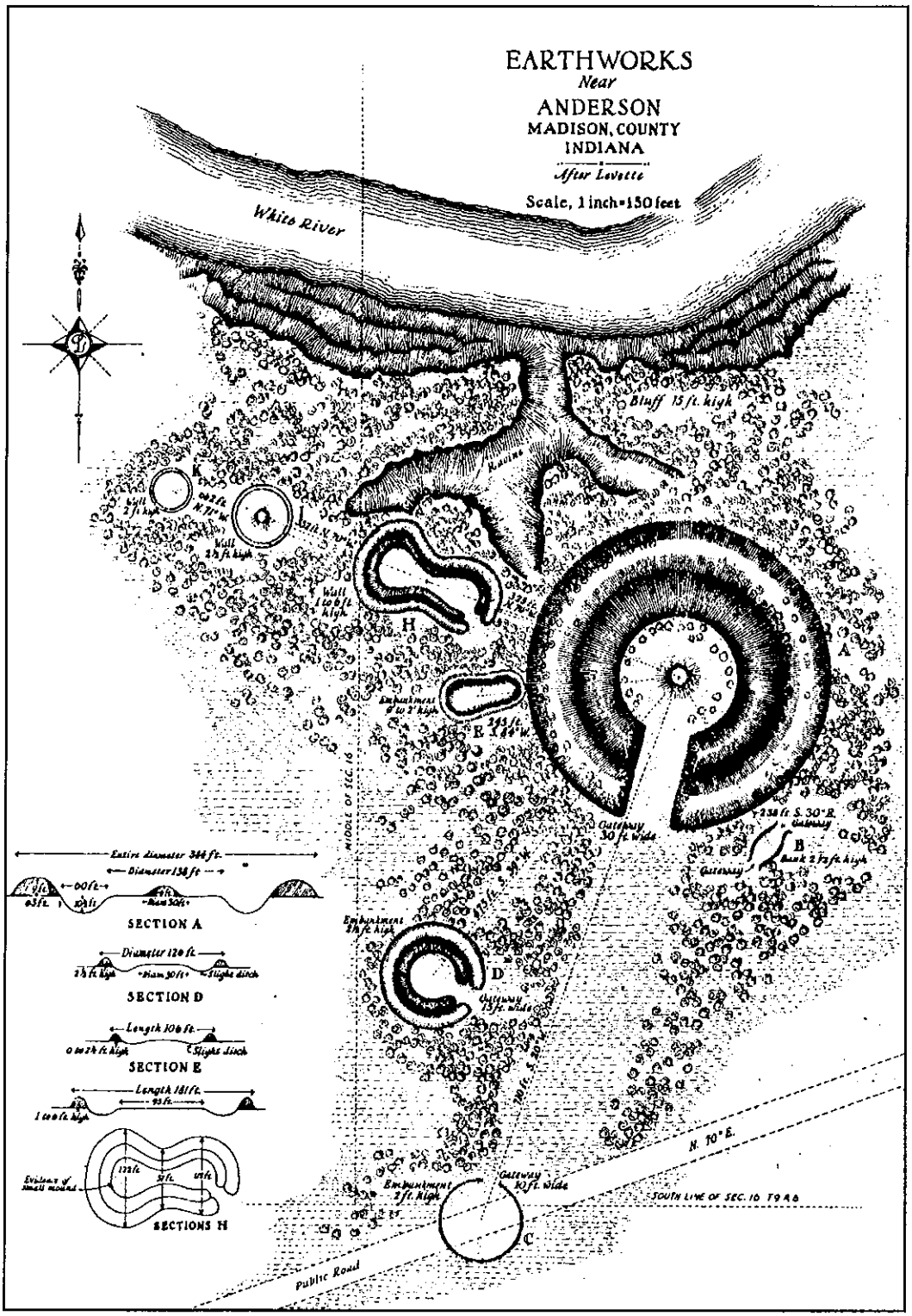


Figure 16. Southern enclosures of the Anderson Complex (12-M-2) (Lilly 1937:38).

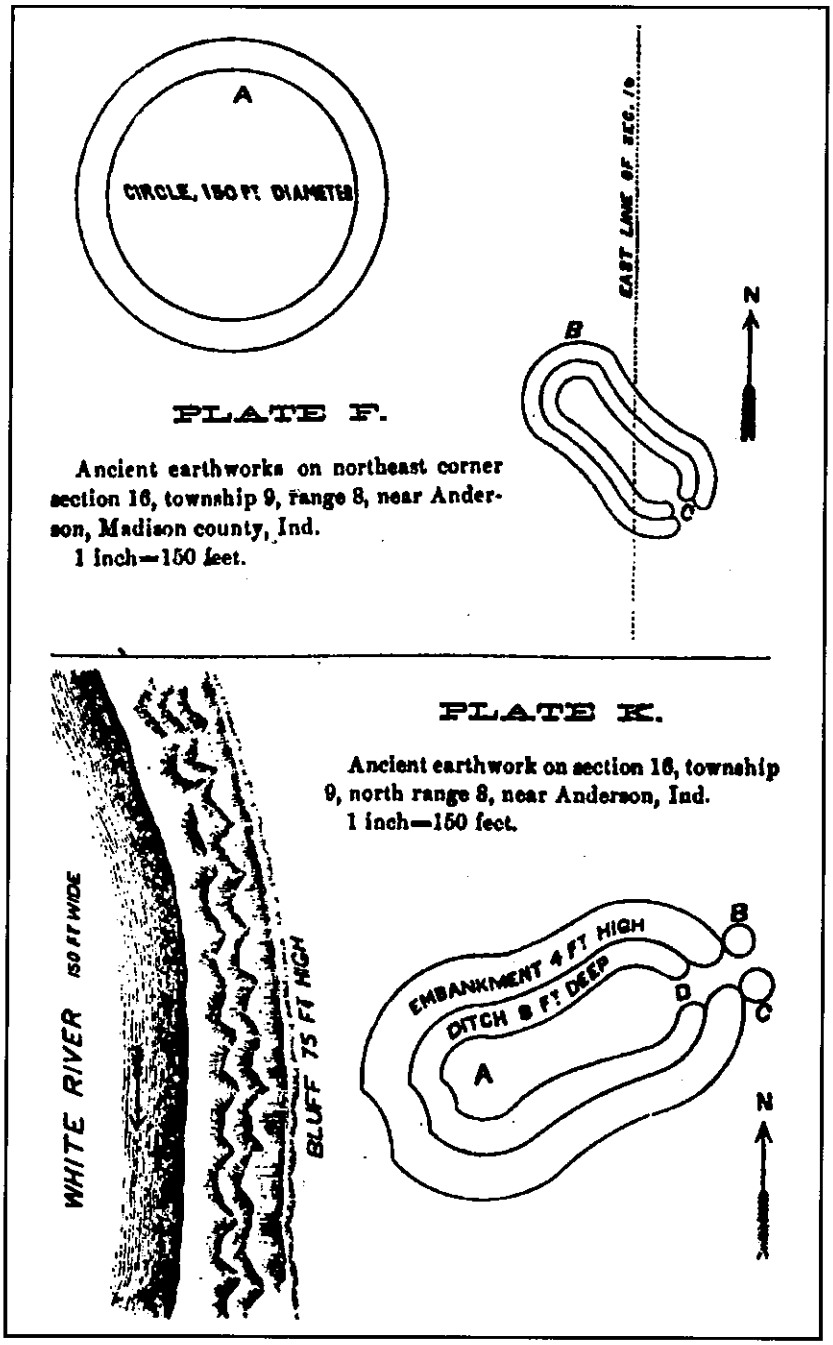


Figure 17. Northern enclosures of the Anderson complex (Cox 1879:135).

Kolbe 1992b). The most significant results of the excavations were the radiocarbon dates. A date of 160 B.C. +/- 90 was received for the construction of the embankment of the Great Mound and a date of 140 B.C. +/- 90 was received for the construction of the embankment of the Fiddleback embankment (Cochran 1988:22). Additional radiocarbon dates for the Fiddleback enclosure include a dates of 120 B.C. +/- 50 for a post mold in the ditch and 120 B.C. +/- 70 for the west lobe of the mound (Kolbe 1992b:61). An additional radiocarbon date from another post located adjacent to the primary mound on the central platform of the Great Mound was obtained by BSU with the resultant date was 250 B.C. +/- 70 (Beta-45955). A date of A.D. 40 +/- 80 (Beta-52612) was obtained from charcoal from the log tomb excavated by IU.

The interpretation of this complex is analogous to the New Castle site. While both Adena and Hopewell elements occur at the site, there are not mixed. There is instead a continuity of construction from the Adena period through the Hopewell period (Cohran 1992). The construction of the embankment and the posts are Adena. At least a portion of the primary mound is also Adena. The addition of the log tomb is Hopewell. And the northern enclosure complex of rectangular enclosures is Hopewell (Cochran 1992).

Bertsch Site

The Bertsch Site (12-Wy-45 and 46) is another earthwork complex located near Cambridge City. The complex was initially reported as containing 2 large and 5 smaller circular earthworks (MacPherson 1879:223-225). Wissler (1921) reports a mound west of the small circles near the river, but reports it was destroyed by a gravel pit. Setzler (1930a:447) measured the outside wall of the largest enclosure as 333' in diameter with the central platform being 196' in diameter and the ditch 6' 1" below the top of the wall. The gateway opens to the east. The other large circle to the north with a gateway to the southwest was not as well preserved. Setzler (1930a:447) measured its outside diameter as 291' with the ditch 2' 6" deep. In MacPherson's (1879:224) diagram of the other 5 circles, 4 were 60' in diameter and 1 was oval in shape being 137 x 147'. Apparently none of these circles had recognizable gateways. The complex has been in cultivation for over 100 years, at least prior to 1879. USDA aerial photographs taken in 1936 show that approximately 16 circular enclosures existed at this site and the large northern enclosure is actually panduriform in shape (Figure 18).

The first excavations of this site were conducted at the large southern enclosure in 1968 (Heilman 1976:93-103). Within the central platform, the excavation exposed a 30' round structure with a central burial pit. The outer wall of the structure appeared as a burnt area on the floor of the platform and was 2 1/2 to 6' thick. Four post molds were recorded in this wall. The other post molds fell into clusters within the outer wall. North of the central burial pit was a 15' long wall trench 1.2' deep that may have served as a divider. In the southwest quarter of structure was an oval pit of unknown function. The central burial pit was rectangular in shape and was lined on the bottom with a clay and grit mixture that was badly burned in most areas. The pit contained small pieces of 3 separate burials some of

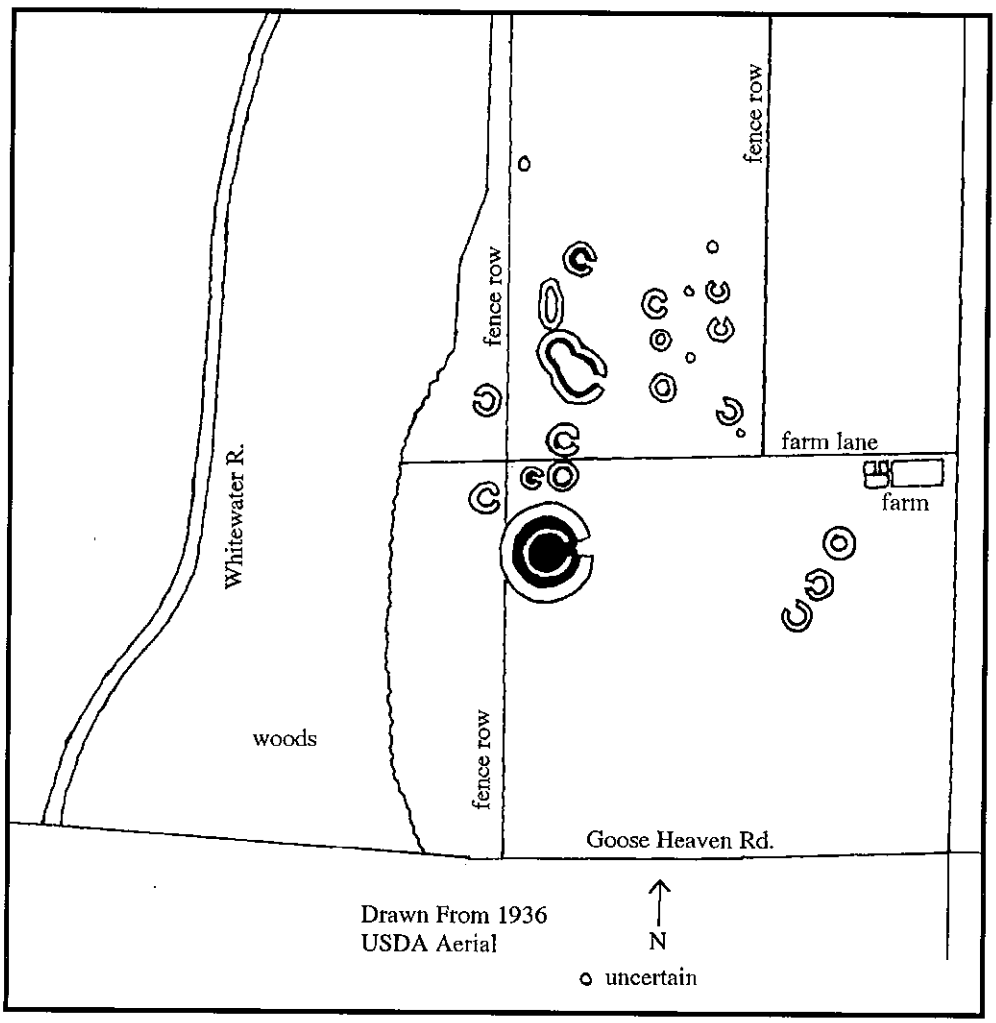


Figure 18. The Bertsch site (12-Wy-45 and 46) as drawn from 1936 USDA aerial.

which were calcined. The excavation also included a trench across the ditch through the south wall, but nothing was found. Apparently portions of the central platform were also excavated by bulldozer, but this was not discussed. The excavation recovered very few artifacts, mainly from features. Two flakes, a polished horn coral, a polished burned bone fragment, burnt daub, and 10 pottery sherds were all of the artifacts recovered. The pottery was identical to the pottery found in the Waterworks and Hayes Arboretum Mounds (Heilman 1976:93-103, Stepleton 1969:26-33).

Stepleton (1969:28) states that across the river stood a conical mound, 6 or 7' high at one time. This may be the mound Wissler (1921) cited as destroyed. The mound had been potholed and plow damaged. It was apparently discernable and was excavated in 1969 (Stepleton 1969:28), but no report has ever been published.

In 1978, a Ball State University field school excavated 3 - 5' x 5' units in the area of the largest enclosure of the northern cluster of five recorded by MacPherson (1879:224). The earthwork was no longer discernable, but using MacPherson's diagram (1879:224) the area of the reported earthwork was relocated. The excavation found no features or intact artifacts. It was concluded that this earthwork was either not a burial mound or it was a natural feature (Berg, Cox and Reseigh 1979).

Aerial photographs of the Bertsch site were taken in 1980 which identified several previously unknown circular features. The photos also showed that MacPherson's (1879:224) diagram was somewhat inaccurate. One of the newly documented features approximately 100' in diameter was located between the 2 largest earthworks. This feature was selected for excavation for the 1981 Ball State University field school. Eleven 5' x 5' units and 2 test pits were excavated within the circular earthwork. The excavation noted a feature of charcoal in association with fire-cracked rock and 2 post molds. The only prehistoric artifacts recovered included 2 thumbnail scrapers and a quantity of chert flakes. The excavation also documented that this earthwork was probably a bank and ditch structure that was levelled by plowing (Reseigh 1984).

While no diagnostic artifacts or reliable radiocarbon dates were recovered from any of the excavations, it is believed that this site like the New Castle and Anderson sites represents a transition from Adena to Hopewell. From the ceramic descriptions given by Heilman (1979), the pottery is probably Adena. The circular forms of the earthworks are also more Adena-like. However, the complexity of the site with at least 16 earthworks, one of which is a panduriform shape, is more reminiscent of Hopewell. Additional excavation of this site is required before this complex can be more accurately dated.

Fudge

Due to the large size of the enclosure, the Fudge site is considered a complex. Fudge is the only Indiana site to be featured in *Ancient Monuments of the Mississippi Valley* (Squier and Davis 1848) (Figure 19). The site consists of a large elliptical mound and a large

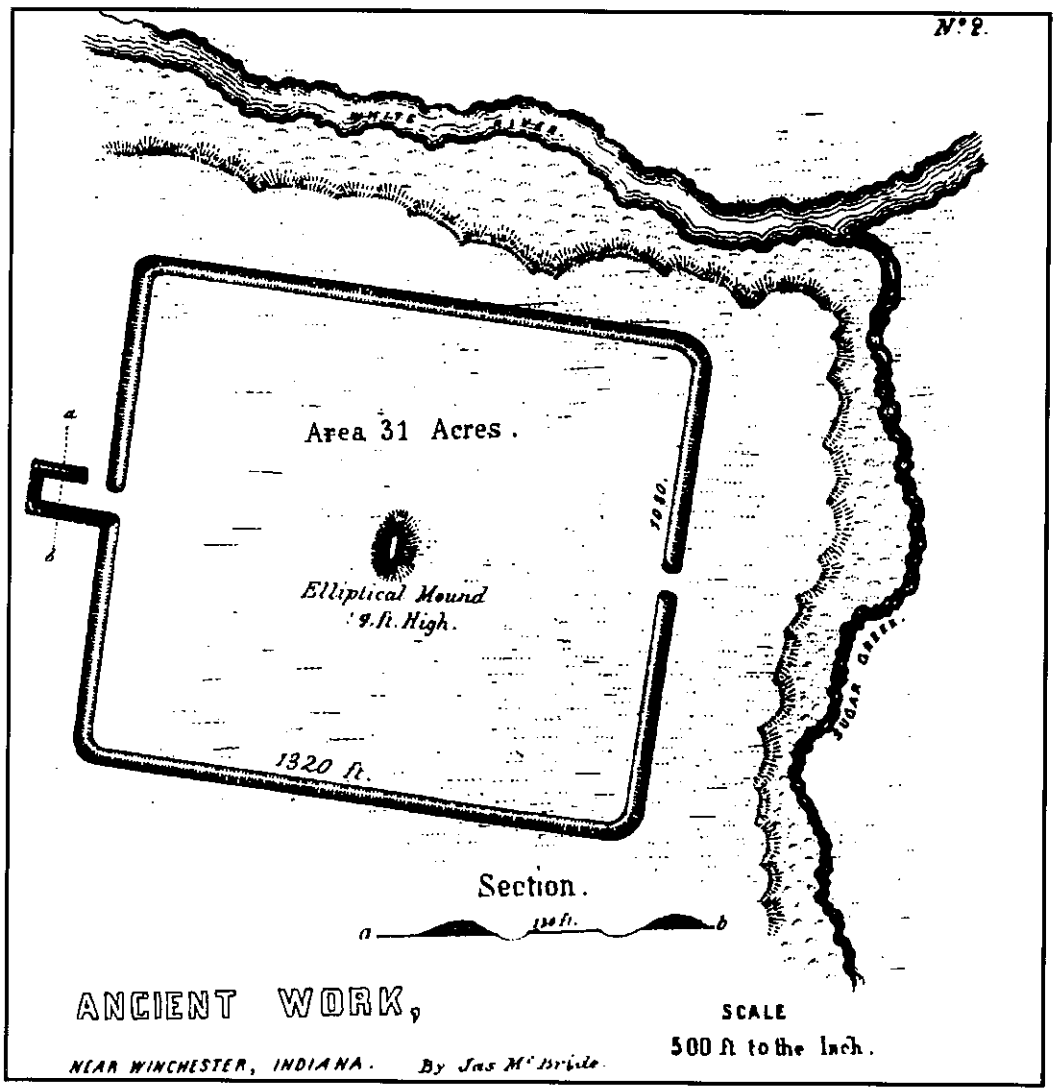


Figure 19. The Fudge Site (12-R-10) (Squier and Davis 1848:93).

enclosure encompassing from 31 to 43 acres depending on the sources (Squier and Davis 1848:93, Tucker 1882:14). The enclosure has been described as an embankment of rectangular shape 1080' wide and 1320' long (Squier and Davis 1848:93, Phinney 1882:192-193) or as an exact square (Tucker 1882:14). The various sources give the height of the embankment as 6' (Tucker 1882:14) to 9' high (Cox 1879:135). The sources agree that there were 2 gateways with one on the west side and one on the east. The gateway to the east was protected by an outward embankment depicted as rectangular in shape (Squier and Davis 1848:93) or horseshoe in shape (Cox 1879:137, Tucker 1882:14). This addition differs from the main embankment in that it was of bank and ditch construction. The orientation of the earthwork is also debated as 10 degrees east of north (Cox 1879:137) or 13 degrees east of north (Setzler 1931:32). As of 1877, the earthworks were being destroyed by the Randolph County fairgrounds, public roads had cut through portions of the embankment, and the remainder of the embankment was in cultivation (Cox 1879:134). Tucker (1882:14) reports that a large portion of the eastern bank had been dug away for brick-making. Phinney (1882:193) reports that the addition to the gateway on the east side was no longer present. Post holes below the embankment and ashes and charcoal were reported just inside the embankment (Phinney 1882:193). The mound at the center of the enclosure is described as either circular and 100' across (Phinney 1882:193) to elliptical (Squier and Davis 1848:93) and 8' (Phinney 1882:193) to 15' high (Tucker 1882:14).

The mound was excavated and a portion of the embankment was tested in 1929. Within the mound was found a submound burial pit 3' deep with the skeleton of an adult male. The skeleton had been disarticulated due to the disintegration of bark that was beneath the body. On the abdomen of that burial was a human skull of an adult. Around the sides of the pit were found post molds 6" in diameter. The excavation also documented a large area of red ocher and bark above the original sod line. Around the burial pit on the original ground surface were found 2 distinct lines of posts around the pit on the north, west and east sides. Unfortunately this pattern was not noticed on the south side, but it was assumed that pattern encompassed the burial pit. Two caches of artifacts were recovered. One contained a chalcedony knife blade, a sandstone tablet, a concave gorget and a broken knife blade. [The 2 points are Synders]. The second cache on the original ground surface and surrounded by ocher, bark and cremated animal bone consisted of 2 badly decomposed leather pouches containing copper bracelets and an unfinished expanded center gorget. The pouches were lined with several layers of cloth. The bracelets encircled strips of bark and a substance that may have been human bone. Also recovered from the mound fill were 7 broken chipped flint objects (Setzler 1931:27-35).

The test excavation in the south wall of the embankment revealed the same kind of soil found in the mound. Small fragments of charcoal, burnt clay and ashes were above the original sod line and a heavy concentration of charcoal was found near the center of the embankment. No evidence of posts was found (Setzler 1931:35).

Setzler related the mound to Adena based on its construction and artifacts recovered (Setzler 1931:35-37). While the mound does appear to be Adena based on the artifacts, it is

probably late in the sequence. The presence of Synders points seem to indicate this later time period. The vast size of the enclosure is certainly not characteristic of Adena (Griffin 1971:136). The enclosure shape is certainly like the Hopewellian rectangular enclosures of the Anderson complex. Therefore, this site is also interpreted as having a continuity in use from Adena to Hopewell.

Hopewell Sites

Graves

The Graves earthwork (12-Wy-39) was first reported as a square embankment enclosing 11 acres (MacPherson 1879:219) (Figure 20). MacPherson (1879:219-221) reported the sides of the earthwork as 780' in length on the inside with curved corners and a gateway on the west side. The earthwork had already been cultivated for a number of years. MacPherson's (1879:220) drawing of the earthwork also shows 7 hollows that were suspected borrow areas. Although the drawing aligns the earthwork as north-south, MacPherson (1879:221) stated that the west side was nearly parallel with the road.

Setzler (1930a:442-443) reported that the earthwork was still visible, but still in cultivation. Setzler measured the enclosure to be 810' 10" square with the base of the walls 45' wide. The pits that MacPherson noted were no longer visible. Setzler (1930a:442) also reported that some residents claim the enclosure had gateways on all four sides.

Heilman (1976:44) reported that the enclosure was less distinct due to the constant farming.

No professional excavation or even reports of amateur excavation have occurred at the site. And, no cultural affiliation has been proposed for the Graves earthwork. The square shape of the enclosure is reminiscent of the Fudge enclosure and the rectangular enclosures at Anderson. Based on the large size and shape of the enclosure, the site is assumed to be Hopewell in origin.

Oberting Hill Fort

This site is within the Great Miami/Ohio River drainage and is therefore outside of the study unit. But, due to the unique structure of the site and the opportunity to survey the site, it was included in this discussion. The Oberting Hill Fort (12-D-25) was first reported in the Geological Reports for the state in 1878. In that report is a map of the site which dates to 1816 and shows 9 mounds, a roughly rectangular embankment of stone and earth, a circular embankment and a bear wallow (Cox 1879:124) (Figure 21). Black (1934:196-199) surveyed the site in 1933 and noted several discrepancies with the map which may have been in part due to erosion.

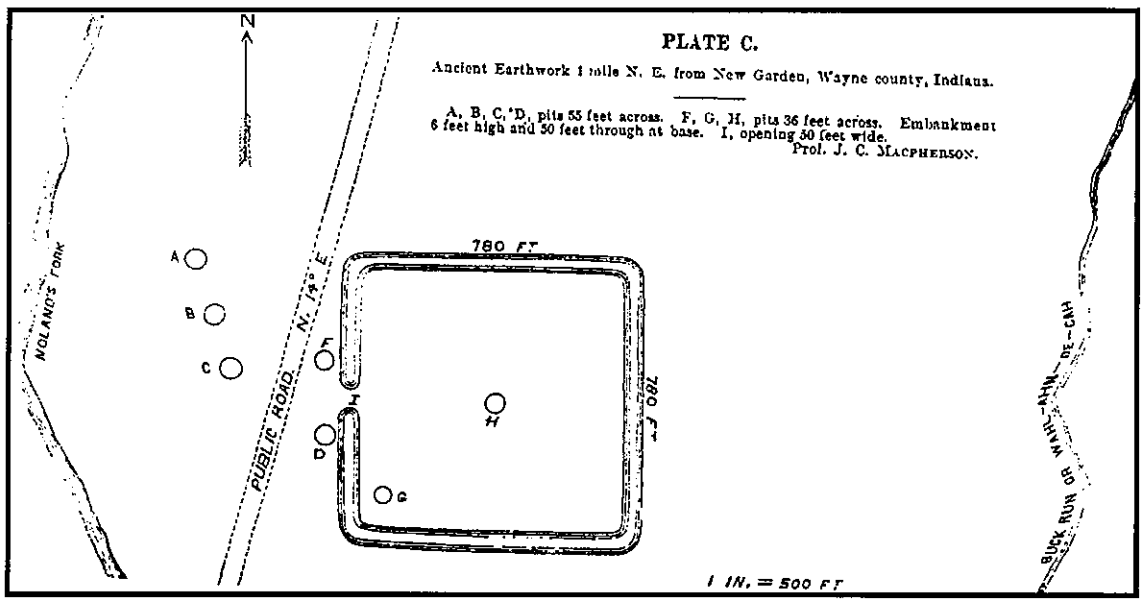


Figure 20. The Graves Enclosure (12-Wy-39) (MacPherson 1879:221). [Enclosure should be oriented parallel to the road].

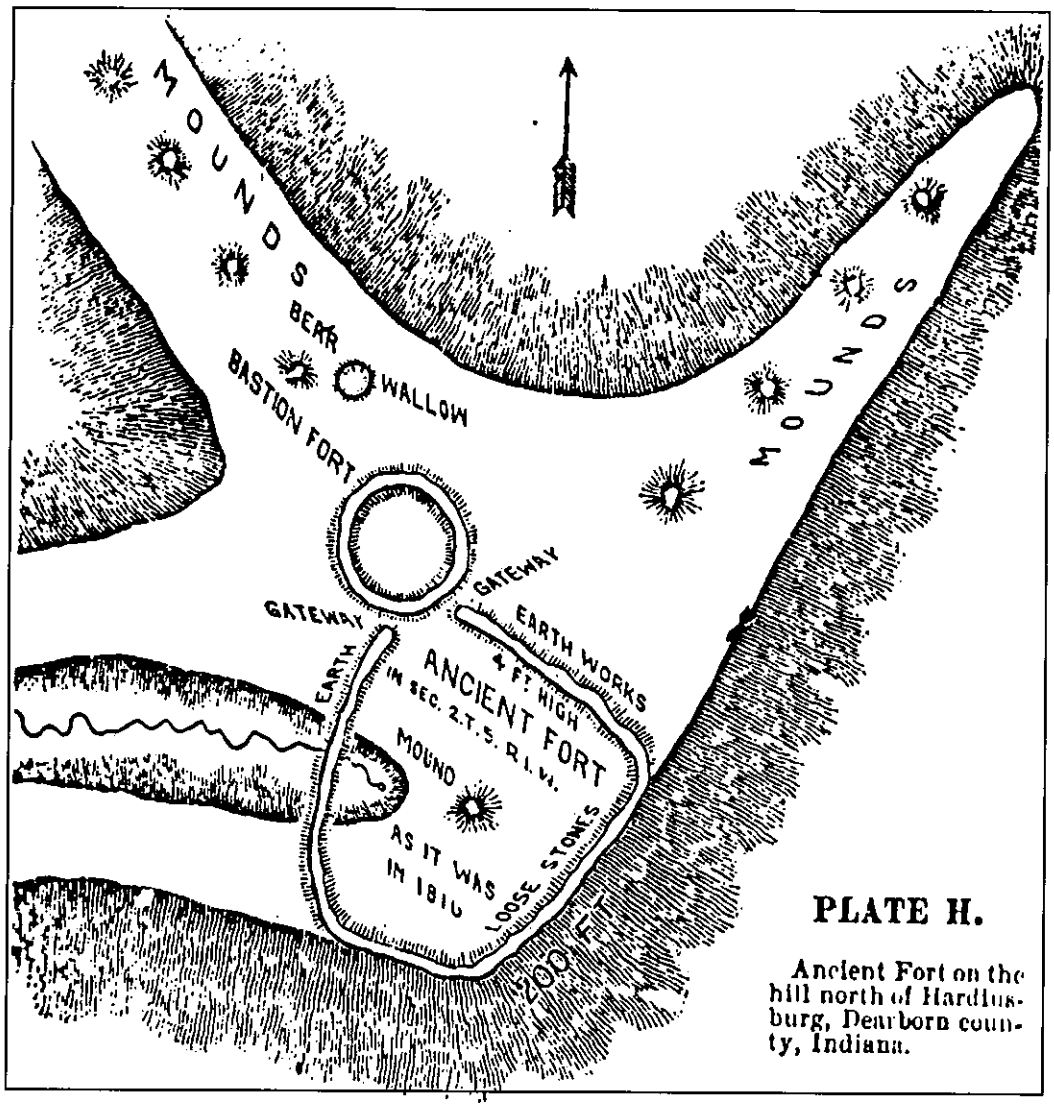


Figure 21. The Oberting Hill Fort (12-D-25) (Black 1934:197).

On the spur extending to the northeast, Black found 3 mounds, not 4. The furthest mound northeast was 33' in diameter and 3' high. A prior excavation had removed several limestone slabs. Southwest of this mound was a mound 100' in length, 66' wide and 6' high. This mound had also been potholed. The third mound, southwest of the last was 45' in diameter and 3' high. The embankment was well preserved to the southwest of the last mound being 4' in height and 48' wide at the base. Black notes that the embankment became hard to trace as it turned to the southwest where it is marked "loose stones" on the map. The west section of the embankment was defined in some points and washed away in others. The mound in the center of the embankment was noted closer to the south edge of the hill. This mound was 60' in diameter and 5' high with a large pit in the center. The north portion of the main body of the hill had been cleared and cultivated at some time, so Black could not definitely locate any of the 4 mounds, the circle or the bear wallow (Black 1934:197-199).

On February 14, 1996, the Archaeological Resources Management Service obtained permission to survey the site. The site was mapped by a brief transit survey that located the existing features to compare with the 1816 map (Figure 22). This survey found Black's (1934:196-199) description of the site to be quite accurate but a few differences were noted. Only small portions of the embankment were traceable even along the eastern side where the wall was supposedly well preserved. The western side was nearly impossible to trace and what was surveyed as the wall was questionable. To the north, a portion of the embankment exists which could be part of the rectangular embankment or part of the circle. Additionally, one of the mounds noted on the northern spur was relocated. Each of the mounds had been disturbed by pothunting.

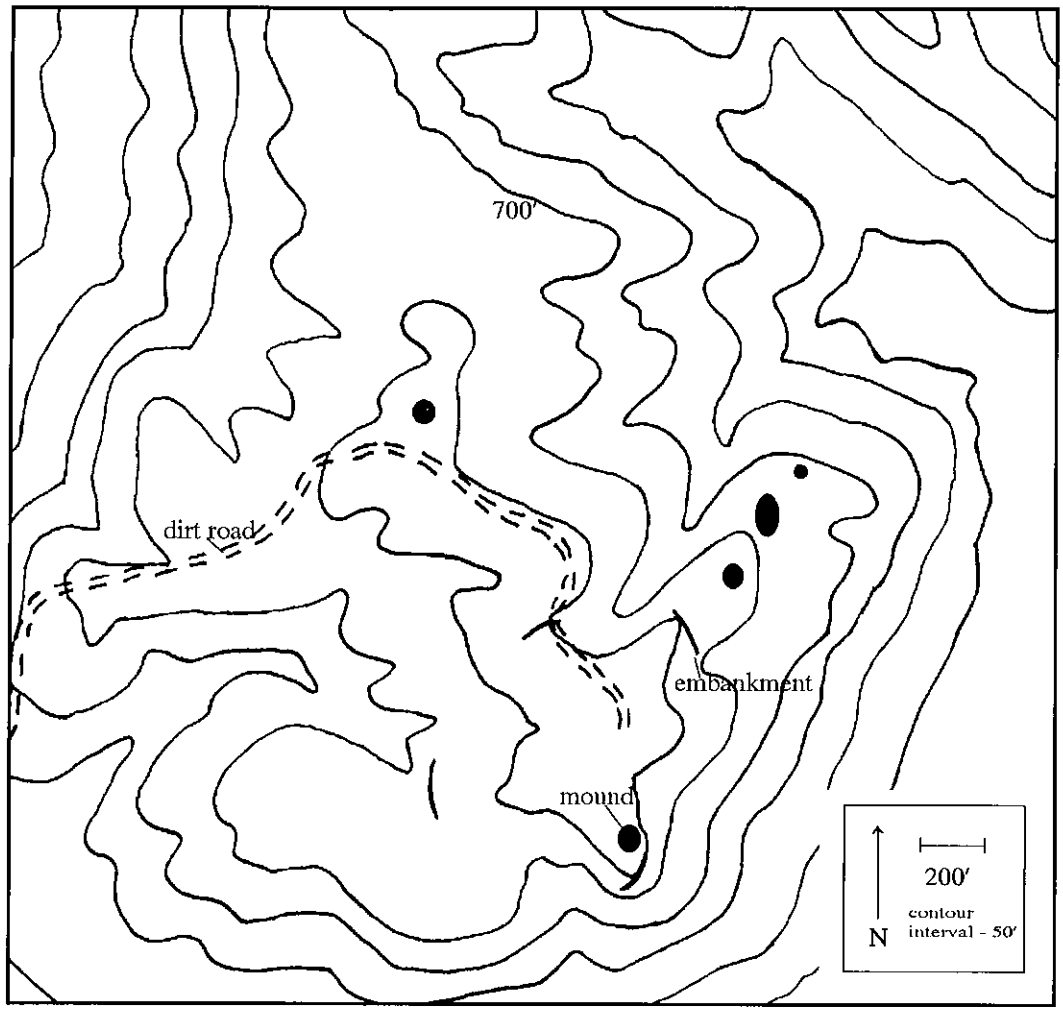
The Oberting Hill Fort is the only known hill top enclosure in Indiana. The site has been related to Fort Ancient and Miami Fort in Ohio (Kellar 1983:48). Although no professional excavations have occurred to temporally define this site, hill top enclosures are recognized as Hopewellian (Riordan 1995). The site is quite impressive and well worthy of additional documentation and excavation.

Discussion of Woodland Ceremonial Sites

Late Archaic

Since the Early Woodland period is not drastically different from the Late Archaic, a few Late Archaic trends should be reviewed. Temporally the Late Archaic is defined between ca. 3000 to 1000 B.C. (Jefferies 1990:153). The subsistence system has been characterized as hunter-gather (Kellar 1983:29-35, Jefferies 1990:153). The settlement system is comprised of small sites with short term occupation (Jefferies 1990:153). The overall trend during the Late Archaic has been characterized as one toward greater regional specialization (Jefferies 1990:153).

In the Late Archaic there is a recognizable trade network which exchanged copper, shell, and flint throughout the Northeast. As an example of this trade network, Justice



Oberting Hill Fort

Figure 22. Sketch of the Oberting Hill Fort in 1966.

(1987:179) remarks that probably no other prehistoric chipped stone artifact in North America was traded, as extensively or had such a high degree of continuity in the use of Wyandotte chert, as the Turkey Tail cluster.

It is in the Late Archaic that mortuary complexes (Old Copper, Glacial Kame, and Red Ocher) are first recognized (Fitting and Brose 1971). Artificial mounds are constructed and natural knolls and hills such as kames become places to bury the dead. But, these archaeological complexes are recognized solely from mortuary data. These sites are separate from habitation sites and it is currently impossible to link the mortuary complexes with subsistence-settlement systems. Only two sites within the study unit can be firmly attributed to the Late Archaic mortuary complexes. Both sites are in Randolph County. Cunningham (1948) reports sandal shape gorgets and a tubular pipe from the Mulen site indicative of the Glacial Kame Complex. A cache of 50 to 60 Turkey Tail points with a partial burial indicative of the Red Ocher Complex are reported from a sand and gravel hill by Keesling (1974).

The end of Late Archaic and the beginning of Early Woodland is rather subjective since artifact types and settlement and subsistence patterns overlap. The beginning of the Woodland period is often marked by the introduction of pottery (Seeman 1986:564). The life-style is basically unmodified from Late Archaic patterns but the new ceramic technology is introduced (Kellar 1983:36). Seeman (1986:564) has noted that the Woodland period begins in the upper Ohio Valley at approximately 1000 B.C. and at approximately 500 B.C. for the lower Ohio Valley. It is with the Early Woodland that the mortuary/ceremonial complexes become more elaborate.

Early Woodland

Adena

Seeman (1986:568) documents a separation of burial ceremonialism from everyday life ca. 1000 B.C. in the Ohio Valley. The most noted cultural manifestation in the Early Woodland period is Adena. The influences of Adena have been noted across the Northeast, but it is most strongly recognized in the Ohio Valley (see Dragoo 1963:177). Adena has an Early Woodland base that appeared by approximately 1000 B.C. and became distinctive by 500 B.C.. It ended between A.D. 1 (Seeman 1986:566) and A.D. 200 (Dragoo 1976:1).

Use of the term Adena has long been debated in the literature (Dragoo 1963, Swartz 1971). The definition of Adena that best applies to the east central Indiana situation is a system of localized communities interacting in a ceremonial and economic network. Adena, like the mortuary complexes of the Late Archaic, is still not defined in terms of domestic contexts (Clay 1991:1). Therefore, Adena is a mortuary complex, not a culture encompassing all aspects of Early Woodland life. Adena is an elaboration of the ceremonial and economic structures seen in the Late Archaic. The mortuary activity becomes specialized, non-mortuary ritual activity occurs, and the trade items are expanded.

Mortuary Activity

In Adena, mound construction flourishes. "Thousands of burial mounds are extant in the Ohio Valley ... probably the vast majority of such mounds are of Adena affiliation" (Seeman 1986:574). Within the study unit, 295 earthwork sites are documented. The majority are probably of Adena affiliation but at least a few are known to be Middle Woodland.

In addition to being burial locations, mounds also served ritual functions. In several Adena mounds, the mound is often noted as being built over a "house" and "village debris" is often noted in the mound fill (Setzler 1930a:481, Dragoo 1963:17, Webb and Snow 1945, Kellar 1983:67). While the mound fill has been interpreted as mixed with habitation debris, the presence of fragmentary pieces of human remains also in the fill complicates that interpretation. Fragmentary pieces of human remains not in direct burial context are noted scattered throughout Adena mounds (Baby 1971:12, Dragoo 1963:71, Kellar 1960:379, Kolbe 1992a:83). One possibility for this mixing of habitation debris and human bone is that ritualized mortuary activities were occurring at habitation areas and the soil from the habitation area is used in fill for the mounds. However, Seeman (1986:568) documents a separation of burial ceremonialism from the everyday life.

Seeman (1986) has also suggested that the submound structures previously identified as house patterns indicate mortuary camps. Part of the primary mound fill could have originated from such a mortuary site by cleaning the surrounding area to build the mound. This would indicate ritualized activities are occurring. And, burial ritual has been suggested in Adena mounds (Clay 1983). It is not implied here that all Adena mounds contained submound features, because they do not. Mortuary camps may have been located outside of the actual mound feature. While excavating 2 separate mounds, Potter (1971:11) encountered post holes on a slight rise near the mounds. On one of these rises a complete circular pattern and part of another were found, but these were not covered by mounds (Potter 1971:11). The Niebert site in West Virginia contained 4 circular pair-post structures that were not covered by mounds, but human remains were found in a number of contexts (Clay 1991:33). The submound structures have also been documented to have non-mortuary functions.

Non-mortuary Activities

The submound structures and the mound locations themselves have been documented to have astronomical alignments (Clay 1986, Cochran 1992). As Clay (1986:590) notes "formal or informal sun monitoring certainly suggest that submound structures were built for cyclical, predictable, long-range ritual functions ... not built for random events." Clay (1986:589) also states "it is probable that these structures were involved with whole cycles of behavior which we cannot now adequately reconstruct". A post hole pattern is recorded for the mound in the center of the Great Mound (12-M-2a) at Anderson, Madison County, Indiana. Radiocarbon dates from 3 of the posts are 60 B.C. +/-140, A.D. 230 +/-130 (Vickery 1979:59-62) and 250 BC +/-70 (Beta 45955). Astronomical alignments to solar, lunar and

bright stellar events are present between the posts (Cochran 1992:34-36). Interregional astronomical alignments between Adena mounds has also been documented (Kolbe 1992a:98). Astronomical alignments are discussed in Appendix D.

Another related archaeoastronomy topic deals with Adena tablets. Romain (1991) has documented astronomical features of solstice events and lunar standstills in 10 of the 14 known Adena engraved tablets. Further, the Cincinnati Tablet represents a lunar notational system based on the phases of the moon through 13 cycles or one year (Romain 1991) (Figure 23). The Archaeological Resources Management Service has on file the dimensions of the 4 plain tablets from Windsor Mound and the dimensions of 3 complete tablets from Law Mound. Romain's findings were tested against these with surprising results. All of the tablets documented either solstice or lunar standstill events (Figure 24).

Economy

Early Woodland populations expanded or at least maintained the trade networks present in the Late Archaic. Some of the materials and artifacts that appear in Adena were obtained through trade networks. Examples include copper, mica, marine shell, galena, barite and chert. It is through the trade networks that Adena influences spread as far as the Northeast. So the Adena complex should also be recognized as serving an economic function. It is plausible though that not all Early Woodland populations interacted through the economic and ceremonial structure called Adena. Following Clay (1991), the Adena mortuary complex is economically a reflection of dispersed social groups to buffer themselves against local shortages in goods through resource sharing and reciprocity. "The grave goods represented items of exchange, perhaps balancing the exchange of goods or services and preserving symmetry in reciprocity between exchanging groups" (Clay 1991:19). Obviously, not all items traded would be preserved in the archaeological record.

Populations functioning in the Adena system are characterized as small social groups in corresponding small extractive territories (Seeman 1986:576) and as small relatively autonomous and dispersed social groups (Clay 1991:18). The Adena system is comprised of an egalitarian, non-nucleated, relatively low energy hunting-gathering and horticultural society that made only a minimal investment in domestic site facilities and permanent shelter" (Clay 1991:18). The habitation sites become more concentrated in the major drainages through time (Seeman 1992:31). In Ohio, the first occurrence of cultigens appears during an Early Adena period (500 to 150 B.C.) and Eastern agricultural complex crops and curcubits were in general use during Late Adena (150 B.C. to A.D. 1) (Seeman 1992:25-27).

Distribution of Sites

Earthworks in general are located near water either near primary or secondary drainages. Of the Adena mounds discussed in the study unit, 6 are located near primary drainages although intermittent drainages are closer and 2 are located near secondary drainages (Figure 25). In Native American literature, water is believed to be a barrier for

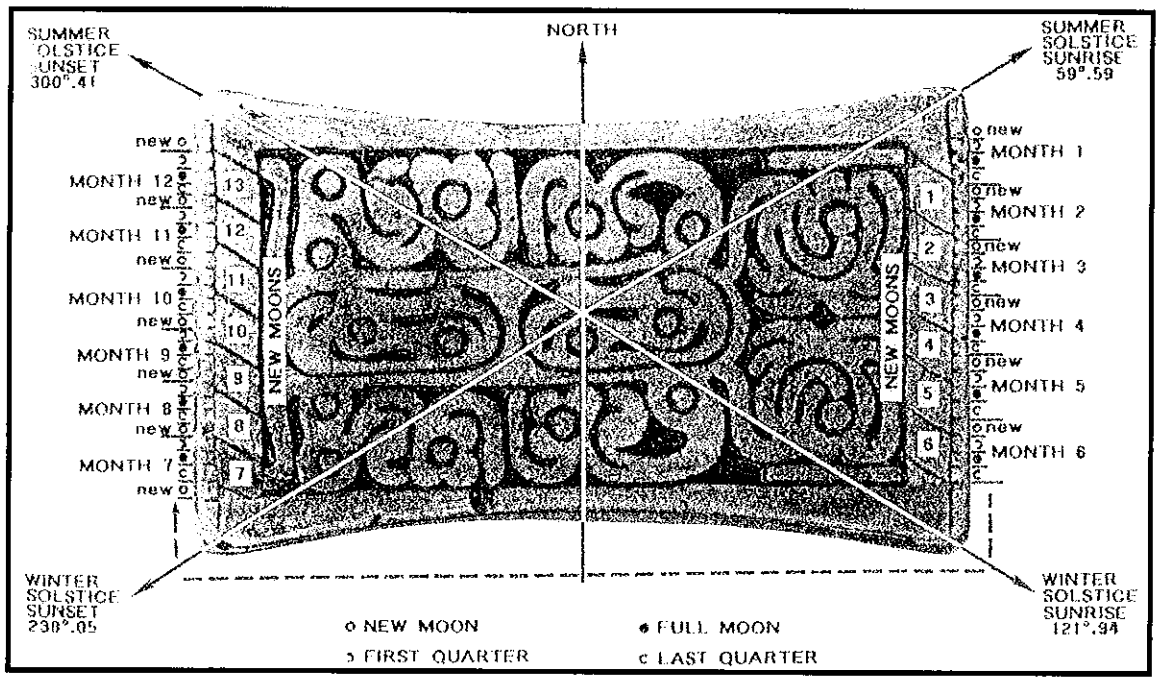


Figure 23. The Cincinnati Tablet (after Romain 1991:45).

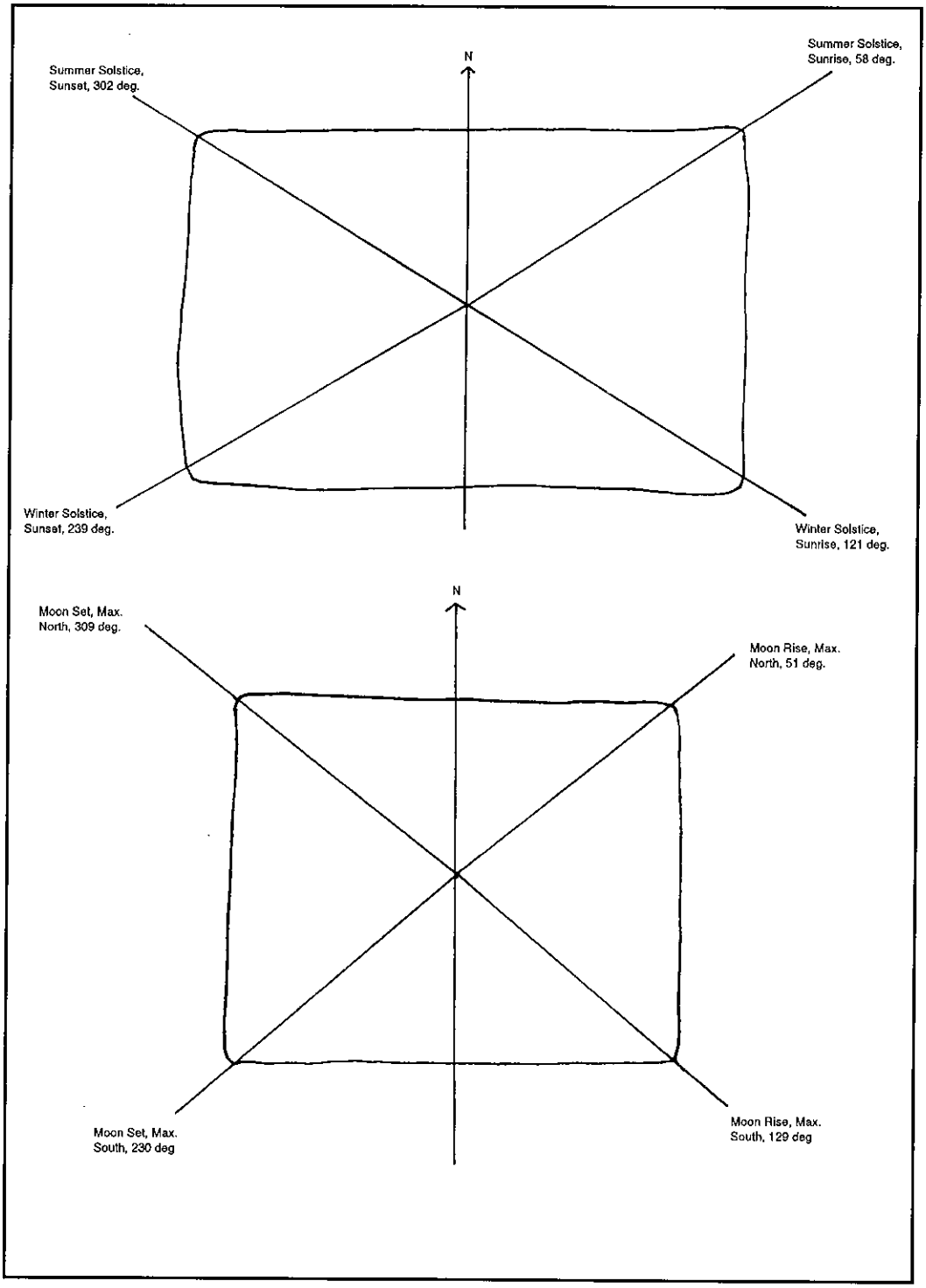


Figure 24. Windsor Mound tablets showing solar and lunar alignments.

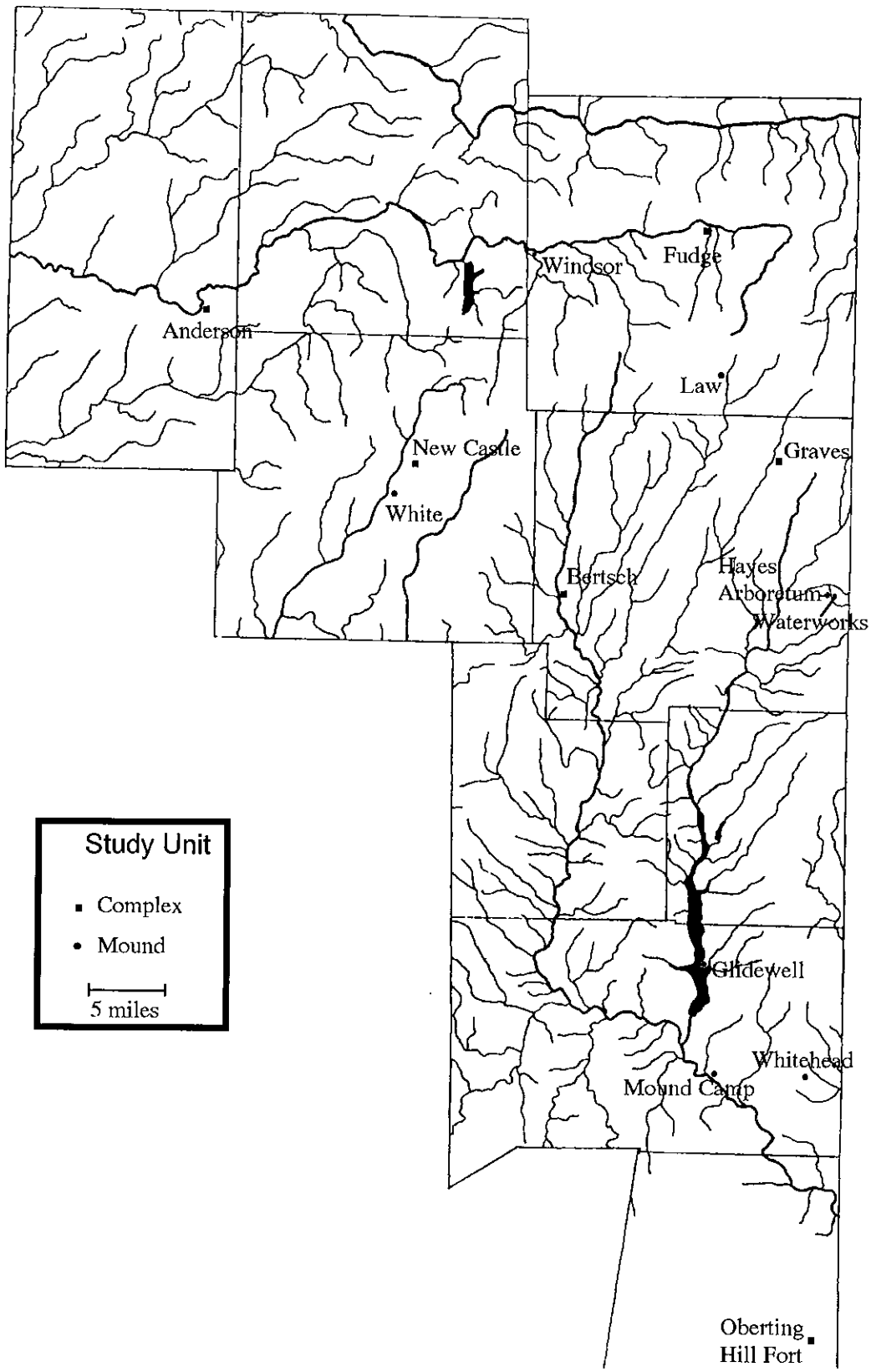


Figure 25. Location of Adena and Hopewell Sites.

ghosts and supernatural beings (Hall 1976). Disposal of the dead across the river, ensured that the spirits would not come back to the village (Hall 1976:360). The circular enclosures found in Adena may have served as similar purpose for controlling the movement of the spirits (Hall 1976:362).

Mounds are often located at prominent elevations. In discussing symbolic architecture, Railey (1991:56) comments that sacred sites in their most rudimentary form consist of prominent natural features. "The symbolic significance of ritual spaces may thus derive from the ceremonial activities associated with them, as well as form mythological connections" (Railey 1991:56). As previously mentioned astronomical events may have influenced the location of the mounds.

The Adena mounds have been considered to be in the center of a social group's territory. But as Clay (1991:20) has proposed perhaps these sites are not central places of group territory, but overlapping places within several territories. "When the possibility of multiple intergroup cooperation is considered, the ritual settlement becomes an increasingly complicated pattern of overlapping territories and interacting corporate groups" (Clay 1991:20). This model works well in east central Indiana to help explain the clustering of Adena mounds, such as the White site, and resultant Hopewell complexes.

Middle Woodland

Hopewell

The relationship between Adena and Hopewell has been a topic of discussion among archaeologists (Caldwell and Hall 1964, Dragoo 1963, Swartz 1971). However, most scholars consider Adena ancestral to Hopewell. According to some researchers (Seeman 1986:566), the development of Hopewell corresponds to the beginning of the Middle Woodland period between 200 B.C. and A.D. 1. Hopewell extends to ca. A.D. 300 (Seeman 1992:27) or as late as A.D. 500 (Railey 1990:254).

In general, Hopewell in this region is as poorly defined as Adena. Hopewell is largely recognized by distinctive and lavish grave goods, large geometric earthworks, and widespread interregional trade networks. Hopewell influences occur throughout the eastern portion of North America (Seeman 1979a), but the two main centers of development are in Ohio and Illinois. In this study area, Hopewell is most similar to the Ohio pattern.

In east central Indiana, Hopewell has been considered to be a "sequential progression from Adena" (Cochran 1992:40). Or, in other words, Hopewell is viewed as a continuation of the Adena mortuary complex. Cochran (1996) has proposed that Adena and Hopewell represent different components of the same ceremonial system.

Mortuary Ritual

Within the study area, several mortuary trends have been noted (Cochran 1996). The following discussion is based on Cochran's work (Cochran 1996, 1992). There are Adena burials in the mounds in the region, but there are no confirmed Adena burials within the regional earthwork complexes or corporate centers (Anderson, New Castle, Bertsch, Graves and Fudge). However, there is a burial in the Fudge mound, but the later Hopewell embankment is an addition and the site is therefore an exception, but a good example of continuity. Using Anderson as an example, the site begins as an Adena ceremonial center. But at some point the ceremonial function changed when the posts on the central platform of the Great Mound were burned and covered. The function further changed when a burial was added to the mound. The burial was interred with artifacts diagnostic of Hopewell. Ceremonial activity probably still occurred, but it no longer involved the central posts. Outside of the complexes, burial mounds like Windsor and White were contemporaneous with the burial at Anderson and continued to be used. The artifacts found in these mounds are diagnostic of Adena. Within the study area, there are no Hopewell burials outside of the earthwork complexes. There are no definitive Hopewell structures outside of complexes. That Adena and Hopewell artifacts are contemporaneous is very interesting. If Adena and Hopewell are two components of the same ceremonial system, then perhaps the Adena artifacts represent personal possessions and Hopewell artifacts are corporate possessions.

Mortuary ritual in Ohio Hopewell is perhaps better documented and more widely accepted than in Adena. Hopewell submound structures are widely accepted as charnel houses (Brown 1979, Greber 1979, Seeman 1979b). The submound structures were complex structures that were multi-roomed and could be subdivided or expanded (Brown 1979, Greber 1979). The submound structures apparently also served as templates for the mound construction (Greber 1979). While Adena mounds were accretional features that were vertical constructed, Hopewell mounds were horizontally constructed (Prufer 1964:72-73, Clay 1986:581).

Seeman (1979b) has also linked feasting with the dead to the charnel houses. Seeman proposed that redistribution of the food resources was also occurring as part of the mortuary ceremonialism. The charnel house served as a focus for the management of food resources, especially meat, by the chief probably through a ritual specialist or priest.

Non-mortuary Activity

Much of Hopewell is focused on burial practices, but as Seeman (1992:28) notes, " a broader range of ideological concerns is implied ... by the fact that some mounds, earthworks and hilltop enclosures contain no evidence of mortuary activities". At Seip in Ohio, excavations have revealed that several structures located inside the enclosure were not used for mortuary proposes, but were specialized workshops for the production specific ceremonial and ornamental objects (Baby and Langlois 1979).

As previously noted in the discussion of Adena, astronomical observation was also important in Hopewell. Further work at the Anderson complex has documented that the enclosures were organized along astronomical events (Cochran 1992). Not only did the post hole pattern contained below the primary mound on the central platform of the Great Mound exhibit astronomical alignments, the embankment of the Great Mound is irregular and the prominent depressions are brackets for solar events. The depressions also allow for a clear line of sight to the 3 surrounding enclosures which are also along astronomical events. The observation of astronomical events began in Adena and probably continued into Hopewell. The Circle Mound, a Hopewellian structure is being investigated for astronomical alignments with promising results at least to solar events.

Economy

The Hopewell Interaction Sphere has been discussed in the literature for some time (Caldwell 1964, Struever 1964, Struever and Houart 1972, Hall 1973, Seeman 1979a). As Seeman (1979:248) states, the interaction sphere was seen as a "highly complex trading system existing among cultural units with different adaptations". However, Seeman's (1979a) study of the interaction sphere found that network was largely synchronic and unstructured with the volume of trade rather low and variable. His study also found that the majority of trade items were concentrated in Ohio (Seeman 1979a). The interaction sphere may best be viewed as part of the trade network that existed for thousands of years before Hopewell and continued in Mississippian contexts (Griffin 1979:278). The network is recognized as outstanding during Hopewell more for the exotic commodities that were exchanged than for its structure. Examples of trade items included conch shell containers, copper beads, copper bracelets, copper earspools, shell beads, pearl beads, platform pipes, panpipes, blades, obsidian and more.

Following Braun as discussed by Seeman (1992), Middle Woodland's intensification in agriculture restricted mobility and created semi-sedentary occupation. Cultigens are well represented and maize is present although scarce. Population was believed to increase. The Hopewell decline post A.D. 200 is not actually seen as a decline, but as a success. The interacting corporate groups became more or less self-reliant. The subsistence base became stable and the population grew. Technology, such as seen in ceramics, did not decline but improved to the well made Late Woodland types. The mortuary practices became more simplified. An increased social complexity is suggested and the political structure evolved into a tribal structure. When these groups became self-reliant the trade networks became less important for resource sharing so long distance trade decreased but it did not disappear. The idea of interaction sphere becoming economically unnecessary was also espoused by Hall (1973).

Distribution of Sites

Hopewell habitation sites in Ohio continue to be small and cluster near large ceremonial centers in the main valleys. The ritual centers are less frequent and are more

concentrated than Adena. Away from the main ritual centers, the spacing of mounds is more regular. The Hopewell mounds tend toward more regular spacing (Seeman 1992:28-29).

Of the sites discussed above, Anderson, New Castle, Bertsch, Fudge and Oberting are located near primary drainages. The only Hopewell site located on a secondary drainage is Graves. Compared to the number of known and supposed Adena sites, the Hopewell sites are far less frequent. Although, Hopewell sites are quite large when compared to Adena sites. As shown in Figure 25, the spacing of Hopewell sites is more regular like the Ohio pattern of sites that are away from areas of main activity areas.

Late Woodland

The Late Woodland material culture is utilitarian in nature (Kellar 1983:48). Mortuary artifacts are not made from exotic materials and craft specialties are absent. The separation of burials from habitation ended with burial occurring at habitation locations, although some mound construction continued.

Two Late Woodland cultures in the study are recognized to have mortuary practices that related to mound construction: Intrusive Mound and Albee. Although Newtown is likely to occur within the study area, no Newtown mortuary facilities have yet been identified.

Intrusive Mound burials are isolated inhumations occurring in low mounds or intrusive into existing mounds (Seeman 1992:30). Intrusive Mound burials have been found at the Windsor, Anderson and New Castle sites (McCord 1994, Vickery 1970a, Swartz 1976). The grave goods associated with the intrusive burials included Jack's Reef points, shell and pearl beads, a pendent, antler drifts, antler tines, bone scrapers, bone needles, beaver incisors and turtle carapace.

Albee mortuary practices are variable with burials occurring in cemeteries, in artificially constructed mounds or in natural knolls (Anslinger 1990, McCord and Cochran 1994). There are two Albee cemeteries located within the study area, Commissary and Hesher (Swartz 1982, Cochran et al. 1988). There are no known Albee mounds within the study unit.

While no Late Woodland mounds are identified in the project area, one site has been identified as Fort Ancient. Like Albee, Fort Ancient had various burial practices with interments occurring in cemeteries and in artificially constructed mounds. While Fort Ancient is identified in the southern portion of the study unit, it is not well documented. The only mortuary site that can be linked to Ft. Ancient is the Pierson Mound (12-Fr-103) that was excavated in 1929 by Setzler (1930a:502-505).

Summary

There are 8 Adena mounds, 4 Adena/Hopewell complexes (corporate centers) and 2

Hopewell sites currently identified in eastern Indiana. This area has been recognized as having "the best examples of societies in transition from the archaeologists' Adena culture to the Hopewell development" (Griffin 1979:267).

Even with all of the past and current research in Woodland studies, the ceremonial sites are still inadequately understood. It is just becoming clear that Adena is not synonymous with Early Woodland in this region. Synders points have now been documented in several Adena mounds. Based on the current radiocarbon dates, Adena mounds appear late in the sequence, but early Adena has been documented at the complexes. It has been stated previously that Adena and Hopewell show continuity (Cochran 1992). But Adena and Hopewell were apparently also contemporaneous (Cochran 1996).

The Late Woodland mortuary sites appear to demonstrate a decline in the amount of ceremony invested in them. But, mound building is continued on a smaller scale.

This discussion has documented the continuity and evolution of a ceremonial and economic system from the Late Archaic through the Adena and Hopewell ceremonial complexes that functioned for several centuries in east central Indiana . While much remains to be resolved to fully document this model, the current data supports the interpretation presented here. .

Woodland Settlement Patterns in Eastern Indiana

Introduction

There is an ongoing problem of defining Early and Middle Woodland settlement patterns in the region occupied by the Adena and Hopewell Ceremonial Complexes of the Midwestern United States (eg. Swartz 1971, Kellar 1983:37, Clay 1986:594, Hicks 1992:25). One focus of this grant was to explore this issue and formulate a model for Woodland settlement patterns in east central Indiana.

The stimulus for working on this research problem came from discussions that occurred at the second Chillicothe Conference held in November of 1993. At that meeting there was an ongoing dialogue about the continuing lack of habitation sites associated with the Adena and Hopewell Ceremonial Complex in spite of the intensive surveys that have been carried out in recent years.

Reviewing the information that was available for east central Indiana indicated that sufficient data was present to develop a model of Woodland settlement patterns in the region. In fact, the data appeared to be better than was anticipated. For example, one site within the city limits of Muncie was known to have a complete range of the Woodland components for the region, including several points from each subdivision of the Woodland period.

Purpose

The purpose of this portion of the report is to present a model of Woodland settlement patterns in east central Indiana. This section will deal only with habitation sites as earthworks are discussed in a preceding section. The settlement model will be supported through a review of the archaeological background and the relationship between the archaeological record and the natural setting of the region.

Methods

Data used for the development of the settlement model were derived from a variety of sources. A large portion of the site data was culled from previous survey and planning grant survey projects in east central Indiana (Stephenson 1984, Burkett and Hicks 1986, Conover 1988, Kolbe 1992a, Angst 1994, Cree et al. 1994). Hicks (1992: 24-25) reviewed much of the settlement data obtained prior to 1992. In addition, members of the UWRAS were engaged in the project because of their expertise in the archaeology of the region. This group is an active avocational society whose members are predominantly from east central Indiana. Collectively the members have many years of survey experience with an intense

knowledge of the region. UWRAS members had documented diagnostic Woodland points (Adena, Snyders and Madison) in their collections as part of an ongoing point data base for the region. The members of UWRAS were also called upon for their knowledge of collections and localities that would enhance the investigation, particularly the distribution of Early and Middle Woodland artifacts within the study area.

We have avoided calling the Woodland habitation sites "Adena" or "Hopewell" since we are currently unable to directly relate the habitation sites to particular earthworks. The terms "Adena" and "Hopewell" are restricted to the ceremonial complexes only. For this section, sites were identified as Early, Middle and Late Woodland following the chronological framework for regional Woodland sites proposed by Cochran (1988:116).

For the purposes of this study, the points that were considered diagnostic of Woodland habitation include the following: Cresap, Adena and Robbins for Early Woodland; Snyders and the Lowe Cluster for Middle Woodland; and Jack's Reef/Raccoon Notched and triangular points for Late Woodland (Justice 1987). While a few additional diagnostic Woodland artifacts occur within the region (eg. Meadowood) they occur in frequencies too low to be of use. Ceramics were also included, but few sites with sherds were on record for the study area.

Background

Large surveys within the study area have covered a total of 3,781 acres representing a wide range of landforms. A total of 1243 sites were found representing the complete range of the prehistoric occupation of the region. Diagnostic points have been recovered in the following combined frequencies by chronological units: Paleo Indian 1%, Early Archaic 22%, Middle Archaic 7%, Late Archaic 43%, Early Woodland 3%, Middle Woodland 5%, and Late Woodland 17% (derived from Burkett and Hicks 1986, Conover 1988, Kolbe 1992a, Cree 1994, Angst 1994). From these figures it can be seen that Early and Middle Woodland points in central Indiana are among the least frequently encountered while Late Woodland points are among the most frequently recovered. This pattern has been previously documented for the till plain region in general (Cochran 1994:8). While these point frequencies provide a relative measure of landscape use through time, they are dubious reflections of human populations since they are not functionally equivalent. Obviously triangular arrow points are not equivalent to Early Archaic knives. (Stephenson's (1984) survey was left out of the acreage and point calculations since that project was predominantly a review of previously recorded sites with a minimum of new areas surveyed. The other projects were more systematically structured.)

In addition to the diagnostic points, ceramics have been found, but at only 46 habitation sites (4%). A total of 1442 sherds were recovered from them (Laymon 1984, Burkett & Hicks 1986, Conover 1988, Kolbe 1992a, Cree 1994, Angst 1994). Of these, the vast majority have been identified as Late Woodland with a few considered similar to Early and Middle Woodland (eg. Laymon 1984:112) or unidentifiable. A small number of shell

tempered sherds have been reported from Madison County only and appear related to the Oliver Phase (Laymon 1984). It is important to point out that 1245, or 86%, of the sherds were recovered from only four sites: Van Nuys (327), Hobb's Knob (288), Reck (344), Bracken (287) (Burkett & Hicks 1986, Conover 1988, Laymon 1984). Thus, given the size of the region being considered, the number of sites on record with ceramics is very low and 86% of the sherds have been found on only 4 sites.

Stephenson (1984) has proposed the only existing model for Woodland habitation sites in the study area, particularly Late Woodland sites with ceramics. These sites were found to be within or immediately adjacent to the modern flood plain of the White River. The sites were also in or immediately adjacent to an agricultural soil defined as Ross silt loam. The significance of the association between Ross silt loam soils and Woodland settlement appears to be related to the geomorphology of the Upper White River drainage.

The valley of the Upper White River, West Fork is generally narrow and relatively straight. Both features are consistent with a geologically recent stream. The valley formed as an outwash channel for meltwater flowing from the Wisconsin glacial front when the ice was stalled at the location of the Union City moraine (ca. 15,000 B.P.). The modern river flows within a restricted channel in the sluiceway valley. Floodplain areas are predominantly narrow and generally identified on agricultural soil surveys as Genessee and Ross. Ross is a minor soil (<0.3% for Delaware County) and occupies slightly higher elevations than the Genessee soils. The Ross soils developed under prairie grasses (Huffman 1972:23-24).

The vegetation of the region was dominated by beech-maple forest during the Woodland period (Petty & Jackson 1966). Given the combination of a young, relatively flat, and predominantly wet terrain and the dominant hardwood forest, the general prehistoric settlement of the region has been defined as dispersed as a reflection of dispersed resources (Cochran 1984:6, Wepler and Cochran 1983:90). This pattern, with a slight modification to incorporate plant horticulture, was also apparent during the Historic aboriginal occupation of the region (Wepler 1992). The modification to the dispersed settlement pattern was to incorporate semi-permanent sites within or near the flood plain where crops were grown. However, the majority of the population was dispersed into the surrounding forest except for during crop planting and harvest. The planting sites were focal points for the dispersed population, and not permanently occupied villages by the majority of the population (Wepler 1992).

Thus, it appears that in a region with dispersed resources, the small floodplain prairies were apparently the locations chosen for horticulture. At least this is the current model for Late Woodland settlement that is supported by the data from east central Indiana (Stephenson 1984, Conover 1988). But what about Early and Middle Woodland?

When Early and Middle Woodland points are found, they are most often from the river valleys (Hicks 1992:25). There is an apparent association between Snyders points and the margins of extinct kettle lakes and marshes (William Deilkes, personal communication 1995),

but the association has not been systematically investigated.

Middle Woodland bladelets are rare within the region. Of those known from systematic survey and those reported from private collections, all of them are from the river valleys. The majority are manufactured from heat treated Flint Ridge material (Cochran 1984:44 , Cree 1994:38, UWRAS collections) although a few are made from Wyandotte chert (Cree 1994:39, UWRAS collections). To date, only 12 bladelets are recorded from the entire region.

Sites with Early and Middle Woodland ceramics are virtually absent from the region except in earthworks. A few sherds have been documented as Early and Middle Woodland from one site in Franklin County (Kolbe 1992a:29), but these are identified primarily on technology (ie. thickness and paste) rather than on decoration. Laymon (1984:112) has noted that a few sherds from the Upper White River Valley were similar to Early and Middle Woodland ceramics. There may be several reasons for the poor representation of Early and Middle Woodland ceramics in the regional archaeological record. Sherds may have been destroyed through exposure on the surface (freezing, etc.), they may be unrecognized in the samples that have been collected, and they may be buried.

Thus, in summary, Late Woodland sites are one of the more frequently identified sites within the region. Both ceramic and a-ceramic Late Woodland habitation sites are recorded. The ceramic sites most frequently occur within or near areas of Ross soil on the floodplains of the modern river valleys within the study area. The sites without ceramics are widely distributed across the landscape. Early and Middle Woodland sites are rare and ceramic sites from these time periods are virtually absent within the study area. Of the few Early and Middle Woodland artifacts on record in the region, most occur in river valleys.

Discussion

How then can we account for the apparent concentration of Early/Middle Woodland earthworks within the region when habitation sites are so rare? The answer to this enigma appears to reside in two lines of investigation. The low frequency of Early and Middle Woodland habitation sites could suggest that they are generally not visible. If our sampling of surface deposits within the study area is representative, we could conclude that the lack of Early and Middle Woodland habitation sites indicates that they are either buried, and not visible on the surface, or that they occur in areas that have not been sampled. In central Indiana, the only landform that has not been systematically surveyed is the steep valley slopes. This landform would, by its nature, not be suitable for habitation. So, the option that there are unsampled landforms appears untenable as a reason for the lack of Early and Middle Woodland habitation sites. What evidence, then, exists to support the idea that these sites may be buried?

If we want to find sites that are 2,000 years old, then we need to find 2,000 year old land surfaces. As an example that is relevant to the study area, the All Seasons site near Peru

Indiana contained a stratified sequence of habitations spanning the Late Archaic through Late Woodland time periods. These archaeological deposits were buried in alluvial fan sediments that were 2 m deep. The surface artifacts were of Late Woodland age (Cochran and James 1986). Interestingly, one 2 x 2 m unit in the Middle Woodland zone produced more sherds than were on record for all known surface sites in the whole Upper Wabash River drainage (Cochran 1985). Sampling error was not at issue in the comparison of sherd frequencies since several thousand sites were included in the Upper Wabash drainage regional data base (Cochran 1985).

If we review the model for Late Woodland habitation sites with ceramics within the region, we see that they are most frequently encountered on floodplain soils (Stephenson 1984: 128, Cree 1994). The occurrence of Late Woodland sites on the surface of floodplain soils suggests that the surface of these soils (at least to the depth of the plow zone) are of Late Woodland age. Generally we can assign an age for these sites beginning about AD 900. If this supposition is correct, then we should not expect to find Early and Middle Woodland sites on the surface on these floodplain soils.

The Van Nuys site (12-Hn-25) in Henry County is an example of what can be expected from Woodland surface sites in the region. This site is currently the largest habitation site on record in east central Indiana. The distribution of artifacts covers an area of approximately 60 acres on a low terrace and floodplain at the intersection of Little Blue River with the Big Blue River sluiceway (Burkett and Hicks 1986:95). The site was excavated on two occasions by BSU field schools (Morris 1969, Ferguson 1970). The area excavated was minuscule in relation to the size of the site. Apparently 1375 square feet were excavated for a sample size of 0.05%. This number is important since Ferguson (1970:8) stated, "It is recommended that no further excavation be undertaken at the Van Nuys Site." Given the results of the controlled surface collection of a small portion of the site, further excavation is highly warranted (Burkett and Hicks 1986:93-96).

For the purposes of this project, Van Nuys is an excellent example of a site within the study area that, in many respects, exemplifies the Woodland settlement model being proposed. The vast majority of the artifacts from the surface of the site are of Late Woodland age, particularly triangular points and ceramics. The Late Woodland component has been affiliated with the Albee Phase (Morris 1968:25, Zoll 1988:46). In addition to the Late Woodland material, there are two Middle Woodland bladelets from the site (Burkett and Hicks 1986:205). The catalog sheet for the surface collection also indicates a Late Archaic point from the site and the controlled surface collection also recovered one Early Archaic point (Burkett and Hicks 1986:94). Thus, There is evidence that the site is multicomponent, but the vast majority of the surface artifacts are Late Woodland in age.

In addition, Morris (1969:24-25) demonstrated that the Van Nuys site has buried deposits. Sherds were found buried in the level that terminated at 25" below surface and bone was found to a depth of 40" (Morris 1969:25,27). Given the limited size of the excavated sample and the size of the site, the excavation sample only demonstrates that buried

deposits exist. The documented depth of buried deposits cannot be taken as representative of the site as a whole. Given the geomorphic setting of the site, the potential for a complex depositional history appears highly likely.

The Ray site described earlier documents a complete chronology of Woodland components on a Pleistocene terrace in the White River Valley. This site suggests that Woodland settlement of the valley was neither extensive nor intensive as would be expected for settlements in the till plain region.

Woodland Settlement Model

A review of the Woodland data from east central Indiana suggests a pattern that can be summarized as follows: Most Woodland sites are found within river valleys and on modern flood plains. The dominant component that has been identified at these sites is of Late Woodland age, based on both lithic artifacts and ceramics. Early and Middle Woodland sites are among the least frequently found point types within the region. Early and Middle Woodland ceramics occur predominantly in earthworks within the region and very few are known from habitation sites. Early and Middle Woodland artifacts are also found in river valleys and on floodplain soils. Given the combination of low Early and Middle Woodland artifact frequency, and their association with floodplains, it is suggested that these sites are primarily buried in flood plains. They have not been recorded because they are not visible. If this is in fact the case, then our samples of archaeological components that are derived from surface contexts alone are highly biased.

In addition, the geomorphology and vegetation of the till plain region of central Indiana had a demonstrable effect on prehistoric settlement in the area. The combination of a young and flat terrain, narrow river valleys that originated as sluiceway channels and dominance by a deciduous forest habitat resulted in an aboriginal settlement pattern that was dispersed and redundant across the landscape. Site occupancy was repeated and seasonal.

CONCLUSIONS

The Archaeological Resources Management Service proposed to carry out a project in east central Indiana focused on answering three research questions as follows:

1. What is the distribution, content, and age of Woodland mound and enclosure sites in the region?

2. Are the large ceremonial centers at Fudge (12-R-10) and Graves (12-Wy-39) "empty" or do they show evidence of internal use?

3. Where are Woodland habitation sites in the region and why are they so rare?

These questions were addressed through a review of the regional literature, field survey to determine the locations of a sample of Woodland earthworks, and conducting collector interviews.

The review of the regional literature resulted in the production of a catalog of reported Woodland earthworks from the study area. A total of 295 earthwork sites were documented. In addition, efforts to find previously excavated artifacts from sites in the region resulted in locating the curation facility where some are housed, but, unfortunately, much of the material has been lost. From the list of reported earthworks, a 25% sample was selected for field investigation. The sampling scheme was compromised by the lack of landowner permission for many of the sites, but a 25% sample, stratified by county, was ultimately obtained. The field survey documented that 14% of the reported earthworks were natural features, 57% of the sites have been destroyed, and 29% still exist.

Testing of the large ceremonial centers was prevented by a number of factors, the foremost being an unusually wet spring. However, important information on these sites was acquired through interviews and reviews of early aerial photographs. Interestingly, one site had artifacts reported from within the enclosure and the other did not. Testing is anticipated for both sites as part of the BSU archaeological field school later this calendar year.

The catalog of Woodland earthworks within the region was used as the basis for three research investigations relevant to Woodland settlement within the region. First was an evaluation of the Adena and Hopewell phenomenon as expressed in the regional earthworks. Next, using the locational data obtained during the field survey of Woodland earthworks, alignments to astronomical events were tested against the data. Finally, an investigation of the locations of Woodland habitation sites within the region was carried out. An overview of each of these areas is given below.

This investigation of Adena and Hopewell sites in the region resulted in an overview

of these sites and a model addressing their relationship. Overall, this review revealed continuity in the Late Archaic through Adena and Hopewell Ceremonial Complexes within the region. In addition, Adena and Hopewell appeared to be contemporaneous within the region as different expressions of the ceremonial complex.

The investigation of astronomical alignments between a sample of sites in the region showed that alignments, including several multiple alignments between sites, occurred for all earthworks with precise locational data. In addition, at least one prominent natural feature also appeared to be integrated along astronomical alignments with the earthworks. The latter suggested that natural features were incorporated into the constructed ceremonial landscape.

The question of Woodland habitation was addressed through a review of the regional site data and correlations with the regional geomorphology. The apparent lack of Early and Middle Woodland sites was hypothesized as an indication that they were buried in the floodplains of rivers. These sites were not visible on the surface because the surface soils in floodplains were not 2,000 years old. Late Woodland sites, especially those with ceramics, most frequently occurred on the surfaces of floodplain sediments and almost always in association with an agricultural soil, Ross silt loam. The lack of Early and Middle Woodland settlements was, therefore, considered a sampling error rather than a lack of sites.

Overall, in spite of not being able to reach all the proposed goals, the project was successful. Important information was acquired and a new appreciation for the regional data base for Woodland habitation was achieved. Many of the sites appear to be potentially significant and have been recommended for additional work. In the following section, particular recommendations for further research will be enumerated.

RECOMMENDATIONS

In spite of the success of this project in achieving many of the proposed goals, much remains to be done in order to realize the research potential of Woodland sites within east central Indiana. Some of the needs raised by this project are enumerated below.

1. First, a regional research design for the Woodland settlement of east central Indiana should be prepared to guide future investigations.

2. The remainder of the Woodland earthworks documented during this project should be field checked to obtain accurate locations and a complete inventory of these sites.

3. The recorded earthworks need to be tested to determine their eligibility for listing on the State and National Registers of Historic Places.

4. A sample of the destroyed earthwork sites need to be tested to determine whether any features associated with these sites remain.

5. The artifacts and documentation that has been recovered from excavated earthworks within the region need to be found and documented. Most of these artifacts have not been documented or analyzed by contemporary standards.

6. Continued limited test excavations needs to be carried out at regional earthwork sites to obtain carbon for radiocarbon dating in order to establish a regional chronology of the earthworks.

7. Existing earthworks on private property need to be protected by informing the landowners of the sites existence and of relevant protection offered by Indiana law.

8. Investigations of astronomical alignments should be continued in order to delineate the constructed ceremonial landscape of east central Indiana. In addition, prominent natural features should also be investigated to determine their relationship to the ceremonial landscape.

9. An intensive investigation of the potential for buried archaeological deposits must be conducted within the region. The buried site reconnaissance should address the regional geomorphology to predict appropriate locations for site burial as well as verification of the subsurface occurrence of buried sites. Such an investigation is crucial to obtaining a representative sample of the types, densities and locations of buried components within the region.

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Appendix to:

WOODLAND SITES IN EAST CENTRAL INDIANA:

A SURVEY AND EVALUATION

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Archaeological Resources Management Service
Ball State University
Muncie, Indiana
47306

Appendix A:
Catalog of Earthworks in East Central Indiana

Site Locations Conveniental
Not for Public Disclosure

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Appendix B:
USGS Map Locations for Identified Earthworks

Site Locations Confidential
Not For Public Disclosure

Appendix C:
Test Excavations at the Ray Site

APPENDIX C

Test Excavations at the Ray site (12-Dl-297)

Eric Scuoteguazza

Introduction

The Ray site is located [redacted] (Figure 1). The site is situated on a Pleistocene terrace at the confluence of Truitt Ditch and the White River in the city limits of Muncie, Delaware County, Indiana (Figure 1). The site was proposed for testing since it contained the most complete range of Woodland components of any site currently on record within the study area.

The site has been surveyed for several years by Patrick Ray, a member of UWRAS. Mr. Ray has visited the site several times a year and kept track of the locations of diagnostic artifacts. The site is unique within the region because it has the greatest number of artifacts representing the complete range of Woodland components of any site currently on record in the study area. However, ceramics are only associated with the Late Woodland component. Interestingly, the artifacts are spatially separate within the site by age. Also of interest is the fact that the Archaic materials are also spatially separate with the oldest artifacts occurring the furtherest distance from the White River (Figure 2). Artifacts from the site donated to ARMS by Mr. Ray are shown in Table 1. This site provides interesting insights into the nature of the Woodland occupations that should be expected within the study area, particularly where these deposits are buried.

The site was owned by Mr. William Rahe who kindly granted permission to test the site as long as testing did not interfere with the lease of the land for farming. The leasee could not be reached and the testing was ultimately limited to the unfarmed margin of the site so as not to damage crops.

The purpose of the testing was to determine whether buried deposits occurred at the site. However, since the field was in crops at the time of survey and we were limited to the margins of the field, the goal of the testing was changed to determining whether archaeological deposits were present in the unplowed area of the site. In addition, an experiment was conducted to determine whether there was a difference in recovery of artifacts between screened and unscreened shovel tests.

Site Locations Confidential
Not For Public Disclosure

Figure #1. Portion of the USGS 7.5' Muncie, East topographic map showing the location of the Ray site (12-D1-297).

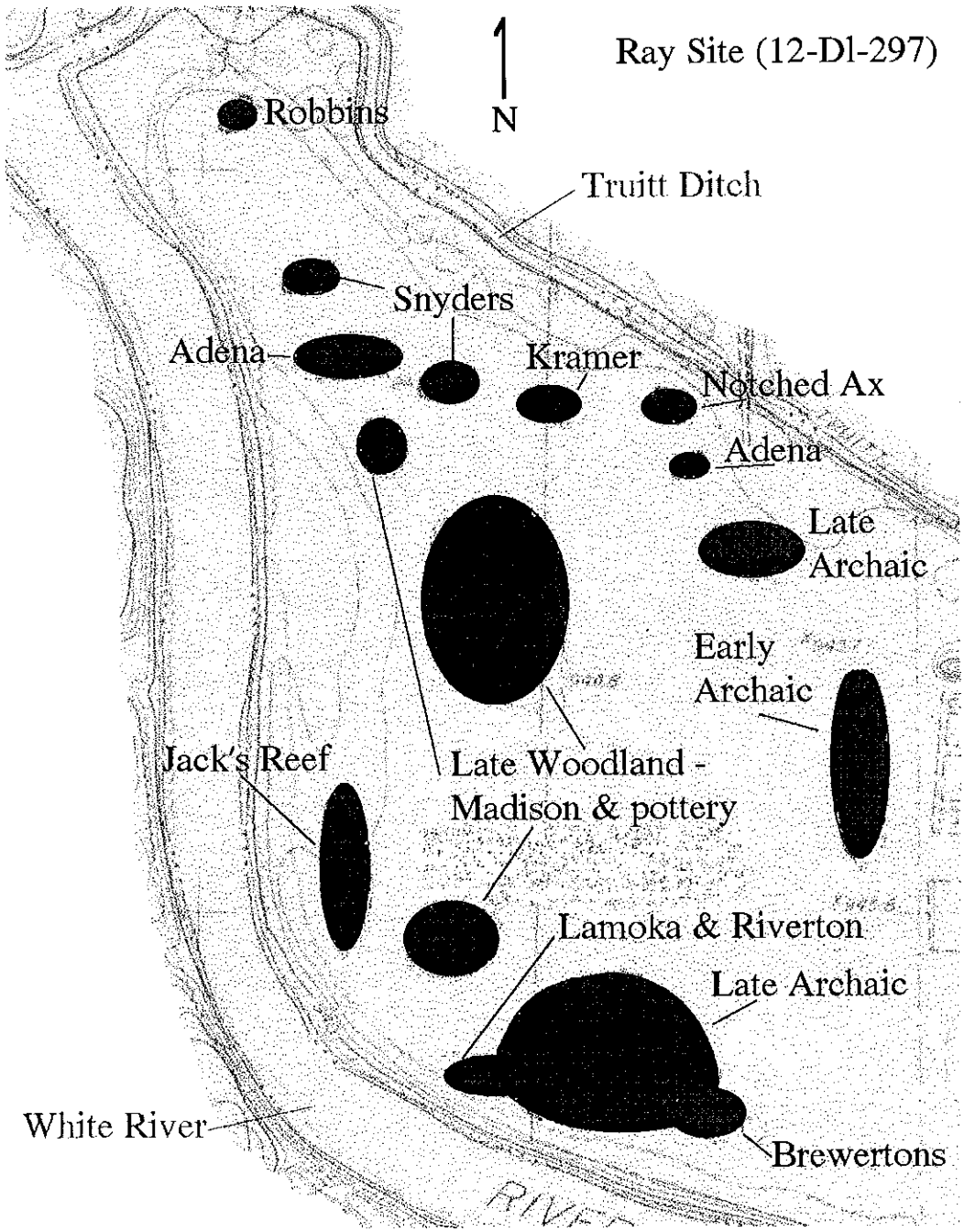

Figure #2. Distribution of prehistoric components at the Ray site.

Table 1

12-Dl-297 (Ray Site)

Donated Artifacts

Artifact	Raw Material	Count
Unmodified Flake	Laurel Chert	97
Unmodified Flake	H. T. Laurel Chert	28
Unmodified Flake	Glacial Chert	29
Unmodified Flake	Unknown Chert	5
Unmodified Flake	Fall Creek Chert	11
Unmodified Flake	H. T. Fall Creek Chert	1
Edge Modified Flake	Laurel Chert	6
Edge Modified Flake	Liston Creek Chert	1
Edge Modified Flake	Fall Creek Chert	3
Core	Laurel Chert	2
Core	Glacial Chert	1
Bipolar Artifact	Laurel Chert	2
Bipolar Artifact	H. T. Laurel Chert	1
Bipolar Artifact	Glacial Chert	1
Biface Fragment	H. D. Liston Creek Chert	1
Other Chipped Stone	Slate	3
Prehistoric Pottery Sherds	--	18
Shell Fragments	--	7
Deer Teeth	--	2
Faunal Remains	Bone	8

Natural Setting

The Ray site is located on a Pleistocene terrace at the confluence of the White River and Truitt Ditch. The site is in the Miami-Fox-Martinsville soil association, an area containing well drained, nearly level to strongly sloping, moderately fine textured soils that formed in glacial till on uplands and terraces (Huffman 1972:General Soils Map). Three specific soils are included within the site. They are as follows: 1) the Brookston silty clay loam consisting of deep, nearly level and depressional, very poorly drained soils on flats and in depressions on outwash areas and on terraces throughout the county; 2) the Fox silt loam consisting of well drained, nearly level to strongly sloping soils that are moderately deep to sand and gravel and are located on terraces and outwash areas throughout the county; and, 3) the Genesee silt loam consisting of deep, nearly level, well drained soils located on flood plains of streams throughout the county and formed in recent loamy and silty stream sediment (Huffman 1972:9-12, map insert #32). The Brookston soils are confined to the depression occupied by Truitt Ditch on the north side of the site. The Genesee soils occupy depressions and make up a natural levee along the west side of the site. The majority of the site is on the Fox soils.

An area of Ross soil is located along the White River immediately adjacent to and upstream from the site on both sides of the river. Larger areas of Ross soil are located downstream from the site within 1/2 mile of the site.

Field Methodology

The testing of the Ray site was conducted on June 29 and 30, 1995 by the students of the Ball State 1995 Archaeological Field School, Don Cochran and the author. The purpose of the field reconnaissance was to delineate the boundaries of the site and determine the presence of buried archaeological deposits.

Shovel probes measuring approximately 0.3 m x 0.3 m x 0.5 were systematically excavated along the edge of the terrace at ten meter intervals (Figure 3). In order to test the accuracy of screened vs unscreened shovel testing, soil from each probe was turned out onto a tarp and then thoroughly trowelled through. Artifacts recovered by this method were bagged. Then, the soil was screened through 6.4 mm mesh in returning it to the shovel test to locate any cultural materials that may have been overlooked during trowelling. These artifacts were also bagged separately. At the conclusion of the project, the results were compared to determine the accuracy of the methods.

Field Results

As anticipated, the completion of the field reconnaissance revealed that the Ray Site extends to the edge of the terrace. However, the shovel testing recovered only a small quantity of prehistoric lithics and pottery (Table 2) which suggests that the archaeological deposits are either buried in the area shovel tested or are concentrated further back onto the terrace. The shovel testing determined that the edge of the terrace adjacent to the White River was on a natural levee. These types of settings contain the potential for buried deposits

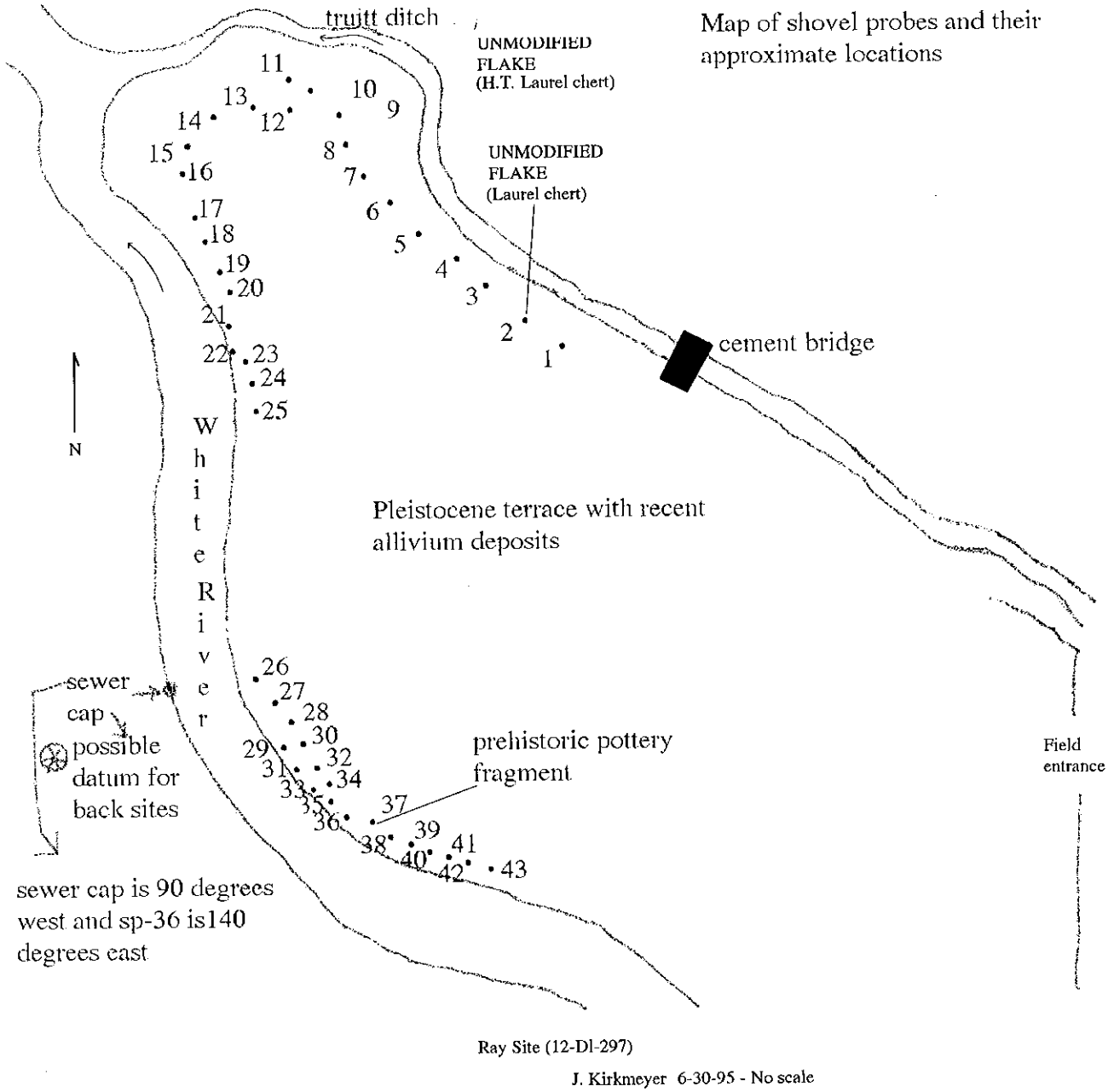

Figure #3. Map of Ray site showing locations of shovel tests.

below the maximum depth of the shovel testing (50 cm) used in this project.

Table 2

12-Dl-297 (Ray Site)

Artifacts Collected During Field Reconnaissance (1995)

Artifact	Raw Material	Count
Unmodified Flakes	Laurel Chert	2
Unmodified Flake	H. T. Laurel Chert	1
Prehistoric Pottery Sherd	--	1
Fire-Cracked Rock	--	2
Flat Glass Fragments	--	3
Brick Fragment	--	1
Slag Fragments	--	5
Wire Nail	--	1
Unidentified Metal Fragment	--	1
.22 Cartridges	--	2
Deer Tooth	--	1
Bone	--	1

Interestingly, all artifacts were found while troweling through the soil from the shovel tests rather than on the screen. This test suggested that thoroughly troweling through soil is an effective method for recovering artifacts from shovel tests. However, the experiment should be tried in other settings and under different conditions to see if these findings are verified.

A summary of data from the site is given below:

Site: 12-DI-297 (Ray site)
Location: [redacted]
Cultural Affiliation: Early and Late Archaic; Early, Middle and Late Woodland, Historic
Type: Currently unclassified due to complexity of components present and inability to delineate site function within each component.
Dimensions: 1600' N/S x 2131' E/W (488 x 650 m)
Visibility: 0% (during field reconnaissance)
Soil: Brookstone silty clay loam, Fox silt loam, Genesee silt loam
Artifacts: see Tables 1and 2
Discussion: The artifacts recovered from the site indicate that the various occupations are neither intense nor of lengthy duration. They appear to represent repeated short term habitation which is consistent with the general occupation of the majority of the till plain region (Cochran 1994).

Conclusions and Recommendations

The Ray site is important to the regional data base for a variety of reasons. The site is currently unique due to the number and variety of Woodland components present on the surface. The site is also unique in that the components are spatially segregated across the site. In general, the more recent components are closest to the White River and the oldest components are furthest away from the river. This spacing may have important implications for subsurface reconnaissance within the region. Finally, the various components within the site suggest neither long term nor intensive habitation which is consistent with the general settlement pattern within the Till Plain region of Indiana.

In spite of the failure of this project to document features or other archaeological deposits at or below the base of the plow zone, the shovel testing was limited to the margins of the site. The site is predominantly confined to a Pleistocene terrace and buried deposits do not appear to be likely. However, given the range of settlement documented at the site, it appears highly likely that the remains of features will exist at the base of the plow zone. It is therefore our conclusion that the site is potentially eligible for listing on the State and National Registers of Historic Places and further testing is recommended.

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Appendix D:
Woodland Archaeoastronomy in East Central Indiana

APPENDIX D

Woodland Archaeoastronomy in East Central Indiana

John D. Waldron

Introduction

The delineation of astronomical alignments between Adena and Hopewell earthwork sites in east central Indiana is an ongoing research focus for ARMS staff. Cochran (1992) was the first to demonstrate that earthwork sites were regionally linked and how site organization was influenced by alignment to certain celestial bodies. This work was continued by Kolbe (1992) for the earthworks located in the Brookville Lake area. Cochran (1992) reported 35 alignments to major observable astronomical phenomena and Kolbe (1992) recorded 39 alignments. One outcome of those projects was the realization that earthwork sites in the region were too inaccurately recorded for the precision needed to explore the potential for astronomical alignments.

The goals for this project were to find accurate locations for earthworks in the East Central Indiana region and investigate the possibility of astronomical alignment. While most of the site locations used for this research were obtained from the surveys conducted during this grant project, some sites with known accurate locations were also included (Figure 1). A total of 29 earthwork sites with accurate locations were used in the analysis.

Methodology

The locations of the 29 earthworks used for this study were plotted on the USGS 1:250,000 Muncie, Indiana; Ohio, and Cincinnati, Ohio; Indiana; Kentucky topographic maps using strict measurements. Coordinates for astronomical bodies were obtained using the tables complementary to Aveni's "Astronomical Tables Intended for use in Astro-Archaeological Studies" (1972) for the 40° and 39° Latitudes at A.D. 0 with a 0° horizon in the northern hemisphere. Alignments were checked between earthworks using a C-THRU® protractor No. 260-6". A 1° (+/- 0.5°) margin of error was used to determine alignment to a particular astronomical body. Planets were not included in this analysis. Alignments were compiled into a table (Table 1) and analyzed for various characteristics including multiple alignments, and the most frequently used astronomical bodies. Furthermore, alignments to the cardinal directions were also checked.

Results

The astronomical and directional alignments for 29 sites were examined. The procedures used revealed a total of 104 alignments. Of the 104 alignments, 92 were astronomical and 12 were cardinal directions. The most commonly found alignments were

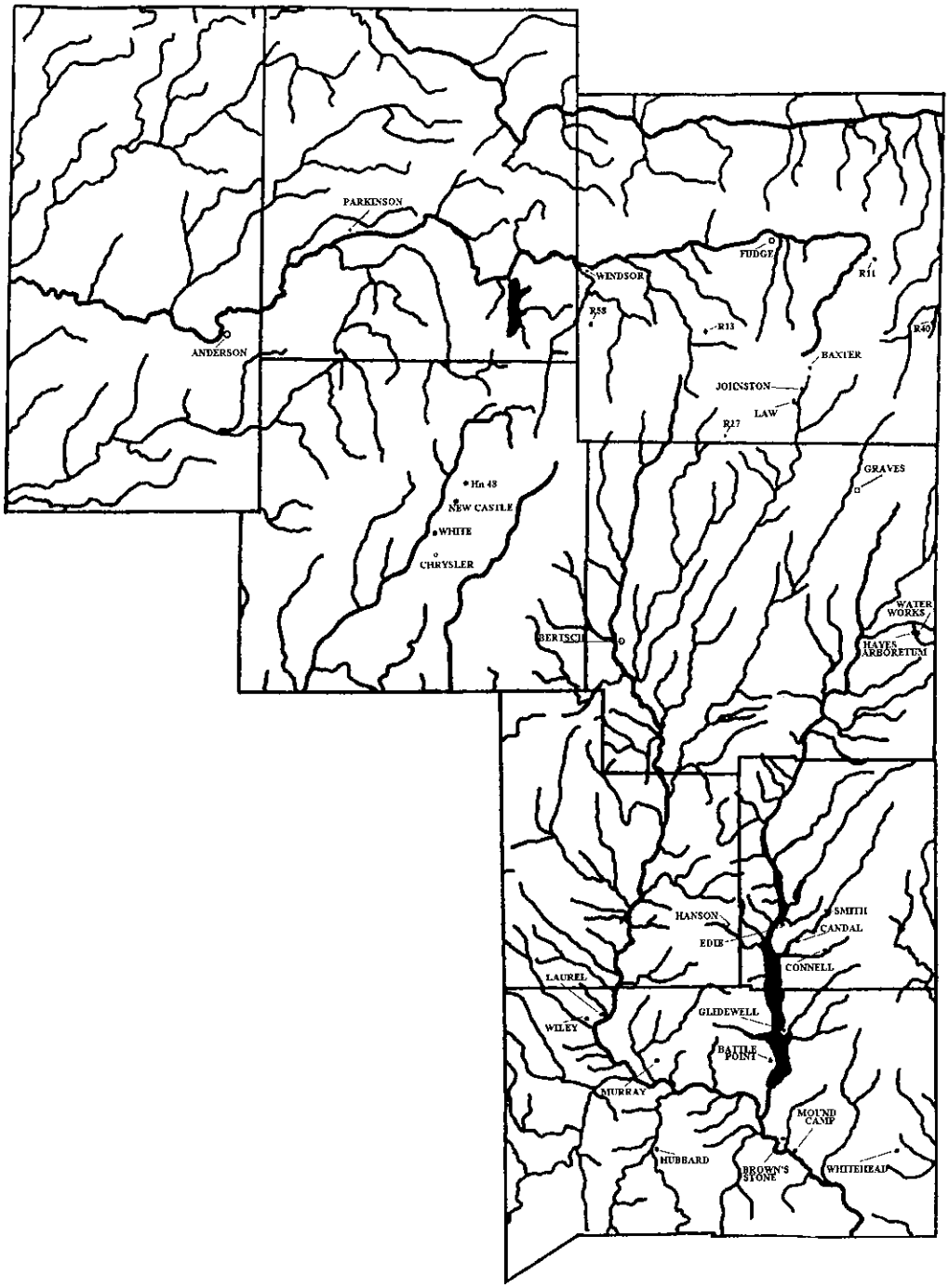

Figure #1. Location of Earthworks

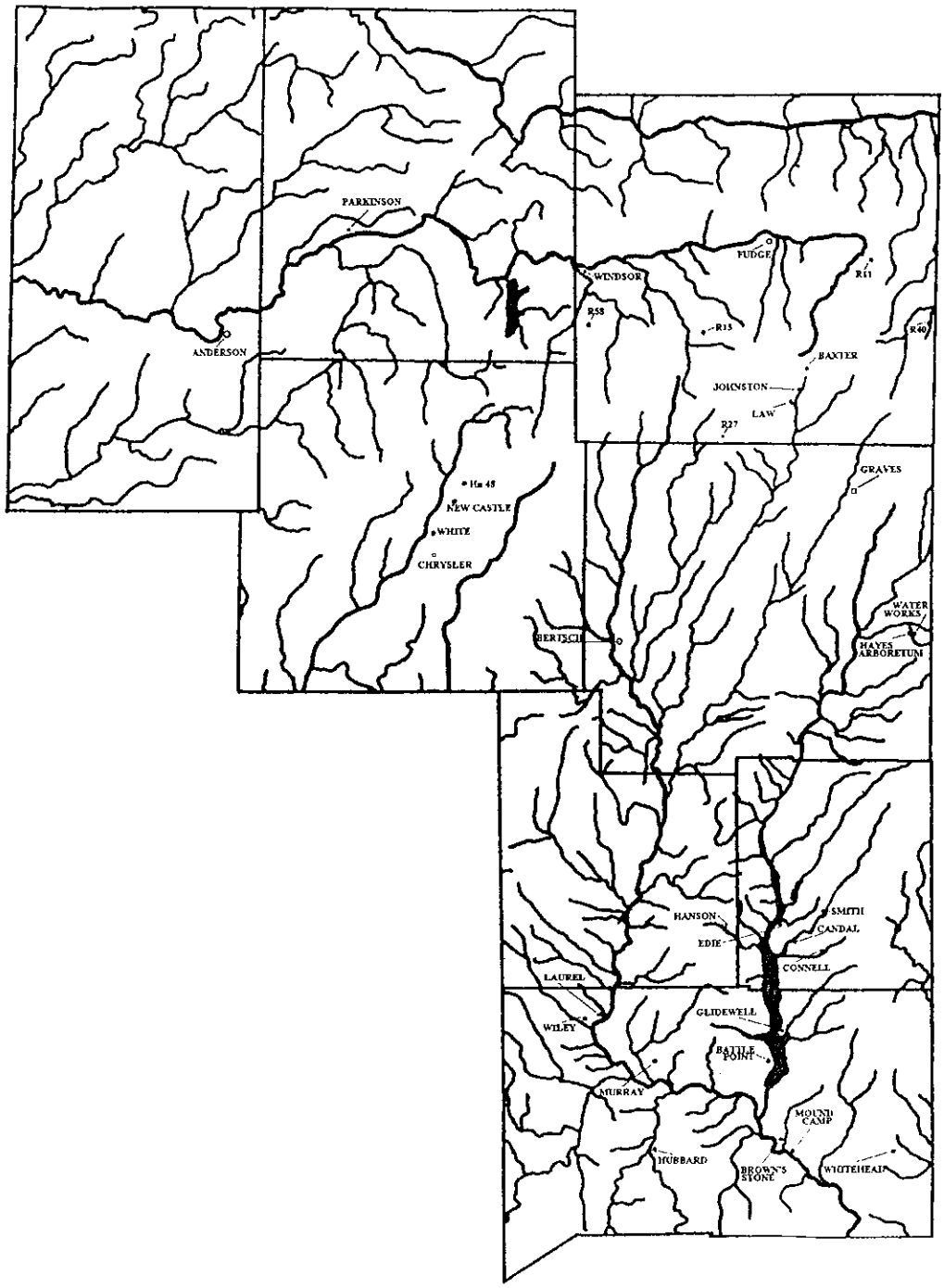

Figure #1. Location of Earthworks

Table 1
Astronomical Alignments

From Site	Degrees	To Site	Alignment	Align. Degree
Anderson	51.3	Parkinson	Moon Max North Rise	51.38-51.9
Anderson	79	Windsor	Procyon Rise	79
Anderson	120.3	HN48	Winter Solstice Sun Rise	120.53-121.22
Anderson	95.15	Law	Epsilon Orionis Rise	95.43
Battle Point	166	Mound Camp	b Centauri Rise	166.49
Battle Point	89.3	Murray	Spica Set	89.47
Baxter	248.3	New Castle	Sirius Set	249.26
Bertsch	58	Graves	Summer Solstice Sun Rise	57.34-58.4
Bertsch	326.3	Parkinson	Deneb Set	326.47
Bertsch+	294	Chrysler	Moon Min. North Set	293.56-294.24
Bertsch+	308.3	Anderson	Moon Max North Set	308.22-308.51
Brown's Stone*	0	Glidewell	Due North	0
Brown's Stone*	0	Edie	Due North	0
Brown's Stone+	95.3	Whitehead	Epsilon Orionis Rise	95.39
Brown's Stone+	264.3	Hubbard	Epsilon Orionis Set	264.21
Candal	180	Mound Camp	Due South	180
Candal	329.3	Bertsch	Capella Set	329.42
Candal	193	Glidewell	b Crucis Set	193.47
Candal	281	Hanson	Procyon Set	281
Candal*+	249.3	Wiley	Sirius Set	249.26
Candal*+	249.3	Laurel	Sirius Set	249.26
Candal+	110.3	Connell	Sirius Rise	110.34
Candal+	317	Chrysler	Castor Set	316.34
Candal+	43.15	Smith	Castor Rise	43.26
Chrysler	66.3	Law	Moon Min. North Rise	65.36-66.4
Chrysler	316.15	Anderson	Castor Set	316.34
Chrysler	144.15	Glidewell	Fomalhaut Rise	144.27
Chrysler	0	White	Due North	0
Connell	0	Smith	Due North	0
Connell	316	White	Castor Set	316.34
Connell	283	Hanson	Aldebaran Set	283.54
Connell	291	Candal	Pleiades Set	291.31
Connell	302	Edie	Summer Solstice Sun Set	301.56-302.26
Connell*	253	Laurel	Rigel Set	253.56
Connell*	253	Wiley	Rigel Set	253.56
Connell*	326.3	Parkinson	Deneb Set	326.47
Connell*	326.3	Bertsch	Deneb Set	326.47
Edie	264.3	Hanson	Epsilon Orionis Set	264.17
Edie	245	Wiley	Moon Min. South Set	244.51-245.18
Edie*	180	Brown's Stone	Due South	180
Edie*	180	Glidewell	Due South	180
Fudge	0	Parkinson	Due North	0
Fudge+	230	New Castle	Moon Max South Set	230.15-230.45
Fudge+	294	Windsor	Moon Min North Set	293.56-294.24

Table 1
Astronomical Alignments

From Site	Degrees	To Site	Alignment	Align. Degree
Glidewell	0	Edie	Due North	0
Glidewell	180	Brown's Stone	Due South	180
Graves	270.3	HN48	Spica Set	270.14
Graves	238.3	Bertsch	Winter Solstice Sun Set	238.38-239.7
Graves	297	Parkinson	Regulus Set	297.23
Graves	264	White	Epsilon Orionis Set	264.17
Graves	189	Edie	b Centauri Set	189.2
Graves	326.3	Law	Deneb Set	326.47
Hanson	33	Waterworks	Deneb Rise	33.13
Hanson	79	Smith	Procyon Rise	79
Hanson	144.15	Whitehead	Fomalhaut Rise	144.27
Hayes Arboretum				
HN48	166	Laurel	b Crucis Rise	166.13
HN48	30	Windsor	Capella Rise	30.18
HN48	302	Anderson	Summer Solstice Sun Set	301.56-302.26
Hubbard	0	Murray	Due North	0
Hubbard	34.3	Smith	Deneb Rise	34.28
Hubbard	51	Battle Point	Moon Max North Rise	51.23-51.9
Hubbard*	90	Whitehead	Due East	90
Hubbard*	90	Mound Camp	Due East	90
Johnson	253.3	D48	Rigel Set	253.56
Johnson	245	Chrysler	Moon Min. South Set	244.51-245.18
Johnson	215	Bertsch	Fomalhaut Set	215.33
Johnson	275.3	Anderson	Betelgeuse Set	276.28
Laurel	106	Battle Point	Rigel Rise	105.5
Laurel	115.3	Whitehead	Antares Rise	115.12
Laurel	130	Murray	Moon Max South Rise	129.15-129.45
Laurel	63	Edie	Regulus Rise	63.3
Law	30	Johnson	Capella Rise	30.18
Law	291	Parkinson	Pleiades Set	291.31
Law	144.3	Graves	Fomalhaut Rise	144.27
Law	215	Bertsch	Fomalhaut Set	215.33
Law	302	Windsor	Summer Solstice Sun Set	301.56-302.26
Mound Camp	270	Hubbard	Due West	180
Mound Camp	90	Whitehead	Due East	90
Murray	270	Laurel	Due East	270
Murray	48	Candal	Pollux Rise	48.1
Murray	79	Glidewell	Procyon Rise	79.1
Murray	89.3	Battle Point	Spica Rise	89.47
Murray	110.15	Whitehead	Sirius Rise	110.16
New Castle	166	Wiley	b Crucis Rise	166.13
New Castle	129.3	Bertsch	Moon Max South Rise	129.15-129.45
New Castle*	29.3	Windsor	Capella Rise	30.18
New Castle*	29.3	HN48	Capella Rise	30.18

Table 1
Astronomical Alignments

From Site	Degrees	To Site	Alignment	Align. Degree
New Castle+	51	Fudge	Moon Max North Rise	51.23-51.9
Parkinson	144.3	Smith	Fomalhaut Rise	144.27
Parkinson	90	Fudge	Due East	90
Parkinson	110.15	Law	Sirius Rise	110.34
Smith	180	Connell	Due South	180
Smith	245	Laurel	Moon Min. South Set	244.51-245.18
Smith	253.3	Edie	Rigel Set	253.56
Smith	312.45	Chrysler	Arcturus Set	312.8
Waterworks	281	White	Procyon Set	281
Whitehead	291.3	Murray	Pleiades Set	291.11
Whitehead	276.15	Brown's Stone	Betelgeuse Set	276.22
Whitehead	326	New Castle	Deneb Set	325.32
Whitehead*	270	Hubbard	Due West	180
Whitehead*	270	Mound Camp	Due West	180
Whitehead*	324	White	Vega Set	323.57
Whitehead*	324	Hanson	Vega Set	323.57
White	180	Chrysler	Due South	180
White	66.15	Baxter	Moon Min. North Rise	65.36-66.4
White*	29.45	HN48	Capella Rise	30.18
White*	29.45	New Castle	Capella Rise	30.18
White*	29.45	Windsor	Capella Rise	30.18
Wiley	66	Smith	Moon Min. North Rise	65.36-66.4
Wiley	57	Hanson	Summer Solstice Sun Rise	56.6-58.34
Wiley	95.3	Glidewell	Epsilon Orionis Rise	95.39
Windsor	166	Glidewell	b Crucis Rise	166.13
Windsor	129.3	Graves	Moon Max South Rise	129.15-129.45
Windsor	121.3	Law	Winter Solstice Sun Rise	120.53-121.22
Windsor+	278	Parkinson	Altair Set	277.57
Windsor+	81.45	Fudge	Altair rise	82.3

*Multiple Site Alignment
+Rise and Set Multiple Alignment

lunar (16/104); the second most common alignments were directional (12/104) (5 E-W, 7 N-S).

There were 8 cases of multiple alignments in this study. Seven of these cases were a triple alignment, where a third earthwork was in alignment. One case, was a quadruple alignment, where a third and fourth earthwork were in alignment. Of the 8 multiples, 2 were directional alignments and 6 were astronomical alignments.

One site in this study, Hayes Arboretum, did not produce any alignments. The lack of alignments to or from this site is enigmatic, although, it should be noted that the location of this site was obtained through a literature search while it was assumed to be accurate. The site location was not verified during this project.

There were some notable discrepancies when the results of this test were compared to the results of Cochran (1992) and Kolbe (1992). The most likely reasons for these discrepancies include the refinement of site locations, the reduction from a 4° (+/- 2°) margin of error in Cochran's study and a 2° (+/- 1°) margin of error in Kolbe's study to a 1° (+/- 0.5°) margin of error, and the fact that Kolbe (1992) excluded lunar alignments and Cochran (1992) included planetary alignments.

Test

After the alignments were compiled for the earthworks listed in Table 1, 5 reported mounds (12-R-11 and 12-R-13 reported by Setzler 1931; 12-R-27, 12-R-40, and 12-R-58 reported by Morris 1970) in Randolph County were added and tested to determine if any alignments existed from them to the other earthworks in the study. As seen in Table 2, two of the mounds, 12-R-27 and 12-R-40, were determined through the survey to be mound-like natural features. 12-R-11 and 12-R-13 were determined to have been destroyed. The remaining reported mound, 12-R-58, could not be found within the parameters given for its location. Interestingly, 12-R-40, the mound-like feature and 12-R-58, the non-existent mound, had the greatest number of alignments from this set. Incidentally, 12-R-40 also contained a multiple alignment. Furthermore, 12-R-11, which was thought to have the most accurate location for this set, had only one alignment.

It can not yet be determined what factors led to the alignments of the natural and non-existent features. One explanation would be that the natural features were an important part of the Adena and Hopewell ceremonial landscape and that 12-R-58, the reported mound, once existed. Although it has been previously suggested that natural features were an important part of the ceremonial landscape (Railey 1991: 56), the possibility exists that the alignments documented during this test reflected random convergence.

In addition, we wanted to test the probability that the apparent alignments were the result of random phenomonon. Using the formula $P(y)= n!/y!(n-y)!\pi^{y}(1- \pi)^{n-y}$ it was determined that a 3.11% chance exists that from a given mound, one of the other 28 mounds will randomly fall along an alignment. Furthermore, there is a 2.38% chance that 9 mounds will randomly align to one as is the case for the highest number of mounds aligning to a

Table 2
Test of Astronomical Alignments

From Site	Degrees	To Site	Alignment	Align. Degree
R11	239	New Castle	Winter Solstice Sun Set	238.38-239.7
R13	297	Windsor	Regulus Set	297.23
R13	121	Johnson	Winter Solstice Sun Rise	120.53-121.22
R13	128.5	Law	Moon Max South Rise	129.15-129.45
R13	170.75	R27	b Centauri Rise	170.58
R27	51	Baxter	Moon Max North Rise	51.23-51.9
R27	193	Wiley	b Crucis Set	193.47
R27	57.5	Johnson	Summer Solstice Sun Rise	57.34-58.4
R27	311.25	R58	Pollux Set	311.34
R40	189	Connell	b Centauri Set	189.2
R40	297	Fudge	Regulus Set	297.23
R40	316	R11	Castor Set	316.34
R40	193	Edie	b Crucis Set	193.47
R40	244	Chrysler	Antares Set	244.25
R40*	249	Baxter	Sirius Set	249.26
R40*	249	New Castle	Sirius Set	249.26
R58	166	Glidewell	b Crucis Rise	166.13
R58	291	Parkinson	Pleiades Set	291.31
R58	107	Johnson	Rigel Rise	106.4
R58	65.75	Fudge	Moon Min. North Rise	65.36_66.4
R58	90	R40	Due East	90
R58	77	R11	Aldebaran Rise	76.6

*Multiple Site Alignment

single mound that we have recorded thus far. Additionaly, there is an even greater probability for the occurrence of multiple earthwork alignments to be non-random. As an example, using the case of the White site/Capella Rise alignment which intersects 3 mounds, there is a 0.0062% of this occurring randomly. With this in mind, it appears as though astronomical observation was likely an integral component to Adena and Hopewell spatial organization.

Conclusions

Using the locations of 29 Woodland earthworks with good locations within the study area it was determined that 104 alignments were present. The alignments included stellar, lunar, and solar events as well as to the cardinal directions. The alignments included 8 that were multiples of three and four earthworks. A test of the alignment data against the reported locations of mounds and natural features reported as mounds suggested that destroyed mound locations may be verifiable with this data and that natural features may have been incorporated into the Woodland ceremonial landscape.

Future research should entail establishing the seasonality of the alignments in order to predict when mound construction was occurring. Finally, the database should continue to be updated to provide more accurate data for use in these studies.

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