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With inclement weather rapidly approaching, our field activities generally become increasingly less frequent. Ideally, the winter months present for us an opportunity which can be capitalized upon by cataloging our artifacts, recording pertinent site data, and perhaps, by writing an article for The Archaeologist.

An accurately documented surface collection can be of value in placing the prehistory of a particular region into perspective with even larger areas. By keeping reliable records of our surface collections an otherwise meaningless group of artifacts becomes an important archaeological collection and tool by which others may glean information, insight and knowledge. Which kind of collection would you prefer to have? I believe the choice is clear.

The season is also approaching for the renewal of our Society membership. Why not consider giving the gift of an ASO membership to an interested friend or relative? In addition to helping perpetuate interest in our avocation, it is a unique gift which can be appreciated throughout the entire year. Additional membership applications are available from our business office upon request.

Progress was made during the past year towards making meetings more enjoyable and informative. There are, no doubt, still many areas which should be, and can be improved upon. I once again urge you to participate in, and contribute to, your Society. Your ideas, comments, and constructive criticism, are always welcomed. Remember, this is our Society and it is what we make it.

Have a safe and happy Holiday season,

Steve Fuller

Front Cover

This sandstone human effigy, once in the Hill collection of Delaware, Ohio, is reported to have been found in Coshocton County. It is carved from a compact ocher colored sandstone cobble and portrays a somewhat stylized human face. Lines depicting hair flow across the top and sides of this egg-shaped stone which is undrilled. Traces of red ocher are still present and there are splotches of a dark patina on its surface.

The cultural affiliation of this puzzling piece is difficult to determine. A sandstone human effigy face was found in the Heinisch Mound of Portsmouth which contained Intrusive Mound artifacts. Other similarities may be noted in some Fort Ancient pipes but this artifact is not a pipe being completely finished without further modification of any kind. Collection of Robert N. Converse.

Back Cover

An outstanding full grooved axe made of glossy green and black granitic stone. Collection of Scott Haskins, Columbus, Ohio.

Cooperation Among Amateur and Professional Archaeologists Toledo, Ohio as an Example*

G. Michael Pratt
O.H.P.O. Regional Archaeologist
The University of Toledo

The earliest report of amateur archaeology in the Toledo area can be found in the diary of Captain Daniel Cushing, an artillery officer stationed at Fort Meigs in the spring of 1813.

> "In almost every place where we have thrown up the earth we find human bones in great plenty." A fatigue party ". . . digging a trench in front of block houses No. 3 and 4 came upon a pile of bones where they took out 25 skulls all in one pit." (in Lindley 1975:129).

However, throughout the 19th and early 20th century the Toledo area was relatively untouched by both amateur and professional archaeologist. This was probably a result of the fact that the area contains but a few mounds and earthworks, none of which are impressive in comparison with the mound and earthwork sites of the Ohio drainage which were the focus of the most of the fieldwork carried out in Ohio during this time. William Mills reported a few sites in his atlas (Mills 1903) and the fact that archaeological materials were present were noted in a number of local histories (Slocum 1905, VanTassel 1929, Waggoner 1888). Undoubtedly artifacts were collected and amateur archaeological excavations were carried out (Howard n.d.), but as is still the case in much of North America, the artifacts remained out of the public eye and the potential information held in these collections perished with the collectors. As a result, almost no information on the archaeology of the area exists prior to the early 1960's.

In 1961 a small ossuary was encountered by a group of Boy Scouts near the Harris Yards railroad yard near Rossford, Ohio and was brought to the attention of S. R. (Jack) Walters, an avid collector and amateur archaeologist. Walters contacted the Ohio Historical Society who declined to visit the site. Walters and several local A.S.O. members removed several additional burials and turned the results over to the Ohio Historical Society. Widespread press coverage of the incident led to several unrelated excavations and prompted Walters to halt his activities and backfill his excavations in an attempt to discourage subsequent digging. The publicity surrounding Walters' excavations at Indian Hills undoubtedly increased interest and awareness of the archaeology of the area.

In the late 1960's Dr. Earl J. Prahl began an archaeology program at the University of Toledo which caught the attention of portions of the amateur archaeological community. Several amateurs contacted Prahl and expressed an interest in becoming involved with his activities, which resulted in a joint amateur/professional salvage excavation in the summer of 1967 when the Harris Yards site (subsequently renamed Indian Hills) was threatened by construction activities (Wells ed. 1969). These excavations disclosed the location of a large palisaded village area, midden deposits, and additional ossuary pits and led to increased interest in cooperative activities. As a result, the Toledo Area Aboriginal Research Club was formed in the autumn of 1967.

Beginning in the spring of 1968 "Abo" club members began working with Prahl and University of Toledo students on weekend test excavations and during Prahl's second summer field season at Indian Hills, the club was given a specific excavation area under the immediate supervision of several of the more experienced members. Working at Fort Meigs late that summer, a University of Toledo/T.A.A.R.C. crew encountered a group of bundle burials in the same location noted by Cushing over one hundred fifty years earlier. Amateur archaeology in the Toledo area had come full circle.

By the fall of 1969, the club began publication of a journal which reported on club activities and provided a publication outlet for site reports by amateurs (Cufr 1969, Walters 1969), professionals (Prahl 1969), and students. By 1971 the cooperative efforts of the University program in archaeology led to the discovery and test excavation of several major sites in the Toledo-Maumee Valley area.

Fieldwork in the area increased with the arrival at the University of David M. Stothers, who initiated an intensive survey and excava-

Note Revised from Presentation to "Saving Ohio's Past" Cuyahoga Community College, Parma, Ohio, March 24, 1979.*

tion program for the Maumee Valley and Bay area which was almost entirely dependent on club participation. A framework of local prehistory was developed, based largely on previous T.A.A.R.C. activities (Prahl, Brose, and Stothers 1976; Stothers 1975a) and subsequent fieldwork has been oriented towards refinement of this framework by collecting additional data and radiometric dates (Stothers 1973, 1975b).

At the same time, the T.A.A.R.C. Bulletin was reinstituted and began to disseminate information on the archaeology of the Western Lake Erie area. In addition to publication of the bulletin, monthly club meetings brought speakers from various areas of Northeastern North America to address various topics relating to archaeology, laboratory workshops were organized, and excavation efforts were publicized in an attempt to generate public interest and support. These efforts have been and continue to be very successful.

Since 1972 the prehistoric framework of the Western Lake Erie area has been fleshed out. At present, a total of over 350 archaeological sites have been recorded through the efforts of the combined activities of the Toledo Area Aboriginal Research Club (now Society), the University of Toledo, and the Region 1A Ohio Historic Preservation Office. Some twenty-five sites have been radiometrically dated by eighty-two C^{14} dates (more than some entire states), and at least twenty to thirty additional sites have received some type of test excavation (Stothers 1975b, 1978, Stothers, Pratt and Shane 1978, Stothers and Pratt 1979, Prat n.d.).

Much of the future work in the area will be assisted by funds raised by the Toledo Area Research Society and designed to purchase radiometric dates and additional equipment. Presently contributions from local businesses, foundations, and private individuals are placed in an endowment fund; the interest from which is applied to archaeological research. T.A.A.R.S. is presently undertaking two survey projects under survey and planning grants from the Ohio Historic Preservation Office supervised by David Stothers. Several members have been involved in contract survey projects under the direction of G. Michael Pratt, and members continue to provide site location information to the Regional O.H.P.O. Archaeologist.

The success of this operation is due to cooperation and trust between people interested in a common goal. Under the provisions of the Society, members are encouraged to locate sites through surface collecting and while artifacts recovered from these activities are considered private, collections and site locations are to be made available to the University for recording and analysis. Private excavation is prohibited, except under emergency situations, and all excavated materials and notes are turned over to the University of Toledo Laboratory of Ethnoarchaeology. Members generally collect in their own areas and thus are able to monitor sites in order to help prevent damage or destruction from natural or cultural causes. Members are encouraged to participate in weekend excavation projects sponsored by the University of Toledo in the spring and fall of each year, as well as in the University's summer field projects. Members are often involved in processing and analysis of recovered materials. Thus, the Toledo Area Aboriginal Society was, and is, designed to enhance information flow and to encourage quality archaeology on the part of professionals and amateurs alike.

The professional archaeologists in Toledo and many of the advanced students often put in six or seven day weeks or additional evenings in order to schedule and provide activities which involve "Abo" members in professional quality archaeology and by passing the results of these cooperative efforts on to Society members and the public in general.

The overall result of these efforts is an increased amount in archaeological activity at a time when archaeological resources are rapidly diminishing, a better understanding of the prehistory and early history of the area for all involved, and a model for amateur/professional co-operation in other areas.

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Small Axes

By Steve Balazs
401 N. Mulberry St.
Mt. Vernon, Ohio

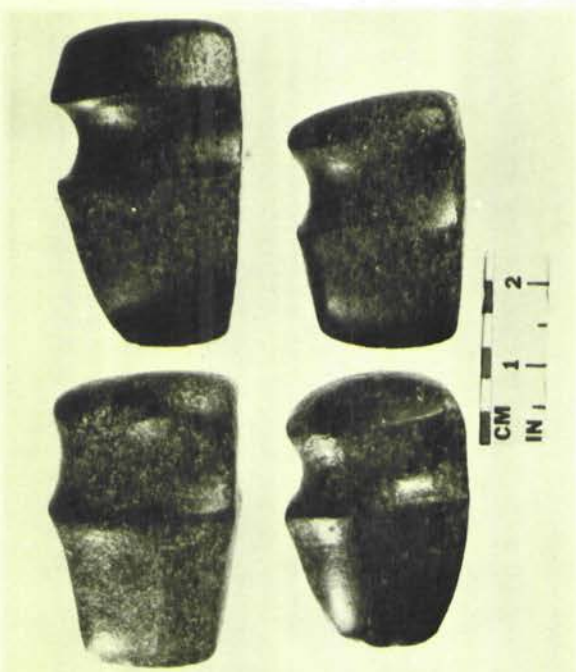

Fig. 1 (Balazs) Four small Ohio axes from the Balazs collection.

Pictured are four fine small axes. Upper left is from Knox County—upper right Champaign County—lower left Perry County—lower right Knox County.

An Updated Look at Leo Petroglyph

by
Mark W. Long
Wellston, Ohio

Fig. 1 General view of the Leo Petroglyph state park showing the shelter house that encloses the Indian rock inscriptions.

During the summer of 1905 the Ohio State Archaeological and Historical Society (as it was then known) sent an expedition into Jackson County to survey several places of archaeological interest in the vicinity of the old salt springs near Jackson, Ohio. William C. Mills, who headed up the society at that time, wrote a very interesting account of that expedition's findings. This report was published in volume 21 of the society's historical publication under the title of: "Archaeological Remains in Jackson County." One of the more interesting and important places that Mr. Mills describes in his adventures is "Leo Petroglyph," which is now a state park under the direction of the present Ohio Historical Society. By comparing the information recorded by William Mills in that summer of 1905 with recent discoveries and updated ideas on Ohio archaeology, a very intriguing picture can be constructed of this famous petroglyph site and its prehistoric inhabitants.

"Leo Petroglyph" consists of a large flat sandstone outcropping upon which ancient man pecked out the figures of many animals, footprints, and strange symbols, all depicted with the Indian's unusual art form. This rock pictograph is located near the head of a dark pristine hollow which is complete with exotic flora and fauna, a crystal clear stream with intermittent waterfalls, sheer face rock formations, and several rockshelter overhangs of reasonable size. The park has a parking lot, a picnic shelter house which encloses the petroglyph rock, and a nature trail that meanders through the present park property. Located in the southern halves of sections 23 and 24 of Jackson township, the petroglyph hollow drains south to "Sour Run" which then flows west for almost 2 miles until it empties into Little Salt Creek. This junction with Little Salt Creek is approximately 4 miles northwest of the ancient salt licks near Jackson, and located along the main Indian trail that ran

from Chillicothe to the licks (now part of state route 35).

History does not record just when the petroglyph rock was discovered by modern man, but it is known that at one time not all of the figures on the rock were exposed to view. Near the turn of the last century Mr. F. E. Bingman, a well known architect and amateur archaeologist from Jackson, examined the petroglyph and after removing soil and moss that covered another portion of the rock, discovered many other pecked forms that had previously remained hidden. A total of 37 separate objects such as animals, birds, snakes, human effigies, and the footprints of both animal and man were found to exist on the rock slab. At the time of the discovery the pecking that formed the art was from one-eighth to three-quarters of an inch in depth. With all of this to his credit, Mr. Bingman would later be instrumental in the 1905 expedition that surveyed this site along with several others in the basic vicinity.

According to William Mills' 1905 report, a large rockshelter in Jackson township near Leo was examined and found to contain no trace of archaeological remains. Because Mr. Mills was very vague as to the exact location of the excavated rockshelter, it is not known whether it was actually located in the petroglyph hollow. The layout map of the petroglyph hollow. The layout map of the petroglyph area that I made for this article shows three rockshelters near the actual petroglyph. The nearest one is a stone's throw over the bank from the pictographs, but it usually has water running over the front, and appears too wet for human occupancy.

The other two caves are located several hundred yards farther down the hollow. The overhang on the west bank has not been actually tested for traces of human occupation, but at first glance it does not appear to be very promising. Some local amateur archaeologists excavated several floor sections in the rockshelter located on the eastern side of the hollow during 1978, and this one yielded very good results. Located beside the stream that flows through the petroglyph hollow, and with an opening that basically faces west, this particular rockshelter must have appealed to prehistoric man. The reference map notes it as: the "Occupied Rockshelter."

As of present, slightly better than fifty flint and bone artifacts had been recovered from the "Occupied Shelter," along with many pottery fragments. One human tooth was also found, indicating the possibility of a past burial. The floor of the cave is very sandy, and shows almost no sign of stratification. Most of the age identification process must therefore depend on the type of projectile points and flint tools recovered. About one third of the flint types excavated from this cave were representative of the Middle and Late Woodland phases, with maybe one or two of those hard to identify archaic points included. The remaining projectiles or tools, and by a 3 to 1 greater majority, were of the Fort Ancient or late Mississippian triangular style. A large percentage of the pottery fragments, ironically enough, appeared to be of the type described as "Peters Cordmarked" which is supposed to be a product of the Middle Woodland time period. Other types were found however that were representative of both Adena and Fort Ancient cultures.

From the evidence recovered at "leo Petroglyph" it would be fairly safe to assume that several phases of prehistoric people found this site attractive for temporary or seasonal occupation. It is almost certain that the Fort-Ancient Indian was responsible for the rock inscriptions. I offer two reasons why this is probably true. First of all, if the rock inscriptions were made very much prior to the Fort Ancient time period, they would not be in their present good state of preservation. Secondly, the abundance of triangular projectile points excavated from the rockshelter in the petroglyph hollow tends to indicate that the Fort Ancient Indian was probably the predominate dweller to this area. The petroglyphs took quite a while to make, and whoever made them spent a great deal of time at this location.

The petroglyphs at Leo, in my opinion at least, represent no more than ancient graffiti. The Indian loved his environment, and depended on it for his very existence. The various animal and bird figures depict the many things that prehistoric man saw as a way of life, but also as things of wonder. The human face and footprint might have been his way of saying that he was here too. He is no longer here now, but if a modern day visitor to the petroglyph area catches the sunlight just right, and the air very still, he or she can still feel the mystique of that time so long ago. If only the rocks could speak . . . . .

Figs. 2, 3, 4, & 5. Four examples of the more than 37 figures pecked into the petroglyph rock. (Indian face effigy with what appears to be antler headdress, elk track, human footprint, and what appears to be a hummingbird).

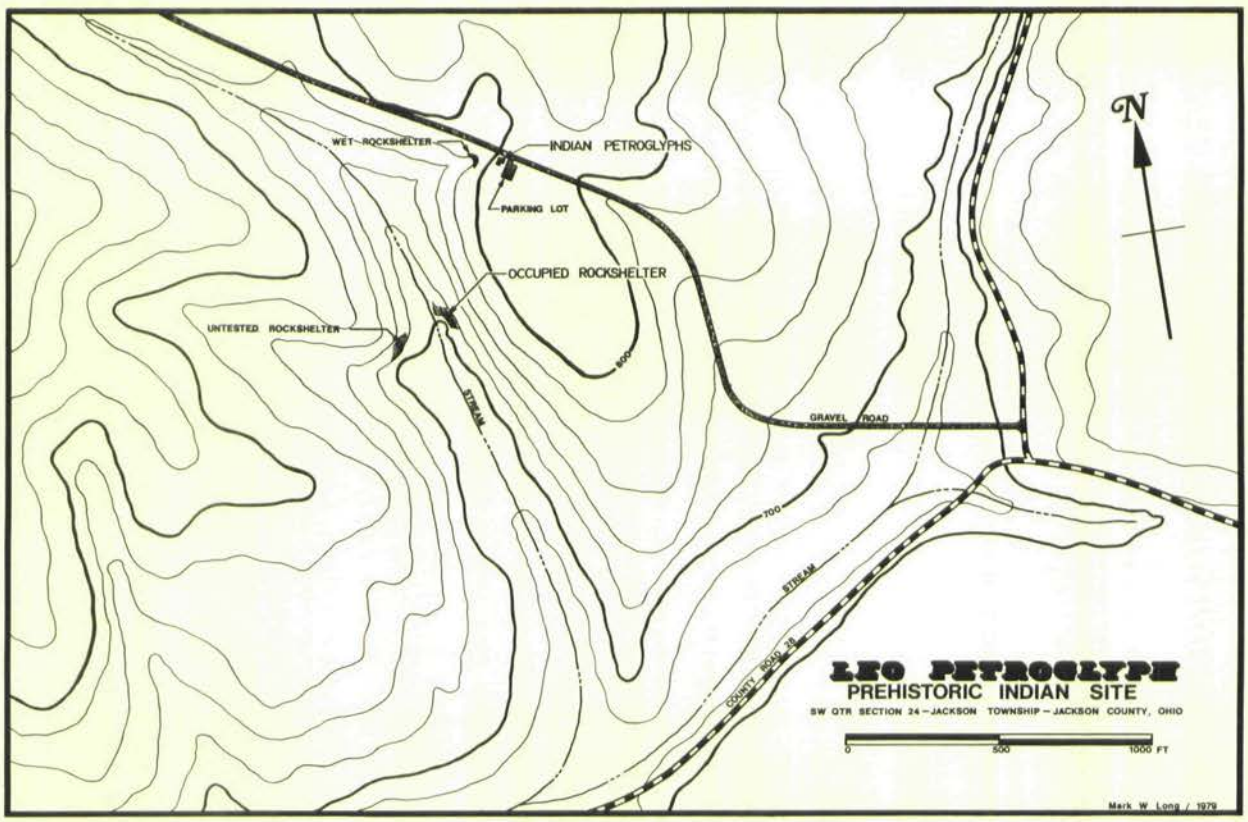

Fig. 6 Map showing the general layout of petroglyph area, and the location of rockshelters described in article.

Fig. 7 General view of the "Occupied Rockshelter" looking east. This cave is located right beside the stream which originates near the petroglyph rock.

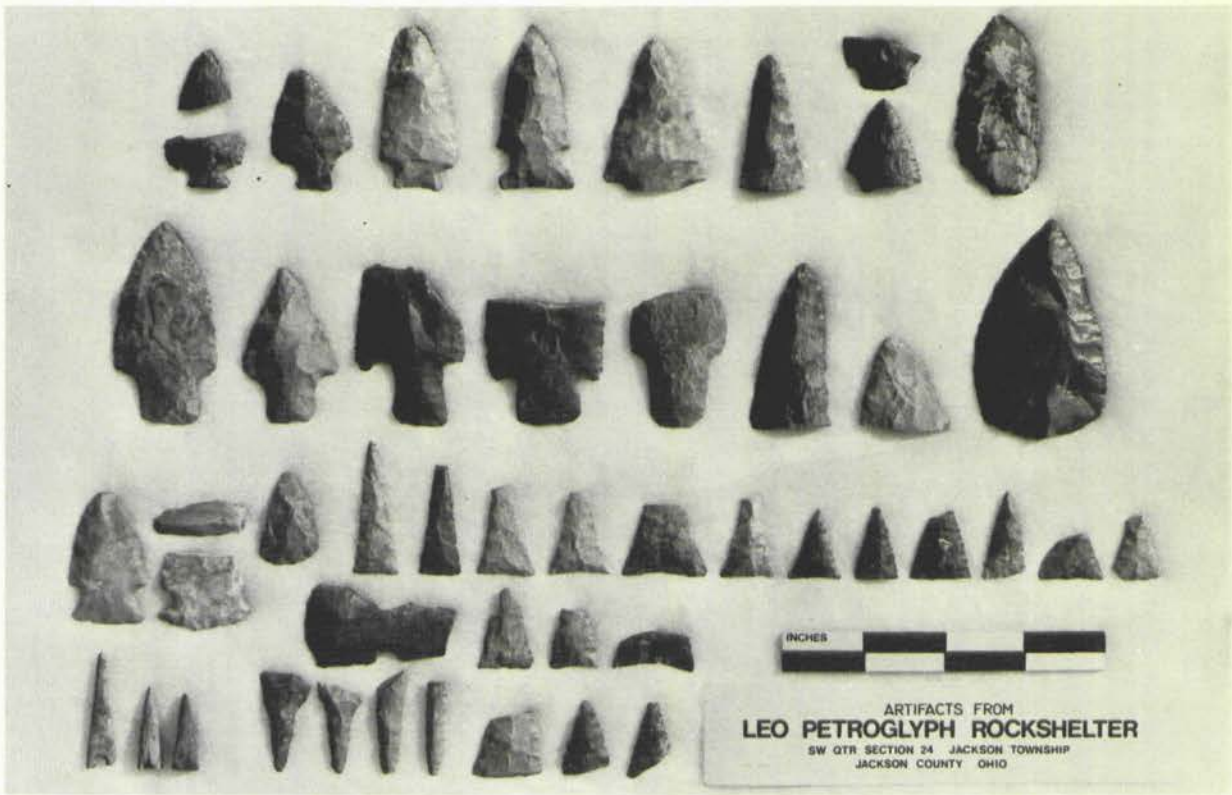

Fig. 8 Artifacts recovered from the Leo Petroglyph rockshelter. Flint types and some bone needles, pottery fragments.

Engraved Bird on Polished Slate: A Kentucky Tablet

by
Dennis Vesper

A slate artifact was found in Petersburg (Boone County), Kentucky upon which was the engraving of a bird. The stone was a surface find on a sandy terrace overlooking the Ohio River. It is of black slate, incompletely polished but with the general shape of an undrilled trapezoidal pendant (Converse, 1971). Figures 1 and 2 are the two sides of the 4 by 1½ inch artifact.

There are two noteworthy aspects to this engraving. The first is the type of bird represented. Unlike the typical bird engravings of the Adena and Hopewell peoples depicting some form of raptor (Webb and Baby, 1957) as is found on various Adena tablets or on Hopewell copper plates from the Mound City group, this bird seems to be a water bird. Judging from the combination of long, decurved beak and the three line crest, it would appear to be a heron. It may be a black-crowned night heron, if indeed, it is intended to be a definite species at all.

Second, the more unusual facet of the engraving is the way it is continued from one side of the pendant to the other. The lines can actually be seen on the narrow edge of the stone. A sandal sole shell gorget depicting a bird with its detached parts located in anatomically incorrect positions was reported from Ohio (Bravard and Converse, 1973). But the individual parts of the bird were not carried over to the other side of the gorget as in this Kentucky find.

Figure 3 is my "unfolded" version of the engraving. Although the head area is very realistically presented, the posterior portion is abstract and undefined. When studying the heron engraving, one's attention is first drawn to the small rectangle with its attaching "scepter" or mace shaped figure at the heart of the bird. This figure has actually been cut more deeply into the stone than any other component. A most remarkable likeness was found in a catlinite tablet from the Utz site in Saline County, Missouri (on the Mississippi) (Chapman and Chapman, 1964). Figure 4 is their multicomponent drawing of the bird engraving. The heron-like beak and the three line crest seem to be more than coincidental. However, there is no wrap-around pattern in this Missouri tablet.

The catlinite tablet was attributed to a cultural development called "Oneota" which is considered to be an aspect of the upper phase of the Mississippi pattern (Berry and Chapman, 1942). The Kentucky artifact may also be a tablet and seems to suggest a connection to the Oneota culture to the west. Clearly, the Mississippi and Ohio rivers could produce a strong link. I would be very interested in hearing about other finds which show a wrap-around type of engraving.

I wish to acknowledge my helpful discussions with Ray Tanner.

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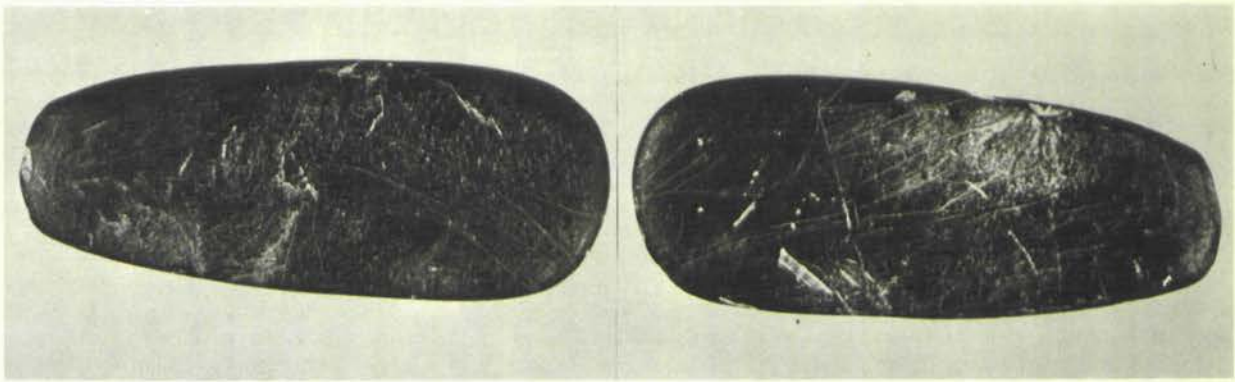


Fig. 1-2 (Vesper) Obverse and reverse of slate tablet depicting bird.

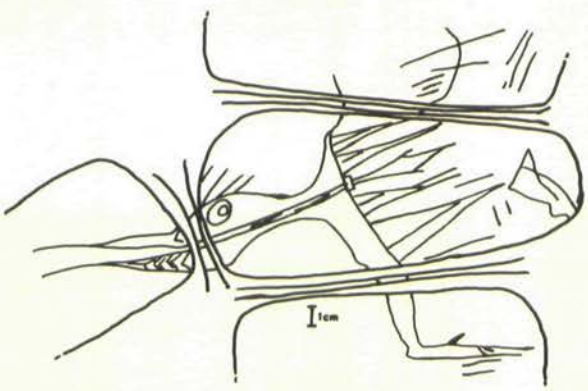
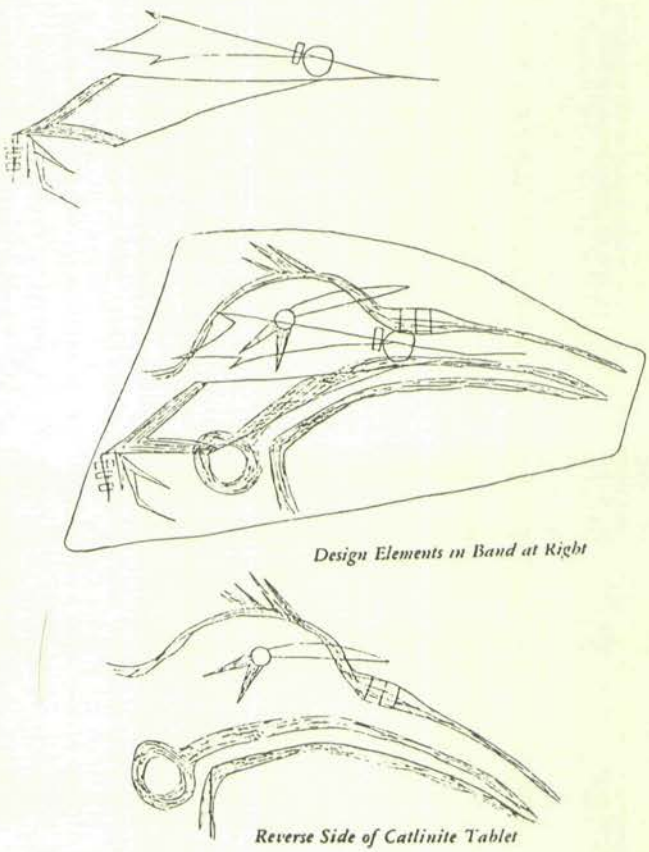


Fig. 3 (Vesper) Sketch of engraving when all elements are placed together.



Design Elements in Band at Right

Reverse Side of Catlinite Tablet

Fig. 4 (Vesper) Engraving on a catlinite tablet from Missouri.

A Novel Explanation of the Origin and Development of the Birdstone

By
Glenval Fincham
12000 Evergreen, Detroit, Mich. 48843

Eight years ago, as Great Lakes Associate Editor of *The Redskin,* I authored an article entitled, "A Possible Explanation for the Origin and Development of the Birdstone." My purpose at the time was to stimulate thought on this enigmatic artifact and to encourage response from my fellow collectors and archaeologists, amateur and professional. In the eight years that have ensued I have not received one response, reply, or comment on this suggested explanation. Therefore as I believe it a novel and possible explanation worthy of consideration, a restatement is in order.

I have chosen to submit this article to the *Ohio Archaeologist* for two reasons. The membership of the Archaeological Society of Ohio is composed of collectors and archaeologists, both amateur and professional. Responses to articles dealing with archaeological speculation have been printed in this journal.

We know a great deal about birdstones today largely due to the efforts of collectors who have in the past studied them and published their findings. One man in particular has made an outstanding contribution to the science of Archaeology. That man is Earl Townsend whose monumental *Birdstones of the North American Indian* has "pulled it all together" for the present and future students of the birdstone. I highly recommend this classic to anyone who has even the most casual interest in the prehistoric artform that we call birdstone.

For the purpose of stimulating thought and discussion I would like to suggest the possibility that birdstones originated and developed as *effigy* duck decoys. I know of no "hard" evidence to support conclusively any of the previously suggested theories as to the origin and development of the birdstone. There certainly is no "hard" evidence to support my theory. Climate and soil conditions that occur in the geographical area in which birdstones have been discovered have not been conducive to organic preservation. It is my hope that one day a peat bog will yield an answer to the mystery of the birdstone. Until that time we must use whatever tools are available to us. One such tool is speculation.

I have based my speculation on certain established facts. I shall enumerate them.

One. Certain peoples who populated North America had developed the effigy concept. That these people had the ability to transform an aspect of the natural world into a human creation via various mediums such as wood, stone, shell, copper, and pottery is an established fact. Sometimes the likeness was lifelike, but more often than not the image was highly stylized. The stylization brought out the particular attribute or special significance that the artist wished to portray or establish.

Two. Some of the prehistoric peoples of North America made, and undoubtedly used, duck decoys. Examples have been found in caves which date quite early and were made of twisted plant fibers. I have no doubt but what these people also fashioned duck decoys in other ways. I am convinced that they also fashioned decoys from the very skin and feathers of the birds that they hunted.

Three. Some of the prehistoric peoples of North America were supreme wood carvers. Wooden masks which were excavated at Spiro Mound, Oklahoma, and Key Marco, Florida, have established this fact.

Four. Townsend's distribution pattern demonstrates that 85% of the birdstones have been discovered within an area that is drained by the Great Lakes, not including Lake Superior. This same area was noted for the vast amount of waterfowl present in early historic times. I am confident that there were vast numbers of waterfowl present three thousand years earlier when birdstones were in fashion. It is also likely that the waterfowl represented an important food resource to the people living then.

I have mixed the above accepted facts with certain observations of my own to arrive at the Effigy Duck Decoy Theory.

One. In my personal observation of over one thousand birdstones I have never seen one that displayed definite legs or feet.

Two. I have never observed a birdstone that displayed wings.

Three. The vast majority of the birdstones that I have examined have reminded me of an aquatic bird sitting upon the water.

Four. Those forms included with the birdstones that are more animal like appear to

represent an aquatic animal such as the beaver or turtle.

I believe that the birdstone could have originated as an *effigy* of a duck decoy. Once the prehistoric man had observed the "power" of his decoy to "bring the birds down," would it not be possible that he might think it a good idea to possess an effigy of his decoy? Would not a birdstone fashioned from banded slate resemble a birdstone carved from wood? Perhaps many birdstones were made of wood and it is only the rarer effigies in stone that have survived.

Occasionally a birdstone is discovered buried with the dead, for example in Glacial Kame. Perhaps the effigy was sent on to help secure food in the Afterlife.

The purpose of this suggested theory of the origin and development of the birdstone is to stimulate thought and discussion. I welcome your comments and criticism whether they be lengthy or brief, positive or negative, or just different.

Townsend, Earl C.
1959 "Birdstones of the North American Indian." Indianapolis.

Fincham, Glenval
1971 "A Possible Explanation for the Origin and Development of the Birdstone." The Redskin, Vol. VI, No. 4, pp. 158-159.

Fig. 1 (Fincham) Three banded slate birdstones from the Great Lakes area. Top—Found in Huron County, Ohio. Middle—Near the Darke County—Preble County line south of Fort Jefferson, Ohio. Bottom—Found in Michigan, provenience unknown.

An Early Nineteenth Century English Button from the Brokaw Site

by
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In 1972, when tests were first conducted on the Brokaw site (33B1-6) in Southeastern Ohio (Belmont County) for potential archaeological excavations, a copper object was found at the bottom of the plow level overlying a prehistoric charcoal hearth. A preliminary examination of the specimen indicated what appeared to be the faint outline of a fleur de lis. Needless to say, it was hoped that the object might be evidence of Euro-American and American Indian contact and trade. In view of this find and the presence of extensive archaeological materials a decision was made to excavate. Thus, nearly annually, excavations have been carried out on the Brokaw site; however, no additional early historic items have been recovered and the latest radiocarbon assay test dates A.D. 1590±110 (DIC-391).

Recently, thanks to the efforts of Messrs. Donald Kloster and Carl Jaeschke of the National Museum of History and Technology (Washington, D.C.), Mr. Bruce Bazelon of the William Penn Memorial Museum (Harrisburg), and Mr. Stephen Wood of the National Army Museum (London), the object has been identified as a button of English manufacture for either a gentleman's dress clothing or a military garment. Buttons such as this were reportedly exported in large quantities by the button makers of Birmingham and London. The dates of manufacture for buttons of this size with a plated and gilded back of this design (Figure 1) range from 1811 to 1830, as the three ostrich plumes and coronet identify the heraldic badge of the Prince of Wales (see Brook-Little, 1973: Plate XII, 218-219). This was the Regency of George IV as Heir Apparent to the throne of Great Britain and Ireland.

Although conjectural, the author suggests that the button may be from a military officer's piece of clothing. This interpretation is based on four observations: the composition, degree of detail, precision of execution, and what may be the presence of numerics on the front of the button. Faces of buttons on civilian garments at this time were plain (Brown, 1946:42). With regard to precision of execution, the first and last letters of the word LONDON are equal-distance (4 mm) from the first letter of DOUBLE and the last letter of PLATED; (2) as each of the three words has six letters, all are of identical length (12 mm), and (3) the straight edge of any letter possessing such appears to be nearly an alignment with the center of the object. The metric data recorded for the specimen are: width: 19.0 mm; thickness: 1.3 mm. A shank, apparently of the omega type (Johnson, 1948:213; Peacock, 1972:122), originally brazed on, is now missing.

The presence of this object at the Brokaw site may indicate the occurrence of military activity either during or after the period of manufacture. This suggestion is perhaps made more plausible by what may be evidence of a small military establishment on the site, for several interesting, and, as yet, unexplained features are visible from the air (Figure 2). It is, of course, entirely possible that the specimen under consideration and the features noted are neither related nor contemporaneous, since it is not known whether the latter are of natural, prehistoric, or historic origin. Inquiries with the Center of Military History of the Department of Defense and State and County officies holding official historical records have failed to show any military garrisons in the area.

Brooke-Little, J. P.
1973 Boutell's Heraldry. Frederick Warne & Co. Ltd. London and New York.

Brown, Dorothy F.
1946 Backs of Buttons, G. E. Adams. Glocester.

Johnson, David F.
1948 Uniform Buttons: American Armed Forces, 1784-1948. Vol. 1. Description and Values. Century House. Watkins Glen.

Peacock, Primrose
1972 Antique Buttons: Their History and How to Collect Them. Drake Publishers, Inc. New York.

Fig. 1 (Pickenpaugh) Back of button from the Brokaw site. Diameter of button is 19.0 mm.

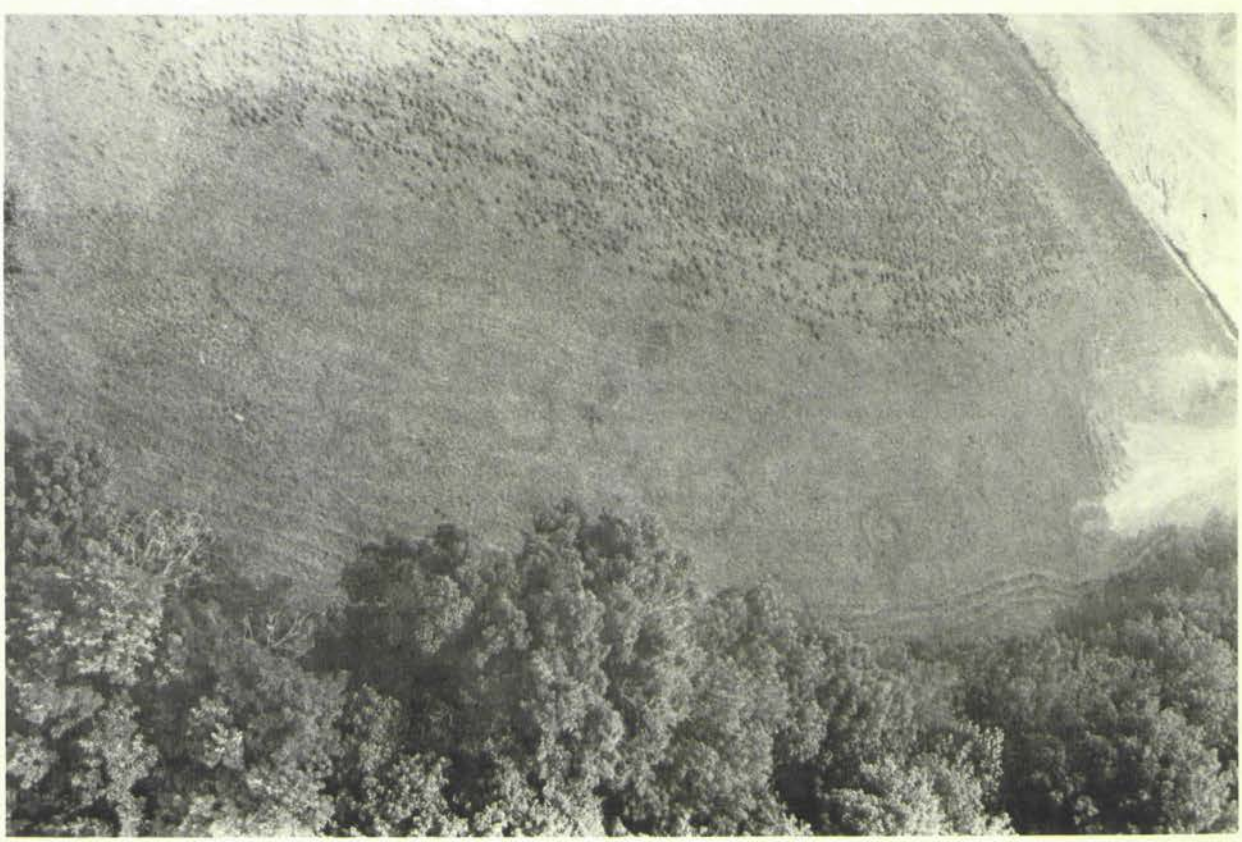

Fig. 2 (Pickenpaugh) Aerial view of features.

Some Thoughts on Pipe Collecting Techniques

by
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In the pursuit of Indian artifacts we face the continuing challenge of trying to authenticate relics being considered for our collections. At times as we survey desirable items on the artifact tables at Society meetings the dilemma becomes one of evaluating the purported "history" of the piece we covet. Included for our digestion are normally some character references from known senior collectors. On occasion we hear of a consensus agreement on authenticity which may have originated from one source who in turn influenced the opinion of others.

It is the writer's opinion when building a collection, that we need to study, read, and handle multiple examples of the type of artifacts being sought and then develop independent judgements on authenticity. Only then can we be sure that our collecting motives and not someone else's unknown intentions dominate our acquisition decisions. Since the writer has tried to carefully study the "family" of Ohio prehistoric pipes during the past 15 years or so he decided to pen a progress report on evaluation techniques.

First, nothing quite duplicates the experience gained from personally handling numerous examples whether they are pipes, flint, or almost any type of artifact. The ultimate goal is to achieve the well known "collector's feel" for genuineness. Let me say that although no fixed set of rules can be laid down in identifying fraudulent pieces by eyesight or feel, some pipe specimens at a glance will duplicate dimensional characteristics of known genuine items while other aberrant forms inspire a feeling of suspicion.

Pipes crafted from very soft materials such as sandstone and steatite are difficult to judge because the craftsman can work them into finished form with relative ease and implant patina with minimal effort. The writer has seen examples which have been tinctured with iron and lime or employ a greasy substance in uniform consistency over the piece. A logical question to ask is why would apparent patination appear consistently over the entire specimen when a genuine artifact would probably be subject to uneven organic deposition while in situ.

One procedure to test the legitimacy of suspect patination or discoloration is to hold a lighted match close to the surface of the artifact. If the result is the extraction of an amount of "pitchy" or greasy residue we know the item has been artificially treated. Sometimes we note that despite the pitted nature of exposed surfaces as if from age, the maker neglected to produce this effect in the less accessible parts of the item. This characteristic is particularly true in observing the bowl and stem cavities of fraudulent pipes.

Another more costly method of detecting authentic pre-Columbian pipes is to x-ray the piece. This technique will show the configuration of stem and bowl drilling recesses. The faker, however clever, will usually avoid trying to duplicate the arduous task of boring a hole with a reed, bone, or flint drill after the manner of the aboriginal pipe maker. To help cover his work the faker may try to gorge over a filled cavity or even burn kerosene or a similar volatile fluid in the bowl to simulate considerable use.

It is interesting to note that even though certain pipe forms were obviously copied in prehistoric Ohio, subtle variations in features are always present. A sure bet for the reproduction table is the exact copy of an advanced pipe form such as an effigy piece.

Beware of the use of unusual or exotic materials in crafting a specialized or rare form which is characteristically made from a specific raw material. A case in point would be the modified Adena tube pipe which features a right angle stem projection near the center of the tubular bowl. This form is almost always made of sandstone. So a steatite example should be questioned if it bears Adena-like attributes.

A number of bogus pipes have been conveyed on the basis that they were once housed in a well known, highly respected collector's display case. We should be cautious in giving undue weight to this type of pedigree. Enough said.

Before we all become disheartened from these comments let me state several thoughts about genuine pipes;

1. The finer-quality Indian relics, including pipes, are expensive and are increasing rapidly in value in these inflationary times.
2. Genuine pre-Columbian pipes display some indication of hairline fracture and/or impregnated decomposition. This

may be only evidence of leaching of foreign inclusions from the base material.
3. Certain materials show more wear and discoloration than others, particularly porous materials such as sandstone and limestone which rarely retain their original surface polish on genuine examples.
4. Ohio clay as a source material for pipes decomposes quickly when exposed to our soil and climate conditions. Recovered examples are rarely in whole condition.
5. Study advanced collections especially those on display at meetings. Seek guidance if you are seriously considering collecting any of the fascinating pipe forms. The advanced collector's ego will be soothed when you seek his advice.

The Indian relic collecting hobby of ours can be a wonderful learning experience and bring a lifetime of pleasure to all of us. It becomes more fun when we add to our storehouse of knowledge about our collecting interest.

Current Research

By
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The prehistoric Indians preferred certain types of stone for making chipped stone artifacts. The most highly valued types were usually obtainable only from small source areas and were more or less unique. The occurrence of such lithic types in archaeological contexts that are widely distributed in space and time provides important evidence about the functioning of prehistoric interaction spheres. This evidence will not be recognized, however, if investigators are unfamiliar with exotic lithic types. Hence, a privately funded project to collect and disseminate information about the more important preferred lithic types has been started by the author.

The principal goal of this project is to prepare descriptions of representative materials collected from prehistoric quarrying sites east of the Rocky Mountains. Descriptions will include color photographs as well as text, and should be adequate to allow field workers to make tentative identifications of types. If a good collection of materials can be made, it will be offered to a centrally located university or museum so that it will be available for inspection by interested persons.

Additional goals of the project are the collection of information about the geology of the quarrying areas and the quarrying methods used by the Indians, and the preparation of a report containing this information to be issued with the descriptions of the lithic types. Finally, the literature is being searched for data on the occurrence in space and time of artifacts made from the various preferred lithic types; this data will be included in the final report.

Source areas which have been visited so far include the Knife River Flint quarries in North Dakota, Silver Mount in Wisconsin, Burlington Chert outcrops along the Upper Mississippi and Lower Illinois Rivers, the Crescent Quarries south of St. Louis, the Cobden-Kaolin area of southern Illinois, Harrison County in southern Indiana, and Flint Ridge in Ohio. Source areas to be visited in the future include Obsidian Cliff in Yellowstone Park, the Mill Creek Quarries in Southern Illinois, the Dover Quarries in Stewart County, Tennessee, quarries near Carter Caves in Kentucky, and the sources of the Zaleski and Upper Mercer Flints in Ohio. Source areas for other kinds of materials, such as native copper, greenstone, mica, marine shells, fossil shark teeth, etc., might also be investigated in the future as the investigator's time and means permit. The investigator would like to receive correspondence from members of the A.S.O. who have information about the foregoing or other sources of material used by the prehistoric Indians.

The Hunt Site (33BL16) Part III—Lithics and Pipes

by
Thomas C. Grubb, Mt. Vernon, O.
and
Arthur J. Allen, Canton, O.

Part II of this report describing the ceramic artifacts from the Hunt site (Grubb and Allen 1979b) concluded with the authors' suggestion that its inhabitants had belonged to the Ft. Ancient and Monongahela cultures as well as to transitional phases which apparently had developed between the two cultures. This suggestion is compatible with its location near similar sites, e.g. the Brokaw site (Pickenpaugh 1976), the Brown site (Brown 1976) and the Richards site (Carskadden and Morton 1977). The nearby, as yet unreported, Tower site also probably belongs in this group. The discovery of Philo Punctate pottery shards at the Hunt, Brown and Richards sites establishes at least a ceramic relationship for these locations. While the identity of the Hunt site inhabitants, based upon ceramic evidence, appeared to be relatively well established, it is less well established on the basis of the stone artifacts described in this report.

Although local shale and limestone were used, the majority of the groundstone artifacts at the Hunt site were fabricated from sandstone of uniform density and medium grain size; of the 142 ground stone artifacts recovered, 109 (76%) were made of sandstone. Two of the pits uncovered were filled with fire-cracked pieces of sandstone. Relatively few hardstone tools were found since granitic rock is exotic in this area. The small number of granite bit ends of axes, battered celts, siltstones, and pitted stones showed extensive use as hammerstones.

Cupstones

Forty-eight cupstones were found. Nearly all were square or cube-shaped stones having one or two shallow cups on one face (Fig. 1). Five stones had abrading grooves in addition to cups.

Abraders

Like the cupstones, most of the 40 abraders collected were in the form of rough cubes or squares of sandstone and had grooves on two or more faces. A few had multidirectional grooves (Fig. 2). Many abraders were worn flat and smooth indicating extensive use as grinding or rubbing tools. A single shaft abrader was found.

Discs

Twenty-three stone discs were found (Fig. 3); 19 were made from sandstone, three from sandy shale, and one from limestone. Except for one shale disc 4 inches in diameter, the rest ranged in size from 2 to 4 inches. The discs were made by chipping the edges of the stone until a crude round shape was obtained and then grinding them into a nearly circular shape. The high percentage of discs made from sandstone probably represents the local availability of this material. While Converse (1973: 40) attributes these discs to the Middle and Late Woodland times, they were not reported from the Brokaw (Pickenpaugh 1976) or Brown sites (Brown 1976) and only two were found at the Richards site (Carskadden and Morton 1977).

Anvils

Of the 17 anvils found only four were unbroken. Although the Brokaw specimens showed evidence of face pecking, the Hunt anvils were unmodified, being made from oval, water-smoothed, reddish-brown siltstone pebbles. These anvils must have been used for pounding as well as smoothing since they showed both smooth and broken surfaces.

Hammerstones

Ten hammerstones (Fig. 4) of the usual round or oval shape described by Converse (1973: 17) were recovered. All are made from igneous or metamorphic rocks and exhibit battered edges.

Pitted Stones

Only three pitted stones were found. One was composed of sandstone with pits on the opposite faces, the second was similar but made of quartzite, while the third, made from granitic stone, had pits on three different faces. All showed evidence of having been used as grinding and hammering tools.

Axes

Bit ends from four broken axes, all having been used as hammerstones after breakage, were excavated. A complete three-quarter grooved axe (Fig. 5 top center) was found on the surface after the initial stripping. All axes were made of granitic stone.

Celts

Most of the 77 fragmented celts (Fig. 5) had been used to hammer as shown by their broken edges. Twelve were made from granitic rock, four from slate and one from quartz diorite.

Gorgets

Fragments of two rectangular grey slate gorgets were found. One was a midsection with breaks through both holes, while the other was an end section also broken through the hole.

Discoidals

A fragment of a highly polished granite, biconcave discoidal was located in a midden pocket. A refuse pit yielded a complete, perforated sandstone discoidal (Fig. 6). The discovery of discoidals at the Hunt site was unexpected since these artifacts become progressively less numerous as one moves east from the Scioto Valley.

Slate Pendants

Two whole and one fragmented slate pendant were found in midden pockets. One was made from blue speckled and banded slate (Fig. 7a) with a straight hole at the wide end, while the other (Fig. 7b) was made of grey slate with a tapered hole through the narrow end. Although slate ornaments are considered a Ft. Ancient trait, few were found at the Richards site and none was found at the Brokaw or Brown sites. Mayer-Oakes (1955) does not include slate ornaments for the Monongahela complex but ascribes them to Early and Middle Woodland cultures.

Hematite Artifacts

Of the 11 pieces of hematite collected, all except one hammerstone (Fig. 8 top center) exhibited grinding and/or polishing. One piece had only been cut and polished (Fig. 7c); another was fragmented celt (Fig. 8 top left). The remaining pieces had been polished but had not been used as tools. Hematite artifacts were also found at the Brown and Richards sites.

Cannel Coal Artifacts

Three diamond- and three teardrop-shaped cannel coal pendants were uncovered (Fig. 7c, d and Fig. 9). Several rectangular fragments, apparently from broken pendants, and a few flat pieces were also found. A single piece of worked cannel coal was found at the Richards site while several pendants of this material were found at the Brown site.

Spud

A spud (Fig. 10) and 13 scored antler tips were at the bottom of a tempering and the manufacture of artifacts such as the discs and pipes.

Stone "Platform"

Figure 1 in Part I of this report (Grubb and Allen 1979a:49) shows the location of a flat, level "platform" 11 by 53 feet composed of butting pieces of sandstone in the probable center of the village. The main pathway running through the village was close to the platform. At the northern end of the feature the stones were 3-4 inches thick laid in a single layer while at the southern end the stones were 18-20 inches thick and 6 layers deep. A burial pit of a sub-adult was found 16 inches below the stones at the southern end; the soil between the platform and the burial was composed of black midden material. Another burial was found beside the platform 22 inches deep and covered with 3-4 inches of midden soil. Further investigation of the platform was prevented by the intervention of the bulldozers. No satisfactory explanation for the use of the platform can presently be offered. It is even difficult to decide whether Indians or white men constructed it.

In Part I of this report the authors speculated that because of the geographic location of the Hunt site and the types of flint artifacts found there that it most likely had been inhabited at various times by the Ft. Ancient and Monongahela Indians. Part II of the report described the ceramics unearthed which suggest that the village had been occupied not only by "pure" Ft. Ancient and Monongahela Indians but also by another "transitional" group, as indicated by the pottery shapes and decorations. The group may have resulted from intermarriages at this cultural "interface" which was not uncommon among Amerinds. In this report the lithic traits of both the Ft. Ancient and Monongahela people are disclosed but they pit. Since full antlers were not collected at this site, the tips may represent trade items. Likewise the spud may have been traded because it was fashioned from a brownish-grey stone not indigenous to this section of Ohio and its shape differs from that illustrated by Converse (1978: 96), having a larger bit flare. Spuds are a Ft. Ancient trait usually found in the lower Ohio Valley.

Clay Balls

A large number of clay balls, some mixed with grit or shell and ranging from a marble to a baseball size, were found. A baseball-sized

ball was 6 inches from the skulls of each of two burials (Fig. 11 top left and right). Although clay balls were found in mound burials at the Gartner village site by Mills (1904) they probably do not represent a common trait with the Hunt site people.

Pipes

Three pipes, fragments of five others, and a blank were identifiable; except for the limestone blank (Fig. 12b) all were made of clay. One was a crudely shaped bowl (Fig. 12a) while another (Fig. 12c) resembled a "Monyock" type with roulette-impressed rather than cord-impressed markings characteristic of Monongahela pipes. The round elbow pipes with slightly raised collars at the rim tops (Fig. 12d-g) are similar to the "Monyock Plain" pottery pipes.

Limestone Rocks

Scattered throughout the excavated area were various-sized pieces of limestone, some having been smoothed on one or more sides. One had a curved contour, possibly from a hollow bowl. The occurrence of so much limestone is difficult to understand other than its possible use for present little evidence for a transitional stage.

The authors extend their thanks to members of the Sugarcreek Valley Chapter of the Archaeological Society of Ohio for furnishing artifacts and information about the Hunt site.

Brown, Jeff
1976 A late prehistoric hilltop site, Muskingum County, Ohio. *Ohio Archaeologist* 26(1): 24-27.

Carskadden, Jeff and James Morton, editors
1977 *The Richards site and the Philo Phase of the Ft. Ancient tradition.* The Muskingum Valley Archaeological Survey, Zanesville.

Converse, Robert N.
1973 *Ohio stone tools.* Rev. ed. Ohio Archaeological Society, Worthington, Ohio.

Grubb, Thomas C. and Arthur J. Allen
1979a The Hunt site (33BL16): part I, location and flint artifacts. *Ohio Archaeologist* 29(2): 47-51.
1979b The Hunt site (33BL16): part II, ceramics. *Ohio Archaeologist* 29(3).

Mayer-Oakes, William J.
1955 Prehistory of the upper Ohio Valley. *Annals of Carnegie Museum* 34, Pittsburgh.

Mills, William C.
1904 Explorations of the Gartner mound and village site. *Ohio Archaeological and Historical Society Publication* 13: 129-189.

Pickenpaugh, Thomas R.
1976 Stone artifacts from the Brokaw site. *Ohio Archaeologist* 26(3): 14-21.

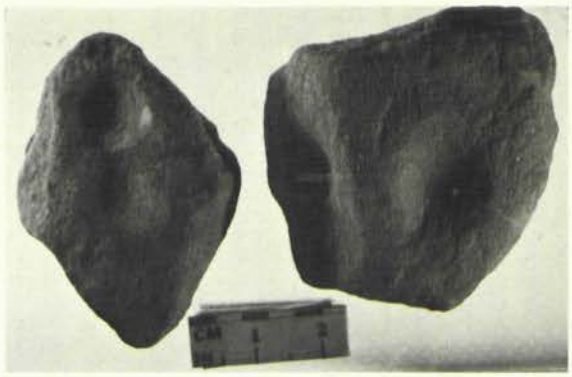

Fig. 1 Cupstones.

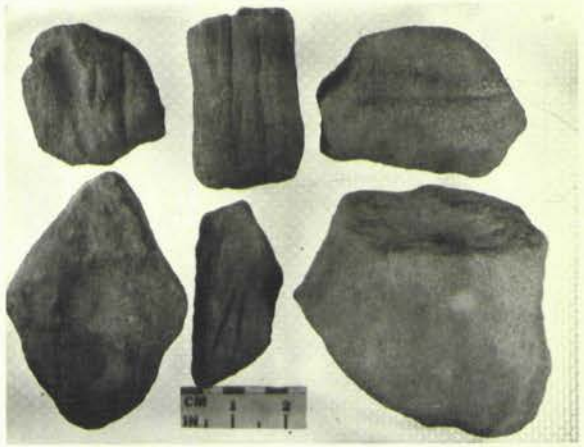

Fig. 2 Abraders.

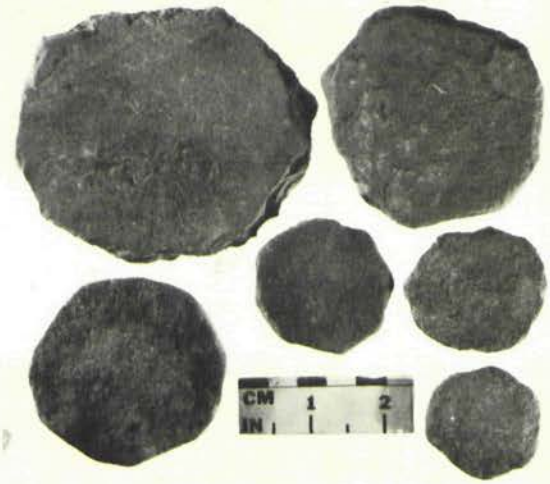

Fig. 3 Stone discs.

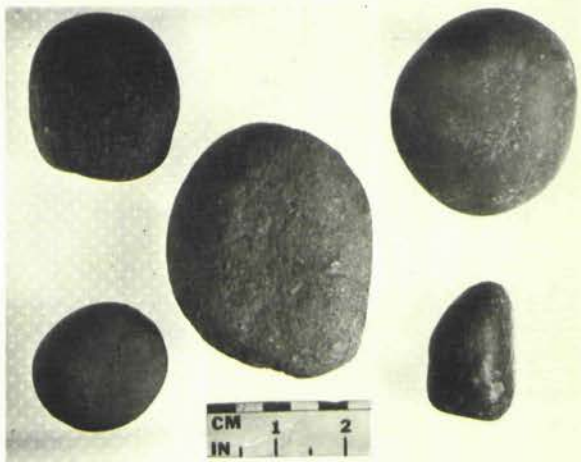

Fig. 4 Hammerstones.

Fig. 5 Celts and axes.

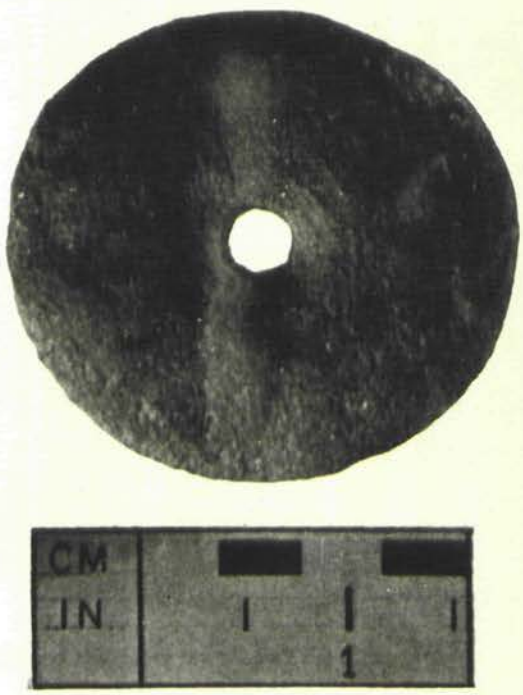

Fig. 6 Sandstone discoidal.

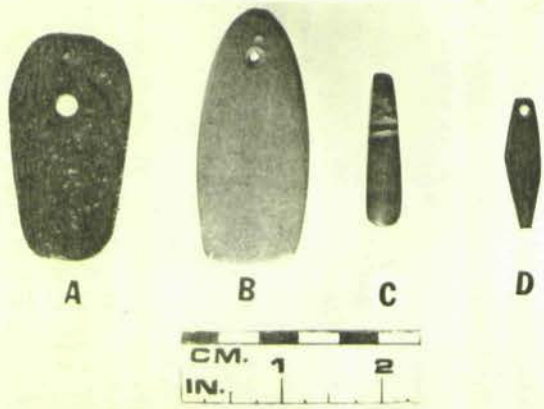

Fig. 7 Pendants.

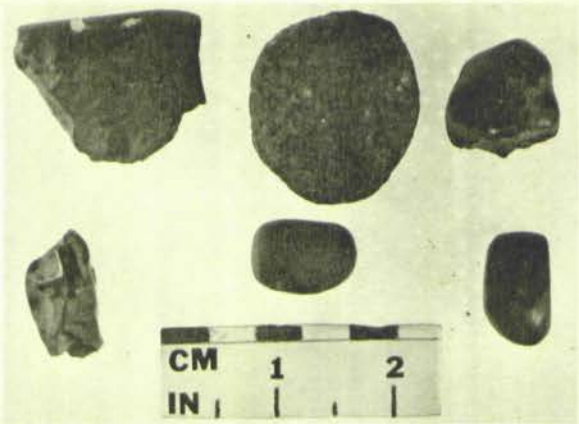

Fig. 8 Hematite.

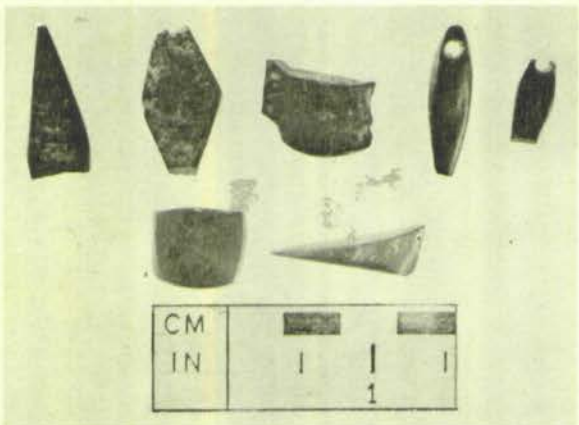

Fig. 9 Cannel Coal.

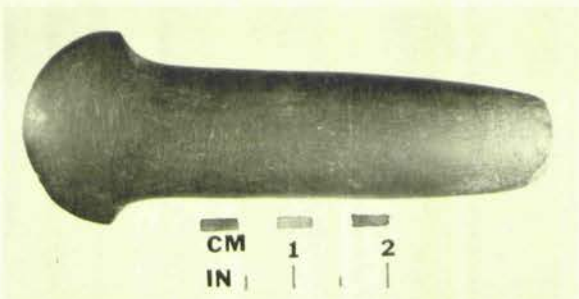

Fig. 10 Spud.

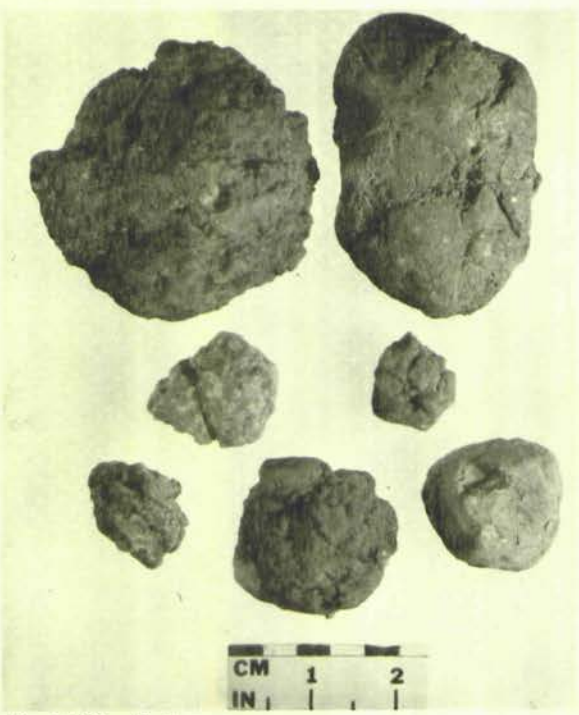

Fig. 11 Clay Balls.

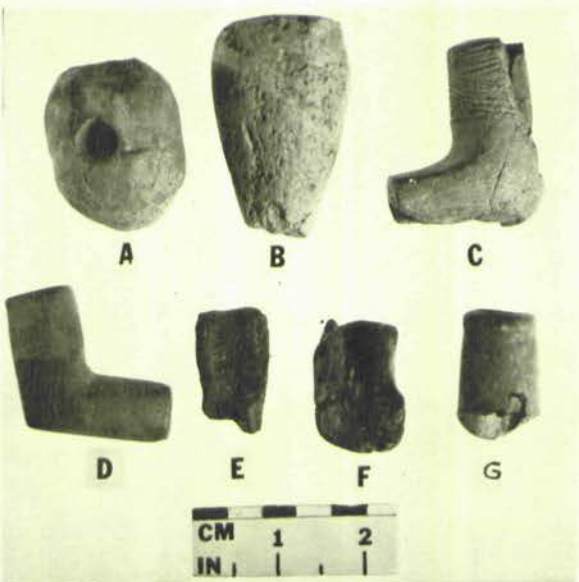

Fig. 12 Pipes.

A Putnam County Birdstone

By
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Ottawa, Ohio

The birdstone illustrated in figures 1 and 2 was found just west of Leipsic, Putnam County, Ohio, in 1970. It is 2⅞ inches long and has an aboriginal break at the head which has been ground and smoothed. It is made of banded slate and conforms to what some collectors call the "chunky" type, a number of which have been found in northern Ohio.

Fig. 1 (Green) Side view of birdstone from Putnam County.

Fig. 2 (Green) Bottom view showing drilling.

A Coshocton County Birdstone

By Robert N. Converse, Plain City, Ohio

Fig. 1 (Converse) Boxheaded birdstone from Coshocton County, Ohio.

Birdstones from eastern Ohio are particularly scarce, most of them being found in northwestern Ohio. A rare type for Ohio, no matter where it is found, is the elongated fantailed variety with enlarged knob-like eyes. This type is usually found in southern Ontario, western New York, and New England. To find such a rare type in eastern Ohio is a doubly remarkable occurrence.

This birdstone was found on the surface near West Lafayette, Ohio, in 1978. It is made of red slate, a common material for the type, and is usually called the "boxheaded" variety. One eye has been partially broken but has aboriginal smoothing. The rear attachment hole was also broken through but new attachment holes were drilled from each side into the damaged portion. The mouth is indicated by an incised line, and just above the front perforation under the head is a tiny indentation as though a new front hole was contemplated but abandoned.

Some colorful flint pieces from the collection of Scott Haskins, Columbus, Ohio.

Evidence for Early Blacksmithing in the Ohio Valley and the Occurrences of "B"-Stamped Trade Axes near Piqua, Ohio

by
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Ohio Historical Society
Columbus, Ohio

The various axe forms used during the 17th and 18th century can be considered the most easily identifiable item found on the fur trade and historic Indian sites of the period. Although most amateur and professional archaeologists have some general knowledge about such forms as the squaw axe and the pipe tomahawk, the development or evolution of such forms, where they were manufactured, and by whom is not known or is not available. In part, this information has been lost because detailed historical documentation relating to early blacksmithing is absent or non-existent. This article is particularly focused on the most common axe form of the "French" design which has been generally referred to as the squaw axe, camp axe, or belt axe (Russell 1967: 268-270; Peterson 1971: 18-21). Recent archaeological activities in the Piqua, Ohio, area have brought together some interesting data on early smithing which may have been carried out in the area.

The type of axe pictured in Figure 1 was first to be traded to the Indians on the east coast and was based on the contemporary axe which had evolved in Europe. Typically, this axe is of simple construction with the poll, eye and blade of wrapped strap iron formed around a pattern or drift. The insertion of a piece of steel at the ends of the elongated straps created a flaring bit. Most examples from the 17th century and the early 18th century weigh from 2-5 pounds. In Ohio, a 17th century "French" type axe has been reported from the south shore of Lake Erie (Russell 1967: 272). A similar example excavated on Blennerhassett Island, West Virginia, would suggest that "French" type axes may have been indirectly traded into the Ohio Valley prior to 1650 (Hemmings 1977).

Through time one sees an evolution of the basic design as a direct result of the rigors of frontier life in the New World. Peterson (1971: 20) suggests that although large size axes were made throughout the trade period, there was, however, a trend in the mid 17th century for a smaller sized, more easily carried tool weighing less than 2 pounds. Thus created are two ambiguous axe and hatchet subforms, the large sometimes termed the squaw axe and the small variety termed the belt or trapper's axe. Secondly, the same period saw the development of an "American" design for hatchets and axes which displayed a shorter blade and a weighted poll area (Figs. 2 and 3). This better balanced tool had a distinct advantage for the arduous task of clearing by hand *(Ibid:* 20; Russell 1967: 260). Unlike the previous century most trades or industrial endeavors had established themselves in the colonies. Blacksmithing was not excluded. Although early examples of the trade axe were undoubtedly made in Europe, many later examples in the 18th century were probably made on the east coast or at established forges in " . . . . accessible, permanent post . . . ." in the interior (Russell 1967: 253).

Peterson's (1971: 46-52) directory of axe makers and dealers does not locate any early smiths in Ohio. However it is quite likely that major French sites in the Great Lakes basin may have contained operating forges. Charles Hanna (1911: 146, 327-328) in his exhaustive study surrounding the Pennsylvania traders also identifies a blacksmith and trader by the name of Thomas Burney working in the Ohio Valley in the mid-18th century. Christopher Gist, working for a Virginia land speculation group called the Ohio Company, reconnoitered much of the Ohio country in 1750 and 1751. On December 14, 1750 Gist visited the "town of the Wyandotts" or Conchake as it was sometimes identified, above the forks of the Muskingum River (Hanna 1911: 145). In Conchake ". . . . Thomas Burney, a blacksmith, who is settled there . . ." aided Gist on December 25, 1750.

A review of other literary sources would indicate that Burney was quite active throughout the Ohio area and by 1752 he had probably moved his forge to Pickawillany on the Great Miami River. In addition to smithing, Thomas Burney during this period was associated with or in the employ of George Croghan. It is quite likely that he was more permanently based and worked out of stores in which Croghan had established for the Indian trade. Gist's journal makes it quite clear that in 1751

Burney was associated with Croghan at his Muskingum store. Following Gist's mention of Burney at Conchake, he continued his journey and in January 1751, Gist apparently reached the Miami town of Pickawillany. Late that same year, March 1, a council between the Miami Indians and Gist was held. At this council the Miamis, in addition to being desirous for more extensive English trade, requested ". . . a smith to settle here to mend our guns and hatchets . . ." *(Ibid.:* 277).

This council was no doubt the stimulus for the establishment of Burney and Croghan in southwestern Ohio. During the French-ordered attack on Pickawillany on June 21, 1762, Burney was present. This information would suggest that he probably worked in present day southwestern Ohio for about one year prior to the destruction and eventual abandonment of the site. Later, Croghan himself made an account in 1756 of his losses to the French and Indians. In these accounts Croghan mentions that at Pickawillany he lost goods amounting to 331 pounds and 15 shillings, which were in the care of Thomas Burney and Andrew McBryar (Hanna 1911: 9). The most significant bit of data regarding Burney's activities at Pickawillany was recorded at the onset of the French and Indian War. Burney requested a commission from the Lieutenant Governor of Virginia, Robert Dinwiddie. This request and Burney's previous activities are summarized in a letter of November 13, 1754 from Dinwiddie to Governor Sharpe (Brock 1883: 398).

> "The bearer here of, Thos. Burney, lived some years among the Twightees (Miami), as a blacksmith."

Although little more can be gleaned from literary sources with regard to Thomas Burney and his blacksmithing operations in Ohio, his first-hand accounts provide most of the principal information concerning the attack at Pickawillany and the general atmosphere in the Ohio country prior to the French and Indian War (Hanna 1911: 289, 368; Goodman 1871: 47-49, 86-87).

Recent archaeological investigations near Piqua, Ohio, to recover physical data about the site of Pickawillany enabled this author to closely inspect a number of iron trade axes from the area (Baker and Cramer, n.d.). Although it could be considered coincidental, three iron axes touch marked with the letter "B" have been found in the Upper Piqua area or in the vicinity of the traditional site of Pickawillany (Figs. 4-8). These axes were originally recovered by the Kiefer family of Piqua but it should be noted that they now reside in the Museum of the Old Northwest in Lockington, Ohio. Figure 9 is a sketch of one of the touchmarks from the belt axe most well preserved. The mark to the left of the "B" is apparently an impression of the edge of the stamping tool. Present information would suggest that this "B" stamp is unique to that local area since no other sources were found which mentioned this particular mark (Kuck 1977; Peterson 1971; Russell 1967; John Barsotti 1979, personal communication; Dr. Alva Salisbury 1979, personal communications). The presence of these examples from Upper Piqua, the fact that Thomas Burney practiced blacksmithing in the area, and the unique distribution pattern of the stamp would seem to suggest that Burney did produce these artifacts.

At least two other "French" type axes have been found near Pickawillany, however, these, now housed at the Ohio Historical Society's Piqua historic museum do not display the "B" stamp (Figs. 10-13). Figure 10 is small and displays other morphological attributes unlike the other axes from the site. Figure 12 or specimen C, however, is quite similar to the "B" stamp axes and it is believed that it was also manufactured by Burney or some associate.

Without being too repetitious, it should be mentioned that "French" type axes were formed by wrapping iron in a plastic state around a form. Chandler (1971: 60-61) believes that this operation is important for classification:

> "One tool aiding in classification is the drift used to form the eye. The making of the drift took time and material and, unless he had a sufficient number of orders, it is unlikely that a maker would have had several on hand. More probably he would use only one for all the tomahawks he produced . . . ."

The metric attributes for the axe in the Piqua historical museum and two of the three axes from the Museum of the Old Northwest are summarized in Tables 1 and 2. These tables indicate that though the one axe housed in the Piqua historic area is slightly larger and made from larger stock, the morphology of the eye is quite similar to the examples from the Museum of the Old Northwest and it is likely that all four examples were turned out on the same drift. If in fact his unstamped axe was formed on the same drift it would add further support for early blacksmithing by Thomas Burney in the Ohio Valley.

Acknowledgements

The author would like to thank several individuals who helped make this paper possible. The artwork for Figures 1-3 was prepared by John Barsotti of the Ohio Historical Society. This author would like to thank Clint Houser, manager of the Piqua Historical Area for assistance in this research and his many other contributions to the preliminary survey of the Upper Piqua area. Special thanks are given to Dr. Alva Salisbury of the Museum of the Old Northwest for allowing me to study the Kiefer collection and providing his insights on Pickawillany.

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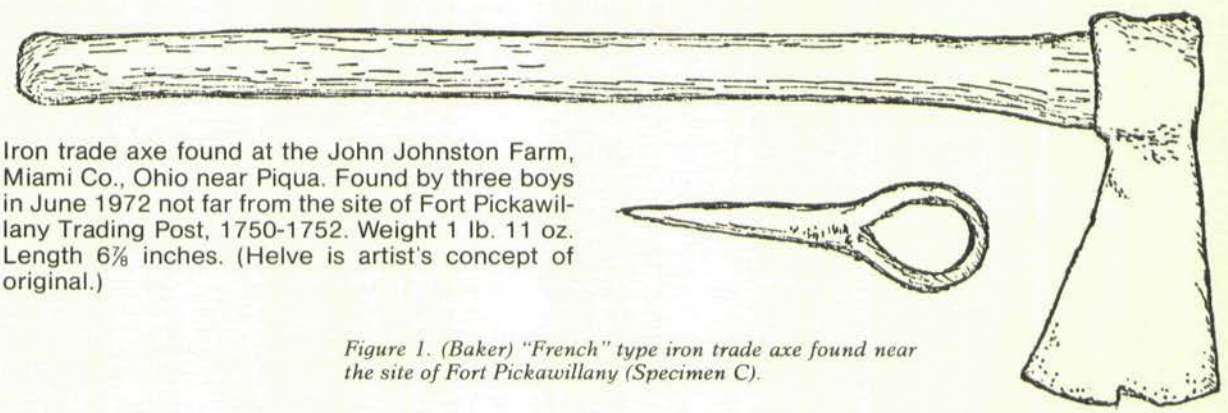
Table 1: General metric attributes and miscellaneous data of 4 iron axes from the Upper Piqua area.

Specimen	Present Location	Length	Height of Bit	Height at Eye	Thickness of Stock at Eye	Where Found	Remarks
A	Museum of the Old Northwest	147mm	76mm	42mm	5-7mm	Up Loramie Creek across Lockington	"B" stamped
B	Museum of the Old Northwest	136mmt	?	42mm	4mm	Found south of 33MI13	"B" stamped bit broken
C	Ohio Historical Society	175mm	86	48mm	6mm	Found just below mouth of Loramie Creek	Bit damaged
D	Ohio Historical Society	92mm	50mm	36mm	4mm	Found at 33MI13	Poll area distressed; elongated eye

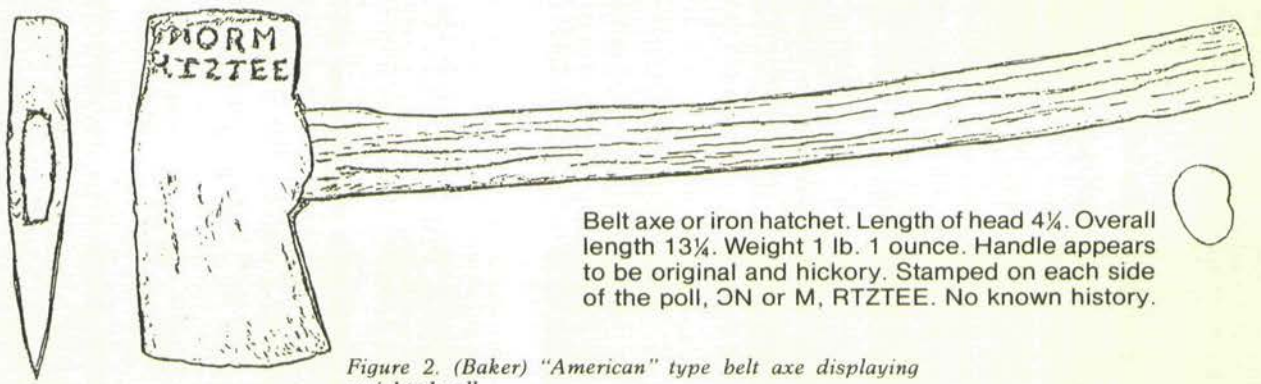
Table 2: Detailed metric data regarding the eyes of four iron axes from the Upper Piqua area.

Specimen	Top of Eye Length (I.D.)	Width (I.D.)	Width (O.D.)	Bottom of Eye Length (I.D.)	Width (I.D.)	Width (O.D.)
A	51mm	35mm	44mm	47mm	34mm	44mm
B	49mm	32mm	42mm	46mm	30mm	41mm
C	50mm	34mm	45mm	45mm	33mm	45mm
D	28mm	20mm	29mm	21mm	20mm	28mm



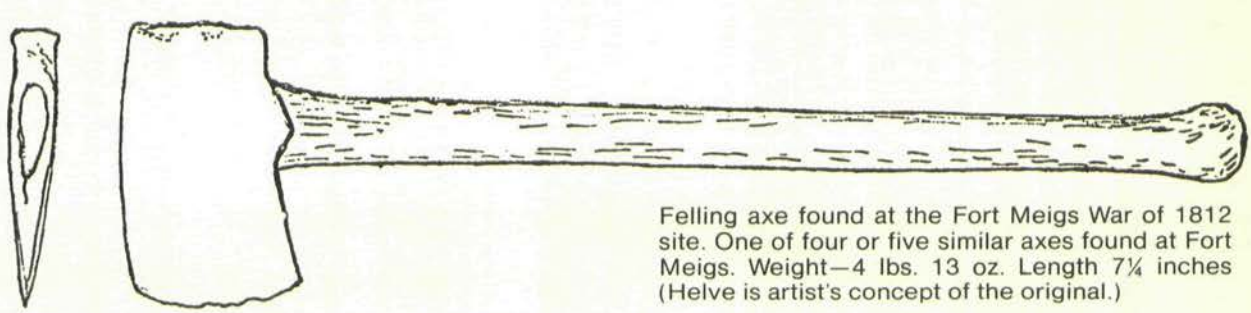
Iron trade axe found at the John Johnston Farm, Miami Co., Ohio near Piqua. Found by three boys in June 1972 not far from the site of Fort Pickawillany Trading Post, 1750-1752. Weight 1 lb. 11 oz. Length 6⅞ inches. (Helve is artist's concept of original.)

Figure 1. (Baker) "French" type iron trade axe found near the site of Fort Pickawillany (Specimen C).



Belt axe or iron hatchet. Length of head 4¼. Overall length 13¼. Weight 1 lb. 1 ounce. Handle appears to be original and hickory. Stamped on each side of the poll, ↄN or M, RTZTEE. No known history.

Figure 2. (Baker) "American" type belt axe displaying weighted poll.



Felling axe found at the Fort Meigs War of 1812 site. One of four or five similar axes found at Fort Meigs. Weight—4 lbs. 13 oz. Length 7¼ inches (Helve is artist's concept of the original.)

Figure 3. (Baker) "American" type felling axe displaying weighted poll.

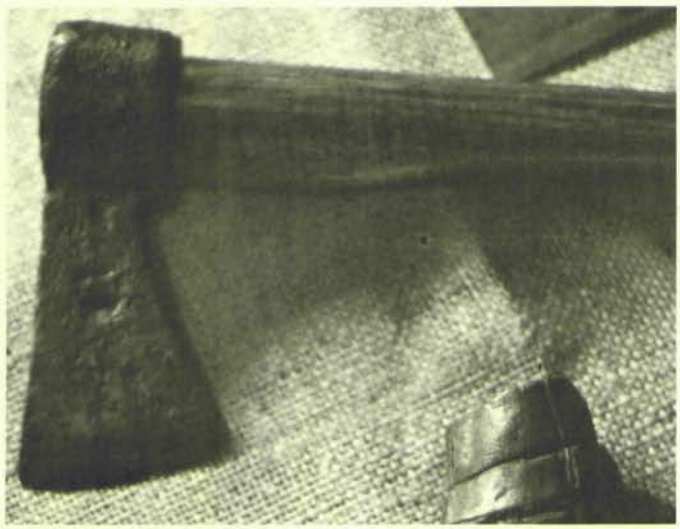


Figure 4. (Baker) "B" stamped iron trade axe from Keifer Collection in the Museum of Old Northwest-Territory.

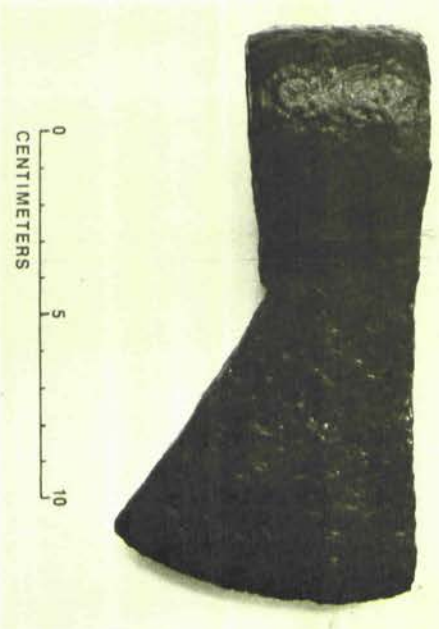


Figure 5. (Baker) "B" stamped iron trade axe from Keifer Collection (Specimen A).

Figure 6. (Baker) Bottom view of "B" stamped iron trade axe from Keifer Collection (Specimen A).

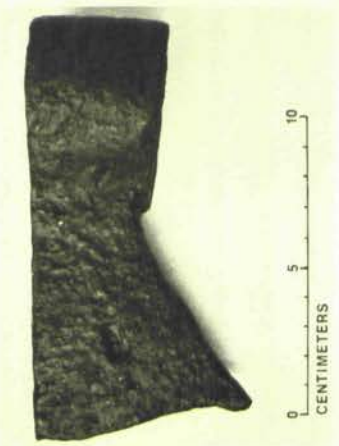


Figure 7. (Baker) "B" stamped iron trade axe from Keifer Collection (Specimen B).

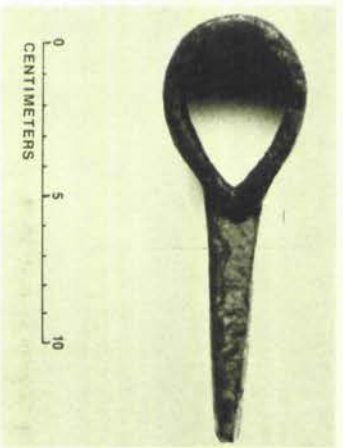


Figure 8. (Baker) Bottom view of "B" stamped iron trade axe from Keifer Collection (Specimen B).

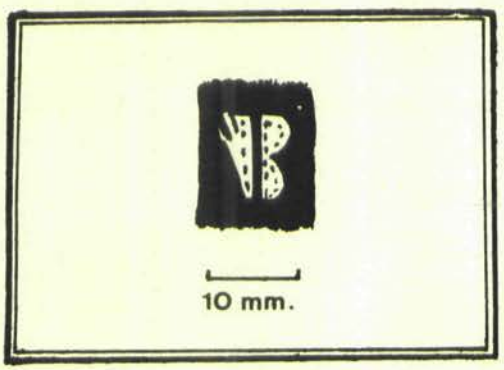


Figure 9. (Baker) Sketch of the "B: stamp on Specimen A."

Figure 10. (Baker) Iron trade axe in Ohio Historical Society's collections found near site of Fort Pickawillany (Specimen D).

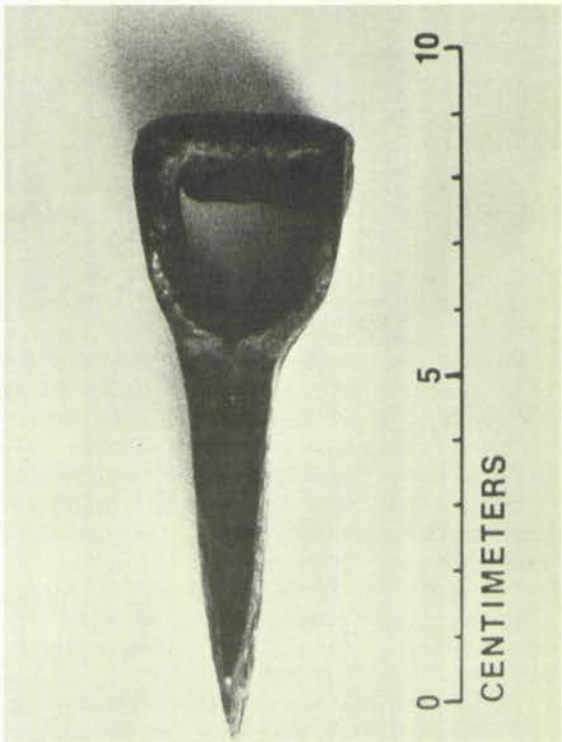


Figure 11. (Baker) Bottom view of iron trade axe in Ohio Historical Society's Collections. Found near site of Fort Pickawillany (Specimen D).

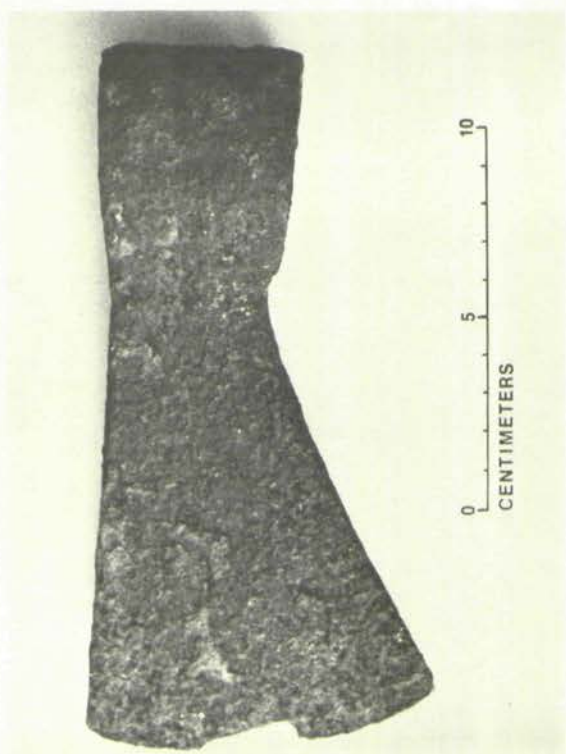


Figure 12. (Baker) Iron trade axe in Ohio Historical Society's Collections found near site of Fort Pickawillany (Specimen C).

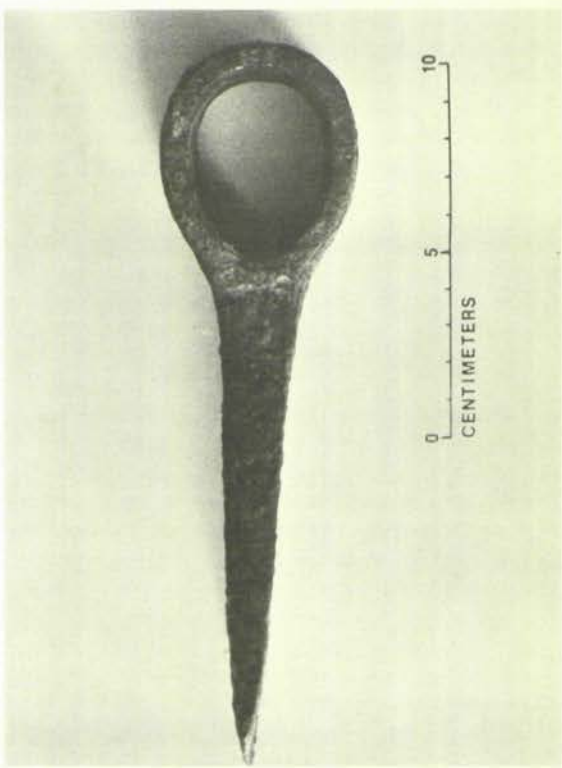


Figure 13. (Baker) Bottom view of iron trade axe in Ohio Historical Society's Collections found near site of Fort Pickawillany (Specimen C).

Two Triangular Point Varieties From The Maumee-Sandusky Bay Region

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The Maumee-Sandusky Bay region of northern Ohio was inhabited by 2 diverse cultural groups between A.D. 1300 and A.D. 1450. One of these groups included Wolf-like and Eiden Phase Late Woodland peoples, who both made Parker Festooned (Lee 1958: 3-30) pottery vessels with applied effigy faces under castellations (Shane 1967: Plate 4A), and may have descended from peoples like those who inhabited the Libben Site along the Portage River in the *9th* century A.D. (McKenzie and Blank 1976: 325). The Wolf Phase Upper Mississippians who inhabited the area at this time are not being considered in this study. (Stothers 1978: 25).

Whittlesey-like Upper Mississippian people also inhabited the area at this time. It has been suggested (Stothers 1977: 13-14) that they intruded into the region from elsewhere.

A sample of 9 Wolf-like Late Woodland arrowpoints was obtained from Feature 1 at Pearson Village (33-Sa-9) along Green Creek. They are almost always made of Pipe Creek flint (Stothers and Rutter 1978: 13), usually possess straight or slightly concave bases with one minute "ear," and range from 3.1 mm to 4.3 mm in thickness. A specimen possessing all of these characteristics was recovered from the surface of the A.D. Bowen Site (33-Se-13), a predominately Archaic-Early Woodland locality in the upper Green Creek drainage. A Pipe Creek flint workshop (33-Se-6) is located less than one-half kilometer away.

Another point of this type was found lodged between 2 thoracic vertebrae of Burial 2, an adult, at the Mixter Site (33-Er-15) along the Huron River by A. G. Smith about 1950. Although it may be an Eiden Phase point, it does suggest that the closely related Wolf-like and Eiden Phase Late Woodland villages were not all at peace among themselves. A point foreshadowing all those just described was excavated at the Libben Site (33-Ot-6) by Aronhalt, Bell, and Phelps in 1934.

The sample of Whittlesey-like Upper Mississippian arrowpoints is from villages at Ft. Meigs (33-Wo-8) along the Maumee River, Hudson Village (33-Sa-10) along the Sandusky River, and the surface of that component at Pearson Village. These points are made of glacial cobble chert or Delaware Chert from around Castalia, range from 5.0 mm to 8.9 mm in thickness, and usually have a "hump" on one face.

Acknowledgements

I would like to thank Frank Huntley of the Toledo Area Aboriginal Research Club for identifying the flint from 33-Sa-9 Feature 1, 33-Se-6, and 33-Se-13. I would also like to thank Mr. and Mrs. Merle Pearson for allowing me to conduct field work on their property.

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Table 1
Data for Triangular Points

Fig. 1	Provenience	Metric Data (l,w,t—mm)	Material
a	33-Sa-9, Fea. 1	(25.3) (—) (3.5)	Delaware Chert (Castalia region)
b	33-Sa-9, Fea. 1	(24.1) (16.9) (4.3)	Pipe Creek
c	33-Sa-9, Fea. 1	(24.9) (—) (3.3)	Pipe Creek
d	33-Sa-9, Fea. 1	(—) (—) (3.7)	Pipe Creek
e	33-Sa-9, Fea. 1	(31.4) (17.2) (3.1)	Pipe Creek
f	33-Sa-9, Fea. 1	(29.9) (13.7) (3.1)	Pipe Creek
—	33-Sa-9, Fea. 1	(—) (—) (3.4)	Pipe Creek
—	33-Sa-9, Fea. 1	(—) (18.0) (4.8)	Pipe Creek
—	33-Sa-9, Fea. 1	(—) (—) (3.2)	Pipe Creek
g	33-Se-13, surface	(—) (15.7) (3.3)	Pipe Creek
h	33-Er-15, Burial 2	(—) (—) (3.1)	Pipe Creek
i	33-Ot-6	(34.0) (21.1) (4.1)	Pipe Creek
j	33-Sa-9, surface	(—) (20.1) (6.3)	cobble chert
k	33-Sa-9, surface	(—) (15.5) (5.2)	Delaware Chert (Castalia region)
l	33-Sa-9, surface	(29.0) (16.0) (8.9)	cobble chert
m	33-Sa-9, surface	(23.0) (16.6) (5.0)	Delaware Chert (Castalia region)
n	33-Sa-10, surface	(24.0) (15.9) (6.0)	Delaware Chert (Castalia region)
o	33-Wo-8	(23.1) (15.0) (5.6)	cobble chert
p	33-Wo-8	(21.1) (16.3) (6.0)	cobble chert
q	33-Wo-8	(22.2) (14.9) (5.0)	Delaware Chert (Castalia region)

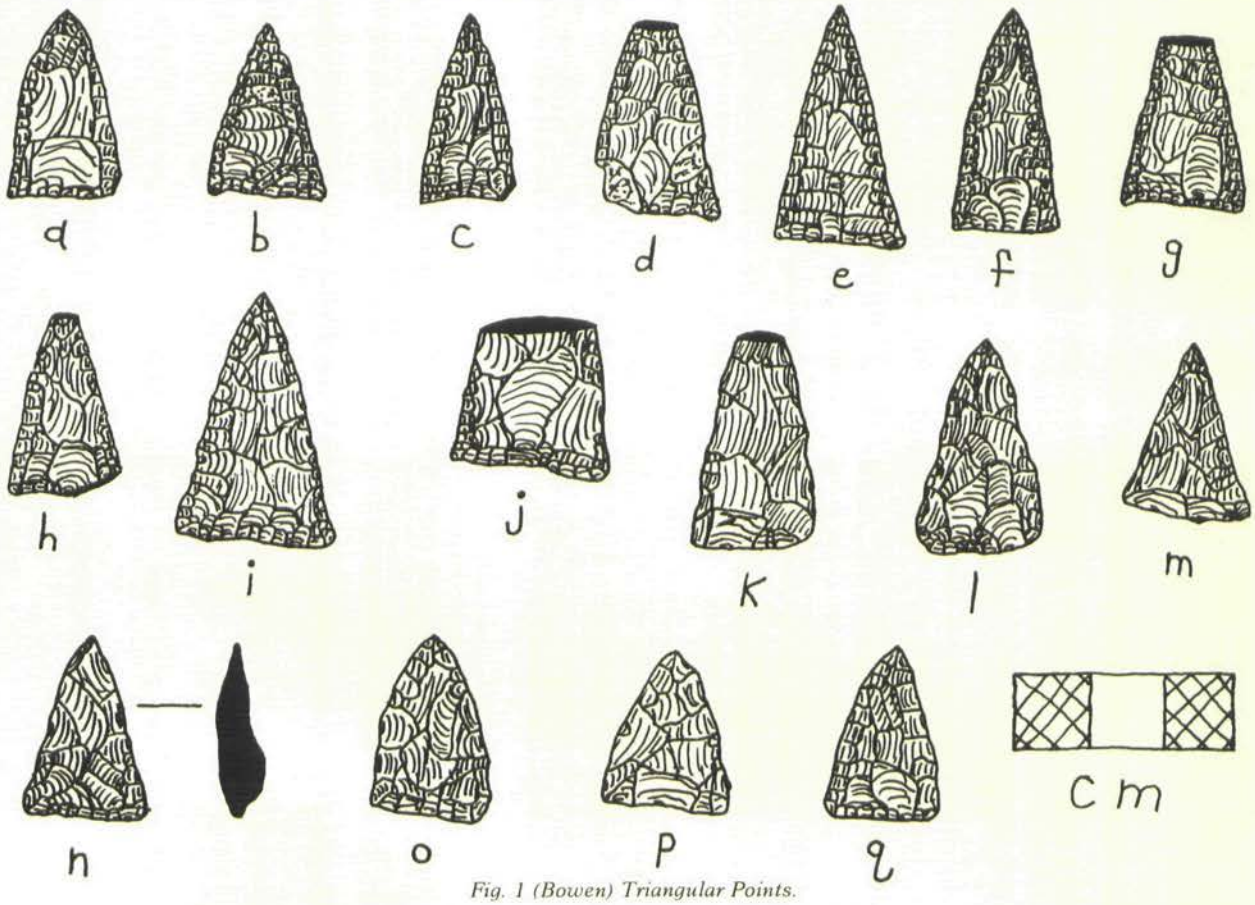

Fig. 1 (Bowen) Triangular Points.

Exostoses

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In the field or in the laboratory, the archaeologist often comes in contact with human osteologic pathologies, "those structural or functional changes in (bony) tissues caused by disease" (Friel 1974:1148) which are not correctly identified. The purpose of this article is to describe a broad pathologic disorder or anomaly (hereditary defect) known as exostosis. This defect is of interest to paleopathologists, as it is one of those pathologies of ancient man leaving identifiable traces.

Exostosis is "a benign bony growth projecting outward from the surface of the bone" (Friel 1974:557). This bony growth can be caused by numerous stimuli, such as: trauma (externally-induced injury); infection; long-term disease (arthritis, tendonitis, etc.); and bodily functions such as unusual muscle pull. Some exostoses, however, are believed to be due to genetic factors.

When examining human remains, the archaeologist should look for any bony projections which appear to be foreign to a comparative normal skeleton. Depending upon the location and composition of the bony projection, the archaeologist can determine whether it is or is not an exostosis and, if so, what type of an exostosis it is. If the projection or 'spur' is extremely dense or composed entirely of compact bone, then it is possibly an ivory exostosis. Some observers identify these as button osteoma (if rounded) or ivory osteoma (Brothwell 1967:323). The reason for this incongruity could simply be a matter of nomenclature. The basic difference between an osteoma and an exostosis is, however, that an osteoma is a tumor (a new growth of bony tissue in which the multiplication of cells is uncontrolled and progressive [Friel 1974:1660]) whereas a true exostosis is not. Ivory exostoses are usually found on the cranium. Figure 1 shows an example of an ivory exostosis on the cranium of an individual excavated from the Anderson village site in Warren County, Ohio.

Exostoses composed of cancellous bone (spongy or woven bone [Morse 1969: 17]) are likely to be osteocartilaginous exostoses. These osteocartilaginous exostoses can be caused by the long-term diseases mentioned above, or by bony build-up due to unusual muscle pull. The area of the tendon where precartilaginous tissue occurs can be affected by the disease or unusual muscle pull. This effect can cause an imbalance in the tissue, resulting in overproduction of cartilaginous tissue which will eventually ossify (form into bone). The result is a bony exostosis usually found near joint areas of the body where tendons and cartilage are located. Figure 2 shows an example of an osteocartilaginous exostosis of the proximal (upper), anterior (front) portion of a tibia from a circa 50 year old, male individual excavated from Mound #2 of the Hopewell Mound Group in Ross County, Ohio.

A type of exostosis which has attracted much attention and controversy from osteologists and paleopathologists is exostosis of the external auditory meatus. This defect, termed "ear exostoses" (Morse 1969:21) or "auditory exostoses" (Anderson 1962:154) has been observed to be prevalent in several populations. Hrdlicka (1935:82) states that "constitutional diseases, local pathological conditions, traumatism, irritations" are not the cause of ear exostoses. He seems to believe that head deformation and/or hereditary factors could be the causes of these exostoses. He implies that the exact cause of ear exostoses is higher in men than in women, and that certain populations have a higher frequency of this defect than others. He mentions Peruvians and those "among the tribes with fronto-occipital head deformation of the Columbia watershed, and in the Tennessee-Ohio mound and stone grave region" (1935:16) as having perhaps the highest incidence of ear exostoses of the populations studied. He also acknowledges the complete lack of ear exostoses in certain other populations. Finally, he states that the maximum frequency of their development ranges from adolescence to middle age (1935:80).

Much attention has been given to mouth exostoses by oral surgeons as the surgical removal of these exostoses is sometimes necessary when the patient must be fitted for dentures. Torus palatinus is an exostosis found on the palate of the maxilla. According to Shafer et. al. (1958:114), women are affected more frequently than men. This is

contrary to the determination of frequency by sex of ear exostoses as determined by Hrdlicka. Occurrence of torus palatinus occurs at about the same age level as ear exostoses, however, reaching "its peak incidence shortly before the age of 30" (Shafer et. al 1958: 114). It also, as in ear exostoses, occurs more frequently in certain populations than in others. Taken together, an increased incidence of torus palatinus in one sex and in certain well defined populations might suggest an hereditary factor.

Torus mandibularis is an exostosis of the lingual surface of the mandible (the side toward the tongue [Bass 1971:213]). According to Shafer et. al., (1958:117) there are no differences of occurrence between the sexes. Occurrence before the age of 30 seems to be the rule and it seems to be population related, as is the case with torus palatinus and ear exostoses.

A third type of mouth exostosis is that of multiple exostoses usually found above the molar region of the maxilla. No statistics pertaining to age, sex, or population relations were found by this author. An example of multiple exostoses of the mouth is shown in Figure 3 of the same individual as in Figure 2.

Exostoses are usually not extremely deleterious to the afflicted individual. Chronic discomfort is often the most severe result of long-standing exostoses. As mentioned previously, exostoses of the mouth are sometimes surgically removed so that the patient can be fitted for dentures, or because they are so large as to interfere with mastication (chewing) and/or speech. Ear exostoses can sometimes become so large as to interfere with hearing (Hrdlicka 1935:19). Although the effect of exostoses is usually not extremely severe to the afflicted individual, there have been cases in which the result is deformation and/or fatality. "Hereditary deforming chondrodysplasia . . . denotes a distinct clinical form of exostoses in which the multiple occurrence of such tumors (some researchers identify exostoses as tumors) in a single patient is accompanied by numerous other skeletal deformities, such as bending and shortening of the bones and widening and irregularity of their metaphyseal ends" (Geschickter and Copeland 1931:57 parentheses mine). This is perhaps the severest form of exostosis.

The occurrence of several of the varieties of exostoses mentioned above are evidenced in Ohio's archaeological record (Fig. 1-3). This fact does not suggest that Ohio's prehistoric populations were more or less healthy than modern populations. It attests only to the fact that they were afflicted by a pathology in existence since ancient times. Moodie (1923:86) states that on an early "apelike form" *(Homo erectus)* found by Dubois in Java in 1894 "the femur shows marked exostoses indicating the presence of a pathological condition of great severity. This is the oldest evidence of pathology (exostosis) in a humanoid form" (parentheses mine).

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Fig. 1 (Harold) Ivory exostosis on cranium of individual excavated from Anderson village site in Warren County, Ohio.

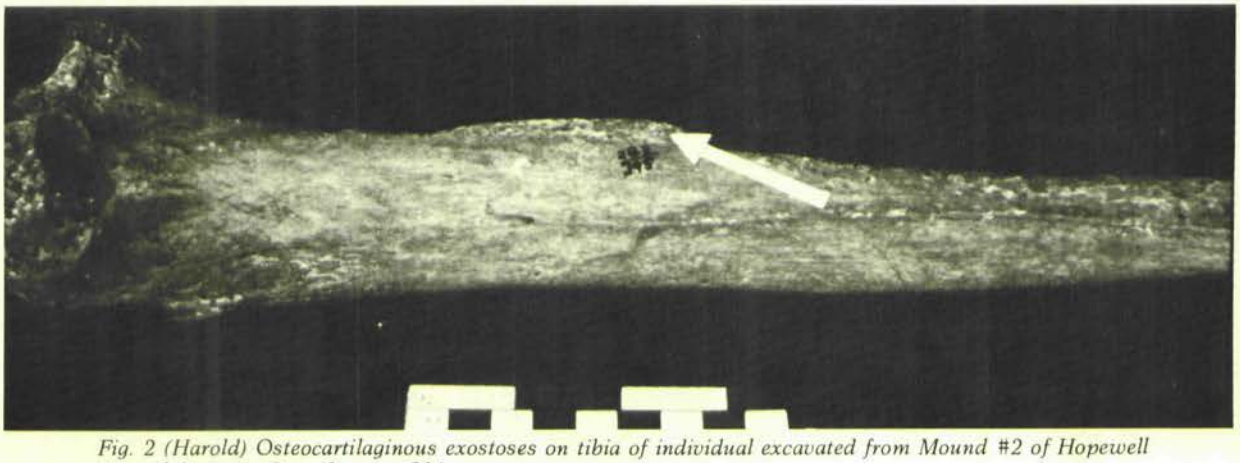

Fig. 2 (Harold) Osteocartilaginous exostoses on tibia of individual excavated from Mound #2 of Hopewell Mound Group in Ross County, Ohio.

Fig. 3 (Harold) Multiple exostoses of mouth on maxilla of individual excavated from Mound #2 of Hopewell Mound Group in Ross County, Ohio. Skull on right is comparative normal skull.

Artifacts from the McQueen Collection

by
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Pictured in the accompanying photographs are three points and one celt. The fine pentagonal point (Figure 1) measures 5.3 cm in length and is made from Coshocton flint. The larger point (Figure 1) measures 8.8 cm in length and is made from white chert. Both specimens were found several years ago in Bucks Township, Tuscarawas County, Ohio.

The dovetail point (Figure 2) was found by William G. McQueen in 1973 while surface hunting along the Scioto River in Ross County north of Chillicothe, Ohio. It measures 7 cm in length and is manufactured from pink and white Flint Ridge flint.

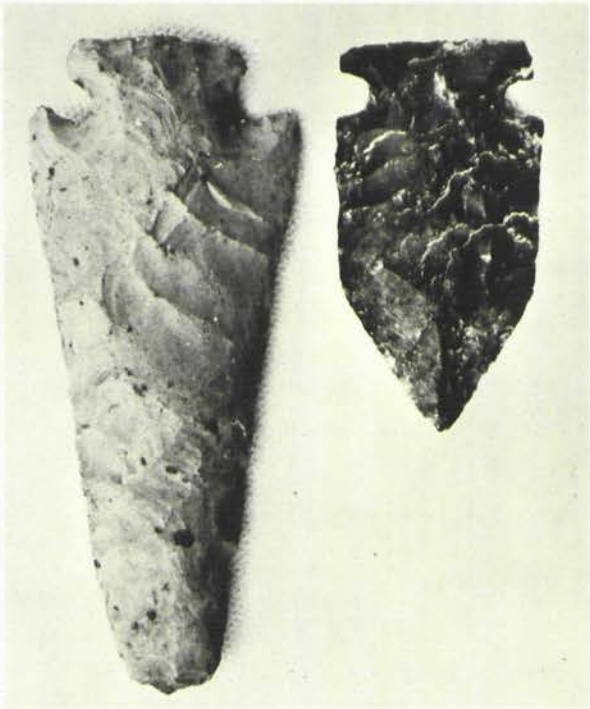

Figure 1.

The celt (Figure 3) is made from green speckled granite and measures 10 cm in length. It was found by William G. McQueen while surface hunting along the Scioto River south of Chillicothe, Ohio.

Figure 2.

Figure 3.

The Libben Site, Ottawa County, Ohio
Part I: Environment, Excavation and Temporal Position

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Abstract

The Libben Site, Ottawa County, Ohio is unique by virtue of the fact that it has yielded skeletal remains representing over 1,500 individuals. It is likely in fact, that this early Late Woodland site is the largest prehistoric Indian cemetery yet discovered in North America.

This series of articles presents for the first time, a synoptic overview of inferences generated by the results of over ten years of archaeological analysis of the Libben assemblages.

Introduction

The Libben Site was initially discovered in 1966 by Dr. Orrin C. Shane, III as the result of a routine archaeological survey. Excavation of the site subsequently commenced under the direction of Dr. Olaf H. Prufer during the field seasons of 1967 and 1968. Field crews consisted of students from the University of Massachusetts and Case Western Reserve University.

Location

The site is located in Ottawa County, northwestern Ohio, within section thirty-three of Erie Township. It is situated on a sandy knoll on the north bank of the Portage River, approximately four miles due west of Port Clinton and two and one-half miles southwest of the Lake Erie shoreline. Geographical coordinates of the site are 41° 30′ 40″ north latitude and 83° 02′ 06″ west longitude.

The locus occupied by the site describes an elliptical area approximately one acre in extent and maximum elevation of the site is 580 feet above sea level. The present Lake Erie water level is 573 feet above sea level and data based upon Moore (1948) indicates that at present, the lake is within one foot of its projected level during the Libben Phase occupation of the area.

Environmental Variables

The contemporary climate in the area of Libben is characterized by damp, often overcast with fog, temperate conditions with a relatively long growing season, year-round distribution of precipitation and moderate temperature extremes. Meteorological data from nearby reporting stations at Put-in-Bay and Catawba Island indicate mean annual temperature extremes ranging from 27.7°F in January to 75.0° in July, with a mean annual precipitation of 28.19 inches and average relative humidity of 70.0%.

Flora and fauna analyses (Shane n.d. and Christen n.d.) suggest that climatic conditions during the primary occupational phase of the site did not significantly differ from contemporary conditions.

The most important ecological factor relevant to the site is its location within the northeast corner of the once extant Black Swamp. According to Kaatz (1953:6) the Black Swamp once involved an area of about 1,500 square miles; extending in an east-west direction from the Sandusky River to the Maumee River and in a north-south direction from Lake Erie to the Defiance-Ft. Wayne glacial moraine. Endemic resources apparently included mammalian species such as raccoon, grey fox, bobcat, cottontail rabbit, white-tail deer, beaver, woodchuck, muskrat, black bear; various species of birds and migratory waterfowl; piscine species including pike, walleye, suckers, catfish, bass and drum and a myriad of flora genera including various oaks and hickories, sedges and grasses.

Excavation

After preliminary reconnaissance and survey of the locale, the site apex was chosen as alpha datum. The site baseline and meridian were then established and a control grid employing five-by-five foot squares constructed. Routine excavation of an area of about 30,000 square feet then commenced.

Fine mesh screening was used to recover term and pre-term infants and debris from refuse pits was processed by flotation. Recovery of all other materials was subject to normal precautions and technique.

The soil at the site is identifiable as #9542, Ottawa Fine Loamy Sand, with a pH value ranging from 6.5 to 7.0. Along the site baseline, the following generalized stratigraphic profile was revealed:

A) Surface to 10 inches—plow zone; black loam with high humus content, contain-

ing faunal and human skeletal fragments, pottery sherds, charcoal and other cultural material.

B) Ten inches to 36 inches—sandy loam; with burials usually found within 10 to 24 inches from the surface; 24 to 36 inches usually sterile.

C) Thirty-six inches and below—hardpan clay; no cultural material.

With reference to site stratigraphy, the occurrence of most burials within an elevated, relatively well-drained, loose, sandy matrix most likely accounts for the exceptionally well-preserved nature of recovered skeletal material.

Temporal Position

Five charcoal samples were recovered from various features at the site and submitted for radiocarbon age determination. Dates yielded by three of the samples, i.e., GX-1409 (A.D. 720 ± 105), GX-1410 (A.D. 865 ± 120) and GX-1365 (A.D. 955 ± 110) are suggested as being representative of an essentially single-component, primary utilization of the site (Romain 1979:28). This assertion is based upon the observation that the three above-mentioned charcoal samples were found in direct association with features containing pottery sherds and lithic and bone artifacts manifesting no significant typological differences from assemblages found in association with the burials.

Evaluation of the site as primarily single-component is further suggested by: 1) the uniformity of observed burial patterns in terms of type, orientation and accouterments; 2) the apparent physical uniformity of the skeletal population; 3) the obvious lack of cultural stratification; 4) the continuous nature of the cemetery in regard to utilization of available land area; and 5) the occurrence of typologically uniform artifact material distributed evenly throughout the site.

Of minor importance, a transient post-Libben Phase utilization of the site is indicated by appraisal of radiocarbon dates yielded by samples GX-1317 (A.D. 1280 ± 85) and GX-1740 (A.D. 1310 ± 104). These charcoal samples were found in association with intrusive occurrences of Parker Festooned and Mixter Tool-impressed sherds.

Finally, it is suggested that the primary utilization of the site encompassed a time span of approximately 200-250 years. This projection is based upon a considered evaluation of the radiocarbon data and additional, corroborating evidence; i.e., analyses of recovered ceramic, lithic and bone assemblages as well as observed burial patterns and disposal of burials goods indicate an extremely homogeneous patterning in terms of defining attributes and spatial distribution. This is typically characteristic of a relatively short functional time span.

Summary

The Libben Site is essentially a single-component early Late Woodland village-cemetery complex, located within the once extant Black Swamp of north-western Ohio. The functional time span of the site is suggested as about 225 years, between the years ca. 735 A.D. and 955 A.D.

Subsequent articles will discuss inferences related to the subsistence-settlement system, social organization and relationship of the Libben Site to historic tribes and linguistic groups.

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The Libben Site, Ottawa County, Ohio
Part II: The Subsistence-Settlement System

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Abstract

Archaeological excavations at the Libben Site (a single-component, early Late Woodland site in northwestern Ohio) revealed a profuse quantity of artifact material recovered from all excavated units including: approximately 115 features i.e., deep refuse pits, hearths and various sheet middens; various post-hole patterns; extensive faunal remains; and undoubtedly the largest intact prehistoric skeletal population yet recovered in North America. This article, the second in a series, presents a succinct outline of the subsistence-settlement behavioral strategies inferred of the primal Libben inhabitants.

Introduction

The vertebrate fauna assemblage recovered from the site is quite extensive and includes a total of approximately 301,500 pieces of bone. Analysis of the collection (Shane n.d.) resulted in the identification of twenty-five species of mammals, eleven species of fish and twenty-eight species of birds (7.3% of total faunal assemblage was identified to the generic or specific level).

The recovered floral assemblage is somewhat meager, most likely due to the results of rapid organic decay. However, analysis of the collection (Christen n.d.) resulted in the identification of the charred remains of ten flora genera.

Biotic Resource Utilization

In terms of faunal dietary composition, fish were of major importance providing 78.3% of the total projected poundage of usable meat contributed by all utilized faunal species (Romain 1979:50). Freshwater drum *(Aplodinotus grunniens)* seems to have been of particular economic significance, accounting for over 37% of all usable meat provided by fish; followed by Walleye *(Stizostedium vitreum),* providing 13% of all usable meat provided by fish and Catfish and Bullhead *(Ictaburidae),* also providing 13% of all usable meat provided by fish. Other utilized fish species included Bass *(Micropterus sp.),* Pike *(Esox sp.)* and Sucker *(Castostomus sp.).*

Mammals provided only 20.2% of the total projected poundage of usable meat contributed by all utilized faunal species (Romain 1979:50). White-tail deer *(Odocoileus virginianus)* appears to have been of great economic importance, accounting for over 63% of all usable meat provided by mammals. Other utilized mammalian species included Raccoon *(Procyon lotor),* Black Bear *(Ursus americanus),* Elk *(Cervus canadensis)* and Muskrat *(Ondatra zibethica).*

Birds seem to have been of little importance for subsistence, providing only 1.4% of the total projected poundage of usable meat contributed by all utilized faunal species (Romain 1979:50).

Analysis of charred floral residuum revealed the presence of 224 Hickory nut *(Carya sp.)* shell fragments, 412 Acorn *(Quercus sp.)* shells, 82 kernels of Corn *(Zea mays)* as well as lesser quantities of Raspberry *(Rubus sp.)* Hackberry *(Celtis sp.)* and Dock *(Rumex sp.)* seeds. Evidently, acorn and hickory nuts were of great economic importance and it is interesting to note that both may be easily stored for winter use.

Perennial occupation of the site is inferred by the recovery of antlered and antler-less deer elements, the occurrence of certain migratory waterfowl and of course, the seasonal availability of recovered floral remains. The seasonal subsistence pattern probably involved dependence upon tubers, buds and possibly sap in early spring; greens from late spring to early summer; berries from summer to early winter; the utilization of fish on a year-round basis although of primary importance during spring, summer and autumn months; and the exploitation of mammalian resources also on a year-round basis but of primary importance during winter and early spring months. It is uncertain that deliberate Corn *(Zea mays)* cultivation was practiced.

Finally, additional resource utilization apparently included local flint sources for the manufacture of tools and weapons, local clay sources for pottery, avian and mammalian bone for tools and ornaments, shell for ornaments, local stone for tools and weapons, ochre for ceremonial purposes and wood for fires and construction.

Technological Methods of Resource Exploitation

The absence of gross size variation among recovered fish species suggests that mesh gill nets or weir traps were the preferred method for the taking of fish.

The high incidence of relatively low meat-yielding mammalian species such as muskrat, squirrel and raccoon may be associated with the selection of those species for pelts. Trapping is suggested as the most likely means for the taking of such smaller aquatic, arboreal or nocturnal species.

The recovery from the site of pestles and milling stones which would have enabled efficient preparation of nuts, seeds and berries demonstrates the importance that these foods probably had for the primal site population; and the high incidence of large, modestly decorated pottery vessels (Fossett 1975) is suggestive evidence for the storage of such foods for later utilization, perhaps during winter months.

Five intentional dog burials were recovered from the site, and although there is no direct evidence supporting the conclusion that dogs *(Canis familiaris)* were utilized for hunting purposes, it is obvious that they would have been a valuable adjutant particularly when species such as fox, raccoon, bobcat and bear were hunted.

Settlement Pattern

Several post-hole patterns suggestive of circular house structures roughly 25 feet in diameter were observed at Libben along with associated hearths and refuse pits. Additionally, other post-hole patterns suggest that a double-walled palisade-type structure extended around the periphery of the village, to the river's edge on either side of the village.

In addition to its strategic location and easily defended perimeter, adjunctive factors including the close proximity of water, abundance of nearby food resources, easy access to fuel resources, location on high, dry ground with good drainage and relatively mild climate effectively contribute toward assessment of the site as having been ideal for habitation.

Auxiliary sites directly related to the primary Libben settlement are unknown at this time and there seems to have been no attempt to modify the surrounding environment by the use of fire, extensive agricultural practices or construction of earthworks.

Summary

Relevant data indicates that the primal Libben Site was perennially occupied by a sedentary, village-dwelling population that was particularly well-adapted to the surrounding environment. Archaeological evidence further suggests that riverine or aquatic, deciduous forest and open woodland zone biotic resources were efficiently exploited by means of specialized and selective fishing, trapping, flora-gathering and hunting methods.

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n.d. Faunal Remains from the Libben Site, Ottawa County, Ohio. In preparation.

Two Ohio Effigy Types: A Proposed Classification

by D. R. Gehlbach
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Speculation abounds as we review published articles on the variety of human effigy sculptures found randomly throughout the state of Ohio. In the writer's research he found that two forms predominate. Type one which might be designated a "pre form" effigy (figure 1) usually consists of the human face in a primitive three dimensional pose lacking overall symmetry and finished configuration. Type two is a more detailed facial portrayal with specialized decoration such as the symbolic "weeping eye" motif. The latter type also bears an unmistakable Fort Ancient family affiliation (figure 2).

The first type is characterized by incomplete attention to both detail and form, and the major portion of the effigy appears to be unfinished. Other than occasional ear and hair incising the carved face appears out of context in relation to the notable mass or bulk of the raw material. Perhaps the totemic representation required only facial portrayal. Unfor-

Fig. 1 (Gehlbach) Massive sandstone effigy found in Licking County, Ohio, "Black Hand" gorge area.

tunately, since most examples are disassociated field finds we have negligible support for a cultural affiliation or age. From the style of workmanship and presumed portraiture, they may be dated in the early historic period. Most of the Ohio effigies are crafted from sandstone.

The second type also commonly crafted in sandstone presents more identifiable clues on use and age. In contrast with the massive first type most examples are relatively flat or even oval in cross section. A circular perforation typically located on the back side would logically place them at the end of some form of ceremonial stick or pole. They may have been significant cult talismans. The symbolic weeping eye motif would lend support to both ceremonial usage and a deified representation. As indicated, this type of facial decoration has been documented as a Fort Ancient expression. As such they appear late in pre-columbian Ohio.

It is proposed that the pictured effigies while portraying the human face in a three dimensional representation have little cultural or temporal relationship. In fact it has been suggested that the undocumented type may be the creation of the early settlers in the area. Further information on this possibility is not readily available to the writer. He would appreciate any information on this subject from Society members.

Fig. 2 (Gehlbach) Oval sandstone effigy found in Scioto County, Ohio.

An Interesting Engraved Pendant

By
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The late Phil Kientz, who was a long-time member of the ASO, collected the pendant in the illustrations many years ago in Ross County, Ohio. Unlike many engraved pieces, it portrays recognizable animals. In addition to the subject matter, the engraving itself is done boldly and with deeply incised lines, in contrast to the numerous engravings which are little more than faint scratchings.

On the obverse are two birds facing each other. The depictions are somewhat stylized and it is difficult to determine the species. Some people who have handled the piece suggest that they are turkeys while others think that they may be wading birds. Wild turkeys were an important part of the aboriginal diet and turkey bones make up a great deal of campsite refuse. The legs seem to be too short for most aquatic birds such as the heron or crane. To support the wading bird thought, the reverse has another bird, similar to the two on the obverse with slight differences, but it is superimposed by an engraving of a turtle, also done in a stylized manner.

Although I have nothing specific to compare the piece with, I have the impression that it is Fort Ancient with analogies to be found in some of the petroglyphs in southern and eastern Ohio.

Fig. 1 (Converse) Obverse of engraved banded slate pendant from Ross County, Ohio. Note that each bird is done in a slightly different style.

Fig. 2 (Converse) Reverse of pendant. Another bird is shown but is superimposed by the engraving of a turtle.

Paleodemography At The Eiden Site

by
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Abstract

Skeletal remains from a protohistoric (A.D. 1490) population from Lorain County provided information on mortality patterns in one of Ohio's early American Indian societies. At birth, life expectancy for the population was 26.9 years, with a mean age at death of 5.4 years for infants and children, 37.4 years for adult males, and 37.1 years for adult females. The highest age specific mortality for the subadults (33%) occurred in the age class 0 to 1.9 years. For adult males (22%) the highest rate was between 30 and 35 years of age, while for adult females (21%) is was between 25 and 30 years. For all the individuals at Eiden, mortality was associated with the presence of infectious disease. Approximately 76% of the population displayed osseous evidence of serious infectious lesions.

Introduction

Mortality, aside from the traumatic impact on an individual and social unit, has its greatest evolutionary significance as a selective agent. The consequences of mortality are both immediate and long range. Immediate consequences include alterations in the age and/or sex composition of a group; whereas, the long range effects occur on a genetic level and influence the adaptation, evolution, and survival of a group.

The analysis of mortality in prehistoric human populations is referred to as paleodemography. In such studies, researchers attempt to reconstruct and interpret some of the vital statistics of an extinct society. These statistics can include estimations of mortality rates, the probability of dying, life expectancy, average age at death, survivorship, and sex ratio. These data, in turn, can be employed in an attempt to understand some of the biological and cultural processes at work in the population. The demographic data provide the paleoanthropologist with an important insight into the reproductive capacity, and ultimately the evolutionary potential of a population.

At Eiden, archaeological and skeletal remains from the site were used to reconstruct and interpret a mortality profile for the population. The site, which is located on the French Creek near the present town of Sheffield in Lorain County, Ohio is a Late Woodland ossuary and habitation site that was radiocarbon dated (W-535) at A.D. 1490± 55 years (McKenzie *et al.* 1973). According to McKenzie and co-workers (1973) Eiden was a single occupation site which was inhabited by a population for a period of 20 to 50 years. Post-mold patterns implied the presence of rectangular dwelling structures and midden remains suggested a diet which relied heavily upon the surrounding wild flora and fauna. These foodstuffs included a wide variety of wild plants, large and small mammals, and a large number of freshwater species (see McKenzie *et al.* 1973: 33-49, for a complete listing of dietary remains and discussion of general archaeology).

Materials and Methods

A total of 146 articulated human burials from the site were aged, sexed, and observed for skeletal pathology (see Lallo and Blank, 1977 for a summary of the procedures employed). Of the 146 burials, 26.7% (39) were identified as subadults less than 15 years of age, and 73.3% (107) as adults. For the adults, 52.3% (56) were identified as females, and 47.7% (51) as males. In general, the analysis of skeletal pathology was based on gross macroscopic and radiographic examination. The analysis of paleodemography was based on the use of the life table (see Swedlund and Armelagos, 1976 for a complete discussion on the calculation and interpretation of a life table).

Results

A Composite Life Table (Table 1) was constructed for the entire Eiden population for ages 0 through 55 inclusive. At birth, life expectancy was 26.8 years and the probability of dying between birth and 1.9 years of age was .089. An examination of the dx values suggests that there were several critical age classes for the population during which they experienced an increase in stress and an inflation of mortality. For the subadults, this age period was between birth and 1.9 years of age; it was during this period that they experienced their highest mortality and probability of dying. The adults had several critical

age periods during which mortality rates were increased. The first period was between 25 and 29.9 years with a 13.7% mortality rate. The second period occurred between 30 and 34.9 years of age with a mortality rate of 14.4%. A third critical age period was noted between 40 and 44.9 years with an age specific mortality rate of 10.9%. During each of these age classes mortality at Eiden reached a peak. This finding suggested that each of these age classes represented critical periods during the life of an individual from Eiden, and that as a population Eiden experienced higher mortality rates and higher probabilities of dying in these age classes.

An interesting perspective can be gained on population mortality by summing the dx values (see values in parentheses in dx column of Table 1) and obtaining the cumulative frequency of mortality. For example, by the age of 9.9 years 21.9% of the population had died. By the age of 19.9 years, 32.2% had died, and by the age of 39.9 years 74.6% of the Eiden population had died. As can be seen, by the age of 55 years, 97% of the population had died.

An explanation of the ex° column provides data on age specific life expectancy. That is, once an individual has completed a given age class they can expect to live a specified number of years. For example, once an individual has completed the age class 0 to 1.9 years, that individual can then expect to live an additional 26.8 years, or until the age of approximately 28 years. Once an individual has completed the age class 10-14.9 years and is 15 years of age that individual can expect to live an additional 23.4 years, or until the age of 38 years (15 plus 23.4 equals 38 years). Likewise, once an individual has reached the age of 40 they can then expect to live an additional 10 years, or until the age of 50 years. As might be expected, life expectancy decreases as a person ages. At Eiden, none of the burials were estimated to be older than 55 to 60 years of age. Ageing techniques do not permit an accurate estimation of biological ages greater than 55 years.

By separating the Eiden skeletal population according to age and sex it was possible to calculate individual life tables for subadults (Table 2), adult males (Table 3A), and adult females (Table 3B). For the subadults, life expectancy was 5.4 years, and the highest age specific mortality occurred in the age class 0 to 1.9 years with 33% of the subadults dying. The second highest mortality (28%) occurred in the age class 5 to 9.9 years.

For the adult males, life expectancy for a 19 year old male was 19.8 years, with the highest age specific mortality (21.5%) occurring between the ages of 30 and 34.9 years. The age classes 25 to 29.9 and 45 to 49.9 had the second highest rate with 15.6% of the males dying in each of these age periods (Table 3A). For the adult females, life expectancy for a 19 year old female was 19.5 years, and the highest age specific mortality occurred in the age class 25 to 29.9 years. By comparing male and female mortality it can be noted that the peak of female mortality occurred earlier than the male peak. Females had two other periods of high mortality, one (17.8%) in the age class 30-34.9, and a second (17.8%) in the age class 40-44.9 years (Table 3B).

Discussion

The Eiden life table enables us to make general descriptive statements regarding age specific mortality, survivorship, probability of dying, and life expectancy. An important objective of this paper is to go beyond the descriptive level and to interpret the demographic data. A recent paper (Mensforth *et al.* 1978) has demonstrated the close association of infectious disease and mortality in prehistoric skeletal populations. Also, Lallo and Rose (1979) have noted that mortality at the Dickson Mounds site was directly related to the frequency of infectious disease. The authors noted that as the frequency of infectious disease increased the rate of mortality also increased, and as infectious disease decreased so did mortality.

The frequency of infectious disease for the entire Eiden population was 76% (111), and the difference in frequency of occurrence between those with and those without infectious disease was statistically significant at the .001 level ($X^2 = 19.8$). The frequency of infectious disease among the subadults was 71.8% (28), and the observed difference between pathological and non-pathological was significant at .05 ($X^2=4.6$). For adult males, the frequency of infectious disease was 84.3% (43), and the difference between those with the lesion and those without was significant at .001 ($X^2 = 12.9$). The frequency for adult females was 78.6% (44), and the observed difference was significant at .01 ($X^2 = 9.1$). In general, infectious disease was found to occur in most of the people at Eiden, and because of the severity of its expression may have been an important factor in the mortality experiences of the population.

For example, the highest age specific mortality rate for subadults occurred in the age class 0 to 1.9 years. Of the 13 individuals

in this age class, 84.6% (11) exhibited osseous evidence of infectious disease. The difference between affected and non-affected was significant at .05 ($X^2 = 4.2$). For adult males, the highest mortality rate occurred between the ages of 30 and 34.9 with 100.0% of the males (11) in that age class exhibiting infectious disease. The observed difference was significant at .001 ($X^2 = 36.0$). The highest mortality rate (83.3%) for adult females occurred in the age class 25 to 29.9 years (12). The observed difference was significant at .05 ($X^2 = 4.2$).

In general, it can be suggested that infectious disease occurred at statistically significant levels in subadults, adult males, and adult females. The presence of infectious disease may be employed to interpret the mortality pattern described by the life table. Using skeletal material and techniques of paleodemography and paleopathology, we are able to make some interpretive statements concerning the morbidity and mortality of one of Ohio's early American Indian societies.

Acknowledgments

I express my thanks to the Lorain County Metropolitan Parks Commission for the use of the Eiden skeletal material.

Table 1. Composite Life Table For The Eiden Population For Ages 0 Through 55+.

x	dx'	dx	lx	qx	Lx	ex^0
0- 1.9	13	8.90	100.00	.089	191.10	26.8
2- 4.9	8	5.47(14.37)	91.10	.060	265.10	27.4
5- 9.9	11	7.54(21.91)	85.63	.088	409.30	26.1
10-14.9	7	4.79(26.70)	78.09	.061	378.48	23.4
15-19.9*	8	5.47(32.17)	73.30	.075	352.83	19.7
20-24.9	12	8.22(40.39)	67.83	.121	318.60	16.1
25-29.9	20	13.70(54.09)	59.61	.230	263.80	12.9
30-34.9	21	14.38(68.47)	45.91	.313	193.60	11.1
35-39.9	9	6.16(74.63)	31.53	.195	142.25	10.0
40-44.9	16	10.95(85.58)	25.37	.432	99.48	6.8
45-49.9	13	8.90(94.48)	14.42	.617	49.85	5.1
50-54.9	5	3.42(97.90)	5.52	.620	19.05	4.4
55+	3	2.10(100.0)	2.10	1.000	5.25	2.5
Total	146	100.00	0			

*For Ages 15 Through 55+ Males And Females Were Combined.

x—Age Class
dx'—Actual Number Of Burials For A Given Age Class
dx—Age Specific Mortality Rate (i.e., the percentage of the population dying in each age class)
lx—Survivorship (i.e., the percentage of the population surviving in each age class)
qx—The Probability Of Dying In A Given Age Class
Lx—The Total Number Of Years Lived By All The Members Of A Given Age Class
ex^0—Life Expectancy (i.e., the mean number of years an individual can expect to live after they have completed a given age class)

Note: The values in parentheses in the dx column represent the cumulative percentage of mortality.

Table 2. Composite Life Table For The Subadults Of Eiden.

x	dx'	dx	lx	qx	Lx	ex^0
0- 1.9	13	33.33	100.00	.333	166.67	5.4
2- 4.9	8	20.51(53.84)	66.67	.308	169.25	5.6
5- 9.9	11	28.21(82.05)	46.16	.611	160.27	4.4
10-14.9	7	17.95(100.0)	17.95	1.000	44.88	2.5
Total	39	100.00	0			

Note: See Table I For Legend.

Table 3A. Composite Life Table For Adult Males From Eiden.

x	dx'	dx	lx	qx	Lx	ex°
15-19.9	5	9.80	100.00	.098	475.50	19.8
20-24.9	4	7.84(17.64)	90.20	.087	431.40	16.7
25-29.9	8	15.69(33.33)	82.36	.191	372.58	13.1
30-34.9	11	21.57(54.90)	66.67	.324	279.43	10.6
35-39.9	6	11.77(66.67)	45.10	.261	196.08	9.5
40-44.9	6	11.77(78.44)	33.33	.353	137.23	6.9
45-49.9	8	15.69(94.13)	21.56	.728	68.58	4.3
50-54.9	2	3.92(98.05)	5.87	.669	19.55	4.2
55+	1	1.95(100.0)	1.95	1.000		
Total	51	100.00	0			

Note: See Table 1 For Legend.

Table 3B. Composite Life Table For Adult Females From Eiden.

x	dx'	dx	lx	qx	Lx	ex°
15-19.9	3	5.36	100.00	.054	486.60	19.5
20-24.9	8	14.29(19.65)	94.64	.151	437.48	15.2
25-29.9	12	21.43(41.08)	80.35	.267	348.18	12.8
30-34.9	10	17.85(58.93)	58.92	.303	249.89	11.5
35-39.9	3	5.36(64.29)	41.07	.131	191.95	10.5
40-44.9	10	17.85(82.14)	35.71	.499	133.93	6.8
45-49.9	5	8.93(91.07)	17.86	.500	66.98	6.0
50-54.9	3	5.36(96.43)	8.93	.600	31.25	4.5
55+	2	3.57(100.0)	3.57	1.000	8.93	2.5
Total	56	100.00	0			

Note: See Table 1 For Legend.

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Book Review

KOSTER Americans in Search of Their Prehistoric Past by Stuart Struever and Felicia Antonelli Holton. Anchor Press/Doubleday, Garden City, New York, 1979. Price: $12.95

Little did anyone know one late summer day in 1968 that the finding of two drilled plummets in an Illinois cornfield would open the door at least 9,000 years into the past. Thus began the massive excavation of the Koster site, which was, at time of publication of *KOSTER Americans in Search of Their Prehistoric Past,* still taking place in the lower Illinois River valley.

In their fascinating account, the authors take the reader down through 26 layers and least 13 different horizons, the earliest to date being an early Archaic occupation, 7500-6700 B.C. Dr. Struever describes the frustrations and triumphs as the many volunteers struggled under less than ideal circumstances to establish their headquarters, now known as the Center for Archaeological Research which operates the Kampsville Archaeological Center for Northwestern University. Struever speaks to the amateur, clearly explaining archaeological terms, as well as to the more seasoned enthusiast—detailing the theories and methods of the "new" archaeology, which have enabled us to put together a more complete picture of the lives of our prehistoric ancestors.

The final chapter, an account of a day at Koster in 3500 B.C., is so real that the reader feels he has taken a trip into the past. This outstanding story of one of the most important archaeological treasures in North America reads like a novel, contains many color and black and white photographs, and is beautifully illustrated. A must for your collection.

Marybeth Albin
Dublin, Ohio

Necrology

Long time ASO member Bill Phillips passed away Sept. 27, 1979 at Findlay, Ohio.

Regional Collaborators News

R. L. Harter
Delaware, Ohio
Delaware County Finds

Fig. 1 (Harter) A large Early Archaic bifurcated base point. The material is black Coshocton flint.

Fig. 3 (Harter) A beautiful "T" base drill which was found in virgin soil. The material is a mottled gray Coshocton flint.

Fig. 4 (Harter) An excellent side notched point. This point was found with the point in figure one. The material is a light gray Coshocton.

Fig. 2 (Harter) A fine Ashtabula point. The material is a rare coloration of Coshocton flint consisting of orange and blue streaks on a translucent grey.

OBJECT OF THE SOCIETY

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.