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FRONT COVER
The object on the cover is a unique example of Hopewellian craftsmanship in copper. It was found by William C. Mills with Burial 3 beneath Mound 13 at Mound City near Chillicothe. Mills identified it as a bear effigy headdress. The body and head are one piece of copper 1/16 inch thick. The four legs are riveted to the body, as can be seen in the photograph. The ears and lower jaw are attached by means of tabs inserted into slits in the head and then bent over so they will move back and forth. The eyes are slots cut in the copper. The animal measures 223 mm in length, 72 mm in width, and 58 mm in height. It is currently on exhibit on the Archaeology Mall at the Ohio Historical Center. Photograph courtesy of the Ohio Historical Society.
A Glacial Kame Gorget from Hardin County

By Dana Baker
Mt. Victory, Ohio

It is not often that the surface hunter is lucky enough to find more than one piece of a broken artifact. Sometimes the site is hunted by more than one collector and the pieces may be in more than one collection. Or, as is often the case with slate, the Indian himself may have reworked one of the broken pieces and carried it many miles away.

In February 1972, I found a portion of what appeared to be a fine three-hole Glacial Kame gorget on a Hardin County site. In May of the same year another piece of it was found as was a third piece later in the month. I later learned that another collector had the pointed or "toe" end but had lost it. It seemed apparent that the gorget had been turned up by the plow in one piece and had subsequently been broken by farming operations.

Since I now had three pieces of the artifact (Fig. 1) and could easily tell the dimensions and type I decided to have it restored. I then called on the expertise of Kenneth McNeil of Dayton, Ohio, who has done restoration work on a number of fine but broken or incomplete artifacts. The results are shown in Figure 2.

The gorget is the three-hole stone sandal sole type as defined by Converse (1971: 32) and is similar to other Glacial Kame gorgets found in northwestern Ohio. As with nearly all other sandal sole gorgets of stone it has the two holes in the heel end rather than the toe end, thus differing from shell sandal sole gorgets which have the toe perforated with two holes. Tally marks are visible on the edges and are distinctly seen in the photograph. Its dimensions are 8 inches in length and 3 inches in width.

The gorget was found on a site which has produced other Glacial Kame material including the unfinished birdstone pictured in Figure 3.

Converse, Robert N.

Fig. 1 (Baker) Three pieces of Glacial Kame gorget.

Fig. 2 (Baker) Gorget after restoration.

Fig. 3 (Baker) Unfinished birdstone from same site.
FIG. 1 (Shipley) Ten drills are shown, 3½ inches to 4½ inches in length. Various hafting designs can be seen; the material is Flint Ridge, Upper Mercer, and Indiana hornstone.

FIG. 2 (Shipley) An unusual axe. This fine stone axe was found in Franklin County, Ohio. The stone from which it is fashioned is a dense greenish-black stone which may be a form of jadeite or similar material. It is highly polished and feels greasy to the touch and is extremely heavy.

FIG. 3 (Shipley) A very large Adena point from Hamilton County, Ohio. It is made of mottled Coshocton flint and is 9 inches long—one of the longest such points found in the state.
Incised and decorated slate pieces are not common in northwestern Hardin County. This area seemed to be more of a hunting territory than one of village sites. Recently Carl Sleesman, an ASO member of Ada, was surface hunting in the southwest quarter of Liberty Township when he found a broken slate piece. He was about to throw it away, then stuck it in his pocket to look at again after he washed it. You can imagine his surprise when, after washing it, he discovered an incised cross with flared arms enclosing a four-pointed star with a circular object in the center (Fig. 1). The other side shows a sunburst.

The material is dark unbanded slate, heavily patinated with small rust spots. The break is old and also crusted with rust spots. Because of the fragmentary nature of the piece it is impossible to tell if it was a pendant or a gorget. The photograph is natural size. The greatest thickness is 1/4 inch.

While engraved artifacts are found throughout the Mississippi Valley, the most extensive discovery was in the Spiro group in Oklahoma (Duffield 1964). Those engravings were largely on shell.

Duffield, Lathel Flay
Large Flint From The Shipley Collection

By Max Shipley, Columbus, Ohio

Fig. 1 (Shipley) Two knives nearly 8 inches long. The mottled knife on left is from the Wehrle collection and the only provenience known is Ohio. The large black knife is from Ross County. Both pieces are very thin and well chipped.
An Inventory of Flint Types from the Kaehler Farm Sites, Auglaize County, Ohio

By Claude Britt, Jr.
Park Ranger Archaeologist
Chinle, Arizona

Abstract
Twenty types of projectile points have been recovered from the Kaehler Farm sites, a greater variety of point types than from any other reported site in Auglaize County. One Plano point was recovered. It is believed to be the first reported Palaeo-Indian point from this county. These small sites were visited from Late Palaeo-Indian to Mississippian times, with 60 percent of the points being Archaic or probable Archaic in age. A new point type known as the “Wapakoneta Eared Notched Point” is described. This point is believed to be Archaic in age.

Introduction
The Kaehler Farm sites are situated on a series of small knolls on Wisconsin till plain, each of which has yielded a variety of projectile points and hide-processing tools. The productive areas are no greater than 1 1/2 acre in size. The sites are on land owned by Fred Kaehler of Wapakoneta, Ohio, and are located in the SW 1/4 of the NE 1/4, Section 25, Pusheta Township, Auglaize County. They are located approximately 2.6 miles due south of a small Archaic site previously reported by this author (Britt 1970: 153-54).

These sites are no longer productive, except for debitage which is not abundant. The artifacts were collected by the Kaehler family in the 1920’s and ’30’s. They were given to the author recently, and Britt Ca. No. 0875 has been assigned to the assemblage. It is interesting to note that no groundstone implements have been discovered on these sites, although they have been found in surrounding areas.

Projectile Points
A total of 35 projectile points is included in the assemblage (Figs. 1-6). All except three points can be identified with a fair degree of certainty. Because of the fragmentary nature of many, quantitative attributes were taken into consideration in distinguishing morphologically similar specimens, but the metric data are not given in this article. A total of 20 identifiable projectile point types are present in this assemblage (Table I).

Square-Stemmed Piano (1 specimen; Fig. 1a)
The point is fashioned from a black flint which is not native to this section of the state. To the author’s knowledge, it is the first Palaeo-Indian point ever reported from Auglaize County. This Piano point appears quite similar to square-stemmed points recovered from the Sawmill site (Prufer and Baby 1963: 33, Fig. 21 j-m).

Transitional Point (1 specimen; Fig. 1b)
The author has previously reported one specimen from Auglaize County (Britt 1967: 65, Table XII). The piece from the Kaehler Farm sites is manufactured from black flint which probably originated in southeastern Ohio. Converse (1970:14) states that the type has a sporadic distribution and, like many of the older types, seldom is found in any concentration. Morphologically, this specimen conforms to the description by Converse. Basal thinning is exhibited and the base and stem show extensive grinding.

Lamoka Points (4 specimens; Fig. 1c-f)
Of the four Lamoka points in the Kaehler Farm assemblage, all conform to the description by Ritchie (1961: 29-30, Plates 13-14) and by Converse (1970: 35). These specimens are probably the first reported Lamoka points from Auglaize County, although the author has seen others from west-central Ohio. The Kaehler specimens are fashioned from local chert with one exception (Fig. 1d) which is manufactured from black flint from southeastern Ohio.

Kirk Serrated (1 specimen; Fig. 2a)
This single specimen appears quite similar to a Kirk Serrated point from the Welling site (Blank 1970: 280, Fig. 7c). This point type is extremely rare in the Central Lowlands of Ohio, although the author has previously noted a few sporadically distributed specimens in Shelby and Auglaize counties. The
A specimen in the Kaehler Farm assemblage is fashioned from a black flint which probably came from southeastern Ohio.

**Kirk Corner Notched** (1 specimen; Fig. 2b)

Like the Kirk Serrated, Kirk Corner Notched points are extremely rare in west-central Ohio. The single specimen from the Kaehler Farm assemblage is fashioned from a cream-colored chert of unknown origin, possibly Delaware chert. This specimen conforms to the description by Converse (1970: 36) and appears quite similar to specimens from the Welling site (Blank 1970: 280, Figs. 7a-b).

**Lake Erie Bifurcated** (1 specimen; Fig. 2c)

Bifurcated points are fairly common in the west-central part of the state (Britt 1969: 49, Table I), although the Lake Erie variety is not as abundant as the St. Albans Bifurcated. The single specimen from the Kaehler Farm sites is typical of those from Shelby and Auglaize counties. It is fashioned from a tan chert of local origin. This point conforms to the description by Converse (1970: 279, Fig. 4d).

**St. Albans Bifurcated** (1 specimen; Fig. 2d)

Although only one specimen is included in the Kaehler assemblage, this type is common in Auglaize County. It is fashioned from a bluish-black flint, as are most Auglaize County specimens. Serrations are pronounced and the base exhibits extensive grinding. Converse (1970: 32) attributes the type to the Early Archaic.

**Archaic Stemmed Points** (2 specimens; Fig. 2e-f)

Stemmed points of poor workmanship are fairly common in Auglaize County. While the Kaehler Farm specimens conform to the description by Converse (1970: 29), these two specimens may or may not be Archaic in age. Prufer and Sofsky (1965: 27) summarize the morphologic problems in working with stemmed points from surface sites when they state:

Not only is it extremely difficult to classify this series, if a series it is, but moreover its cultural classification presents major difficulties. Such points are known to have had great longevity. Moreover, their very amorphousness beclouds any actual differences between early and late forms. This classificatory problem is not new.

The two stemmed points from the Kaehler assemblage are tentatively classified as Archaic. One point (Fig. 2e) is fashioned from jet black flint. The other one (Fig. 2f) is manufactured from dull white chert from the glacial deposits.

**Expanding Stem Points** (2 specimens; Fig. 3a-b)

This type is not common in Auglaize County. Converse (1970: 28) states that it is not uncommon in the Kentucky shell midden sites. Both Kaehler specimens are fashioned from low-grade unidentifiable tan chert.

**Big Sandy Points** (1 specimen; Fig. 3c)

The classification of this single specimen is tentative. This point does not appear similar to the Big Sandy II points illustrated by Blank (1970:280, Fig. 61-B) nor to the Newton Falls Side-Notched points as defined by Prufer and Sofsky (1965: 23-24, Figs. 3d-j). The single specimen from the Kaehler Farm assemblage is similar to Big Sandy points from the Middle South (Bell 1960: 8-9, Plate 4). It is fashioned from a dull, poor quality limonitic chert.

**Fishspear Points** (2 specimens, Fig. 3d-e)

The two specimens in the Kaehler Farm assemblage conform to the description by Converse (1970: 41). The author will follow Converse in attributing them to the Archaic, although this position is tentative. Similar points are fairly common in New Jersey where they are placed in the transitional period between the Late Archaic and Early Woodland which would support Converse's assumption. Both specimens are made from drab chert of local origin.

**Wapakoneta Eared Notched Points** (2 specimens; Fig. 4a-b)

Although not previously described, this point type has been noted by the author several times. It is a scarce type in west-central Ohio and has a sporadic distribution. Seldom does one find more than one or two specimens on a site. Because of the pronounced serrations and its distribution pattern, the author feels safe in tentatively assigning this type to some part of the Archaic period, possibly Early Archaic. It is named "Wapakoneta" after the county seat of Auglaize County, to distinguish it from other eared notched varieties.

This type is characterized by its long, slender style, diamond-shaped cross section,
pronounced serrations, presence of beveled edges, and concave base. Basal grinding is often present. The usual length is approximately 2-1/2 inches. In nearly every case, the material is high grade flint, although Flint Ridge material is extremely rare. Because of the small size of the sample, metric data will not be given, although it is hoped that as more specimens become available for study the author will be able to publish the metric data for this type. Of the two specimens from the Kaehler Farm assemblage, the larger point (Fig. 4a) is fashioned from what has been called Elkhorn Creek flint from Kentucky. However, Robert Converse (oral communication 1971) states that the material which has been called Elkhorn Creek flint does not actually come from that area. The other Kaehler Farm specimen (Fig. 4b) is fashioned from glossy jet black flint from southeastern Ohio.

**Basal Notched Points** (3 specimens; Fig. 4c-e)
Of the three points from the Kaehler Farm assemblage, all conform to the description by Converse (1970: 26) and are assigned to some portion of the Archaic period. Two specimens (Fig. 4c-d) are fashioned from dull unidentifiable chert. The other specimen (Fig. 4e) is made from black flint from southeastern Ohio.

**Cresap Points** (1 specimen; Fig. 5a)
To the author's knowledge, this specimen is the first reported Cresap point from Auglaize County. There are no known Adena mounds in the county, although there is an Adena village site near Botkins in Shelby County, just south of the Auglaize County line. The Kaehler specimen is fairly crudely chipped from a dull black flint-like material.

**Adena Point** (1 specimen; Fig. 5b)
The one specimen from the Kaehler Farm assemblage is fashioned from Coshocton flint, a fairly scarce material in Auglaize County. It conforms to the description of Converse (1970: 51).

**Early Woodland Points** (2 specimens; Fig. 5c-d)
The Early Woodland point is one of the most common types in Auglaize County. Both Kaehler farm specimens conform to the description by Converse (1970: 44). This type was apparently used in both Late Archaic and Early Woodland times. One specimen in the assemblage is fashioned from a high grade flint of unknown origin. The other is made from a pinkish-spotted chert believed to have been quarried in Logan County.

**Hopewell Points** (1 specimen; Fig. 5e)
The single specimen in the Kaehler Farm assemblage indicates that the Hopewell peoples did visit this area, although Hopewell artifacts are not abundant in Auglaize County. The Kaehler specimen is fashioned from milky white translucent Flint Ridge chalcedony.

**Chesser Notched Points** (1 specimen; Fig. 6a)
To the author's knowledge, this is the first reported Chesser Notched point from Auglaize County. It is not surprising, considering that the type had not even been defined at the time the author did his master's thesis on Auglaize, Shelby, and Miami counties (Britt 1967). The specimen from this assemblage conforms to the description set forth by Converse (1970: 57). It is fashioned from dull fossiliferous chert of local origin.

**Side-Notched Triangular** (1 specimen; Fig. 6b)
This type is uncommon in Auglaize County. The Kaehler Farm specimen conforms to the description by Converse (1970: 58). It is fashioned from dull white chert of local origin.

**Birdpoints** (3 specimens; Fig. 6c-e)
Of the three specimens in this assemblage, all are assigned to the Mississippian period on the basis of the discussion by Converse (1970: 64). One specimen is made from Flint Ridge material, one is red jasper, and the other is dull white chert.

**Unidentified** (3 specimens; Fig. 6f-h)
These specimens are too fragmentary for classification, although one (Fig. 6f) resembles the Halifax type. Two of these points are fashioned from black flint, the other from Flint Ridge chalcedony.

**Non-Projectile Point Tools**
A total of 17 knives, scrapers, flakes, and other hide-processing tools are present in the Kaehler Farm assemblage (Fig. 7). Because of the great range in variability of these types, they seem to be of little value in determining chronologic sequence (Blank 1970: 272; Prufer and Sofsky 1965: 35). For this reason, a detailed analysis of the non-projectile point types would not be practical. The material from the Kaehler assemblage can be roughly classified into five categories: (1) knife blades
which may have been hafted; (2) scrapers made on true blades; (3) "thumb" scrapers; (4) utilized flakes; and (5) unifacially flaked side scrapers. There are nine specimens in category 1, three specimens in category 2, one specimen in category 3, two specimens in category 4, and two specimens in category 5. Because of the relative undiagnostic nature of these tools, they will not be discussed further, except to note that 33% are fashioned from black flint, while the majority are from local cherts.

Summary

The Kaehler Farm sites have yielded 20 types of projectile points, a greater variety of point types than from any other reported site in Auglaize County. There is no evidence that the sites were used as a workshop locus or as a permanent village site. Of all the points recovered, 60 percent are Archaic or probable Archaic in age. These small sites were apparently visited by small, seasonally-migrating groups of peoples from Late Palaeo-Indian to Mississippian times.

Bell, Robert E.

Blank, John E.

Britt Jr., Claude


Converse, Robert N.
1970 Ohio flint types. The Archaeological Society of Ohio. Columbus

Pruefer, O. H. and Raymond S. Baby

Pruefer, O. H. and Charles Sofsky

Ritchie, William A.
Fig. 4 (Britt) Artifacts from the Kaehler Farm sites, Auglaize County, Ohio. a-b, Wapakoneta Eared Notched points; c-e, Basal Notched points.

Fig. 5 (Britt) Artifacts from the Kaehler Farm sites, Auglaize County, Ohio. a, Cresap point; b, Adena point; c-d, Early Woodland points; e, Hopewell point.

Fig. 6 (Britt) Artifacts from the Kaehler Farm sites, Auglaize County, Ohio. a, Chesser Notched point; b, Side-Notched Triangular; c-e, Birdpoints; f-h, Unidentified.

Fig. 7 (Britt) Preforms, various hide-processing tools, and fragmentary projectile points from the Kaehler Farm sites, Auglaize County, Ohio.
Table I: Point types from the Kaehler Farm sites, Auglaize County, Ohio

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Two Ross County Pendants

By William J. McQueen
1300 Presidential Drive
Columbus, Ohio

The two pendants in Figure 1 were found by the author while surface hunting at separate sites along the Scioto River, north of Chillicothe, Ohio. The pendant on the left was found in June 1968, and measures 4.8 cm x 4.1 cm. It is made from a reddish brown and black banded slate; the bands are seen when the pendant is viewed on edge. The "pentagonal" banded slate pendant on the right was found in November 1972, and measures 6.6 cm x 3.3 cm.

Fig. 1 (McQueen) Two Ross County pendants.
The Hart Site

By Wayne Mortine
Scott Drive
Newcomerstown, Ohio

The Hart site is located in Jefferson Township, Coshocton County, Ohio, at an elevation of 796 feet on a high terrace in the flood plain of the Walhonding River. Beaver Run flows south by the site and joins the Walhonding River 2,000 yards away. The land gradually recedes at the rear or north of the site. This slope may have been caused by an earlier change in the course of the run; in any event, a raised, curved, narrow band of land was formed on which chippage and cultural remains are found.

The site is a small link in the chain of multi-component workshop sites that utilized the nearby deposits of Upper Mercer flint. These sites, with varying degrees of artifact density, occur almost continuously along the banks and terraces of the Walhonding River. Olaf Prufer's report on the McConnell site (Prufer 1963) gives an excellent description of the geological and archaeological considerations of the area. The fact that Beaver Run is close to the site giving easy access from the river to the nearest high ground would make it attractive to prehistoric flint workers.

A review of some of the problems at this site and others in the area is in order. To start with, at least two sizeable collections were gathered from the site by the young men of the C. M. Hart family who owned the farm from the 1930's to the 1960's. This practice is common, but as is usual in these cases the artifacts were either given to friends or sold for a small sum to a local collector of antiques. The reporting of major sites in the area created a situation where the sites were hunted by many people, with the diminishing supply of artifacts scattered far and wide. Then a building development was started on the farm; there is now a supermarket, a community park with a swimming pool, a picnic area, baseball field and several new houses. It is safe to say little more will be added to the small amount of material I now have from what was once a very productive site.

There are 15 primary cores of flint that can be defined by their size and lack of form. They show only a few large flake scars and were undoubtedly brought directly from the quarries. The secondary stages were roughly shaped into ovate (23) or triangular (4) forms. Most have bifacial flaking, are thick, and have irregularities that had not or could not be removed. The final forms (48) are thinner, better worked than the secondary stages, and could have been turned into finished artifacts with minor secondary chipping. Some in fact may have been used just as they were.

The Paleo or Piano Complex is represented by eight lanceolates or 15 percent of the recognized point types (Fig. 1 a-b). Piano sites and points are found frequently in the valley of the Walhonding. The Archaic era had the largest representation, over 60 percent, with side-notched and stemmed points prevailing. The Archaic made great use of the local Upper Mercer flint deposits (Fig. 1 c-j). Only one Transitional point, an Ashtabula, was found (Fig. 1 h). This occurrence is unusual as farther downstream it is the dominate point type on some sites.

Woodland cultures were represented by six Adena stemmed points (Fig. 1 i), seven small corner-notched points (Fig. 1 j-l), one stone celt, four flint bladelets, and two cores. Field work in the area shows that the Woodland people did make cores from local flints, but they never reached the high degree of workmanship that the same artifact made from the Vanport Flint at Flint Ridge achieved. This distinction is also true of the Adena stemmed points. The opinion of the author is that the lower quality of the cores and points was due to the poorer flaking quality of the local Upper Mercer Flint, not the craftsmen. Only one small sherd of plain, thin, grit-tempered Woodland pottery was found. The Late Prehistoric or Mississippian time period produced only two triangular points (Fig. 1 m). These points are not common on most of the sites in the Walhonding valley.

There were eight end scrapers, seven drills (Fig. 1 n-q), one bi-pitted cupstone, a drilled mussel shell, and two small flint hammerstones also collected at the site. It seems unusual that more hammerstones were not found as earlier "arrowhead hunters" seldom collected them, and the site is littered with chippage showing much activity. Perhaps, being small and useful tools, they were taken...
with the flint workers on their travels. In conclusion it is hoped that by reporting these small links in the chain of Walhonding River valley sites, a better picture of the entire area will emerge.

This article is dedicated to my father-in-law, the late C. M. Hart, and my mother-in-law, Mrs. C. M. Hart, who gave me my first points from the site.

Prufer, Olaf H.

Fig. 1 (Mortine) Various flint artifacts from the Hart site, Coshocton County. For scale, the longest point, the first lanceolate, is 8.3 cm. long.
Faunal Remains from Four Late Prehistoric Sites in Northeastern Ohio

By James L. Murphy
Sears Library, Case Western Reserve University, Cleveland, Ohio 44106

Introduction—Abundant faunal remains have been recovered from four Late Prehistoric "Whittlesey Focus" sites in Cuyahoga and Lake counties, Ohio. Excavations at these sites were sponsored by the Cleveland Museum of Natural History during 1967 and 1968. The Fairport Harbor, Reeve, and South Park sites had been previously investigated by Greenman (1935, 1937) and Morgan and Ellis (1943), so that faunal lists from these sites are already available. The additional faunal data from these sites are presented here because the relative abundance of various food sources permits speculation on variations in the economic patterns prevalent at the different sites.

The major component at the South Park site is place in the late Whittlesey Phase (cira A.D. 1400 to 1500); although the main Lyman component (Murphy 1971a) is believed to be contemporaneous with the late South Park component, it is not included in the Whittlesey Phase. Its relationships lie to the east, with sites currently incorporated in the Monongahela Complex of western Pennsylvania, sites which may be segregated as the McFate Phase (Johnson 1972). The Fairport Harbor and Reeve sites in Lake County, Ohio, are believed to date around A.D. 1200-1300, the Fairport site perhaps being about 100 years earlier than the Reeve site. The two sites are very closely related, to judge from ceramics and other artifact material. They may represent an earlier phase antecedent to the Whittlesey Phase, for a few diagnostic Reeve Horizontal sherds occur at South Park.

Only at South Park were distinct features (refuse pits) noted, and here the faunal material is presented for each feature. At the other three sites all refuse material was recovered from an unstratified surface midden which varied in depth from less than 6 inches at Lyman to more than 18 inches at Reeve. The Fairport Harbor (Murphy 1971b) and Reeve sites are located on a bank or bluff overlooking a major tributary of Lake Erie, within a mile of the lake shore. The South Park site is on a high promontory near the west edge of the Cuyahoga River valley, over 1/4 mile from the river. The Lyman site lies on a similar promontory at the confluence of Paine Creek and the Grand River, 4 miles east of Painesville. Morgan and Ellis (1943) report a stockade pattern at Fairport Harbor, and there was a semicircular embankment and stockade at the Reeve site. A double-walled earthwork may still be seen at the Lyman site, though it is only doubtfully associated with the Late Prehistoric component. There is no evidence of a stockade or earthwork at South Park, though one informant maintains that there once was.

The size of the refuse sample recovered varied from site to site, due partly to the amount of work performed at each site and to the relative abundance of faunal remains. Other factors include the shallowness of the acid forest soil at the Lyman site and the present unavailability of part of the South Park sample and all of the Reeve sample. The Reeve site, which yielded the largest quantity of faunal remains, displays an unusually low number of species (23) because the forty-odd boxes of bone material excavated for the museum are not available for study. Material recovered from one 10-by-10 foot square at Reeve, excavated by Greg and Gary Waselkov of Eastlake, has been available. At Fairport Harbor, ten similar excavation units yielded only five times as much bone material as this single square at the Reeve site, giving some idea of the profusion of bone debris at Reeve. The greatest species diversity (37) occurred at Fairport, which also yielded the largest sample analyzed.

Data on the faunal remains from these four sites are presented in the tables at the end of this report. The small amount of identified bone from Fairport Harbor (Table 1) is due primarily to the large proportion of fragmentary bone elements, particularly unidentifiable fish bones.

Estimates of the number of individuals represented in each sample were not made. In most cases the disturbed, heterogeneous nature of the midden suggested that estimates of the number of individuals would prove of little significance in analysis. This procedure is regretted but cannot now be rectified without reanalysis of the samples. In the case of South Park, where much of the bone refuse was confined to discrete features, estimates of the number of individuals might very well be of considerable significance, but circumstances have prevented a complete and more detailed study of the South Park sample.

Lyman Site. Bone refuse from the Lyman or Indian Point site is presented in Table 2 by each 10-by-10 foot excavation unit. Greenman (n.d.) has suggested that the site was primarily a hunting...
camp, though this suggestion can probably be dismissed on the basis of the available faunal evidence. Of the Lyman sample, 86% of the identified mammal bone is deer and elk; only 4% of the total sample represents fish, and about 10% bird. Shellfish (Murphy 1971c) were fairly common, considering the acid nature of the soil, and a few hickory and walnut shell fragments were found in units A-3 and B-2.

Butchering marks were noted on several bones, including deer stylo-hyoid, scapula, astragalus, and tibia, and raccoon ulna. A single deer toe bone exhibited score marks on the proximal end. An *Ictalurus* (catfish) spine showed use as an awl. No other examples have been noted at any of the other sites, though *Ictalurus* spines are common at all of them. Bone artifacts were limited to beads, awls, antler arrow points and flakers, and a cut deer phalange. A single shell disc bead was the only shell artifact recovered.

Presence of the shellfish renders it unlikely that the site was inhabited only during the winter, as does the relatively large amount of fish remains. Although ice-fishing cannot be discounted, it is unlikely in a stream as small and shallow as the Grand River. The rather common occurrence of deer antler and bear remains also militates against interpretation of the site as a winter hunting camp.

One complicating factor at the Lyman site is the presence of several distinct components, for living patterns may well have changed from one component to the next. All of the faunal remains are assumed to belong to the most recent Late Prehistoric component, and there is no indication that this Late Prehistoric component did not occupy the site year round. The abundance of pottery sherds further suggests that the site was not merely a winter camp. Although no evidence of maize or other cultigens was recovered, it is believed that the absence of corn is fortuitous; quite probably the inhabitants of the site—estimated at not more than two or three dozen, to judge from the limited area over which the cultural debris occurs—relied upon a focal economy with agriculture and game hunting predominant, with fishing and shellfish collecting being subsidiary occupations.

**Fairport Harbor Site.** A list of the identified faunal remains from the Fairport site is given in Table 3. A breakdown of the material by excavation unit is not given, but care was taken during analysis to note any significant distribution of the various remains throughout the site; none was detected. Although bone refuse was abundant at the Fairport Harbor site, a total of 23,958 mammal bones or bone fragments being recovered, only a relatively small percentage (13.7%) could be identified. The very fragmentary nature of much of the material saved by the quarter-inch mesh screen accounts for the small percentage of identified items.

Identification was limited for the most part to skull and jaw fragments, limb bones, and various readily-identifiable elements such as the calcaneum, sacrum, and atlas. Identification of bird and fish bone was particularly troublesome because of the lack of comparative material available at the Museum.

Percentage abundance, based upon the total number of bones and bone fragments is given in Table 1, along with percentages based upon the number of identifiable bones. The percentages are considerable different, largely as a result of the relatively small number of identifiable bird and fish elements in comparison to the large number of unidentifiable bones and fragments in these two classes.

The quantity of identified mammal bone in the present collection is slightly smaller than that described by Robert Goslin in Morgan and Ellis' (1943) report. All but two of the species reported by Goslin are in the Museum collection, the exceptions being the cougar, represented in Goslin's collection by a single bone, and the opossum, represented in Goslin's collection by three bones. The Museum collection contains remains of several rodents not reported by Goslin—*Mephitis mephitis* (skunk), *Microtus pinetorum* (pine vole), *Blarina breviceuia* (short-tailed shrew), *Scalopus* sp., and *Peromyscus* sp. None of these need have been contemporaneous with the aboriginal occupation of the site, however, for the site has long been in a grassy, pasture-like condition, after having been used as a town dump for many years. Presence of many of the smaller, verminous mammals may post-date the Indian occupation, so that their presence is of little significance.

This possibility is particularly critical in the case of the opossum, for Cleland (1966) has emphasized Morgan and Ellis' reference to opossum remains at the Fairport Harbor site. Here at the northeastern-most extreme of its prehistoric range, the presence of *Didelphis*, Cleland suggests, is an indication that the Fairport site was occupied during the somewhat warmer "Neo-Atlantic" period, believed to range from A.D. 800-1200. To support this contention, Cleland notes the absence of *Didelphis* from both earlier and later Late Prehistoric "Whittlesey" components, considering this absence of the opossum as due to an earlier cooler climate and a later return to cooler conditions following the "Neo-Atlantic" period. The rarity of opossum remains at Fairport and the heterogeneous nature of the midden renders this evidence equivocal at best. Furthermore, the opossum does occur at later Late Prehistoric sites (South Park, Table 4), albeit from surface midden (as at Fairport). While I firmly believe that Fitting (1964) was correct in suggesting an early, circa A.D. 1200 date for the Fairport occupation, the presence of the opossum
at the site cannot serve as "proof" for this date. As for the mammal bones known to be contemporary with the aboriginal occupation, few exhibited butchering score marks. These markings were noted only on elk and deer astragali and on the humeri and mandibles of deer. Remarkably few deer mandibles were recovered. Of these, two had the anterior portion bearing the incisors removed. Four were found in the same unit (9-A), although two of them belonged to the same individual. The six individuals represented by the recovered mandibles have been age-graded on the basis of dentition and tooth wear (Severinghaus 1949) as follows: 7-9 months, 1 specimen; 2-1/2 years, 1 specimen; 3-1/2 years, 1 specimen; 4-1/2 years, 1 specimen; 5-1/2 years, 2 specimens. Such limited sample tells little about the hunting patterns followed at the site. The absence of more deer mandibles in itself may be of some minor significance, suggesting that the mandibles were extensively used for implements which were lost or discarded away from the site. Skull fragments were not particularly uncommon at Fairport, so that it is doubtful that the head was discarded before bringing the deer carcass to the site.

Bird bones were common at the site, but very few could be identified. Only about a third of the species listed by Goslin were identified in the 1967 collection. It should be noted, though, that over two-thirds of the species identified by Goslin were represented by only one or two bones. New records for the site are Aythya valisineria (canvasback) and A. marila (American scaup). Both are common in the area today. As at all four sites studied, turkey is by far the most common bird represented.

Nearly half of the large number of identifiable fish bones belong to catfish, most of these probably representing the channel cat, Ictalurus punctatus. White bass, various suckers, and gar pike were also common. Well-preserved pharyngeal elements of the river redhorse permit verification of that species at the site, as Goslin suggested. The presence of both bone fish hooks and stone net sinkers indicates that at least two methods were used to catch fish; spearing was probably used, too, though no trace of harpoons or toggles was found.

Turtle shell was extremely rare in the 1967 excavations and appears to be uncommon at all four sites, only box turtle being represented, though Goslin reports both the box and snapping turtle from Fairport Harbor. When only the mammal bones from the Fairport site are considered, several interesting features are noticeable. In striking contrast with the other sites studied, deer and elk here provided a relatively small percentage of the animals killed (53.6% of the identified mammal bone). A diffuse or at least "mixed agricultural" food economy is suggested by the rather heavy reliance upon a wide variety of small game, particularly the raccoon (18.3%), squirrel (8.8%), and beaver (5.3%). Bear (6.2%) was also important. Thus, while there is an obvious reliance upon mammals associated with an aquatic or riverine environment, the inhabitants of the site also utilized open forest (deer, elk) and mature, "deep" forest (bear) environments. The comparatively high species diversity at this site (N = 37) may be due simply to the large sample size, but there may also be a slight "edge effect" created by the contiguity of the dissimilar ecologies of the Lake Plain and the Portage Escarpment.

A comparable effect would be expected at the Reeve site, but it may not be evident because of the relatively small size of the collection available from Reeve. At that site there is a similar lack of emphasis upon deer (57.7%), but elk is somewhat more important (14.7%) than at Fairport.

The most obvious contrast is that between Fairport and South Park, where maize agriculture is believed to have been considerably more important. At South Park, 70.5% of the identified mammal bone was deer, the next most abundant species being raccoon, representing only 3.4% of the mammalian fauna. Elk, bear, and beaver each comprised only 2-2.5% of the South Park sample. These proportions are strong evidence of a more focal settlement pattern, probably induced by a greater reliance upon maize horticulture. The more diffuse or mixed agricultural economy indicated by the importance of a variety of small game and the larger mammals at Reeve and Fairport Harbor, also indicated by the greater use of fish at those two sites, suggests that corn was of less importance in the Fairport and Reeve communities than it was at South Park.

Reeve Site. The small Reeve sample made available to me by the Wasekoff brothers was excavated from a single 10-by-10 foot square. It may be too small to be a truly representative sample. If the large collection retrieved from this site during the 1968 excavations is preserved and eventually studied, a more accurate appraisal of the Reeve economy may be attained.

The available sample is similar to that from Fairport in having a relatively high percentage of fish (16.5%) and a low percentage of deer (57.7% of total identified mammal bone). The apparently high proportion of elk (14.7% of total identified mammal bone) is probably misleading, for the bulk of the sample very likely came from the same individual. Raccoon was extensively used at Reeve (8.0% of the identified mammal bone), though it is less abundant than at Fairport.

Fish and aquatic-oriented mammals such as beaver and raccoon are less in evidence at Reeve than at Fairport. The concentration on deer and
elk, at the expense of these and other small mammals, may indicate a less diffuse economy at Reeve, due perhaps to a greater dependence upon maize. This contrast is even more evident if the faunal tabulation presented by Morgan and Ellis (1943) is used. The considerable divergence between percentages derived from Morgan and Ellis' Fairport data and my own suggests that minor differences in abundance between sites are unlikely to serve as an accurate indication of real differences in the faunal composition.

South Park Site. Making allowances for the considerable difference in sample size, the South Park and Lyman faunal collections are very similar. This situation might be expected from the presumed contemporaneity of the sites and their comparable geographic location. Both sites lie on high promontories near good-sized streams in deciduous forest, well away from the Lake Plain.

The South Park fauna indicates a focal economy based primarily upon maize agriculture and deer hunting. Elk, beaver, bear, and squirrel, each of which provided more than 5% of the Fairport mammal fauna, are sparsely represented at South Park. As noted above, the second most common mammal at South Park (raccoon) forms only 3.4% of the total number of identified mammal bones. This condition is remarkably similar to the situation at Lyman, where the second most common mammal (elk) formed only 3.7% of the identified mammal bones, followed by raccoon (2.6%) and bear (1.9%).

Butchering marks seem to be somewhat more frequent at South Park than at the other sites. Cut marks were noted on four elk astragali and an elk metatarsal, on a bear humerus, and on three deer calcanea, a deer scapula, and a deer tibia.

The seven deer mandibles that could be age-graded were distributed as follows: 1 week, 1 specimen; 3-4 months, 1 specimen; 4-6 months, 2 specimens; 2-1/2 years, 1 specimen; 4-1/2 years, 1 specimen; 5-1/2 years, 1 specimen. Again this sample is too small to permit any valid conclusions about hunting practices, but there does seem to be an indication of selection, with emphasis upon the younger animals. If a larger sample were to display such selectivity, or a bimodality due to selection of both very young and very old individuals, it could be interpreted as evidence of stalking, suggestive in turn that deer hunting was not the major food source for the natives. Such a pattern (Cleland 1966) can be inferred to be the result of utilizing a focal agricultural economy that centers around maize horticulture.

If total mammal/fish/bird percentages are compared to those from a typical Fort Ancient site such as Blain (Prufer and Shane 1970), there is a noteworthy similarity between the two sites. The Blain economy has been interpreted as a focal adapta-

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incidentally, refuse or storage pits are absent and corn remains are rare); study of the faunal remains from these sites supports this contention, indicating a more diffuse, "mixed agricultural" economy at Fairport and Reeve, one which incorporated fishing considerably and relied heavily upon a variety of large and small game.

A slight "edge effect" may be postulated to explain the comparatively large species diversity at Fairport, though this diversity may be due simply to the large size of the sample obtained from the Fairport excavations.

The Late Prehistoric occupation at the Lyman site probably does not represent a winter hunting camp but a permanently-occupied settlement composed of only two or three family-sized units which practiced a focal agricultural economy based upon maize. This maize agriculture is inferred from the heavy reliance upon deer, the lack of emphasis upon other large game and small mammals, and the general similarity of the faunal remains to those from South Park, a site where abundant preserved maize substantiates the importance of agriculture.

South Park represents an excellent example of a focal agricultural economy, comparable to typical Fort Ancient sites in southern Ohio. An emphasis upon fish, water-oriented mammals, and small game in general—characteristic of the Fairport and Reeve faunal assemblages—is lacking at South Park, though such sources were utilized to some extent.

These contrasts between South Park and Lyman on the one hand and Reeve and Fairport on the other can be explained as being due to 1) the proximity of Reeve and Fairport Harbor to Lake Erie and the Lake Plain, and 2) the lesser importance of maize to the inhabitants of these two sites. The second factor may in turn be a reflection of the somewhat earlier date postulated for the occupation of Reeve and Fairport, though maize horticulture was already an important constituent of Late Prehistoric cultures to the north and east, in Ontario and New York.


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n.d. Quoted in untitled, undated newspaper clipping in the Lyman Scrapbook, Lake County Historical Society Library, Mentor, Ohio.


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Table 1: Comparison of Faunal Remains from Four Northeastern Ohio Sites

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Species Diversity

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| Unidentified fish| 121| 121| 157| 26 | 2  |    |    |    |    |    |    | 22    |
"Great Pipes" of the Woodland Period

By
Gordon L. Hart
Bluffton, Indiana

In Figure 1 are ten large pipes made of steatite of various colors and textures from my collection. These pipes were produced in the Eastern United States by Woodland cultures.

Fig. 1 (Hart) A: Turtle effigy pipe—Scioto County, Ohio; 8½ inches long. Illustrated, Ohio Archaeologist, July 1959, page 89; Outstanding Specimens from the Edward W. Payne Collection page 113; Who's Who in Indian Relics No. 1, Page 89.


D: Duck effigy pipe—Scott County, Tennessee. Found in 1872; 7-5/8 inches long.


H: Wood duck effigy pipe—Marion County, Kentucky; 8¾ inches long.


Three corner notched points from the collection of Doug Hooks, Mansfield, Ohio. Delicate corner notch on left was found in a Hopewell enclosure in Ross County and is made of white Flint Ridge flint. Center point is the "unfractured" fractured base type and is of Flint Ridge flint. Right is a 4-5/8 inch point of the same type formerly in the Cope-land collection. It is also of Flint Ridge flint.

This fine lanceolate point is in the collection of Dean Driskill of Dola, Ohio. It is made of gray Coshocton flint and was found in Eagle Township, Hancock County, Ohio. Heavy basal grinding is present for about one-third its length of 6-1/4 inches.
Who's Who Number 3

Who's Who Number Three, Edited by Cameron Parks, is a continuation of the work begun by H. C. Wachtel of Dayton, Ohio. It is the third in a series of books picturing collectors of Indian artifacts over the United States. Photographs of both the collector and part of his collection are shown and are accompanied by a brief description. In addition to being a valuable educational aid by showing artifacts from many geographical areas of the country, it is also helpful to those who would like to correspond with or visit other collectors. A complete roster of collectors—whether featured in the book or not—is also included. Highly recommended.

Robert N. Converse

THE EIDEN SITE:
Terminal Late Woodland on the South-central Lake Erie Shore.


The Eiden site report is a summary of work done between 1955 and 1964 by amateur Al Bungart of Avon, Ohio, and professional excavation beginning in 1972 by Douglas McKenzie of Cleveland State University. The site is dated approximately A.D. 1490 and is Late Prehistoric; no contact material of any sort was found. Most of the report was written by McKenzie with advice from Blank. Physical anthropology was prepared by Blank, while Shane analyzed the fauna, and Murphy identified the molluscs. This report is by far the most complete in the literature on the south shore of Lake Erie. It covers not only the archaeology and artifacts but also the physical types and ecology of the area. Highly recommended.

Robert N. Converse

AWARDS

The following awards for displays were made at the May 20, 1973, meeting of the Ohio Archaeological Society at Columbus, Ohio:

BEST OF SHOW
Victor B. Hiles
Route 2, Box 258
Maineville, Ohio

BEST SITE DISPLAY
Cliff and Betty Barker
63 Cherry Street
North Lewisburg, Ohio

BEST TYPE DISPLAYS
Richard B. Stambaugh
4403 Harrison, N.W.
Canton, Ohio
Cornella D. Sanders
880 Rue De La Bax
Cincinnati, Ohio 45220
Adena-Hopewell Transition and the Problem of Regionalism in the Wills Creek Valley

By Jeff Carskadden
Zanesville, Ohio

This report deals with artifacts from a site along White Eyes Creek in the Wills Creek drainage basin of northeastern Muskingum County, Ohio. These artifacts were collected over the last 35 years by William Buker of Pittsburgh. From this single creek-bottom site the typological transition from Late Adena Robbins projectile points through Hopewell projectile points can be seen. This material is compared with artifacts from Woodland sites along the Muskingum River proper and western Muskingum County. Through this comparison some insights may be gained into the problem of differential Hopewellization and regionalism in the central Muskingum and Wills Creek valleys. We suggest that these observations may apply equally well to other parts of eastern Ohio.

Adena-Hopewell Transition

This particular bottom land site was apparently occupied periodically from Late Adena through much of Hopewell. Points illustrated in Figure 1 are representative of the large number of Late Adena Robbins points found on the site. The vast majority of these artifacts are made of Flint Ridge flint. Those points shown in Figure 2 appear to range from the broad classic Hopewell Snyders types (top row) made of Flint Ridge flint, to the elongate corner-notched points (bottom row). The latter points are considered to be Late Hopewell in the central Muskingum valley, and are made mostly of local black Upper Mercer flints. Of particular interest are the points illustrated in Figure 3. These artifacts appear to represent the typological-chronological transition between the Robbins point types and the Hopewell Snyders point. Many of the specimens in Figure 3 would not be out of place in either a Late Adena or Hopewell context. Buker (personal communication) makes the following comments concerning this Adena-Hopewell transition:

I'm impressed by the definite Adena-like traits prevailing in the chipped stone industry of the so-called Hopewell—even an adherence to flaking technique and lithic material preference of the earlier Adena. It seems as though old ideas died hard, and this is what makes me think that we are not dealing with a complete supplantation of Adena by Hopewell, but a steady reaction to such influences. Furthermore, at least in the White Eyes Creek area, the same settlement pattern seems to exist in Hope-well as it did in Adena. In fact, there is a smattering of both Adena and Hopewell up and down the valley usually limited to the valley proper and rarely in the higher areas away from the creek.

It is interesting to note here the shift from exotic flints to more local black flints in the Late Hopewell corner-notched points, possibly reflecting the breakdown of trading spheres in Late Hopewell.

Regionalism-Early Woodland

No Adena mounds have been noted in the White Eyes Creek area, though a few have been reported along Wills Creek itself. However, burial mound building was never "big" in the Wills Creek basin. This observation suggests that an Early Woodland population, inhabiting this portion of the Wills Creek valley of eastern Muskingum County, may not have been participating to any great extent in burial mound building and other cultural-religious aspects of the classic Adena to the west along the Muskingum River. The Wills Creek basin may have been generally out of the mainstream of cultural development which occurred in other parts of Ohio. However, as Buker has noted above, projectile point manufacture seemed to have been maintained at a high level of technology throughout Late Adena, as can be seen in the points illustrated in Figure 1. The almost exclusive use of Flint Ridge flint for these points also indicates contact with the western part of the county. These factors suggest an alternate hypothesis: That "classic" Late Adena populations were using this site as a seasonal hunting or gathering station, while their religious centers and base camps were built to the west along the Muskingum River. Large Adena centers (i.e. clusters of mounds) were once located along the river at Dresden, Zanesville, and at Duncan Falls. Buker is in favor of this latter hypothesis.

The area may have been seasonally occupied by the same people who were responsible for the moundbuilding to the west. I am of the opinion that the inhabitants of eastern Muskingum County sites were semi-transient because you almost never see any depth of occupation of any of the many cultural groups represented, and you are forced to admit the site reveals an almost continuous intermittent occupation of someone existed there from Plano through Late Woodland.
Regional-Middle Woodland

The problem of regionalism or seasonal habitation of this site is somewhat more complicated in Middle Woodland times, however. None of the classic Hopewellian artifacts such as blades or blade cores have been found at the site. Again "classic" Hopewell populations may have been using the White Eyes Creek area for seasonal hunting or gathering. However, Hopewellian farmsteads along the Muskingum, Licking, and Jonathan Creek valleys of central and western Muskingum County are littered with blades and blade cores. These objects appear to have played an integral part in the classic Hopewellian tradition.

A situation similar to that seen in the Wills Creek valley appears to have existed in the Hocking valley in Middle Woodland times. Shane and Murphy (1967: 333) have stated the following concerning the Hocking valley area:

The apparent absence of Hopewellian remains in this area would seem to confirm Prufer's double-tradition interpretation of Woodland pre-history of Ohio (Prufer 1963: 34-85). Our survey data clearly demonstrate the existence of a local indigenous Woodland tradition with Early, Middle, and Late Woodland phases. The absence of Hopewellian traits in this tradition would seem to suggest that the Hopewellian Tradition is indeed intrusive into southern Ohio, appearing as an overlay upon the local Scioto Tradition. For some as yet unknown reason, the Hocking Valley did not participate in the Hopewellian interaction sphere.

We suggest the possibility of just such an indigenous Middle Woodland population in the Wills Creek area not participating fully in the Hopewellian interaction sphere. As discussed earlier, the absence of Adena burial mounds in the area also suggests that such a backwoods population may have been in the area in Late Adena times as well.

However, the possibility that this portion of the Wills Creek valley was a special activity area for Adena and Hopewell populations to the west, not involving Adena mortuary practices and certain Hopewell traits such as blades and blade cores should not be ruled out, until more can be learned concerning the Adena-Hopewell subsistence practices and seasonal activities.

Prufer, Olaf H.

Shane, Orrin C., and James L. Murphy.

Fig. 1 (Carskadden) Late Adena Robbins points from the site on White Eyes Creek in the Wills Creek drainage basin of northeastern Muskingum County.

Fig. 2 (Carskadden) Hopewell projectile points from the site on White Eyes Creek in the Wills Creek drainage basin of northeastern Muskingum County.

Fig. 3 (Carskadden) Adena-Hopewell transitional points from the site on White Eyes Creek in the Wills Creek drainage basin of northeastern Muskingum County.
More Notes On Diabase

By Claude Britt, Jr.
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One of the leading authorities on geologic terminology is the American Geological Institute in Washington, D.C. This institution in 1957 and 1960 published a *Glossary of Geology and Related Sciences* (Howell and others 1957). The terminology of igneous petrology used in this reference work was compiled by five geologists of the U.S. Geological Survey and one researcher at Harvard University. The geologic terms therein pertaining to the textural identification of diabase will be noted.

In this glossary, the term *diabase* (Howell and others 1957:80) is defined as follows: “A rock of basaltic composition, consisting essentially of labradorite and pyroxene, and characterized by ophitic texture. Rocks containing significant amounts of olivine are olivine diabases. In Great Britain basaltic rocks with ophitic texture are called dolerites, and the term diabase is restricted to altered dolerites”. The term *diabasic* (Howell and others 1957:80) is defined as follows: “A textural term applied to igneous rocks in which discrete crystals or grains of pyroxene (usually augite) fill interstices between lath-shaped feldspar (usually plagioclase) crystals. Characteristic of diabase and some gabbros. The term ophitic is synonymous”. The term *dolerite* (Howell and others 1957:86) is defined as follows: “Applied in Great Britain to fresh basaltic rocks with ophitic [diabasic] texture. Used in the same sense as diabase is used in U.S.A. (Obsolete in U.S.)”. The term *ophitic* (Howell and others 1957:204) is defined as follows: “A term applied to a texture [diabasic] characteristic of diabases or dolerite in which euhedral or subhedral crystals of plagioclase are embedded in a mesostasis of pyroxene crystals, usually augite. See Diabasic”.

Thus, it is evident that diabase is the preferred term, while dolerite is an obsolete term in the United States. Also, the mode of origin and the mineralogical composition of fine-grained igneous rocks are of little value to archaeologists. For this reason, rocks exhibiting ophitic [diabasic] texture should simply be classified by archaeologists as diabase regardless of the mineral composition. Who is in a position to question the definitions put forth by the U.S. Geological Survey and the American Geological Institute?

Howell, J. V.

Indiana Bannerstone

By John Baldwin
Angola, Indiana

This double-edge bannerstone (Fig. 1) was found in Allen County, Indiana, and was illustrated by Moorehead (1917: 113). The green and black banded slate is highly polished and curves to a sharp edge at each end. It measures 5-1/2 inches in length.

Moorehead, Warren K.

![Fig. 1 (Baldwin) Double-edged bannerstone in the collection of John Baldwin, Angola, Indiana.](image-url)
The Aboriginal Use of Petrified Wood In Southeastern Ohio

By James L. Murphy
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Case Western Reserve University
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One interesting discovery, made as a direct result of saving all chippage from field surveying as well as excavation work, is that local deposits of petrified or silicified wood were utilized by Early Woodland and probably Late Prehistoric inhabitants of southeastern Ohio. Thus far the evidence is sparse, and it is not likely that the sporadic deposits of petrified wood found in southeastern Ohio were ever major sources of aboriginal lithic material. It is certain, however, at least in the lower section of the Hocking River drainage basin, that silicified wood of Pennsylvanian age was utilized for hammerstones and chipped stone implements.

The discovery was made during the course of analyzing surface chippage from the Late Archaic Children's Home site (33-An-2) at the eastern edge of Athens, Ohio. It has since been destroyed by highway construction. Surface collections were made for several years, whenever conditions permitted, and a sizable accumulation of Late Archaic points and even a few ground stone tools was the result (Shane and Murphy 1967). Although the site had been cultivated for many years, distinct areas of fire-reddened soil and concentrations of fire-cracked rock were apparent. It is particularly regrettable that one of the finest Archaic sites in the Hocking valley was so thoroughly destroyed before even minimal excavation could be performed.

Included in the hundreds of unutilized flakes and spalls saved from the Children's Home site were a few pieces of silicified fossil wood. Some of them were rather blocky and showed no conclusive signs of having served as tools or even as cores; one, however, is definitely a fragment of a small hammerstone for its edges are heavily rounded by peck marks. There are also several thin, lamellar flakes of petrified wood which display a distinct bulb of percussion and secondary flaking. They undoubtedly are debitage from aboriginal chipped-stone tool making. Similar flakes of silicified wood were found at the McCune site, a Feurt Phase Fort Ancient component on the west edge of Athens. This site, too, has been completely destroyed, but fortunately some excavation work was accomplished before it was levelled. There were minor Baum Phase Fort Ancient, Late Woodland, Adena, Archaic, and Paleo-Indian or Plano components at the McCune site, so that exact cultural provenience of the silicified wood cannot be ascertained. In all probability, the few chips of petrified wood found at the McCune site were associated with the Late Prehistoric Feurt Phase.

The only other known artifact made of petrified wood is a small, well-rounded hammerstone found in the fill of Daines mound I, an Adena burial component excavated by Richard Fesker and the author in 1964. Other artifacts from the mound fill include Adena Stemmed blades and points, a siltstone tubular pipe, a hematite celt, and a formal rectangular Adena tablet. Thus, it is definitely known that petrified wood was utilized as a lithic resource during at least Early Woodland times. The evidence also indicates that it was used during the Archaic and, less certainly, during the Late Prehistoric. Although the only artifacts found to date are hammerstones, the existence of thin, lamellar debitage flakes suggests that chipped stone tools may also have been fashioned from this material.

These few occurrences of petrified wood tools and debitage are limited to the central portion of the Hocking River valley, but it is expected that careful collecting and study would reveal the utilization of petrified wood in other sections of southeastern Ohio, too. The potential value of this discovery lies in the fact that deposits of petrified wood are rather localized in occurrence, being limited largely to outcrops of the Conemaugh Group of the Pennsylvania System. All of the known occurrences in the Athens region undoubtedly came from Conemaugh exposures along Coates Run and Rock Riffle Run, north-flowing tributaries of the Hocking River that join the main stream opposite the town of Athens.
Hildreth (1838) long ago noted large slabs of silicified wood along Rock Riffle Run and Shade Creek, further to the south, where the fossil wood has weathered out of Conemaugh age shales and sandstones. Subsequently, the occurrence of petrified wood in Ohio has received little attention. Condit (1912) noted its occurrence along the Middle Branch of Shade River and suggested that the large blocks of petrified wood had weathered out of shales lying a little above the Pittsburgh coal. Condit, as had Hildreth, also noted the common occurrence of silicified wood in the Federal Creek area of eastern Athens County.

Stout (1916) briefly notes that “Silicified wood is very common in the shales of the Conemaugh formation of western Gallia County. Many beautiful specimens may be easily obtained in the area east of Raccoon Creek.” Elsewhere (Mitchell 1951) Stout is cited as having seen silicified wood in situ “in the ‘Big Red’ shales in the upper part of the Conemaugh Series northeast of Vinton in Gallia County.” Mitchell (1951) conveniently summarizes the sparse data on known occurrences of silicified wood in Ohio, and a copy of his map is included here (Fig. 1).

As Mitchell notes, the wood from the Conemaugh Group is usually very dense and brown or reddish brown in color. Much of it is gray in color, but all of it usually characterized by a peculiar laminated and sometimes whorled or gnarly structure. Color and structure taken together are sufficient to distinguish even small fragments of this fossil rock from chert or flint. The whorled structure is due apparently to the peculiar “mangrove-like” root system of the original wood. According to Dr. Arthur H. Blickle, Department of Botany, Ohio University, the bulk of the Conemaugh silicified wood represents the seed-fern form genus *Psaronius*. Polished sections of the silicified wood often show the root structure beautifully preserved. Even without sectioning and polishing, pieces of the silicified wood are readily recognizable by virtue of their color, waxy luster, and peculiar whorled or laminated structure.

Although aboriginal utilization of silicified wood is thus far known only in the central Athens County region, workers and collectors should anticipate the discovery of its use in other parts of southeastern Ohio and possibly even in adjoining portions of Pennsylvania and West Virginia. It will be particularly interesting to determine whether this unusual lithic material was used throughout the prehistory of the area, as now seems likely, or whether its use was restricted to one or several time periods.

Condit, D. D.

Hildreth, S. P.

Mitchell, Robert H.
1951 Petrified wood in Ohio. Rocks and minerals, 26: 253-255.

Shane, O. C. Ill and J. L. Murphy

Stout, Wilber
An Anasazi Skull

By Dan R. Cragin
220 Chestnut St.
Elyria, Ohio

In 1969, while on a hunting trip in Colorado, my father met a missionary from Mexican Waters, Arizona. My father asked the man if he had ever found any Indian relics. The missionary mentioned that he had a skull that was found in a shallow cave near William’s Wash. The skull was of-little value to the man, so after my father told him that I collected relics, he decided to give the skull to me.

The skull is that of a person from the Developmental Pueblo period, A.D. 700 to 1100 (Figs. 1 and 2). The head is deformed, which is a characteristic of this period in the Southwest. The deformity is believed to have been caused by strapping the babies against a hard cradleboard, thus creating pressure against the back of the head. When the bone hardened, the head became flat (Wormington 1947: 60). The wisdom teeth (third molars) in the upper jaw are not all the way through, as a matter of fact one is still slightly covered with thin bone (Fig. 3).

Wormington, H. M. 1969 Prehistoric Indians of the Southwest. The Denver Museum of Natural History, Popular Series 7, Denver

Fig. 1 (Cragin) Front view of Anasazi skull. Photograph by Richard Cragin.

Fig. 2 (Cragin) Side view of Anasazi skull. Photograph by Richard Cragin.

Fig. 3 (Cragin) View of upper jaw of Anasazi skull showing unerupted third molar tooth. Photograph by Richard Cragin.
Some Preliminary Thoughts on Seip Mound

By Robert Kozak
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The proposed size of the tribe that built Seip mound in Ross County is between 600 and 1000 individuals living in extended family type groups of approximately 50 to 100 members within a 10-mile radius of the site along the Paint Creek valley. This hypothetical size was derived from two sources, the number of burials in the site and the size of the mound itself.

It is generally accepted that only those individuals that played a significant role in the life of the tribe were buried beneath mounds, i.e. shamans, chiefs, wisemen, and perhaps their families. Using historical evidence from tribes in nearly the same ecological state as the Hopewell, a conical clan or pyramidal social structure can be proposed. About 1% to 10% of the population would be considered in the ruling class. Taking as an average, then, 5% of the population as the size of the ruling class and assuming that approximately 150 burials were made in Seip mound (I believe that 122 burials have been verified), a total population of approximately 3000 could be assumed to have existed during the construction of the mound within the local area, or the distance that could be covered in one day’s walk. Paint Creek was obviously used for transportation and so would increase the daily range. But, assuming that some of the settlements would be away from the watercourse, a maximum distance from one end of the settlements to the other of 20 miles and a maximum distance to the mound of 10 miles would seem reasonable for the movement of food and workers to the work site.

It would appear to be a sound conclusion also that this mound was built over more than a generation’s (20 years) time span. I have chosen parameters, then, of three and five generations — 40 to 80 years — for reasons based upon the size of the mound. Seip mound contains approximately 20,000 cubic yards of dirt weighing 48,600,000 pounds (Shetrone 1930:39-42). To move this earth at a rate of 25 pounds per trip would require 1,962,400 trips. Assuming that a Hopewellian individual could make ten trips a day, a total of 192,640 man-days would be required to build this mound.

At first I assumed that a work force of 15 to 40 people would be the maximum size for a tribe consisting of 50 to 100 individuals. That size is average for a tribe utilizing a mixed hunting-gathering-agricultural system (Harris 1971:206-208). Using an average of 20 workers, 9,632 work-days or 26.4 work-years would be required to build the mound. Figuring that work would have been stopped in the winter, slowed during planting and harvest seasons, and reduced when additional hunters were needed, a reasonable average would be five months of work per year, which would require 66 years of work by the tribe to complete the mound. This effort does not even take into account the charnel house construction which would have increased the work time greatly.

This figure I felt was unreasonable for any sort of endeavor. Granted a medieval cathedral required over a century to construct and Stonehenge (Hawkins and White 1965: 39) has been postulated to have required a similar length of time; but in both cases the effort involved was considerably less than the 41% of the total yearly work effort that is postulated to have been necessary to complete Seip mound in 66 years. Using a tribe with a population of 600 to 1000 (dividing the population figure of 3000 by five and three generations produces these figures) a work force of approximately 100 to 200 could be expected to exist which would reduce the work-years to 2.64 to 5.28 years.

Over a period of 40 to 80 years with a work force of 100 to 200 people, the mound would require between .03 and .1325 work-years for each of the years the mound was being constructed; that is, between 3% and 13% of the year’s time for that period. Of course the Hopewells probably did not arrive at these figures scientifically but from the Stonehenge estimate and from studies on the amount of
excess energy available to a culture of this kind we can figure that approximately 10% of the total energy requirement of that culture per year is necessary, which is well within the 3% to 13% estimates established earlier. For the Hopewellian tribes to exist then, i.e. maintain themselves at a constant population and construct the mounds at a rate that would not detract from the tribe’s efforts to maintain nutritional levels, a minimum annual population of 600 individuals would be required.

Now as to the question of generations. Besides the time span of three to five generations allowing the Hopewells to construct the mound and maintain their culture, this time span, 40 to 80 years, is also about the maximum time period that can be grasped by people, the period of one’s own life. Remember that this mound was for the ruling class only and, assuming that the Hopewell culture was not slave based, religion would be a strong motivating force, true; but asking people to build for the hereafter very much longer than their own life-span is a bit much, even in a pre-industrial ritual society. Furthermore the farming practices of the Hopewells (again using historical references) probably did not include the use of field rotation or more than accidental fertilizing. Spring floods would have replenished the top soil to some degree each year. These limitations then would cause field replacement about every 5 years and after some period of time, depending upon the size of the initial area, a movement of the whole tribe to a new site. Again an average length for this process would be between 30 and 60 years. So after a period of 50 or so years, the area of the Paint Creek valley inhabited by this particular tribe, an area of roughly 100 miles square, would start to loose its fertility and within 30 or 40 more years agriculture would be well nigh impossible, the gods no longer looked with favor upon that area, and the tribe would move on. Remember the Hopewells were still semi-nomadic.

While I am not expecting any of these three arguments to be accepted as proof, I feel they do answer some questions and conform to what would be the expected life style of the Hopewells and for these reasons might be considered as fruitful lines for further reasoning and investigation. The absolute size of the Hopewell tribes furthermore has never really been researched. I think then that my estimate of 600 to 1000 individuals at this site is a first step toward some sort of understanding of the size of the individual tribes and of the relations between them that were necessary for the construction of the mounds.

I feel the assumptions that were made are valid in light of the available facts and perhaps may lead to further research and exploration of the Scioto River valley for settlements outside of the burial areas. I believe their size and their physical relations to each other and to the mound sites will tell us much about the populations and the social structures that existed in the Hopewell and Adena cultures. This research I feel will prove these population estimates as conservative and may lead to another reevaluation of the Hopewell culture with the conclusion that it was indeed quite advanced in ways other than artistic.
Collector's Corner

A fine hafted shaft scraper from the collection of Norman Heestad, 416 College St., Alliance, Ohio.

Material from Thorn Run, Morrow County

By William L. McMullin
West Jefferson, Ohio

I was surface hunting in a plowed field along Thorn Run in Morrow County in the spring of 1972 when I made my greatest single discovery. I had walked about 1/4 mile into a field in which Thorn Run had overflowed and cut a ditch. In the ditch I found two flake knives (Fig. 1); one shows considerable use and the other one has an engraving tip.

I walked down the ditch about 10 feet and saw a rectangular piece of slate sticking out of the ground. I immediately knew it was a gorget. In pulling it out of the ground I discovered it has no holes drilled in it but has tally marks on each end. It measures 12.7 cm. in length. The gorget is in its entirety and in fine condition.

I continued along the ditch another few feet and found two spear points. Just a few feet beyond I found a broken fluted blade which has three flutes on each side. Twenty feet farther down the ditch I found two thumbnail scrapers and a leaf blade. I found all of this material in a matter of three hours.

Artifacts from the collection of Gary Haubman, 6423 Ballentine Pike, Springfield, Ohio. The Hopewell point and bladelet were found near the same location as the pipe pictured in the summer 1972 issue of the Ohio Archaeologist.

Fig. 1 (McMullin) Artifacts found along Thorn Run, Morrow County.
A Bell Pestle
By Robert Crawford
R.R. #2
Seaman, Ohio 45679

This large bell pestle was given to me about 18 years ago by my grandparents, Mr. and Mrs. C. F. Crawford. They found it on their farm in the southern portion of Adams County, Ohio. Notice the well-developed pit in the base.

Artifacts from the Little Miami River Valley
By Andy MacIntyre
1777 Kylemore Dr.
Xenia, Ohio 45385

While surface hunting near the Little Miami River on April 15, 1972, I found a fluted point and another artifact which I would like to believe is a graver (Fig. 1). They were found within 5 feet of each other on a very low ridge which is undetectable from the road.

The point is approximately 1.75 inches in length and a little more than .75 inch in width. Fluting is more pronounced on the reverse side and basal grinding is also evident. The point is of Flint Ridge material and is translucent under strong light. The break at the base is very fresh and was probably fractured that spring. The other artifact is of Upper Mercer material and I believe it shows two graver spurs, one of which is broken.

I have been surface hunting in Greene County for a number of years and for the past two summers have worked with the Dayton Museum of Natural History in the excavation of the Incinerator site. I would appreciate any comments on either the point or the graver.

Fig. 1 (MacIntyre) A possible graver and a fluted point fragment from the Little Miami valley.

A Slate Pendant
By Stephen Kelley
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Seaman, Ohio 45679

I purchased this bell-shaped pendant last year from the Cincinnati Museum of Natural History. They were selling part of their own collections that they did not have room to display. The only information they could give me was that it was found several years ago in southwestern Ohio.
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The Archaeological Society of Ohio is organized to discover and conserve archaeological sites and material within the State of Ohio; to seek and promote a better understanding among students and collectors of archaeological material, professional and non-professional, including individuals, museums, and institutions of learning; and to disseminate knowledge on the subject of archaeology. Membership in this society shall be open to any person of good character interested in archaeology or the collecting of American Indian artifacts, upon acceptance of written application and payment of dues.

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