Woodland Period Research In Kentucky

Edited by

David Pollack
Thomas Sanders
Charles Hockensmith

THE KENTUCKY HERITAGE COUNCIL

First Edition

Pictured on the cover is a Middle Woodland vessel recovered from the Watkins Mound in Logan County, Kentucky. (Illustration by Jim A. Railey)

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TABLE OF CONTENTS

PREFACE

The Kentucky Heritage Council's Second Annual Conference on Kentucky Archaeology was held at Western Kentucky University, Bowling Green, on March 8 and 9, 1985. During a two day period, 14 papers were presented on Woodland period archaeology in Kentucky. In addition to these formal papers, there were both impromptu presentations and informal discussions of current research. Of the formal papers, 10 were selected for publication in this volume. Also published here is a manuscript from the files of the Office of State Archaeology, University of Kentucky, dealing with their investigations of the Old Bear Site in Shelby County. Figure 1 illustrates the location of the Woodland sites discussed in this publication.

The Woodland Conference was a great success, and the presentations reflect both a renewed effort in academic research in Kentucky prehistory and an increased number of data recovery projects mandated by Federally funded and assisted undertakings. The presentation by Ottesen on Woodland settlement patterns in northwestern Kentucky was generated by a Federal Survey and Planning grant awarded by the Kentucky Heritage Council. Clay's investigations of Peter Village, Henderson and Pollack's analysis of the Late Woodland ceramics from the Bentley Site, and Ison and Ison's analysis of the Carroll Shelter materials were assisted by Kentucky Heritage Council State grants.

Federal undertakings requiring archaeological assessments and/or data recovery programs led to research-generating papers by Knudsen on vandalized rockshelters in the Daniel Boone National Forest, and Aument on excavations of mounds being destroyed by highway construction in Boyd County. The remaining five papers resulted from the ongoing research of individuals and institutions. These include Tune's discussion of Fayette Thick ceramics, Lawrence's report on ceramics recovered from Savage Cave, Brook's report on the Old Bear Site, Hemberger's analysis of skeletal remains from the Pit of the Skulls, and Clay's observations on an incident of Victorian archaeology in Kentucky.

In addition to the research reported on in this publication, the Kentucky Heritage Council recently awarded a Federal Survey and Planning grant to the University of Kentucky to reassess the concept of Adena in Kentucky. This project includes both field research and reinvestigation of existing records and collections. Conceived as a multi-year effort this project should generate important information on Early and Middle Woodland developments in central Kentucky.

Sponsoring the conference and bringing this volume to press within a reasonable schedule would have been impossible without the cooperation and contributions of various individuals and institutions. First, Western Kentucky University provided meeting facilities, and refreshments were donated by Dr. Jack Schock. To all the participants in the conference, including both those who gave scheduled papers as well as others who volunteered information on current research, we give our sincere thanks, for it is their efforts alone that determine the success of any conference, including this one. Coordination of the meeting, including registration and sales of publications, was handled by Rose

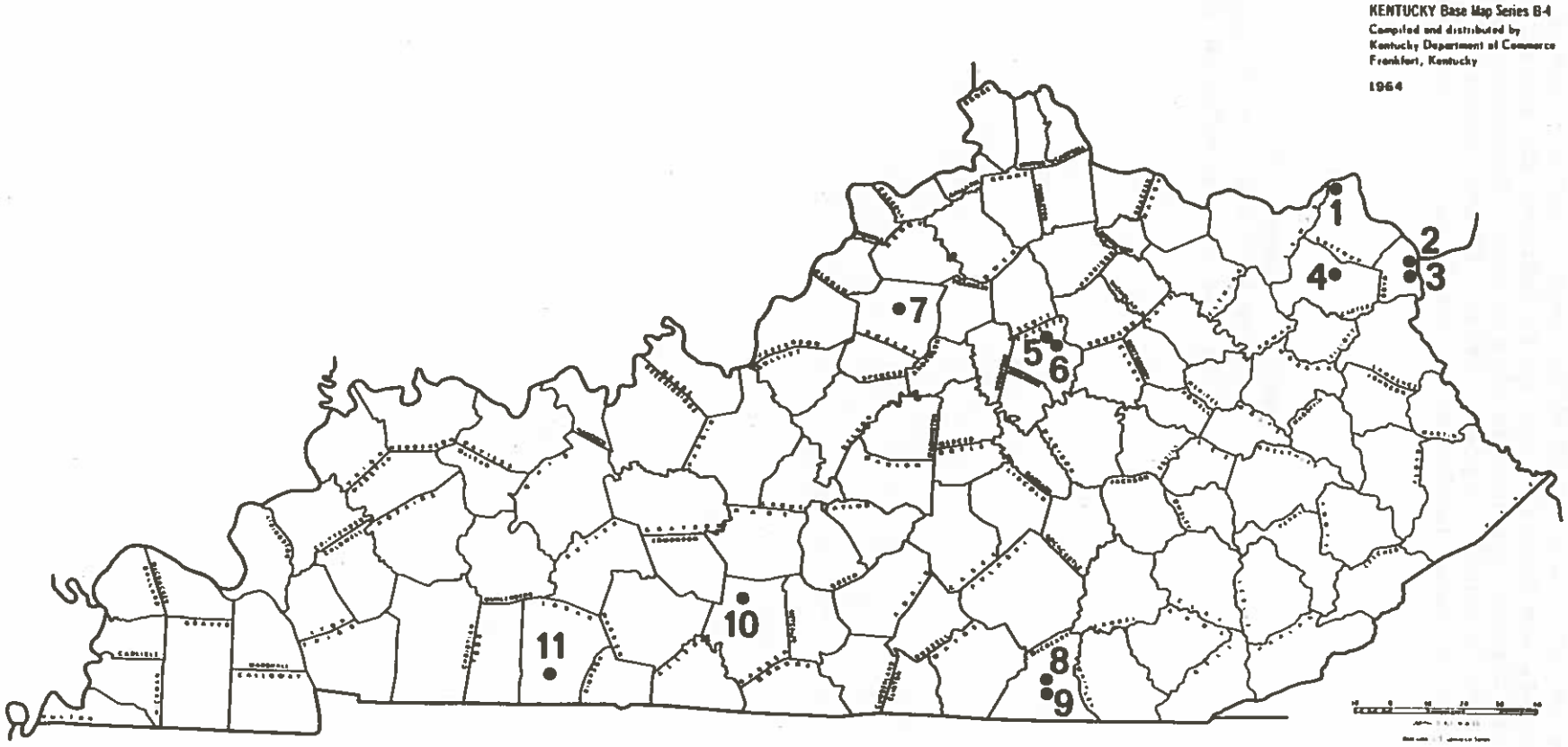

Figure 1. Sites Discussed in Volume: 1) Bentley, 2) Viney Branch, 3) Brisbin, 4) Carroll Shelter, 5) Grimes Village, 6) Peter Village, 7) Old Bear, 8) Campbell Shelter, 9) Tough Tree Shelter, 10) Pit of the Skulls, 11) Savage Cave.

Murphy of the Kentucky Heritage Council staff. During preparation of the conference report, Jim Railey of our staff designed the report cover, and drafted various figures included in this volume. Conference papers were typed by Felicia Hatchell, Raylette Smith, Yvonne Campbell, and Joyce Hatton. Finally, A. Gwynn Henderson and Jim Railey read and commented on each paper.

David L. Morgan, Director
Kentucky Heritage Council and
State Historic Preservation Officer

PETER VILLAGE 164 YEARS LATER: 1983 EXCAVATIONS

By
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ABSTRACT

Recent excavations at Peter Village (15Fa166), an oblong ditched enclosure, indicate that the site was primarily occupied from ca. 300 to 200 B.C. Initially the site was enclosed by a stockade. Instead of rebuilding the stockade after it deteriorated, the inhabitants of Peter Village appear to have excavated a ca. 2 m deep trench around the site. Two types of pottery were used during the life of the enclosure. The earliest was Fayette Thick, followed in time by Adena Plain. The transition from one type to the other occurred during the life of the site.

PREVIOUS RESEARCH

Peter Village was initially mapped during the third decade of the nineteenth century through the efforts of Constantine Rafinesque, the first individual in Kentucky to "systematically" describe archaeological sites. While this site was not mentioned in his "letter to Caleb Atwater of Circleville" dated July 12, 1820 (Rafinesque 1820), a hand-drawn map at the University of Kentucky indicates that he visited and mapped Peter Village on August 12 of that year (Figure 1).

Rafinesque (1821:53-57) later wrote a full description of this site for publication:

> The town is a large icosogonal monument of an oval shape, with twenty unequal sides, all straight except one. It lays nearly half a mile east of Major Meredith's farm & nearly as far south from the Creek, on a beautiful level. Its whole circumference is 3767 feet. It is surrounded by a ditch about 15 feet wide and 4 to 8 feet deep. It has no parapet; but the area appears to be somewhat higher than the outward ground. There are no mounds or remains inside. It has only one visible gateway on the south side. There must have been formerly a spring inside of it towards the west, there being a hollow in that direction emptying into a run. The direction of the oval is from S. W. to N. E. the narrow end being N. E. The longest side is S. E. being 500 feet long, it has south an arched, concave side. The smallest sides are 100 feet long, and there are many of that length.
>
> This must have been the site of a ditched town...

Rafinesque's description of Peter Village was quite accurate; in it the salient features of the site can be distinguished. For a variety of historical reasons, however, Rafinesque's description was never published. Later, he included Peter Village in a grouped tabulation of

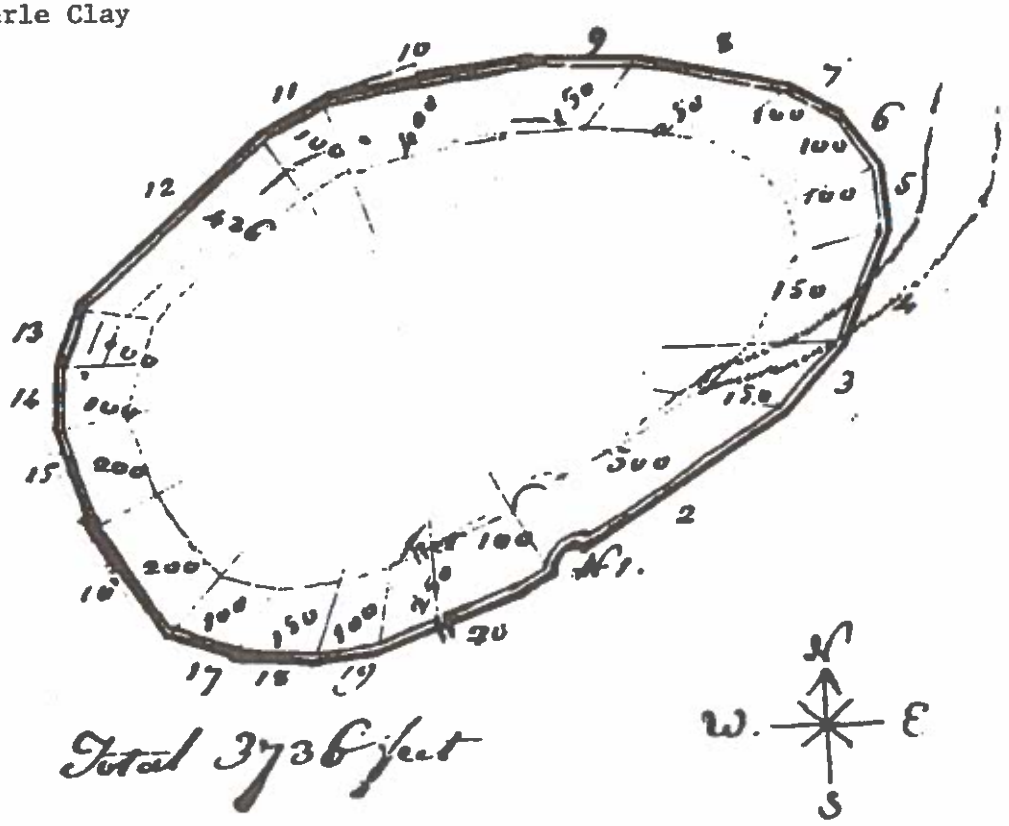

Figure 1. 1820 Map of Peter Village by Constantine Rafinesque (original in the Margaret King Library, University of Kentucky).

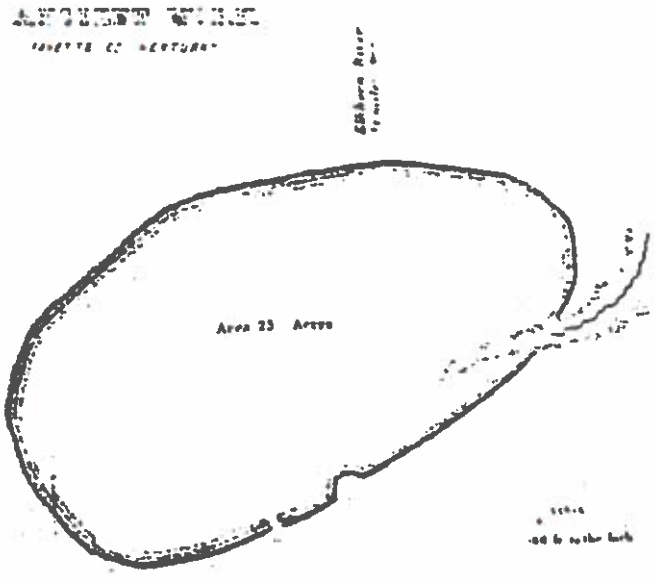

Figure 2. 1848 Map of Peter Village (Squier and Davis 1848: Plate XIV, No. 4).

archaeological sites in the state as an appendix to his fanciful notions of the "Alleghawian Nation" (Rafinesque 1824). Unfortunately, this publication presented neither his excellent plan of the site nor his accurate description. A version of the plan (Figure 2), although not the description, was published later by Squier and Davis (1848) in their "Ancient Monuments of the Mississippi Valley".

In 1847, Lewis Collins published a description of Peter Village based on measurements and possibly the observations made by Dr. Robert Peter (1873a, 1873b), by then a part owner of the site. In mid-century Kentucky, Dr. Peter, was essentially the archaeologist of note: a collector, early excavator, member of the state geological survey, and later a correspondent for the Smithsonian Institution. Collins' (1847:226-228) description is ambiguous. Quoting Peter (1873a:422), he gave the circumference of the site as 3,679.5 ft (1,115 m), which was close to Rafinesque's figure. This indicates that the two measured the same phenomenon. However, Collins commented that the shape of the enclosed area "is not unlike that of the moon when two thirds full", and this suggests that while Peter may have had a firm idea of the site boundaries, Collins did not. Finally, he gave the interior area as only 10 acres (4 ha), considerably less than the area suggested by either Rafinesque's or Peter's measurements.

It is possible that Collins' description was a product of his own examination of the site, and this discrepancy may reflect the filling of much of the ditch in the interval after 1820, which was no doubt initiated and accelerated by early land clearing and agriculture (c.f. Peter 1873a:423). Collins also indicated that the dirt from the ditch was thrown both in and outside the ditch, and sometimes both ways. This, at least, was at variance with Rafinesque's description, although it followed Peter (1873a:422).

Curiously, although Webb and Funkhouser (1932) cited Collins elsewhere, they made no mention of Peter Village in their early state surveys. Their main source for Rafinesque appears to have been his 1824 Annals with its brief, cryptic site list. While Rafinesque's list was hardly a precise guide to site locations anywhere in the state, let alone in the Bluegrass, the Collins reference was accurate for Peter Village. In addition, Webb and Funkhouser certainly knew and referenced Squier and Davis (1848). However, while that work included Squier's and Davis' interpretation of Rafinesque's excellent plan and might have prompted Webb and Funkhouser to look for it, the site location of Peter Village was very sketchy.

For Funkhouser and Webb in their pre-professional days, one of Rafinesque's group of sites on Elkhorn Creek was, the small well-preserved circular enclosure on the banks above North Elkhorn Creek their Mt. Horeb Site. In their work before 1932 they produced an accurate topographic map (Webb and Funkhouser 1932:117). It was to this smaller site that they turned during the Works Progress Administration period of excavation at the end of the decade.

Excavation of the Mt. Horeb Earthwork began in August 1939, and a monograph was published in July 1941 (Webb 1941a). Its introduction indicates that while planning the excavation, Webb had become aware of

the existence of Peter Village. Dr. Alfred Peter, son of Robert Peter, was possibly instrumental in Webb's education. At this point he may have gone back to Rafinesque's description in the Annals and Robert Peter's (1873a:420-423) early descriptions. Coupling them with the map in Squier and Davis, he recognized not only Peter, but a smaller version of Mt. Horeb and a nearby low mound which later became known as the Fisher Mound. In 1932 Webb and Funkhouser had designated Mt. Horeb as site 15Fa1. In 1941 Webb expanded site 15Fa1 to include three other elements. The Mt. Horeb Earthwork became 15Fa1a, Peter Village became 15Fa1b and for the first time was called Peter Village, the Fisher Mound became 15Fa1c, and the diminutive version of Mt. Horeb became 15Fa1d (Figure 3). In recognition of the fact that the four are distinct, and to facilitate data management, these sites have been renumbered by the Office of State Archaeology as follows:

15Fa1a = 15Fa1
15Fa1b = 15Fa166
15Fa1c = 15Fa152
15Fa1d = 15Fa153

Webb discussed artifacts collected from Peter Village in the Mt. Horeb excavation publication. However, this was not the first mention of artifacts from the Elkhorn complex, for Peter (1873a) had already reported to the Smithsonian his partial excavation of the Fisher Mound and his recovery of flint, copper, hematite, sandstone, and barite artifacts. He had even specifically mentioned artifacts collected from Peter Village, including flint arrowheads, pottery, and a "large deposit of new arrowheads, made of horn-stone" (Peter 1873a:423). It is not altogether clear why Webb included the Peter Village materials in his Mt. Horeb monograph. Perhaps it was because there were few artifacts from the Mt. Horeb enclosure, and he was seeking an artifact collection which, by proximity if not association, could be used to classify Mt. Horeb.

The illustrated materials from Peter Village included worked barite/galena, celt fragments, and ovate, stemmed chert points (Adena Stemmed) and other tools. Webb (1941a:159) also pictured Adena Plain ceramics and, significantly, "one heavy sherd 13 mm thick". Largely because of the Adena Stemmed projectile points, Webb viewed 15Fa1 and 15Fa166 as products of the same cultural group which, he further argued, was also responsible for the archetypical Adena mound in south-central Ohio. This association was made on the strength of Mills' reporting of this same point type as one of several found at the Adena mound.

Two years of tobacco cultivation starting in 1942 led to Webb's only intensive involvement with Peter Village. In cooperation with the Kentucky Archaeological Society, collections were made at various times. Some went to the University of Kentucky, and perhaps all were covered in Webb's (1943a) treatment of the material culture from the site.

Webb's involvement with the site did have two additional side effects. First, an adjacent site, Grimes Village (15Fa15), was noted by Webb. From aerial photographs it appears to be an enclosure like Peter. In addition, surface collections from it produced the same classes of materials. Secondly, sherds from the two sites were sent to Dr. James B. Griffin at the University of Michigan.

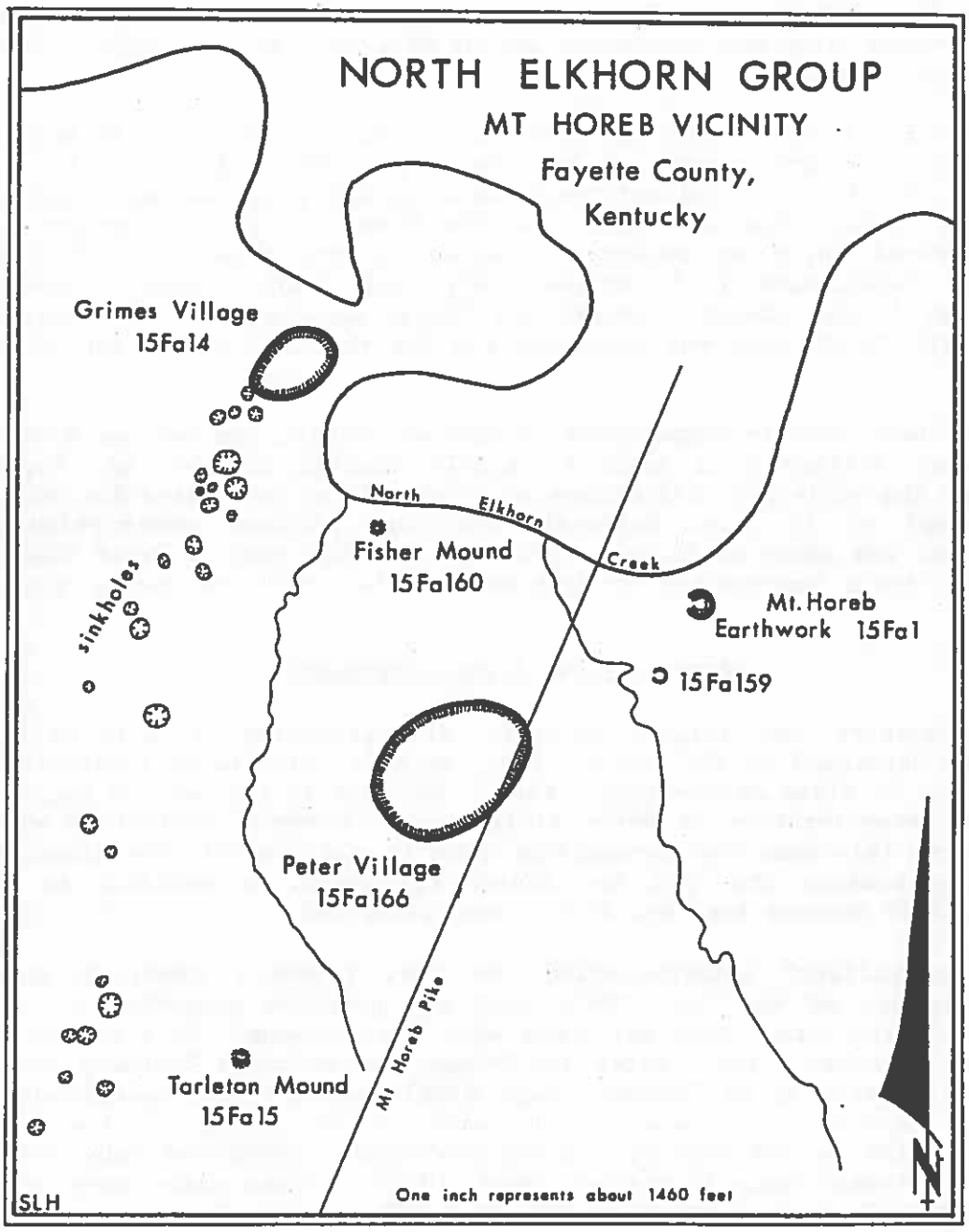

Figure 3. Archaeological Sites of the Mt. Horeb Vicinity (Drawn from Recent Aerial Photographs).

Appended to Webb's analysis of surface collections from Peter and Grimes was Griffin's (1943:667-672) discussion of the ceramics. Four categories were distinguished. Adena Plain referenced Haag's (1940: 75-79) published description and Fayette Thick, a new type, distinguished by sherd thickness and encompassing a variety of tempers and surface finishes. The only comparative comment which Griffin made on the latter was to note that pinching on some Fayette Thick sherds also occurred on the type Alexander Pinched described in the middle Tennessee Valley and in the lower Mississippi Valley (Griffin 1943:669). Finally, unnamed grit tempered plain and cordmarked sherds were identified, although these were in the minority.

In time, Griffin (1945:220-246) was to link Fayette Thick to what he thought was an early period of Early Woodland Adena culture in the Ohio Valley. Griffin saw similarities between it and other ceramic types in the Ohio Valley, the Northeast, and the Midwest. This interpretation made Fayette Thick an important element in the sequencing of Adena cultural development (c.f. Dragoo 1963; Clay 1980). Indeed, Fayette Thick has become almost a byword for "Early Woodland" in the area, at times with little apparent comprehension for the data upon which it was based.

In these ceramic comparisons, little or nothing was ever said about the Peter Village site context, simply because nothing was known. Although the published collections of Webb and his associates touched on one aspect of it (i.e. defense), the best physical description by Rafinesque was never published. Possibly for this reason, Peter Village did not figure importantly in Webb and Snow's (1945) reconstruction of Adena.

PETER VILLAGE: A 1983 STATEMENT

A definite, but largely implicit, interpretation of Peter Village had been developed by the 1980s. This, in part, structured fieldwork by the Office of State Archaeology. First, explicit in the name of the site was the interpretation of Peter Village as a domestic habitation site. Along with this went the recognition that it was possibly fortified and defensive because the bank lay inside the ditch, in contrast to the "ceremonial" circles like Mt. Horeb (Webb 1941a:160).

The "village" interpretation was not, however, based on solid evidence, but on the fact that, with the possible exception of some sub-mound structural features, there were few non-mound sites to compare to Adena mortuary sites. Peter and Grimes, and no other Kentucky sites, could be pointed to as "non-mortuary" simply because they lacked burial mounds. However, this was not the case in Ohio where, in the years following the second synthetic Adena publication (Webb and Baby 1957), other "villages" were identified (Bush 1975). These sites were quite small and lacked any suggestion of a Peter-like earthworks.

Interpreted as a village, Peter raised more questions than it answered. At 9.2 ha it rivaled in size the largest prehistoric sites in the state, including the populous villages of the Late Prehistoric Fort Ancient and Mississippian cultures. The large population that such a

substantial enclosure implied was hardly evident elsewhere in known Adena archaeology.

Further, describing Peter as a domestic site did not fully explain the known artifact classes, particularly the high frequency of worked and partially worked barite/galena artifacts. While the significance of this only became apparent as more Adena sites were identified, it at least suggested that specialized activities, including barite artifact manufacture, were carried out at the site. This possible significance of Peter Village was not articulated prior to 1983.

Just as important was the implication that Peter Village was Early Adena because of the ceramics. The temporal placement implicit in these ceramics was never fully understood because of a lack of comparative materials. For example, Dragoo's (1970:6-7) masterful space/time ordering of Adena lumped the Mt. Horeb complex (Dragoo appears to have included Peter in it although this is not clear) in Late Adena by the presence of earthworks, yet posited Fayette Thick pottery as Early-Middle Adena (Dragoo 1970:11-12).

Outside of Kentucky, Fayette Thick became another example of an Early Woodland ceramic "macro-style" which had relatives north of the Ohio between the Mississippi and the Appalachian Summit in Baumer Fabric Impressed, Marion Thick, Schultz Thick, Leimbach Thick, Half Moon Cordmarked, Marcy Creek Plain, and Vinette I. Comparisons with these types were often made without direct reference to the Fayette Thick materials themselves, which, by the mid-1960s, were known in Kentucky only from four sites: Peter, Grimes, the smaller of the two Wright Mounds (15Mm7), and the Hartman Mound (15Be32).

RESEARCH DESIGN

Because the Office of State Archaeology excavations at Peter Village represented the initial phase of investigation of this site, research was narrowed to address a specific set of research questions. These focused primarily on the culture historical placement of the site. A temporal perspective was viewed as all-important in the structuring of further research at Peter Village and other central Kentucky Early and Middle Woodland sites.

It was thought that a stratigraphic sequence supported with datable materials might best be obtained from the ditch area. Based largely upon Rafinesque's description of the bank as thrown to the inside of the ditch, it was hoped that the combination of superimposition of bank over original ground surface, coupled with ditch in-filling would provide datable stratigraphic contexts which could be used to temporally structure interpretations of site history and use.

Prior to the initiation of fieldwork, several hypotheses were proposed. These hypotheses largely concerned with the culture historical placement of the site, were as follows:

1) The Peter Village earthwork was Early Woodland and associated with the makers of Fayette Thick ceramics.

2) Features within the earthwork might represent a number of archaeological phases, yet the majority of them would date to the Early Woodland period.

3) Peter Village represented a special purpose site. Although called a "village", the site was not used for a wide range of domestic activities over a long period of time or on a seasonal basis.

4) Peter Village represented a resource exploitation site developed by, managed by, and used by groups which may have been non-local.

METHODOLOGY

Aerial Photography

A series of aerial photographs were available at the beginning of excavation. Webb (1941:Figure 1) was the first to indicate that the earthwork could be identified from the air, and he published United States Department of Agriculture photo imagery of it probably dating from the late 1930s. Crop photographs taken in 1952 were also available, as were recent vertical photographs taken by Mr. William Mitchell of GRW Engineering, and low oblique photographs taken by Mr. Charles Long.

The Peter Village ditch was visible in varying degrees in all photographs. It appears initially as a light band outlining an area very close in shape to that mapped by Rafinesque, except that the "entrance" which he illustrated can not be distinguished. There is a faint suggestion on some pictures of a darker strip paralleling a lighter area on the outside. This is probably the ditch itself retaining moisture and favoring plant growth. Observation of the ditch during the exceptionally dry summer of 1983 further supported this interpretation.

Resistivity Survey

Excavation was preceded by limited exploration with a Martin Clark soil resistivity meter. On April 19, after a rain, four transects were made in the general area of the ditch and bank. The resistivity profiles are presented in Figure 4. These transects produced a consistent signature. The local soil is Maury silt loam (Sims et al. 1968:55). In the area of the filled-in ditch (barely distinguishable as a surface depression), the resistivity readings were high. Outside the ditch to either side, reading were variable but generally lower. In certain transects, the lowest resistivity readings were obtained adjacent to the ditch, inside the enclosure.

A second set of measurements, made in the area to be excavated on May 17 after a dry period, were far less consistent. Still, the main features of the ditch and bank were detectable, and the directions of readings were consistent with the earlier transects. The ditch showed the highest readings while the bank inside the ditch provided the lowest readings. The stockade and pits discovered during excavation were not clearly discernable.

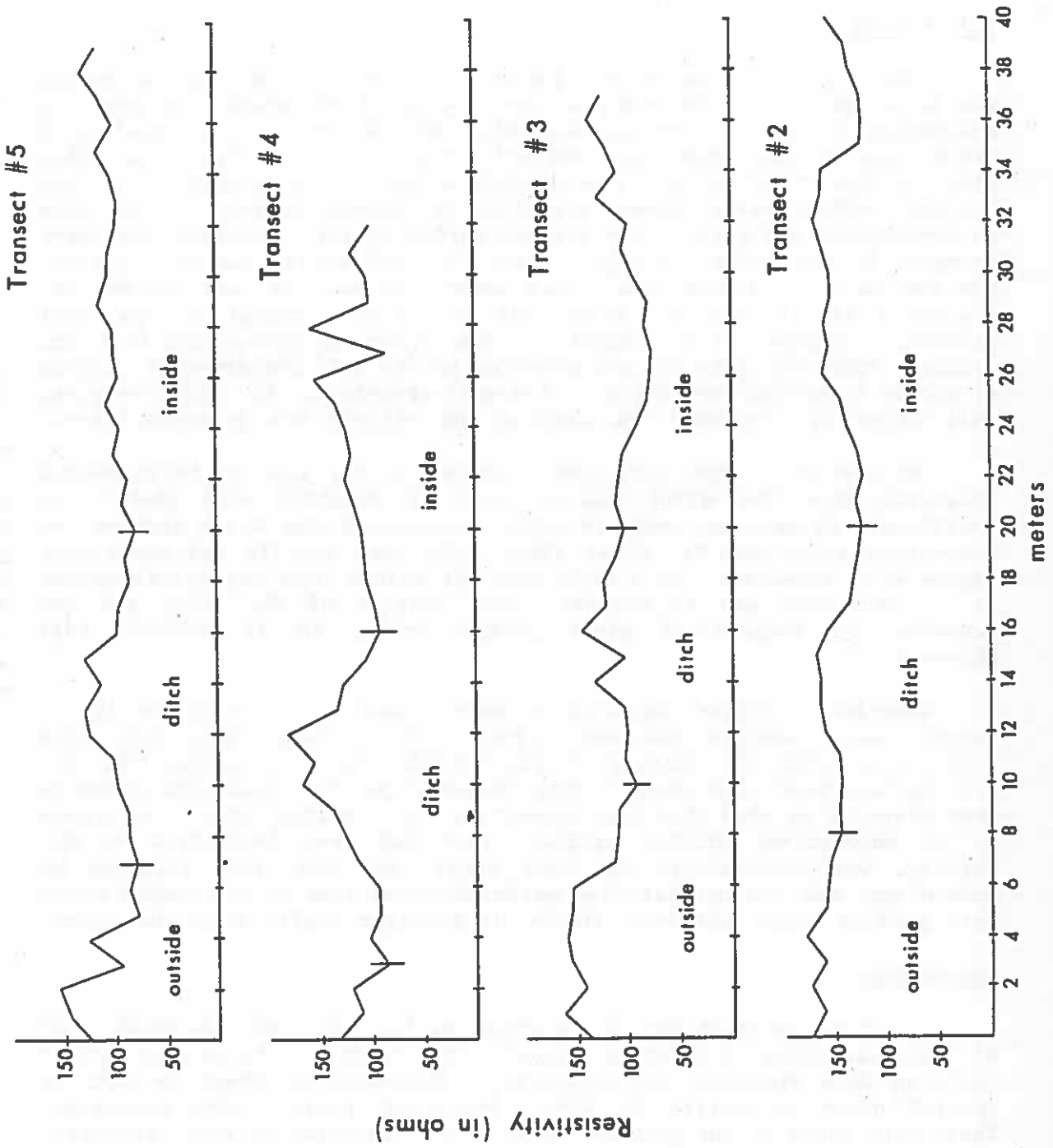

Figure 4. Resistivity Survey Profiles of the Peter Village Ditch.

The transects do not fully solve the question of the location of the bank relative to the ditch. They could indicate that materials were deposited, following Collins, both outside and inside of the enclosure. Thus, Transect 4, possibly 5, may indicate a dual bank. On the other hand, Transect 2 would indicate, following Rafinesque, that the bank was on the inside.

Soil Coring

Concurrent with the second period of resistivity survey and during the first two days of excavation, hand coring of the excavation area was undertaken in an attempt to determine the nature of the local soil profile and to note anomalies indicating the ditch/bank structure. This stage of investigation was immeasurably aided by the assistance of the Bourbon County District Conservationist, Mr. Robert Johnson. He was able to corroborate the preliminary interpretation of the ditch/bank structure prompted by the early descriptions and the resistivity survey. Outside the earthwork, a "normal Maury silt loam" profile occurred. Within the suspected ditch, however, there was no visible change in the soil profile. Because of the depth of the ditch, a three-inch (7.6 cm) diameter hydraulic core rig was provided by the Soil Conservation Service to obtain a preliminary sample of its soil structure. Mr. Rudy Forsythe, Soil Scientist, operated the machine and offered his interpretations.

Examination of the soil core profiles in the area to be excavated indicated that the ditch had a depth of slightly more than 2 m. Additional corings were made in other portions of the ditch between the excavation block and Mt. Horeb Pike. The same profile and comparable depths were revealed. As a technique for future use, mechanical coring is an excellent way to validate the location of the ditch and the presence or absence of stratigraphic breaks in it without full excavation.

Immediately inside the ditch perimeter, hand coring indicated that a normal Maury profile did not exist. More clayey materials were encountered near the surface of the ground, which indicated that the profile had been disturbed. This corroborated Mr. Beasley's comments that attempts to plow this area caused the plow to ride out of the ground as it encountered stiffer soils. What had been identified by Mr. Beasley, was observed in the hand cores, and was later recorded by excavation, was the heavier clay materials from deep in the normal Maury soil profile which had been thrown up prehistorically from the ditch.

Excavations

Fieldwork began on May 16 and ended on June 30, 1984. A total of 88 m^2 were excavated to sterile subsoil (Figure 5). Six archaeological features were recorded and excavated. Materials of chert as well as several other categories of stone, bone, and pottery were recovered. These were found in the general midden and in association with features.

Two strategies were used in artifact recovery prompted by the recent history of the site. A uniform plowzone approximately 20 cm thick covered the excavated area. This zone was excavated as one level. The sub-plowzone midden was excavated in arbitrary 10 cm levels and large

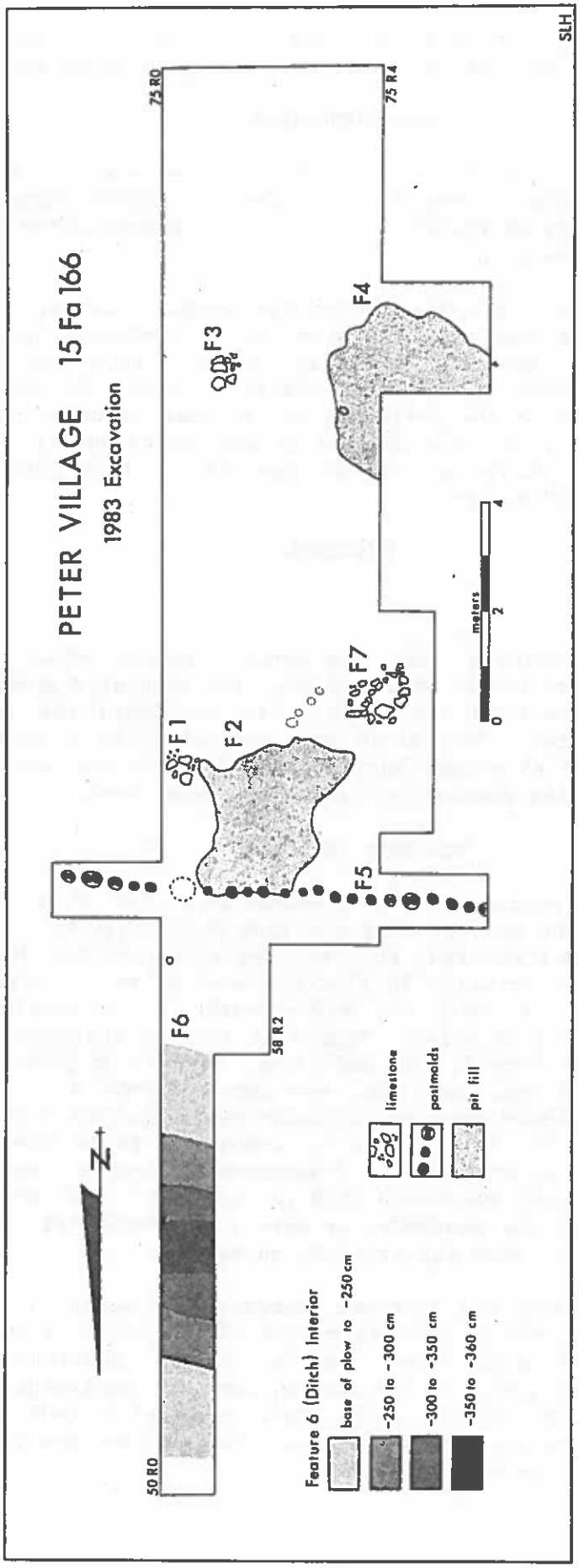

Figure 5. Office of State Archaeology Excavation Block.

artifacts were recorded with horizontal and vertical coordinates as "field specimens". All soil was screened through 6.35 mm mesh.

SITE STRUCTURE

The 88 m^2 excavated at Peter Village represents a very small portion (.0009%) of this site. Nevertheless, the identified structure of the ditch within the area excavated is considered representative of the total ditch surrounding the site.

Surface collections made (during the excavations) in a portion of the site cultivated for tobacco indicated a generally low density of materials and, more importantly, a distribution clearly "bounded" by the faintly distinguishable ditch. In addition, there is no evidence at present indicating that the perimeter of the site expanded or contracted during its use. Peter Village was 9.2 ha when built and it was used as a totality. However, there is a strong possibility that through time its "structural boundary" changed.

FEATURES

Stockade and Ditch

These two features are obviously interrelated; they both concentrically encircled the same 9.2 ha. The excavated stockade segment consisted of at least 21 postmolds which contained the remains of a minimum of 26 posts. The ditch was approximately 2 m deep in the excavated area, and at ground surface its width is now approximately 15 m. The spoil from its excavation formed an inside bank.

Stockade (Feature 5)

The excavated portion of the stockade consisted of an alignment of 21 definite postmolds and one less-distinct mold (Figures 6 and 7). All postmolds were plow-truncated, but the surviving portions indicated that the posts were set vertically in flat-bottomed holes. Six molds (Figure 7) contained pairs of posts set side-by-side. The remains of burned posts were found in some molds. Postmolds lacking charcoal suggest that their posts had not burned, but had either decayed in place or had been removed. Charcoal from one post was dated 310±60 B.C. (Beta 7755). Another sample, combined from two adjacent posts yielded a date of 610±90 B.C. (Beta 7758). The latter date is considered to be too early, given the other dates from the site. Fragments of cane or twig-impressed, fire-hardened daub were recovered from two postmolds. These may indicate actual plastering of the stockade, or merely the incidental firing of the surrounding clay soil when the stockade burned.

It is assumed that the stockade surrounds the whole 9.2 ha, although there may have been one or more entrances which remain to be discovered. What these looked like and where they may be are questions which remain to be answered. One possible suggestion, noted by Rafineque in his plan, is that a gate was on the east side, where he noted an indentation in the ditch. Unfortunately, this area may have been destroyed by the construction of Mt. Horeb Pike.

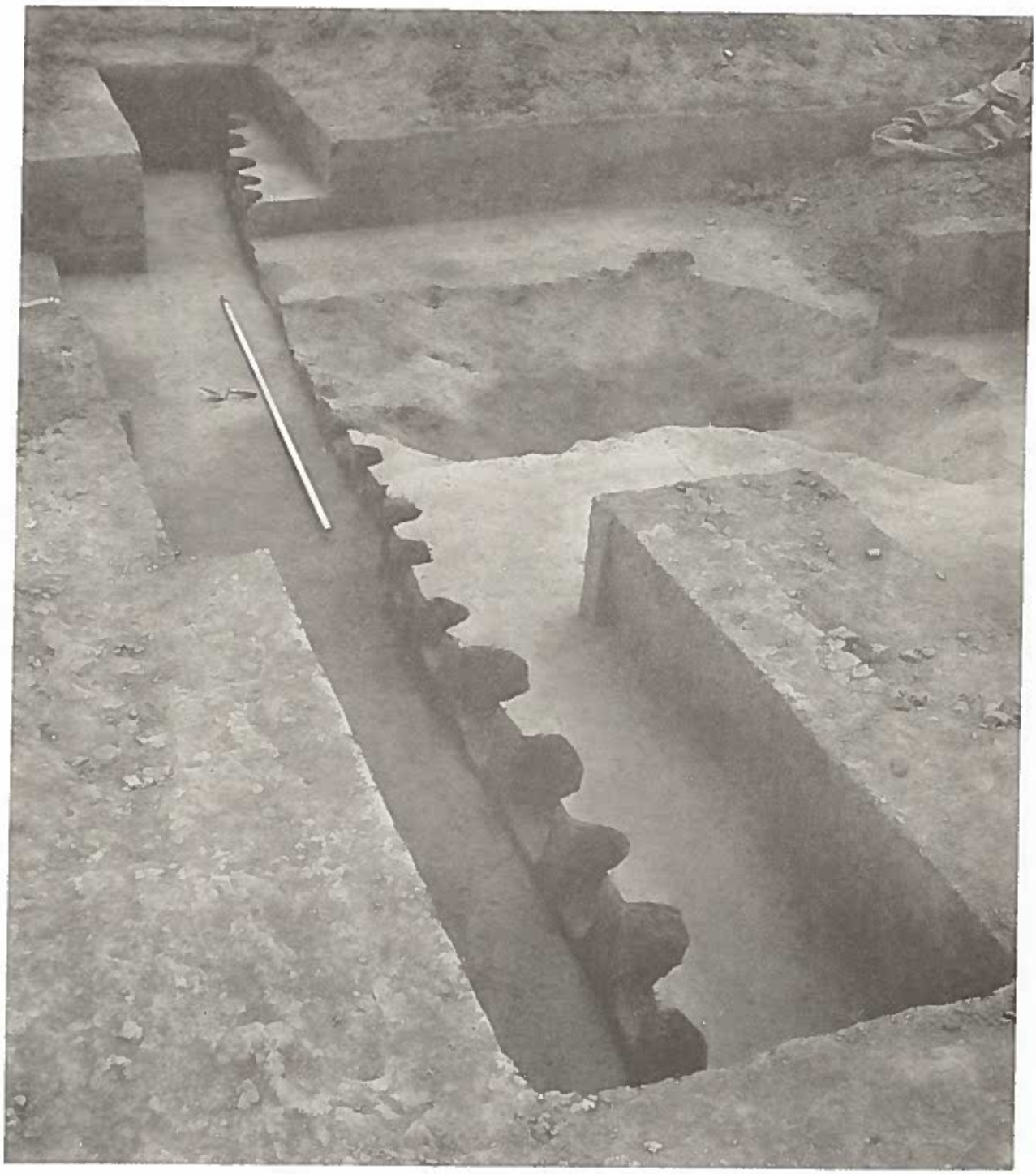

Figure 6. Profile of Stockade (Feature 5) and a Pit (Feature 2) after Excavation.

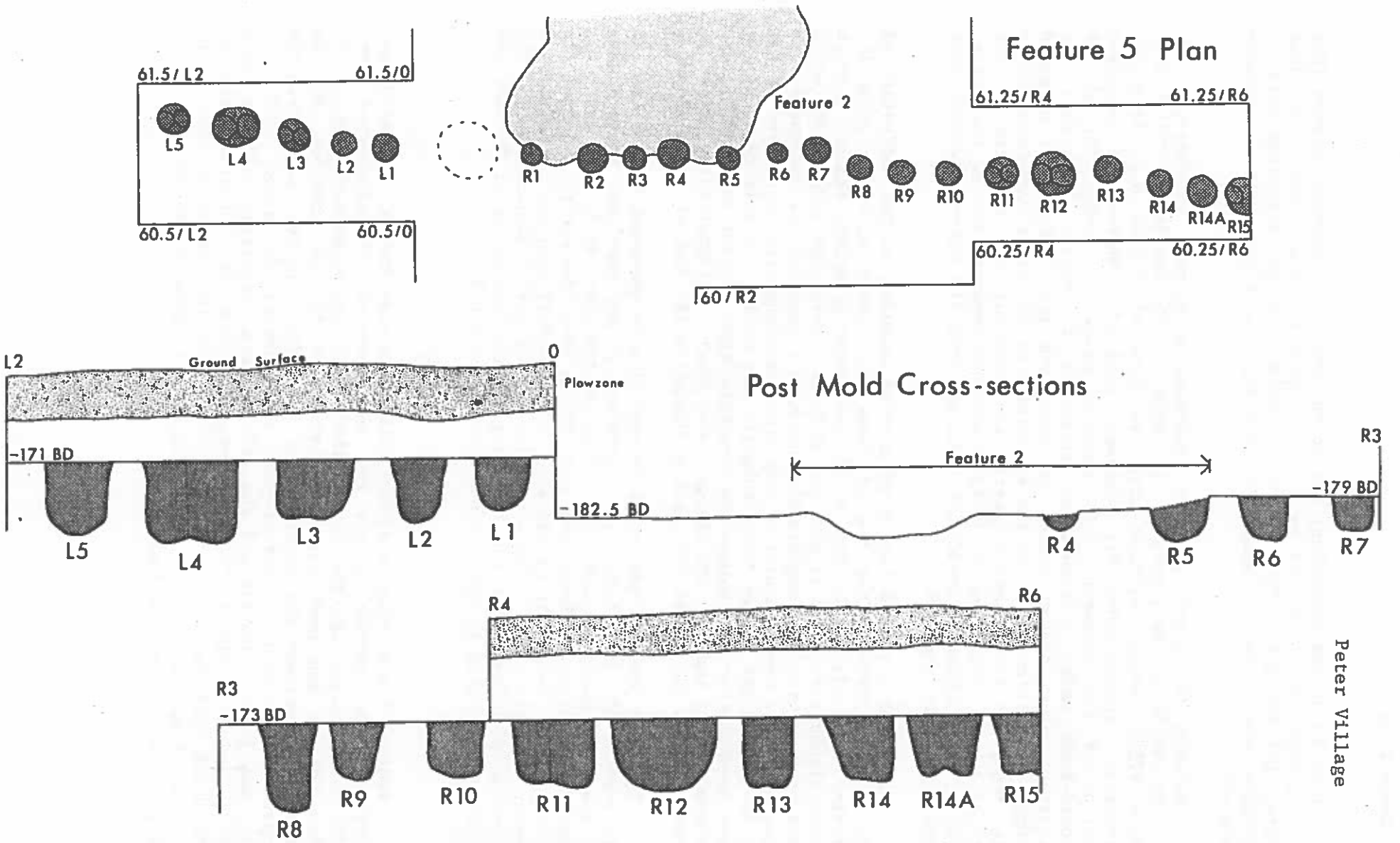

Figure 7. Profile of Stockade Postmolds and Enlarged Plan of Stockade.

Details of the postmolds, the posts, and the alignment suggest that the stockade was destroyed by a combination of decay, removal of some posts, and burning. There is no evidence from the excavated area to indicate that the stockade was rebuilt, modified, or extensively repaired.

Between the ditch and the stockade, a scatter of charcoal was encountered below the plowzone. A sample of this was dated 270±100 B.C. (Beta 7757), which overlaps with the date of 310±60 B.C. from the stockade. This scatter may represent part of a burned and collapsed portion of the stockade. It occurred below the heavy clay of the plowed-down bank. Because of this, it is hypothesized that the construction of the stockade, its use, and its destruction, preceded ditch construction. Perhaps the excavation of the ditch was motivated by the decay of the stockade posts, and possibly the remnants of the stockade were burned as an initial step in construction of the ditch. Only by this sequence could the charcoal from the burned stockade have been covered by the bank.

The ditch may have been a structural solution to the definition of the site perimeter after the stockade had ceased to be an effective barrier. In effect, the form of the perimeter structure changed through time, although the area it enclosed did not. More than 4,000 posts would have been required to complete the stockade around 9.2 ha, and these were presumably cut over the area of the site. Although the excavation of the ditch through the clayey Maury subsoils was hardly a simple task, it may have been easier to replace the stockade with a ditch when the former decayed rather than cut and bring in new posts. Alternatively, the shift from stockade to trench may mark a change in the use of the enclosure.

The time span of the stockade was clearly governed by the life of its posts. While difficult to determine, it may have been no more than 50 years and probably much less. Whatever the span, it is clear that the stockade probably enclosed the site during only the earlier part of its total life. The ditch, by the same token, covers only part of the total sequence of the site, in this case the latter part. Construction of the stockade probably marks the beginning of the use of Peter Village and this event appears to have occurred around 310±60 B.C.

Ditch (Feature 6)

Feature 6 was cross-sectioned with a 1 m wide trench. In its deeper portions, the contrast between the lower part of the undisturbed Maury silt loam profile and the darker ditch fill was pronounced (Figure 7). This feature had been vertically truncated by the plowzone and the distinction between the plowzone and ditch fill was not clear; thus the upper portions of the ditch are only approximately delimited. The ditch fill was largely sterile and the only cultural materials collected were Adena Plain and Fayette Thick ceramics and charcoal. Stratification of the ditch fill was not as pronounced as initially expected, due to the lack of sharp contrasts in either color or texture of the Maury profile. Still, three stata were identified.

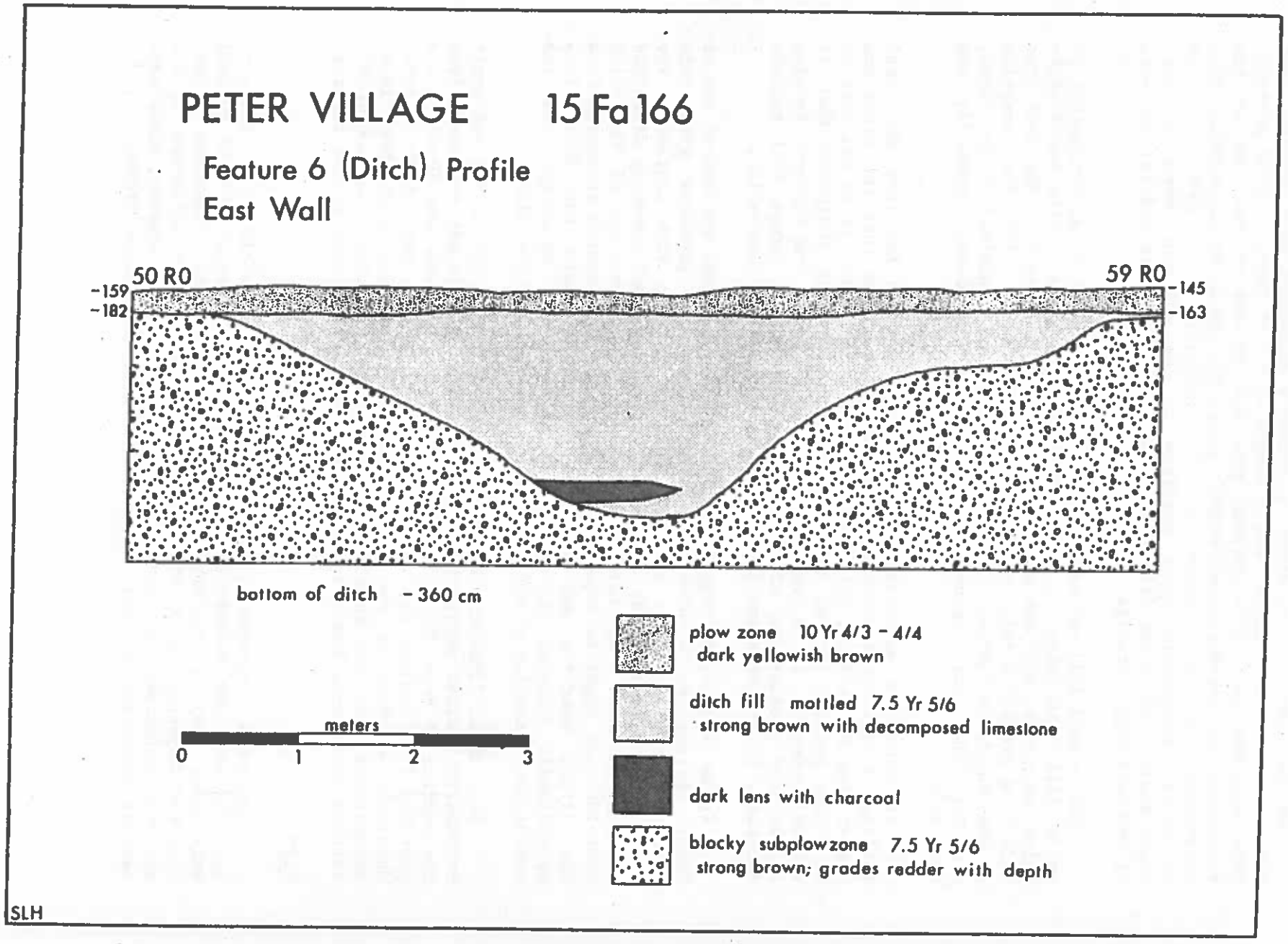

Figure 8. Profile of the Ditch (Feature 6).

On the floor of the ditch, presumably deposited very shortly after its prehistoric excavation, was a single sherd of Fayette Thick pottery. This suggests that this ceramic type was in use at the time of its excavation and was deposited shortly after the end of construction. Once excavated, the ditch began to fill gradually with wash from the relatively homogenous upper portions of the adjacent Maury profile. Approximately 30 cm of fill were deposited during this initial episode. It was culturally sterile.

The second fill episode involved the deposition of approximately 20 cm of fill containing scattered charcoal and sherds. With one Fayette Thick exception, all the sherds were Adena Plain (n=13). Charcoal from this band yielded a date of 190±110 B.C. (Beta 7756). With the exception of one sherd, no further cultural materials were deposited in the ditch, and the final fill episode appears to have proceeded gradually and naturally.

It cannot be established from this excavation how fast the final filling of the ditch occurred. Rafinesque reported that the ditch was deeper than at present, but how much so is a question. It is not certain to which portion of the ditch he referred, and he indicated that it varied in depth. It is probable that land clearance and historic farming accelerated erosion and ditch filling. However, a recent fill episode indicated by Historic artifacts was not noted in the excavation.

It is tempting to suggest that 190±110 B.C. marks the end of use of Peter Village as a ditched site. There are problems with this interpretation, however, and it should be treated with caution. The ditch fill indicated that cultural materials were not normally discarded in this feature. If this was the case, continued use of the ditch post-190 B.C. might be expected. The charcoal and sherds recovered from the ditch, however, may indicate a terminal date for this site, specifically because their presence represents a departure from the established practice of non-disposal of materials in the ditch.

Both thin, limestone tempered plain and cordmarked sherds and small triangular Madison projectile points have been previously recovered from the surface of Peter Village. These artifacts indicate Late Woodland and possibly Fort Ancient use of the site area. Still, none of these later materials occurred in the ditch fill. It is assumed that these later occupations were not involved in either the maintenance or use of the ditched enclosure, but simply represented transient use of the hilltop.

Pits

Two pits (Features 2 and 4) were excavated within the stockade. Both features are interpreted as pits dug for the extraction of subsoil materials: clay and possibly decomposed local cherty limestone. They occurred adjacent to other activity areas which are reflected in the cultural materials recovered from these features. However, they were neither excavated as, nor intentionally used as, refuse disposal areas.

Feature 2

Feature 2 (Figure 5) had a surface area of approximately 9.5 m^2 and a maximum depth of 90 cm below ground surface. It was probably not truncated by the plow, but it appeared to have been covered by the eroding bank. It was irregular in outline and shape (Figure 5) and sloped inward to its deepest point approximately in the center.

The amorphous outline of the pit suggests that it may have been dug in several episodes. However, these could not be distinguished in either the shape of the pit or its fill. Along its northern edge, the pit intersected and partially obscured posts associated with the stockade (Figures 6 and 7). This indicates that a portion of it was dug following setting of the stockade posts. The fill of Feature 2 varied in texture. Inslopping bedding on the north side points to a gradual process of infilling from erosion of the adjacent bank on that side.

Materials recovered from Feature 2 included Fayette Thick and Adena Plain sherds, faunal remains, and chert debitage. This material was limited to the floor of the pit and to its margins. This pattern of occurrence suggests that the structure was not built as, nor used as, a refuse pit, and that the artifacts fell into it soon after its excavation.

As noted, very small fragments of daub were identified in two postmolds. This suggests that at least parts of the stockade may have been plastered with clay, and that Feature 2 may have been the source for this mud plaster. This interpretation would support the hypothesis that the stockade preceded the ditch. Had the ditch been excavated at the same time, it surely would have been easy to obtain clay for stockade plaster from the materials thrown up on the bank.

Feature 4

The second of the two amorphous pits (Figure 5) was only partially excavated. It was roughly oval in planview and the excavated portion covered approximately 4 m^2. This may represent two-thirds of its total surface.

Feature 4 fill lacked the stratigraphic profile identified in Feature 2. However, there were distinctions in fill marked by variation in the density of decomposed limestone. While this stone apparently came from at least 2 m below ground surface (as established by probing with a metal rod), Feature 4 was only 1.5 m deep at its deepest known point. Thus, either parts of the feature where it was not excavated were considerably deeper, or the pit was adjacent to an even deeper pit which produced the limestone.

Like Feature 2, it is probable that Feature 4 was not built as a facility for some specific use, but rather it was excavated to extract clay, or if sufficiently deep, limestone and residual chert for pottery tempering. As with Feature 2, the pit occurred near other activity areas. Still, from the field specimen list alone, the type of activity which went on in the vicinity of Feature 4, and which contributed

artifacts to its fill, differed from that near Feature 2. This is apparent from the following cross-classification of categories of materials from the two pits (Table 1).

Table 1. Categories of Artifacts in Features 2 and 4.

	Adena Plain	Fayette Thick	Chert	Bone	Totals
Feature 2	4	21	2	20	47
Feature 4	9	3	16	25	53
Totals	13	24	18	45	100

There are several contrasts and similarities between the types of artifacts associated with these features. First, Feature 2 contained more pottery relative to chert than did Feature 4, but the proportion of bone was roughly the same. Secondly, Feature 2 contained more Fayette Thick pottery than Adena Plain, while this was reversed in Feature 4.

The contrasts in sherds vs. chert might argue for a different "mix" of activities occurring near them, and this might also account for the variation in sherd type frequencies if the types served different functions. However, the type differences may also indicate that there are temporal differences between the pits. Feature 2 would then hypothetically be the earlier of the two, because of the importance of Fayette Thick pottery, and Feature 4 the later because of Adena Plain.

It is suggested that the most economical interpretation of the difference in artifact class frequencies is that, first, there is a temporal difference between the features: Feature 2 is earlier than Feature 4. Secondly, the importance of chert in Feature 4 is related to the presence of decomposed limestone in the fill of this pit. In short, the chert represents residual material from the limestone. Thus, Feature 4 may have been excavated to extract tempering materials as well as clay for ceramic production.

Limestone Piles

The three limestone piles (Features 1, 3, and 7) consisted of clusters of heat-modified rocks which were probably obtained from nearby Elkhorn Creek. The rocks could not have come from the excavated ditch, nor did limestone outcrop anywhere in the immediate site vicinity.

All three features shared a number of important characteristics. First, all contained the same type of heat-modified, decomposed, friable limestone. Second, while small charcoal flecks were noted in and around the rockpiles, no major concentrations of charcoal were found in association with these features. Finally, the soil below, within, and around the rockpiles showed no evidence of discoloration by firing. Thus, all three piles suggest facilities which were used briefly, perhaps only once, for food preparation. It is suggested that these episodes involved hot rock cooking, probably in ceramic containers, as opposed to roasting or broiling over an open fire, or steaming over heated rocks in a subsurface pit.

Feature 1

Feature 1 was a concentration of limestone encountered at the base of the plowzone. The structure of the pile may have been partially obliterated by plowing. One sherd of Fayette Thick pottery, one unidentified sherd, and one limestone sample were collected from the feature.

In the general vicinity of Feature 1 were Fayette Thick sherds, an Adena Stemmed point base, and small human cranium fragments. The latter comprise the only human bone recovered from the excavations and suggest portions of a skull cap bowl rather than fragments of a burial. Three such bowls were excavated from the nearby Fisher Mound (Webb 1947:96-98). Also found near the pile was the proximal end of a deer ulna which may have been an awl.

Feature 3

Feature 3 was a limestone pile which, like Feature 1, was encountered at the base of the plowzone and had been damaged by the plow. The plowzone above the feature contained many small pieces of chert, burned limestone, and fired clay. The matrix surrounding the pile, like the plowzone above, contained charcoal flecks and fragments of limestone. Artifacts in the general area of the feature included four Adena Plain sherds, one Fayette Thick sherd, five deer bone fragments, four chert flakes, and other rock.

Feature 7

This limestone pile (Figure 5) was situated adjacent to Feature 2. It was substantially better preserved than the other two piles, perhaps because it, like Feature 2, may have been covered and protected by eroding materials from the adjacent bank. The heat-modified rocks were arranged in a circle, approximately 1 m in diameter (Figure 9). Six sherds of Fayette Thick pottery, all probably parts of the same large vessel, and one Adena Stemmed point were associated with the pile.

Summary

The archaeological features identified at Peter Village must be considered from two perspectives. First, Features 5 and 6 have only been partially exposed and their significance embraces the total site, not just this small segment. Both features delineate space: the 9.2 ha enclosed within them.

It has been suggested that the ditch (Feature 6) was a replacement for the stockade (Feature 5) after it had become dilapidated. It is perhaps dangerous to speculate on the larger function of the perimeter features. However, the interior bank and the close spacing of the stockade posts suggest a defensive posture. There is a major problem with this interpretation. If the enclosure at Peter was defensive, its size would automatically create a demand for a very large population just to defend its walls. Early Woodland archaeology of the Ohio Valley provides little evidence for such a population. Therefore, as a defensive structure, Peter Village stands as a site in search both of a

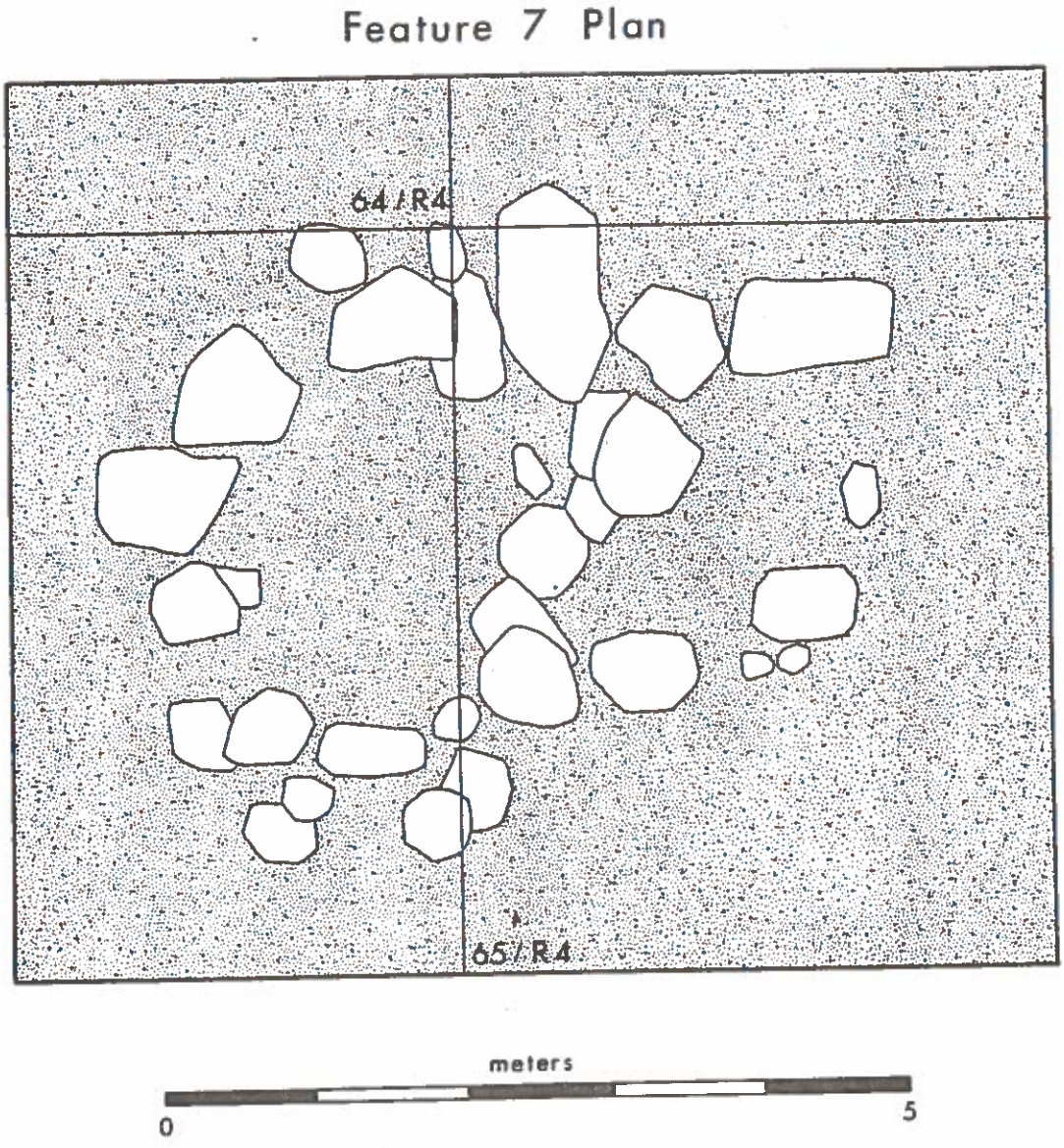

Figure 9. Plan of Limestone Rockpile (Feature 7).

population and a compelling rationale for a "defensive" strategy. Alternatively, the stockade and ditch may have served primarily to define an area for secular or sacred purposes, setting it conceptually apart from its surroundings. However, as a non-defensive structure, the Peter enclosure remains a cultural feature of the landscape in search of a reasonable cultural explanation.

In contrast to the stockade and ditch, the two pits and three rockpiles relate to activities which occurred in this portion of the enclosure. While they represent a sample of the types of activities which took place within the larger site, they may not accurately reflect the full range of activities which occurred within the Peter Village enclosure. The pits have been interpreted as possible extraction pits for obtaining clay for plastering the stockade. If this is the case, it is possible that they will occur elsewhere near the stockade, not deep in the interior of the enclosure. If it is found that they occur widely apart from the stockade, then their interpretation as sources of potting clay, or in the case of Feature 4, chert tempering, may be strengthened.

The limestone piles have been interpreted as the results of hot rock cooking. Hypothetically, they are the products of single cooking episodes using ceramic containers. Such episodes, and these features, should have been widespread within Peter Village.

MATERIALS RECOVERED

Materials recovered from the 1983 excavations include 4,741 catalogued items plus soil samples. Of these, 643 were three dimensionally recorded as field specimens. These consist of ceramics, chert, groundstone, barite artifacts, chert debitage, animal bone fragments, and water separated flotation samples.

The analysis of these materials has only just begun. This section primarily focuses on the field specimens, outlines conclusions possible at this time, and presents directions research will take in the future. Inventory of these materials was developed concurrent with the excavation on a BASIC data file using a TRS-80 III microcomputer and an AIDSIII data base system.

Three general conclusions about these materials and their site context are evident. First, the distributions of all artifact classes are closely tied to the spatial patterning of the identified features (Figure 10). Second, the horizontal spatial distribution of ceramic types varies significantly within the excavated area. Finally, the cultural activities which resulted in the observed pattern of material culture classes were probably also the activities involved in the construction of, or use of, these same features.

Pottery

Of the 243 sherds in the field specimen collection, 12 were too small to classify. The remaining 231 sherds were placed within the following two ceramic types: Fayette Thick (n=100) (Griffin 1943:667-669) and Adena Plain (n=131) (Haag 1940). In addition 1,136 sherds and sherdlets (average weight 2.3 g) were recovered from the screens. An

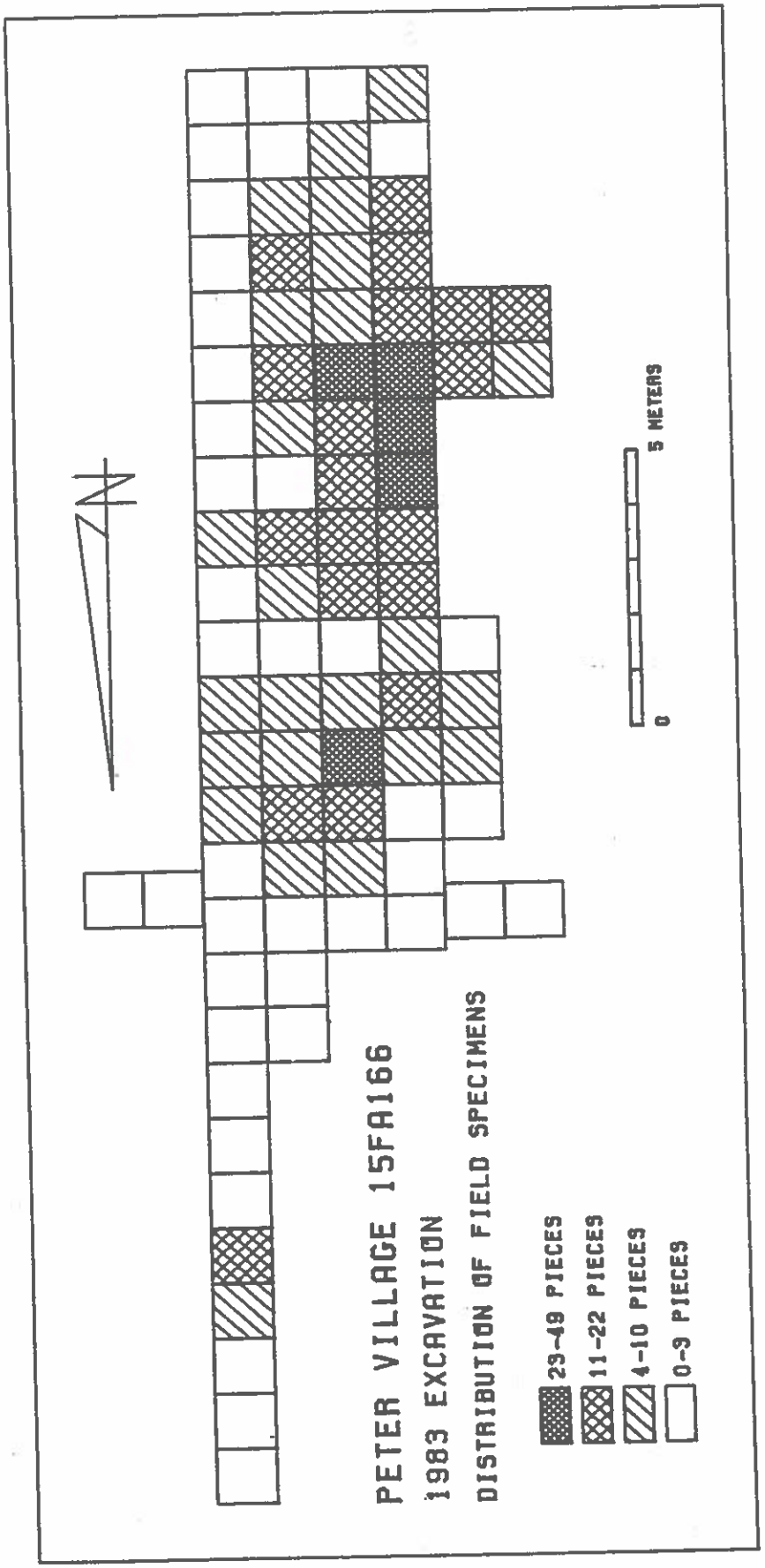

Figure 10. Distribution of all Field Specimens.

earlier treatment of surface collections from Peter Village (Griffin 1943:669) mentions thin limestone tempered plain and cordmarked sherds in addition to these types. No examples of these were recovered in 1983.

The Fayette Thick pottery in general agrees with Griffin's 1943 characterization of the type, there are two areas of variation which occur: tempering and surface finish. The 1983 sherd collection includes both limestone and/or chert as tempering agents. Some sherds may have "grog" inclusions. All tempering materials are probably local to the site area.

Surface finishing of Fayette Thick includes cordmarking (Figure 11e), pinching (Figure 11f-h), and plain finishing. These categories require explanation. Much, if not all, of the cordmarking is in fact impressions of various types of woven fabric. In general, the impressions are smoothed over, partially obliterated, or in many cases almost totally obliterated. Impressions of leaves, miscellaneous cords, knots, and occasionally cord-wrapped dowels also occur. The plain finishing may thus simply be obliterated fabric/cord impressions. The pinching is over cordmarking (Figure 11h) and is limited to a zone just below the rim. Table 2 indicates the frequencies of these surface finishes.

Table 2. Attributes of Fayette Thick Ceramics.

	Body	Base	Rim	Unknown	Totals
Cordmarked	72	1	5	0	78
Pinched	1	0	4	0	5
Plain	1	0	2	0	3
Unknown	3	0	1	10	14
Totals	77	1	12	10	100

The only specimen which could be identified as a basal sherd is flat and has a heel where the bottom joined the sloping side of a "flowerpot" shaped vessel. Most bases, however, were probably rounded (Tune this volume) and are combined here with the body sherds category from which they cannot be distinguished. Body sherds varied considerably in thickness. Presumably the thicker sherds came from the base of Fayette Thick pots, and the thinner ones from higher up on the vessel walls. All rim sherds were simple in profile and exhibited a tapering of vessel thickness up to the flattened rim surface. There were no exterior rim folds and no rim appendages.

The attributes of pinching and plain surface finishing primarily occur on rim sherds. In contrast, cordmarking tends to be associated with body sherds. This indicates that the Fayette Thick vessel surface was divided into two decorative fields: an upper field at the rim or neck which was plain or pinched, and a lower field which was cordmarked. Though pinching is a relatively rare attribute in this excavated sample, it has been consistently noted in sherd collections made at Peter Village (Clay 1980:171-173; Tune this volume).

The Adena Plain sherds are generally small and little can be said about them. All of the 18 recovered rim sherds had the characteristic exterior rim fold identified with this type (Figure 11a-d) (Haag 1940:75-79). As an impressionistic statement, the Adena Plain sherds from Peter appear to be thinner than the published norm.

The Peter Village investigations represent the first time in a Kentucky excavation where Fayette Thick and Adena Plain ceramics have been recovered from the same archaeological context and not in fortuitous association. Elsewhere they have been noted separately. Fayette Thick is known from the Hartman Mound (Webb 1943b); Adena Plain, alone and with other types, is known from sites such as the Morgan Stone Mound (Webb 1941b), the two Wright Mounds (Webb 1940), the Robbins Mound (Webb and Elliott 1942), and the Crigler Mound (Webb 1943b). The temporal sequencing of the two, Fayette Thick followed by Adena Plain, has been based in part upon typology and in part upon stratigraphy. Fayette Thick is considered early because of its similarity to other Early Woodland "thick" types: Marion Thick, Leimbach Thick, Schultz Thick, Half Moon Cordmarked, and Vinette I. At the same time, stratigraphic evidence from the Cresap Mound in West Virginia (Dragoo 1963:127-128) suggested that Fayette Thick preceded Adena Plain (the former restricted to Dragoo's first mound stage, the latter to the last mound stage). However, Dragoo's interpretation of Cresap has been hindered by the size of the sherd sample used in his analysis (eight Fayette Thick sherds and one Adena Plain sherd).

Interpretation of the two types at Peter Village must consider both their temporal relationship and their possible uses. There are four possibilities:

1) Fayette Thick and Adena Plain were contemporaneous and used for the same activities. At the site, therefore, the choice of one type or another reflects a matter of stylistic preference.

2) Fayette Thick and Adena Plain were sequential in time and used for the same activity. The difference between the types represents a shift in preference for one over the other through time.

3) Fayette Thick and Adena Plain were coeval in time but used for different activities. The occurrence of one or another reflects the occurrence of different types of activities.

4) Finally, Fayette Thick and Adena Plain were sequential in time and used for different activities. This suggests a use/style shift through time pointing to a change in site activities reflected in a change in ceramic types.

"Time" and "use" can be evaluated with the excavated Peter Village sample through the consideration of stratigraphy (in association with C-14 dates) and the horizontal spatial patterning of ceramics within the excavation block. The stratigraphic evidence comes from the ditch, Feature 6.

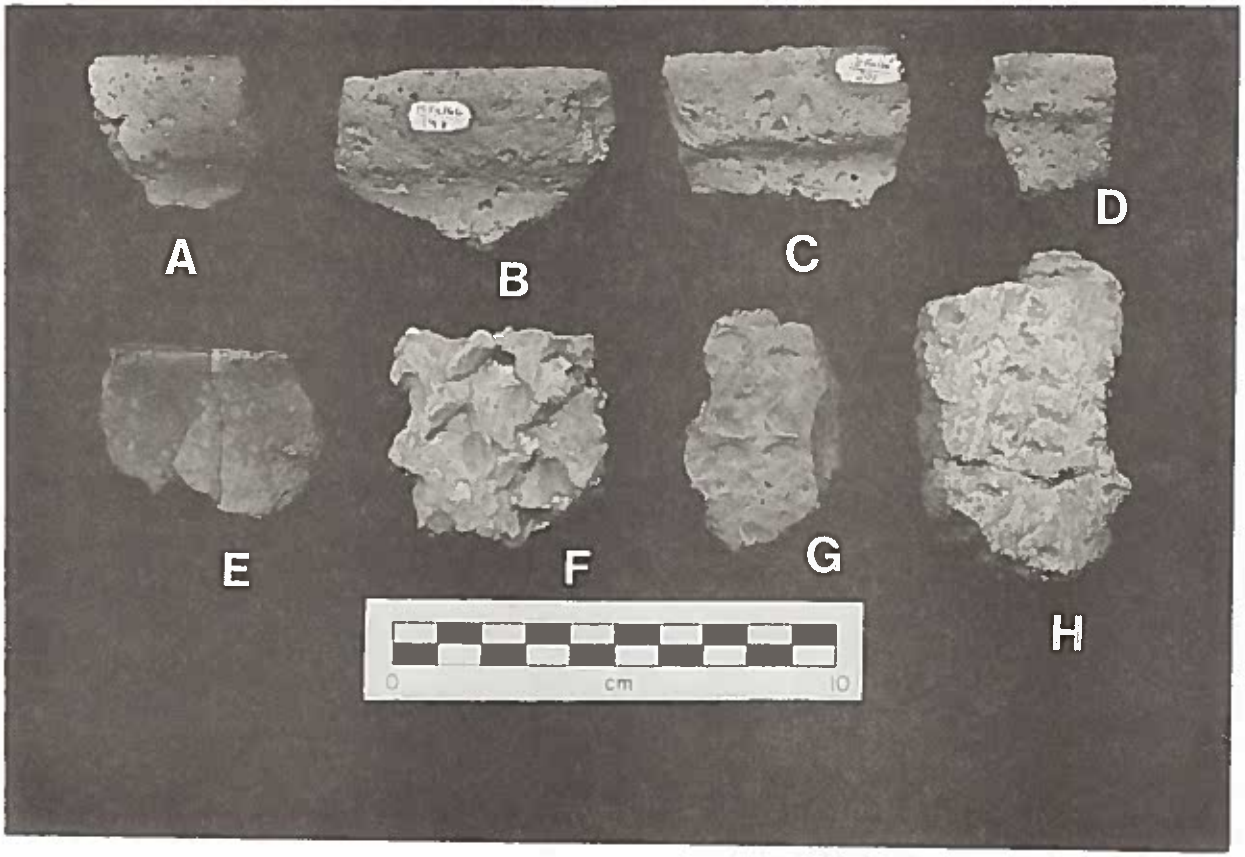

Figure 11. Pottery Types from Peter Village: a-d, Adena Plain. Fayette Thick: e, cordmarked rim sherd; f-g, pinched body sherds; h, pinched-over cordmarked body sherd.

On the bottom of the ditch, deposited shortly after its excavation, was a single sherd of fabric impressed Fayette Thick. There was no other pottery at this level. The next pottery in the ditch occurred ca. 70 cm above its bottom. At this level, Adena Plain sherds were associated with a band of charcoal dated 190±110 B.C. The ditch stratigraphy suggests a temporal difference between these two types and places Fayette Thick as the earlier type, Adena Plain as the later. Althouth it is possible that the types overlapped in time this could not be determined from ditch fill.

The distribution of the ceramic field specimens is presented in Figure 12. Sherd frequency is greatest around the features, principally the two pits. Two lines of evidence indicate that the ceramic types recovered from the site are differentially distributed in the excavated area. As mentioned above, while Fayette Thick is the more numerous of the two in Feature 2, Adena Plain occurs with greater frequency in Feature 4. By itself, and lacking any evidence of a temporal difference between the features, this could indicate that the types were associated with different activities which occurred at or near these features.

Statistical analysis (Spearman's rank order correlation coefficient) of the distribution of the two types within the excavated area indicated that they are not significantly correlated in space. Again, this might indicate that the types were used for different activities. However, temporal difference between the types could result in a lack of spatial correlation. An argument that the two types were used for different activities would be more convincing if there were important formal differences between the features at the north and south ends of the excavated area within the stockade. This was not the case.

In summary, the evidence is not conclusive that Adena Plain and Fayette Thick were used for different types of activities at Peter Village. There is, however, better evidence for a temporal difference between them. The types may overlap in time, and it is probable that Adena Plain continued later than Fayette Thick. The following interpretation is suggested. Fayette Thick and Adena Plain were ceramic styles which were sequential in time and overlapped during the lifespan of Peter Village. They were probably used for the same tasks. If the occurrence of Fayette Thick at Peter Village is predicated on the presence of either the stockade or ditch defining the site, then at ca. 310 B.C. this type was the sole one in use. Sometime before 190 B.C., Adena Plain began to be used.

If the stylistic transition between the two types occurred during the occupation of Peter Village, this is a vital chronological marker for Ohio Valley Early/Middle Woodland period studies. In Kentucky, Fayette Thick is not well dated. At only one site, the Hartman Mound (15Be32), has the type been dated, at 450±150 B.C. (M 2241) (Webb 1943). There were 17 sherds (16 plain and one cordmarked) in the burial pit beneath that mound. Fayette Thick also was recovered with Adena Plain from the small Wright Mound (Webb 1940:81); however, there is no C-14 date for the occurrence, and it has been suggested that this association is fortuitous (Clay 1980:170).

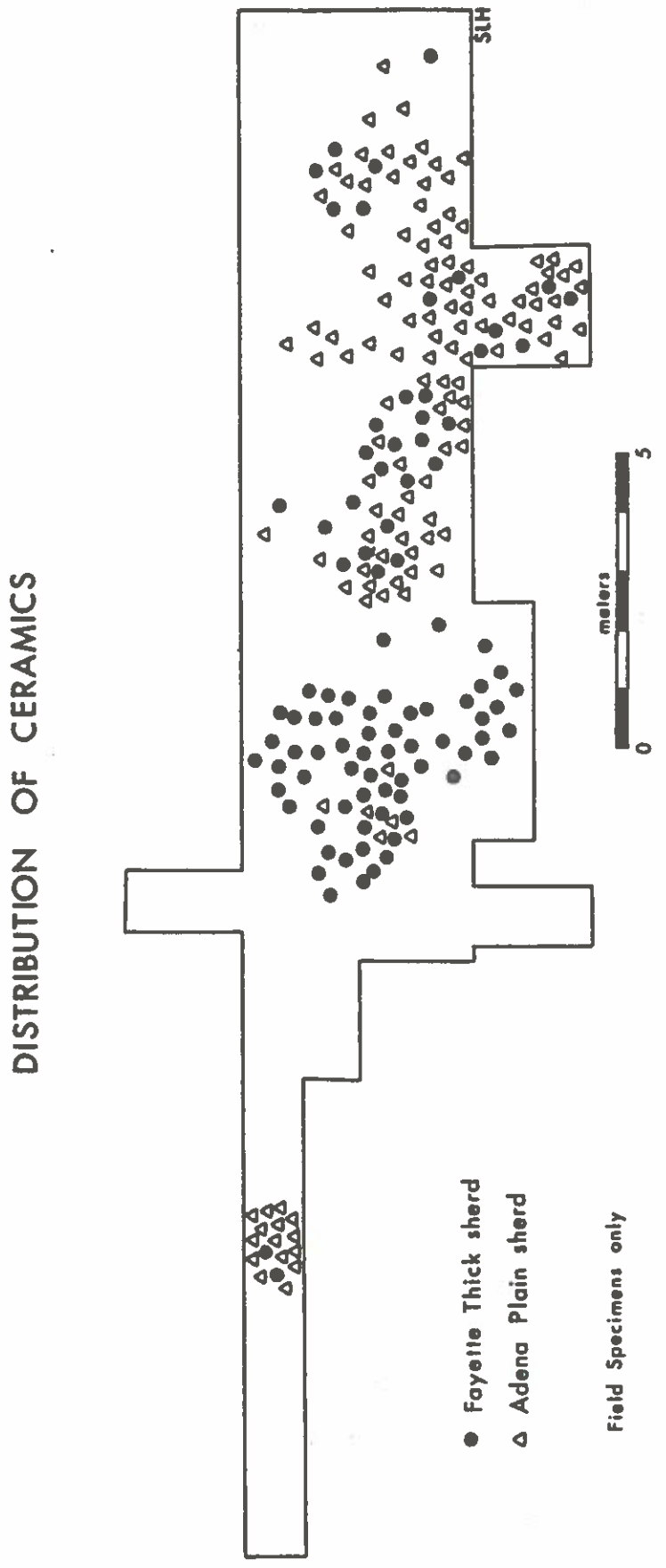

Figure 12. Distribution of Ceramics in the Excavation Block.

The Dover Mound (15Ms27) in Mason County, Kentucky, was one of the first Adena sites to be radiocarbon dated, and there have been problems in the interpretation of the two dates obtained by Webb and Snow (1959:14). There was an early date of 700±170 B.C. (C 759), and a later date, in stratigraphic sequence, of 219±175 B.C. (C 760). A more recent date obtained by Kent State University, from an early phase of mound building, is 310±140 B.C. (M 2239). If the 700 B.C. date is discarded, construction of the Dover Mound around 300 B.C. is indicated. Adena Plain was the only pottery type found at the site (Webb and Snow 1959:5, 55, Table 7, 69) and came from the sub-mound "village". Although identified, this area was not extensively explored (Webb and Snow 1959:5-6). The Peter dates suggest that the recent Kent State University C-14 date of 310±40 B.C. is acceptable, and that the sub-mound occurrence of Adena Plain is contemporary with the occurrence of this type at Peter Village.

Sherds identified as Fayette Thick (cordmarked on both surfaces) were excavated by Dragoo (1963) at the Cresap Mound in West Virginia. He associated them with the primary mound and they were the basis for his equation of the type with Early-Middle Adena (Dragoo 1963:127). However, there has been some confusion over the dating of this primary mound. The five dates in question are as follows:

Middle Phase	70±150 B.C. (M 974)
Early Phase	240±200 B.C. (M 975)
Early Phase	290±150 B.C. (M 976)
Early Phase	556±175 B.C. (Gulf)
Early Phase	1735±123 B.C. (Gulf)

The four early phase dates cannot all date the construction and use of the primary mound. Furthermore, as Hemmings (1977) has pointed out, Dragoo was not justified in averaging them to give a ca. 500 B.C. date for the first mound phase. However, the two Michigan dates, when considered with one standard deviation, fall within the Peter Village time span for the use of Fayette Thick. Adena Plain did not occur in the primary mound at Cresap, and its occurrence at the site was limited to only one sherd from the second phase of mound construction. The one date for the middle phase of the mound would appear to be satisfactory. The use of Cresap as a demonstration of an "Adena Plain" ceramic phase of Adena culture is not as satisfactory as it is in the case of a "Fayette Thick" ceramic phase. The Peter Village dates, however, do support the Cresap dates for the primary mound stage if the two Gulf dates are rejected.

At the Willow Island Mound in West Virginia, Hemmings (1978) identified plain surfaced Fayette Thick and Adena Plain ceramics as occurring together in two stages of mound construction. The first of these was dated at 455±65 B.C. (UGa 1526), the second at 315±80 B.C. (UGa 1527). Because the Willow Island sherds are all plain surfaced, unlike those from Peter Village, there is some question whether they were properly classified as Fayette Thick (Clay 1980:168). Hemmings (1978:39) suggests that the mound structure was used for a short period of time and it is possible that one of the Willow Island dates may be incorrect. If it is the earlier of the two, then the later, placing mound construction

around 300 B.C., would be in line with the Peter Village dates and possibly accommodate a date for Adena Plain and Fayette Thick.

This brief review indicates that the transition between the two ceramic types between ca. 300 B.C. and 200 B.C. at Peter Village is in line with dated materials from other Ohio Valley sites. The evidence from Peter Village indicates that the use of Fayette Thick and Adena Plain overlapped, in this case supporting the suggestion from Willow Island if the early date from the mound is considered unacceptable. However, two questions remain which have been previously discussed in the literature (Clay 1980, 1983).

First, it has been suggested that Fayette Thick is so different from Adena Plain that it is unrealistic to include the two in a single, evolving Woodland ceramic tradition (Clay 1980:176). Specifically, no cordmarked or fabric impressions occur on Adena Plain sherds while these surface treatments are quite common on Fayette Thick ceramics. In addition, there are vast differences in the vessel forms associated with these two types, imperfectly understood now, although hinted at by O'Malley et al. (1983) (Tune this volume). These two types do not appear to be linked stylistically and the shift from one type to another may have been accompanied by quite different ceramic ideas entering the Bluegrass, either by diffusion, or by the movement of peoples themselves. Here, the recognition of the pinching attribute on Fayette Thick as dating to a certain time level and the co-occurrence of this attribute elsewhere in the Midwest and South reinforces the possibility of new ceramic influences entering the area. To date, archaeological research in the Bluegrass has not identified an important series of sites with Fayette Thick ceramics. This is in contrast, for example, to Illinois where Marion Thick is widely distributed in sites regarded as Early Woodland. Thus, unless this picture is modified by further research, central Kentucky is marked by two ceramic/stylistic shifts in a limited time period. The earlier of these is the mere appearance of ceramics (at sites like the Hartman Mound probably not before 500 B.C.). The second is the occurrence of the attribute of pinching on these ceramics just before the stylistic shift to Adena Plain. It is possible that the first occurrence of ceramics in the Bluegrass is, in contrast to other parts of the Midwest and the Great Lakes regions, actually retarded.

Secondly, it has been suggested that Adena Plain may be, in part, a container used in a ritual context in some Adena burial mounds (Clay 1983:118). The Peter Village excavations indicate that Adena Plain was also used in non-mortuary contexts. The form of the Adena Plain vessel, the relatively small flowerpot, indicates that it may have been used for quite a different purpose than the large, Fayette Thick "cauldrons". The possibility exists that the shift from one ceramic type to another at Peter Village could be involved with some change in the nature of the use of the enclosure. However, as far as is known, mortuary activities were not carried out at Peter Village.

Bifaces

Bifacially chipped chert artifacts recovered from the site include, one triangular biface, 11 stemmed projectile points, and six biface fragments.

Triangular Biface

The one example (Figure 13a) is 61 mm long, 35 mm wide and 7 mm thick and was made from Boyle chert. The squared end is slightly constricted and it is probable that the biface was hafted.

Stemmed Points

All of the projectile points (n=11) have been classified as Adena Stemmed (Figure 13a-l). Of these, six (Figure 13a,d,f-h,k) were recovered from the surface and five (Figure 13c,e,i-j,l) were recovered from the excavation block. The excavated specimens are described as follows:

Length	Width	Thickness	Chert Type
66 mm	24 mm	7 mm	heated? chert
52 mm	28 mm	10 mm	Boyle chert
56 mm	24 mm	13 mm	Boyle chert
46 mm	22 mm	10 mm	Boyle chert
52 mm	27 mm	10 mm	Boyle chert

There are two significant observations which may be made. First, the vast majority of the projectile points from Peter Village can be classified as Adena Stemmed (Bell 1958:4-5). Other types, both Late Archaic and Late Woodland/Late Prehistoric, have been noted in surface collections from Peter Village. However, it is Adena Stemmed which is primarily associated with the earthwork and adjacent features.

Second, with one exception, all projectile points are made of Boyle chert, a material available in the Bluegrass Region. This is in contrast to the flakes from the excavated area that are almost exclusively of the types Cane Run or Grier which occur, in the vicinity of the site, as residual chert in limestone. Indeed, very few Boyle flakes have been noted in site collections. It is apparent that the occurrence of depitage of these two local chert varieties at Peter Village was primarily linked to the production of chert tempering for Fayette Thick ceramics.

Biface Fragments

All of the biface fragments (n=6) may represent the distal portions of Adena Stemmed points. Three are of Boyle chert (one heat treated), while three are of unidentified chert varieties.

Groundstone Artifacts

Groundstone artifacts include four classes: celts, worked barite/galena, sandstone palletes, and worked slate.

Granitic Celts

All of the celt specimens (n=8) are fragmentary and are made of granitic rock (Figure 14). There are six bit fragments, two flakes, and one celt poll. Bit widths of four examples are 40 mm, 53 mm, 52 mm, and 57 mm, respectively.

Celt fragments have always been an important artifact class in Peter Village surface collections. It is suggested that there is an abnormally high frequency of celts at the site. They are no doubt associated with site clearance and stockade construction and their abundance reflects the scale of these tasks.

Worked Barite/Galena

All of the worked barite/galena specimens (n=6) represent broken or unfinished examples of a form of artifact considered to be an atlatl or spear thrower weight (Webb 1940:58) (Figure 15). Of the six specimens, only one is drilled and the drilling is from one side. The other specimens appear to represent early manufacturing stages. Finished weights and fragments have, however, been reported from surface collections.

It is possible that the worked barite/galena at Peter Village was mined in the vicinity of the site, and that this activity, along with the production of bar weights, constituted distinctive activity sets associated with this prehistoric site. As early as 1820, Constantine Rafinesque reported a "lead vein" nearby, possibly in the vicinity of a line of sinkholes just west of the enclosure. This is apparently the same mineral vein referred to as the Peter Vein in recent publications in recognition of Dr. Robert Peter or his family (Anderson et al. 1982:17).

Sandstone Whetstones

All of the sandstone whetstone specimens (n=8) (Figure 16b-e) are fragments discarded after they wore out and/or broke. All have one or more facets indicating that they were used for sharpening other tools. It is suggested that these sandstone tools may have been used for shaping bone tools or barite/galena chunks, or for sharpening celt bits. Six are of a fine-grained sandstone and the remaining two are of coarse-grained sandstone.

Worked Slate

The one worked slate example recovered from the excavations at Peter Village is a portion of a reel-shaped banded gorget (Figue 16a). Other banded slate artifacts have been found on the surface of the site. Such artifacts, assumed to be artifacts of personal adornment, do occur in Kentucky Adena, although they are not common. This example is similar in form to ones excavated by Mills (1916:211-215) at the Tremper Mound in southern Ohio which is generally considered to be Early Hopewell (Prufer 1968:148).

In summary, three of the four groundstone artifact classes (granitic celts, worked barite/galena, and sandstone whetstones) fit into a developing picture of Peter Village as a special activity site within a specialized enclosure. The importance of celts at this site is related to site clearing and stockade construction. The barite/galena refuse pinpoints an activity which is specific to this site. It is probable that artifacts of this type were made at Peter Village for distribution to other social groups. Finally, the sandstone whetstone fragments

Figure 13. Bifaces: a-b, triangular; c-l, Adena Stemmed.

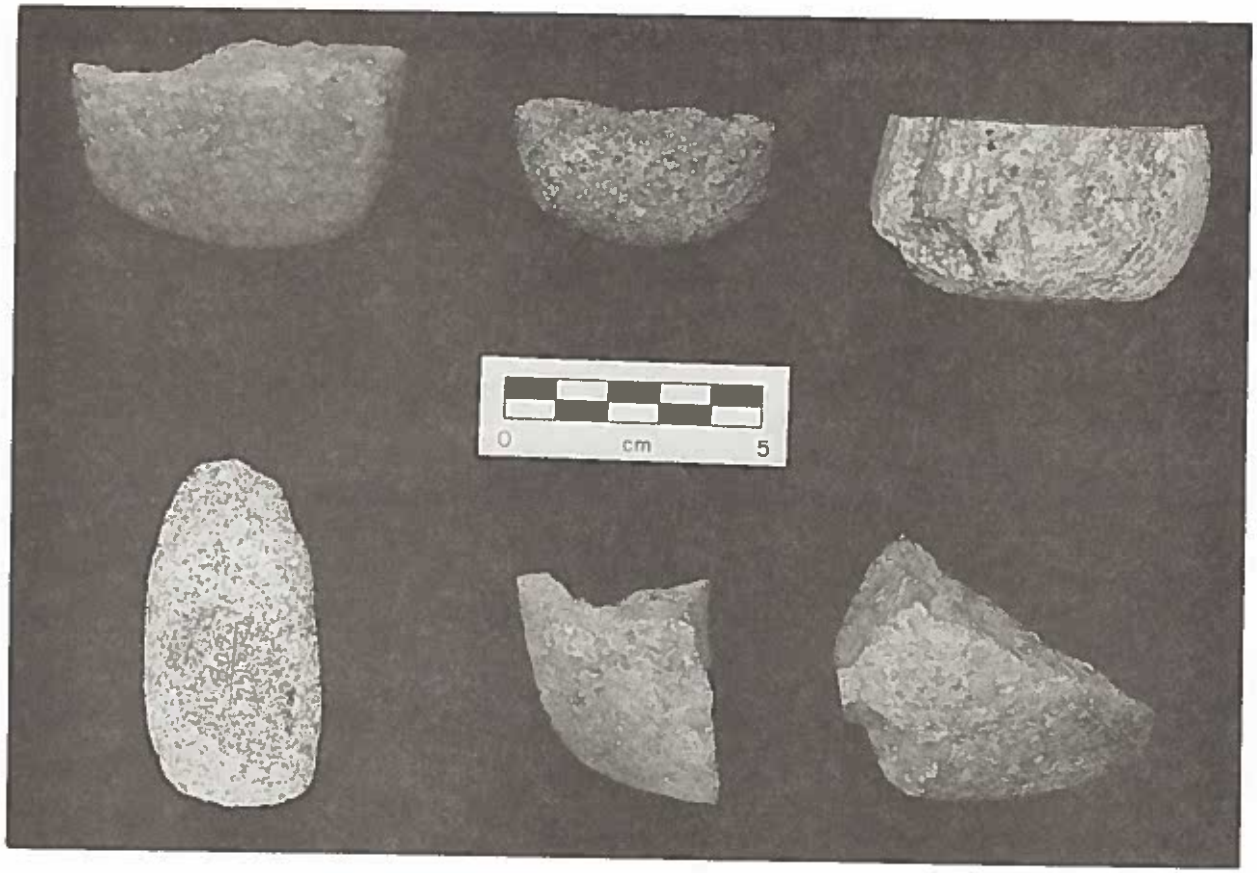

Figure 14. Granitic Celt Fragments.

Figure 15. Worked barite and galena fragments.

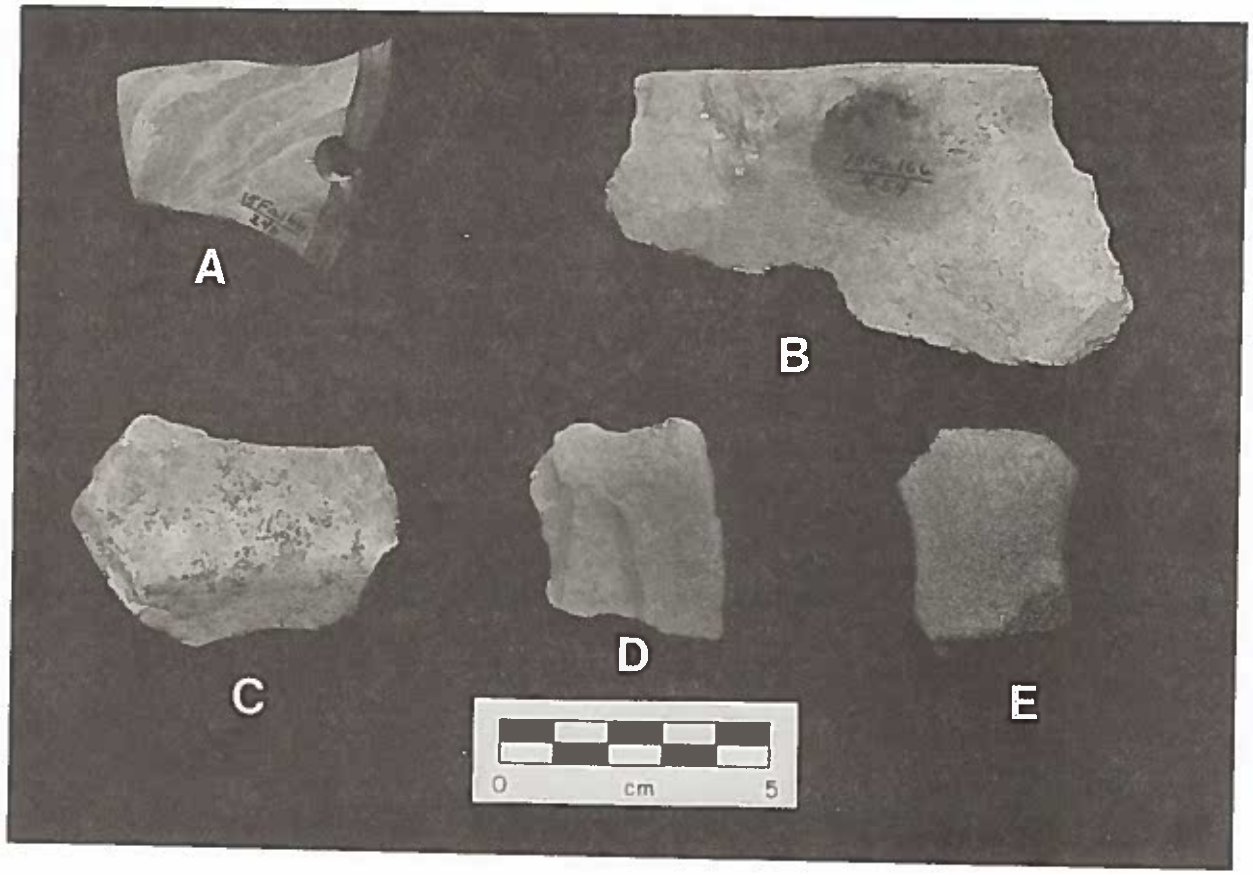

Figure 16. Worked Slate and Sandstone: a, banded slate gorget fragment; b-e, sandstone whetstone fragments.

probably relate to the sharpening of celts and/or the fashioning of barite/galena artifacts.

The single banded slate specimen is a personal adornment artifact. Elsewhere, such artifacts have been identified as burial associations in mortuary contexts. However, here it occurs in a non-mortuary context. Such contexts are not well known in Adena. Certainly Peter Village indicates that some of the artifact types which have been considered "specialized", perhaps status related, occur also in contexts where their significance may be different.

SUMMARY OF RESEARCH QUESTIONS

The recent excavations have confirmed that the Peter Village earthwork is Woodland and associated with the makers of Fayette Thick ceramics. By conventional thinking, the site is Early Woodland principally because of this association. At the same time, the excavations have suggested that during the life of the earthwork, Adena Plain ceramics replaced Fayette Thick. Thus, the earthwork is associated with both ceramic types and covers the time period of ceramic replacement. Furthermore the C-14 dates suggest that Peter Village dates before the majority of recognized Adena structures in central Kentucky. It also differs from later earthworks in both overall shape and internal structure. There are, currently, no indications of substantial earlier or later archaeological components at Peter Village.

The 1983 excavations also suggest that the enclosure was a special activity site. First, perhaps foremost, is the importance of barite/galena "debitage" from atlatl weight production documented in the excavated area as well as from earlier surface collections. Secondly, the excavations suggest that chert tool production, an activity which might be expected if a wide range of domestic tool production/refurbishing was taking place, was quite unimportant within the enclosure.

Finally it has been pointed out that there are elements of the site which distinguish it sharply from others in the area and which, perhaps, suggest extra-regional relationships which have not been precisely identified. By its size and its limited range of activities, and by the shape of its enclosure, Peter Village appears unique for the Bluegrass. Furthermore, the excavations have shown that Fayette Thick ceramics with pinched decoration are coeval with other occurrences of pinched ceramic decoration outside of Kentucky. The evidence from Peter suggests that this unusual decoration was added to a recently introduced ceramic style and indicates that extra-regional contacts existed throughout the Ohio Valley and beyond.

DIRECTIONS FOR FUTURE RESEARCH

Future research at and related to Peter Village can take several directions. First, research can pursue further excavations at the site itself. Secondly, work at Peter Village automatically suggests comparative research relating this site to other Early Woodland sites.

Further fieldwork at Peter Village must deal with the problem of gaining an idea of the structure of the entire site. Informal collector reports have stressed the density of surface materials on the top of the hill. This is to be expected if the subsurface structure of the site in that area has been badly damaged.

While further cross-sections of the ditch may be excavated to check structural interpretations advanced here, exploration of the ditch-bank structure need not rely only on excavation. Resistivity survey was used to good advantage to identify the ditch in cross-section although, in fact, it was not needed to identify the location of it. A much better idea of ditch structure, short of its excavation, may be gained through a program of deep coring with a three-inch (7.6 cm) core. Used in a limited way in 1983, coring demonstrably can identify the structure of the ditch fill and, potentially, recover charcoal for additional dating of the ditch.

Resistivity survey will probably not be helpful in identifying features within the enclosure. Although the test was made under less than ideal conditions, soil resistivity did not adequately pinpoint either pits or limestone piles. The method is probably most appropriate for the identification of "linear" features like the ditch. Other techniques, possibly ground scanning radar or magnetometer survey, must be employed. If other portions of the site are plowed in the future, the distribution of surface materials can be used to identify features within the earthwork. In any case, an important aspect of further feature excavation at Peter must be a program of flotation of pit contents. The 1983 excavations have suggested that the identified features were involved with ceramic manufacturing, obtaining mud plaster for the stockade, and cooking. It is not known that they were involved with the collection, storing, or processing of floral materials. Floral remains, such as nut hulls and shells, were conspicuous by their absence in the excavated area.

Hypothetically, Peter Village was a limited-use site. It is suggested that the full range of activities at it have been identified by the test excavation, although this conclusion is weak. It must be stressed, however, that because of the limited occurrence of such earthworks, a narrow range of activities, rather than a broad one, is to be expected. This implies, in turn, a limited set of feature types. It is clear that Peter Village is not the typical Adena domestic site, for Kentucky or elsewhere in the Ohio Valley.

Specialized Artifact Studies

The excavations at Peter Village have, within bounds, provided temporal placement for significant artifact sets: ceramics, and barite/galena. Each of these sets indicates avenues for further studies, stimulated by the Peter Village results, which will be beneficial in fashioning a new understanding of Adena.

The Peter Village excavations have identified two ceramic types, Adena Plain and Fayette Thick, and have suggested both a stratigraphic sequence for them and absolute dates for that sequence. Analysis of both these types should consider two aspects: style and materials.

A type of early, pinched pottery occurs at the Zorn Avenue Site in Louisville (15Jf250) which is very similar to Fayette Thick. The Zorn materials have never been analyzed and should be considered in future research stemming from the Peter Village excavations. In addition, searches for Fayette Thick should be made in other Ohio Valley collections, for example at the Ohio Historical Society and the Glenn A. Black Laboratory of Archaeology at the University of Indiana.

Analysis of Adena Plain from excavated sites in Kentucky should be initiated. The original reports did not produce any consistent analysis of ceramics and, importantly comparisons between sites. While the ceramic samples from Peter Village are small, they can be used in the development of a stylistic seriation of this type concentrating on those features, such as rim fold, which are most amenable to stylistic analysis.

Analysis of barite/galena artifacts can take two directions. First, following the work of Walthall (1979) and others, trace analysis of minerals, particularly galena, can be used to characterize the barite/galena used in artifact production at Peter Village. This quantified characterization can then be used as a point of comparison with barite artifacts and materials from other sites. Such analysis can be used to establish where finished artifacts of barite/galena went following their production at Peter Village. It is assumed that all such artifacts made at the site were not consumed or used there and that a substantial portion of them were made for export elsewhere, either as items for personal use, or as finished items for trade with other groups.

Secondly, such research must go hand-in-hand with formal analysis of barite/galena artifacts in the Ohio Valley. Weights and cones have been reported from Adena and Hopewell burial mounds in Kentucky and Ohio. It is doubtful that Peter Village was the source for all barite/galena artifacts in Woodland culture. Rather, the site may have served for a time period (ca. 300 to 200 B.C.) as one of a number of major sources for this material, feeding raw materials and finished artifacts to a exchange system which began in Adena and persisted into Hopewell.

CONCLUSIONS

At this point in the analysis of Peter Village, several points of significance emerge. It must be stressed that these are preliminary statements, which presently cannot be fully supported by documentation.

Two of the most important aspects of Peter Village are its possible defensive nature and its dating. Peter Village appears to be the earliest dated enclosure in the Ohio Valley. For Kentucky, both Peter and Grimes are unique (Clay 1980; Griffin 1943; Webb 1943). These sites point to a site type which to date has not been included in Adena cultural reconstructions. It is difficult at present to characterize that type, therefore, the description "defensive resource exploitation center" will have to suffice for now. The resource being exploited was barite/galena.

Secondly, there is a world of difference between Peter Village and the type of earthwork generally associated with Adena culture, the

"perfect circle" or "sacred circle": Mt. Horeb (Webb 1943) and Biggs (Hardesty 1964) in Kentucky, the various Newcastle enclosures in Indiana (Vickery 1979), and the Dominion Land Company Site (Otto 1979) and the Plains complex (Murphy 1975:194-213) in Ohio. The perfect circles, with their exterior berms and interior ditches, were explicitly non-defensive. Archaeologists are also coming to realize that in many cases, they were associated with burials mounds, within them or adjacent to them. It has been suggested that these types of sites represent one moment in the evolution of Adena use of ritual space, which could terminate in the construction of an accretional burial mound (Clay 1982).

Peter Village was not associated with burials or burial mounds of any sort. The nearest burial mound is the Fisher Mound (Webb and Haag 1947), .4 km to the north. While the Fisher Mound may have been built during the use of the Peter earthwork, it appears to have been a product of mortuary ceremony unrelated to events in the large enclosure.

Thirdly, Peter Village apparently spans the shift from Fayette Thick to Adena Plain pottery in the Bluegrass. The former was in use when the stockade was constructed, while the latter was in use by the time the site was abandoned. That shift, therefore, occurred sometime between ca. 310 and 190 B.C.

Fourth, a review of C-14 dates for Adena mounds in the Ohio Valley indicates that the prehistoric utilization of Peter Village coincides with the beginnings of accretional burial mounds as they are presently known. The Peter Village dates provide a rational for rejecting once and for all some early dates which have plagued chronology (for example from Cresap and Dover). With few exceptions, Adena mounds cannot be reliably dated much earlier than 300 B.C.

Finally, and summing up, Peter Village and sites like it at this time period may indicate a cultural threshold. Prior to ca. 400 B.C., there existed a non-earthwork building, Early Woodland culture in the Ohio Valley. In central Kentucky, it is not at all well represented in survey collections. Presumably it was marked by Fayette Thick ceramics and Adena Stemmed points. Eventually it was replaced with, or developed into, Middle Woodland culture, with a complexity of earthworks representing different site types.

It has been the practice to relegate Adena to Early Woodland and Hopewell to Middle Woodland. Lately, Adena has crept into late-Early Woodland, subtly modifying Dragoo's 1963 position that Early Adena was unknown, although it existed. Both are most effectively considered Middle Woodland. The 600 years after the establishment of Peter Village chart in the Ohio Valley the intertwined developments of the bits and pieces archaeologists have segmented and labeled Adena and Hopewell. Peter demonstrates the complexity of some of these bits at the very beginning of the developmental sequence, not well into it.

Such a statement does not argue either that there is no difference between Adena and Hopewell, or that there is or is not a developmental relationship between them. Clearly there are differences between the two cultural phenomena, and developmental relationships have yet to be worked out and are not simple and sequential. Rather, this point of view

asserts that Adena and Hopewell are products of the same set of factors. These are involved with the substantial modification of existing Early Woodland social and political structures. They are expressed in enhanced inter-regional trade and resource exploitation, the construction of both "defensive" and "ceremonial" earthworks, and the elaboration of burial ritual.

Peter Village, and the cultural events it reflects, symbolically punctuates Early Woodland development in this portion of the Ohio Valley. Whether it does it with a comma, or semicolon, or with a period and a new paragraph, represents a challenging culture historical question.

ACKNOWLEDGEMENTS

The 1983 excavations at Peter Village were made possible by a state grant from the Kentucky Heritage and matching support from the University of Kentucky. The support of both these institutions is gratefully acknowledged. Mr. Frank Lyle, owner of the major portion of the site, graciously permitted excavations on his land.

FAYETTE THICK:
A NEW VESSEL FORM FOR AN OLD CERAMIC TYPE

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ABSTRACT

Recent surface collections of Adena Plain and Fayette Thick ceramics from both Peter Village and Grimes Village in Fayette County, Kentucky are described. Information on a previously unknown Fayette Thick vessel form is presented.

INTRODUCTION

In the spring of 1981, a portion of Peter Village which had been in pasture for many years was cultivated. This provided archaeologists with an excellent opportunity to increase the sample of both Fayette Thick and Adena Plain ceramics from this important Early Woodland site. Large sections of a minimum of five Fayette Thick vessels were recovered during surface reconnaissance and the excavation of a 1 x 2 m test unit. In addition, Adena Plain sherds as well as bone, groundstone, barite, and chipped stone artifacts were recovered.

Griffin's (1943) Fayette Thick type description was based on a small sample (n=75) of surface collected sherds. Since Griffin's initial description, indiscriminate application of the type name to "thick" sherds from sites widely separated in space, and possibly in time, throughout the middle/upper Ohio Valley has led to the assumption that the Fayette Thick vessel form is barrel-shaped with a flat base. This form, however, is not common in the recent collections from Peter Village, the type site for Fayette Thick ceramics.

This paper describes the ceramic collections recovered by the author in 1981 from Peter Village and a sample of sherds which were collected over a period of 15 years from both Peter Village and Grimes Village by Charles Long of Georgetown, Kentucky. Although they are not described in this paper, ceramic specimens from Griffin's original sample, now in the Museum of Anthropology at the University of Kentucky, were also examined. To better illustrate the range of variation in Early Woodland rim forms, profiles of some of these specimens were included in this paper.

SITE DESCRIPTIONS

Both Peter Village (15Fa166) and Grimes Village (15Fa14) are located in the Inner Bluegrass Physiographic region, approximately 12 km north of Lexington in Fayette County, Kentucky. These sites are situated near the south bank of North Elkhorn Creek, a tributary of the Kentucky River, in an area of gently rolling karst uplands. Both are included within the Mt. Horeb mound and earthwork complex which dates to the Early Woodland period (Figure 1).

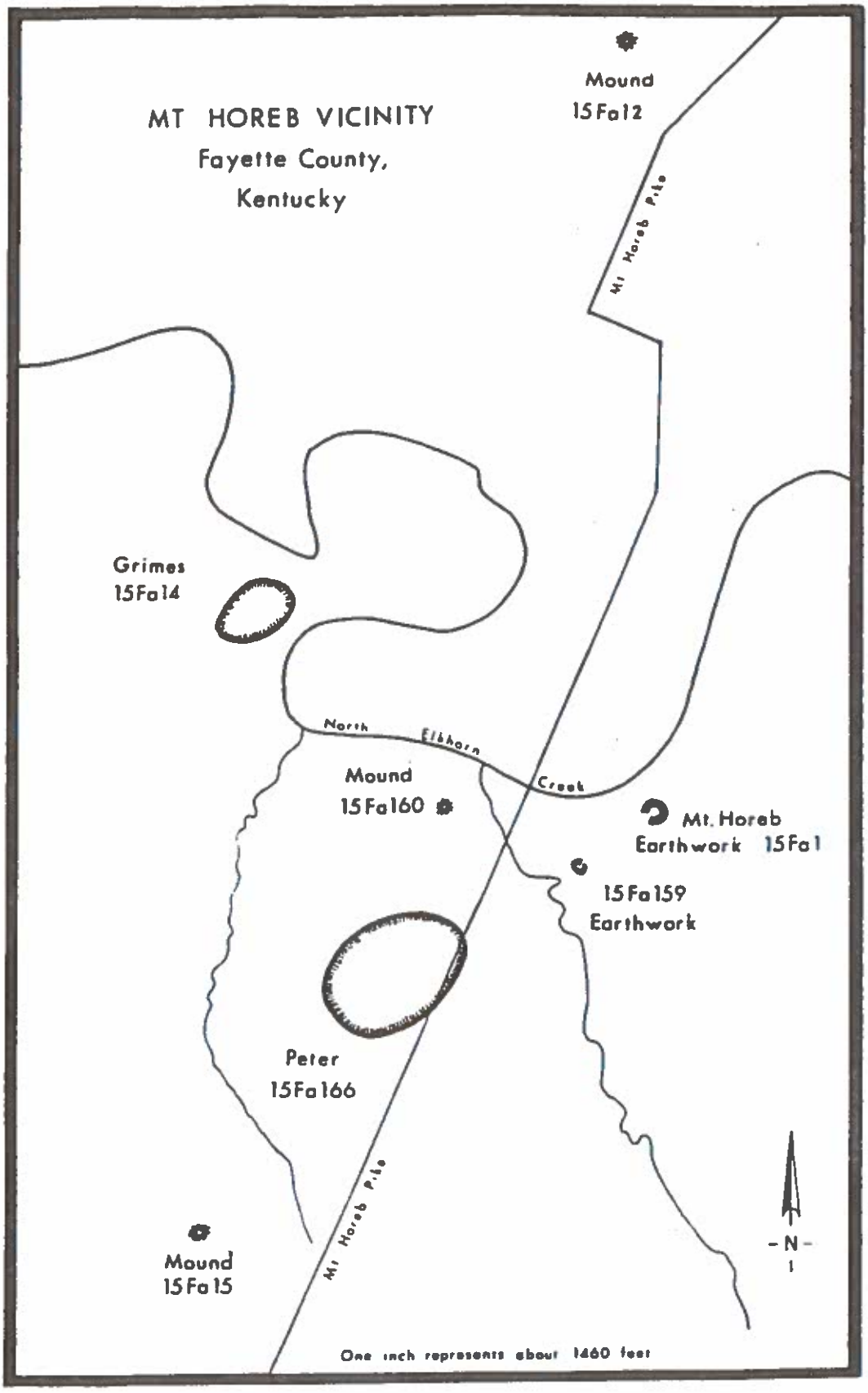


Figure 1. Mt. Horeb Mound and Earthwork Complex.

Peter Village

Constantine Rafinesque, a naturalist and a professor at Transylvania University in Lexington, Kentucky, was the first to survey, map and describe Peter Village and other sites in the Mt. Horeb vicinity. As part of an early endeavor to systematically record archaeological remains in Kentucky, Rafinesque in 1820 drew a "Map of the Lower Alleghawee Monuments on Elkhorn Creek". Rafinesque described Peter Village as being oval in shape and covering 9.2 ha. According to his description, which was verified by Clay's (this volume) recent excavations at Peter Village, the site is encircled by a ca. 2 m deep trench. Through the years this trench has filled in and today is barely discernable. For a complete description of Peter Village and an historical documentation of the area see Clay, this volume.

The eastern portion of the site is disturbed by Mt. Horeb Pike. The land on which Peter Village is located is currently owned by Castleton Farm, Winton Farm, and Mr. Frank Lyle and is primarily used for pasture, although a small portion of the site is occasionally plowed for crops. No buildings are present on the site today, but apparently a farm structure was once located on the north central portion of the site.

Grimes Village

Grimes Village is located approximately 1 km northwest of Peter Village on a bluff overlooking North Elkhorn Creek. The site encompasses an area of almost 4 ha. Grimes was not mentioned by Rafinesque in his writings, nor was it recorded on his early map. Dr. Alfred Peter collected the site for many years and in the spring of 1943, brought it to the attention of William S. Webb and Charles Snow (University of Kentucky Museum Records). A brief discussion of the site and description of surface collected materials are included as a separate report in Webb's (1943) monograph on the Riley and Landing mounds.

A site report for Grimes was filed in August, 1946 by Webb, Snow and Haag (University of Kentucky Museum Records). The site was mapped and photographed by William Haag. According to the University of Kentucky Museum Report for 1946-1947, during the month of August, "... a small earth mound, the Fisher Site, was excavated on the farm of Frank Lyle in Fayette County..." Some test excavations were conducted at two nearby village sites (presumably Peter and Grimes) but neither was thoroughly investigated (Webb Collection). Further investigations of Grimes Village have not been conducted.

Currently, the Grimes Site is owned by Winton Farm, which purchased the property from the Peter family in 1969. Within the last ten years, a barn has been constructed on the site and since that time the area has been used primarily for pasture.

CERAMIC DESCRIPTIONS

A total of 246 sherds were recovered from Peter and Grimes. Most were collected from a 1 x 2 m test unit (n=51) or during periodic surface collections (n=139) of Peter Village. The remaining sherds (n=56) were surface collected from both Peter and Grimes by Charles Long of

Georgetown, Kentucky. Of the 246 sherds recovered from these sites, 36 specimens were split sherds or were smaller than 2 cm^2 and were not included in this analysis. Two ceramic types were identified: Adena Plain (n=47) (Haag 1940:75-82) and Fayette Thick (n=158) (Griffin 1943:666-670). The latter was subdivided into limestone tempered and chert tempered varieties (O'Malley et al. 1983:145-154). Because of differences in paste and temper attributes five sherds could not be classified as either Adena Plain or Fayette Thick.

Adena Plain

A total of 47 sherds (10 rims and 37 body sherds) from Peter Village were classified as Adena Plain. In all essential features, the specimens are identical to those described by Haag (1940:75-79) from the Wright Site in Montgomery County, Kentucky. Adena Plain sherds are readily distinguished from the Fayette Thick limestone tempered specimens by temper size and density, paste attributes, thickness, color, and rim form.

Limestone temper constitutes a high percentage of the paste. Most of the tempering material is leached from the sherds, leaving small angular voids. A few remnant fossil fragments are sometimes visible in the paste. Concretions rarely occur in the clay matrix. Most temper particles are smaller than 1 mm in diameter, although some are occasionally as large as 4 mm in size. The paste is compact and the texture appears to be medium to fine.

Body sherd thickness ranges from 4 to 11 mm, with a mean of 6.8 mm. The mean thickness of Adena Plain specimens in the present sample is less than the published norm which is 8 to 9 mm. The reddish color common to Adena Plain specimens distinguishes them from Fayette Thick limestone tempered sherds, which are most often a pinkish buff color.

Adena Plain rims in the present collection are similar to those described by Haag (1940:75-79). Rims are thicker than vessel walls, with the thickening occurring on the exterior portion of the rim. In the majority of instances, rims are disproportionately thicker near the lower border (Figure 2b-h). One rim sherd (Figure 2c) is thickened equally on both the interior and exterior surfaces. With one exception, body sherds were too small to determine vessel form. One reconstructed vessel wall averages 7 mm in thickness. This vessel has an estimated diameter of 28 cm.

Although basal sherds were not represented in the present sample, two specimens in the University of Kentucky Museum of Anthropology collections from Peter Village (Figure 2i-j) indicate a vessel shape similar to that identified at the Wright Site in Montgomery County and the Stone Site in Bath County, Kentucky. The two specimens have an estimated basal diameter of 21 cm.

No appendages are present in the recent collections which could specifically by identified as belonging to the Adena Plain Type. However, one unusual cresent-shaped specimen (Figure 2k) suggests a rim appendage. Its surface is covered with oval-shaped punctuates which probably were produced by impressing the wet clay with a small hollow

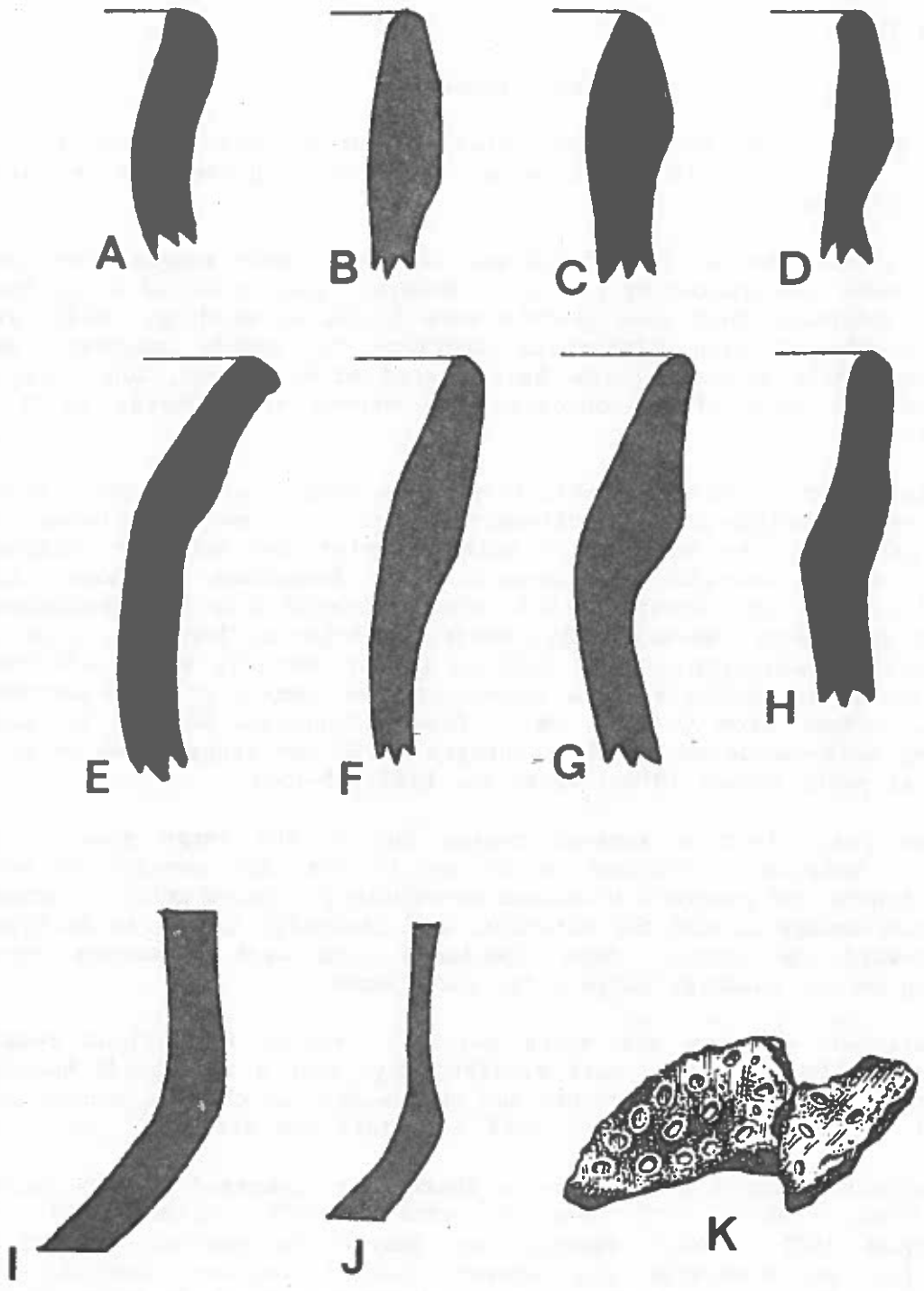


Figure 2. Adena Plain: a-h, rims; i-j, bases; k, an appendage.

reed or bone. The color is a reddish brown, which is typical of Adena Plain sherds, and the paste is limestone tempered.

Fayette Thick

Chert Tempered

A total of 69 sherds from Peter and Grimes were placed in this variety. Of these, 12 sherds were assembled to produce three larger vessel portions.

An examination of bond fractures on five sherds suggest that most vessels were constructed by coiling. However, inspection of a few basal sherds, indicates that some vessels were formed by molding. Coils were often roughened with fingernail imprints to insure adequate wall cohesion, while molded sherds have jagged broken edges, and interior surfaces are more often contorted and uneven than sherds built by coiling.

The temper consists of small flake-like fragments and larger, blocky particles of bluish-gray or off-white chert. On many specimens, the chert particles are visible on both interior and exterior surfaces. Typical sherds contain a relatively high frequency of large chert particles, although temper particle size and density varies considerably between specimens. Occasionally, chert particles as large as 12 mm can be discerned macroscopically. Average temper particle size, determined by petrographic analysis of a representative sample of thin-sectioned sherds, ranges from 0.8-6.9 mm. Temper density, derived by point counting thin-sectioned sherds, averages 15.3% and ranges from 8-26% of the total paste volume (O'Malley et al. 1983:145-154).

The paste texture appears coarse due to the large size of the tempering material. Natural inclusions in the clay consist of small quartz grains and numerous ironstone concretions. Paste color is usually a reddish orange toward the exterior, and gradually grades to an orange buff toward the core. Most specimens lack dark reduction cores. Smudging on the interior surface is fairly common.

Exterior surfaces are often mottled, varying from light reddish brown to yellowish red to dark reddish gray, with a few sherds having a dark gray color. Moderate values and yellow and red chromas predominate. Typical specimens have orange buff exteriors and gray buff interiors.

Surface finishes of the Fayette Thick chert tempered variety include four types: fabric (5%), smooth textile (65%), plain (12%), and cordmarked (9%). Most cordage or fabric impressions are either indistinct or partially obliterated, making surface identification difficult. Therefore, sherds which could not be definitely identified as either fabric impressed or cordmarked were placed in the smooth textile category (Figure 3a-e). In all probability, most specimens placed in this category are in fact impressed with some type of woven fabric. Knots, grooves, and miscellaneous cord impressions often are scattered over sherd surfaces.

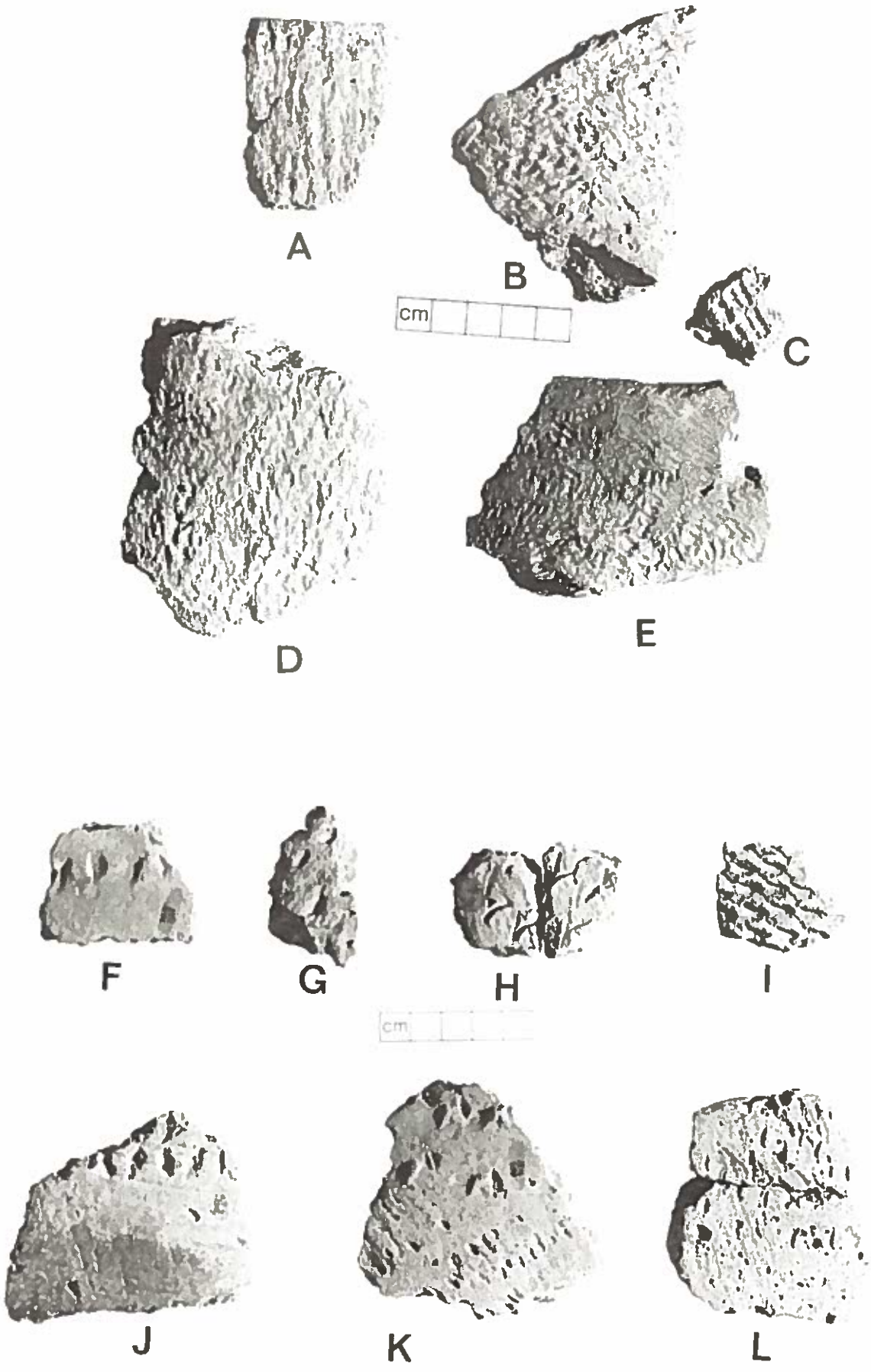


Figure 3. Fayette Thick: a-e, cord/fabric impressed; f-l, finger nail pinched/impressed.

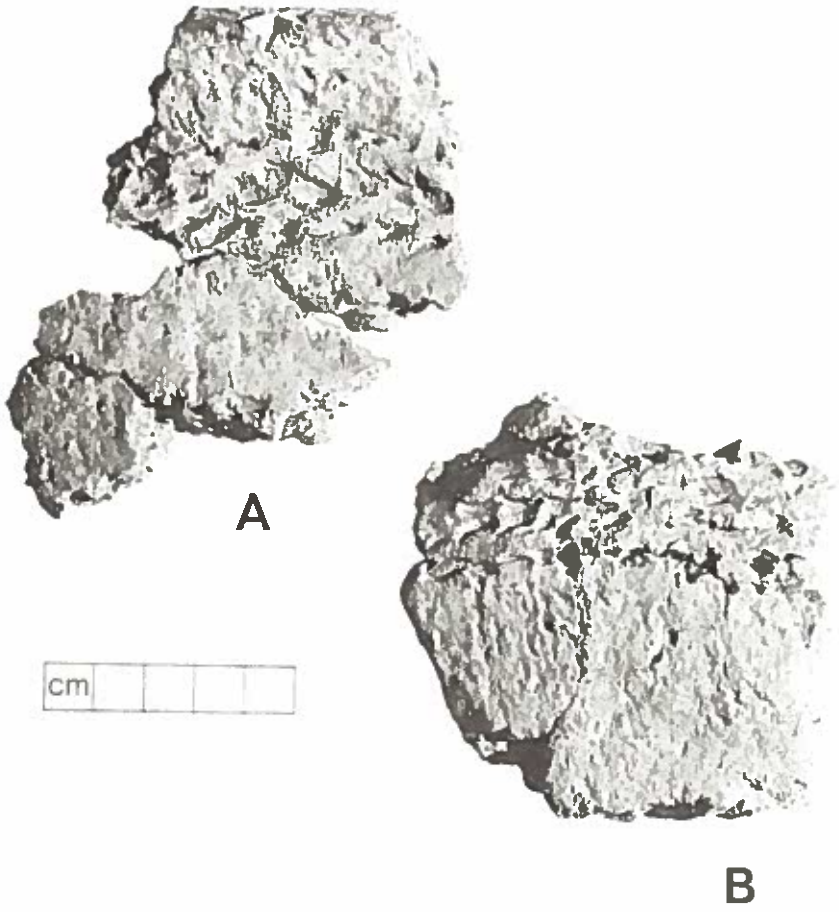


Figure 4. Fayette Thick Chert Tempered Finger Nail Impressed.

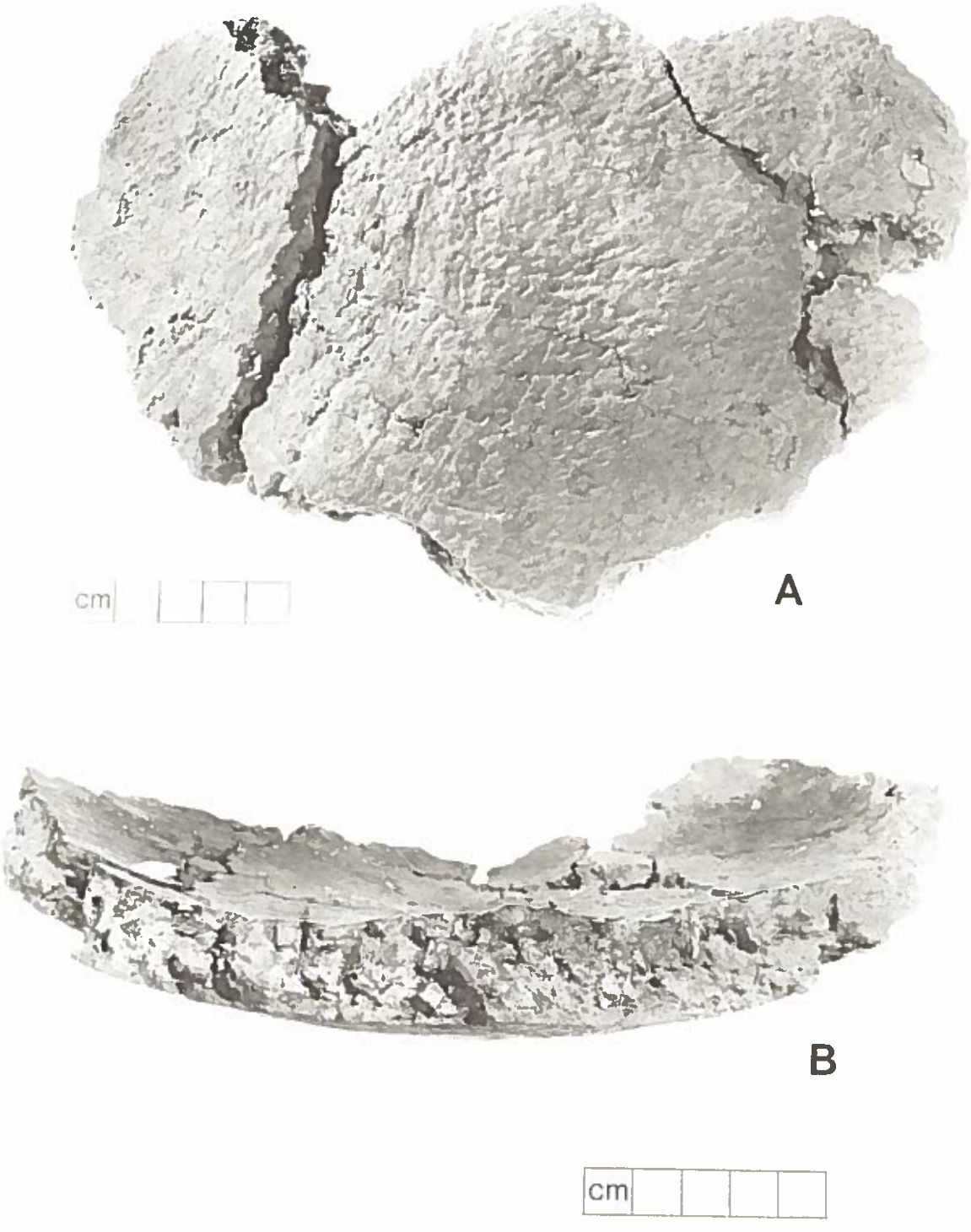


Figure 5. Fayette Thick Chert Tempered Variety; a, cordmarked basal sherd; b, profile view.

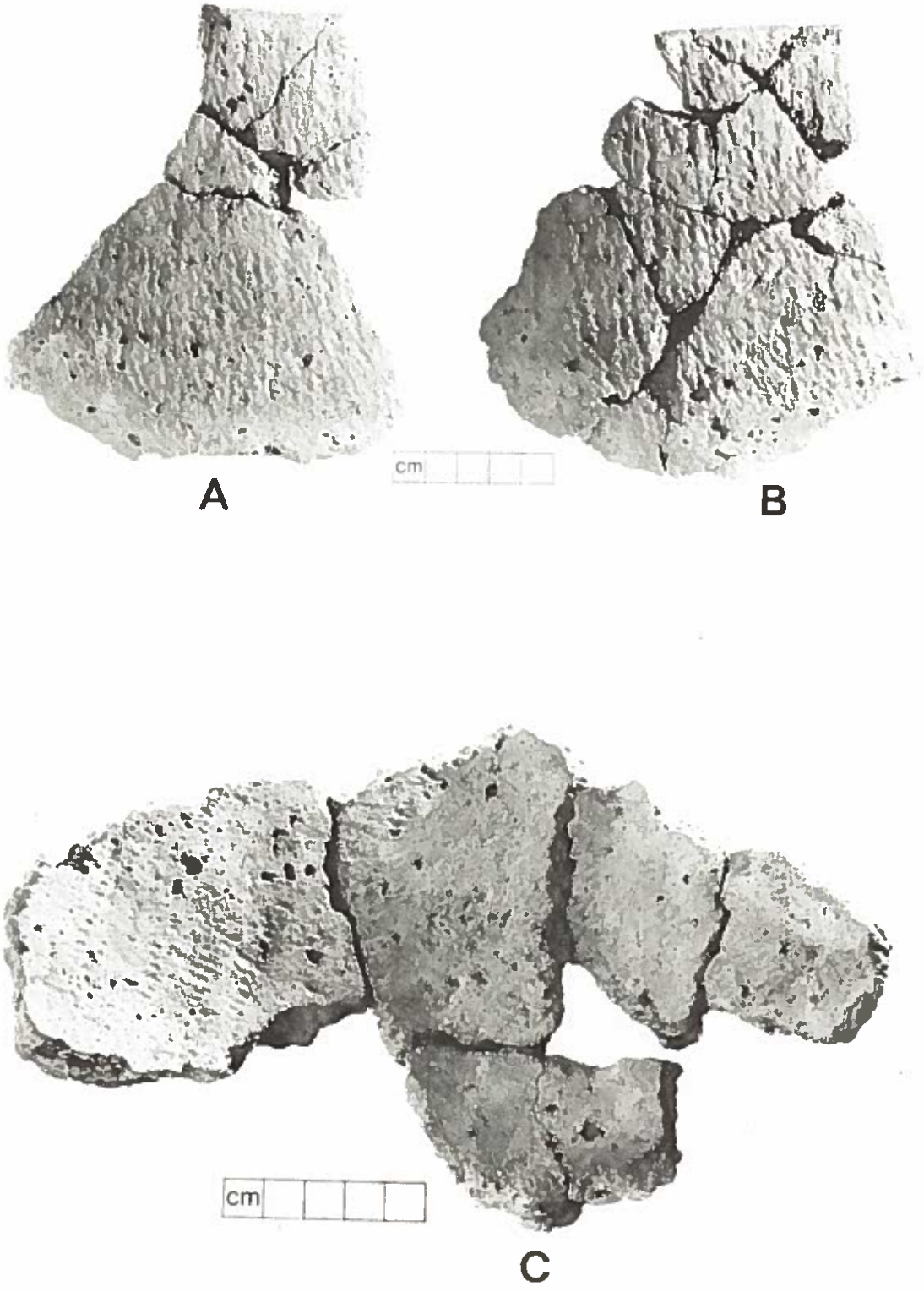


Figure 6. Fayette Thick Limestone Tempered Variety: a-b, smooth textile (probably fabric) impressed rim sherds; c, body sherds with interior cordage impressions.

Plain surface finishes are grainy, coarse and poorly smoothed, and probably result from the obliteration of cord/fabric impressions. Cordmarked surface finishes have cordage impressions which are indistinct, and in the majority of cases, are oriented vertically. Cord spacing is variable, with individual cords having a mean diameter of 2 mm. On the few specimens with distinct impressions, twists on two ply cords are either "S" or "Z" in about equal proportions. In most instances, a single surface treatment covers the entire vessel surface. However, one sherd (Figure 3k) indicates that two different surface treatments may occur on the same vessel. Most sherds have interior surfaces with a smooth, matte finish; although cord/fabric impressions occur on approximately 20% of the specimens.

Decoration, produced either by pinching or less commonly by finger nail impressions (Figure 3f-l), is present on the exterior of 11 sherds from Peter Village and four specimens from Grimes Village. On 13 specimens "pinching" occurs over fabric-impressed or smooth textile surface finishes; two specimens exhibit pinching over a plain finish. The "pinched" decoration consists of two or three horizontal rows of pinch-marks which form a zone on either the neck (Figure 4a) (20 to 40 cm below the lip), the area where the base joins the sidewall (Figure 4b) (low shoulder), or both portions of the vessel. Examination of three sherds suggests that fingernail pinching may occur randomly over the entire vessel surface.

Four rim sherds from Peter Village and one from Grimes Village were analyzed (Figure 7a-e). Orifice diameters range from 30-34 cm. Most rims are direct, with some slightly outflaring. Rims are simple in profile and gradually taper in thickness toward the lip which is usually flat with a slight outward bevel. One specimen (Figure 7b) has a slightly rounded lip. Lip surfaces are either smoothed or cord/fabric impressed.

Chert tempered vessels are highly variable with respect to thickness. Lip thickness ranges from 6-12 mm with a mean of 8.5 mm while rim thickness (measured 3 cm below the lip), ranges from 6.5-13 mm, with a mean of 10.5 mm. Body sherd thickness ranges from 9-17.5 mm, with a mean thickness of 13.5 mm, while basal sherd thickness ranges from 18-25 mm, with a mean of 19.5 mm.

One vessel wall (Figure 7p) with a height of 17 cm varies in thickness from 6.5 to 17.5 mm, top to bottom. A large basal section (Figure 5) measures 22 x 14.5 cm; varies in thickness from 14 to 25 mm; and weighs 757 g. The estimated diameter of this vessel is 31 cm.

Vessel forms identified from Peter Village indicate that the most common vessel shape is a shallow basin (Figure 8b). Basin-shaped vessels have wide mouths, slightly rounded bottoms, and a diameter twice the height of the vessel. The curvature of one rim indicates an orifice diameter of 32 cm (Figure 7l). Two vessel sections indicate maximum body diameters ranging from 32 to 40 cm (Figures 5 and 8b). One basal sherd (Figure 7q) represents the flat-bottomed form usually associated with Fayette Thick.

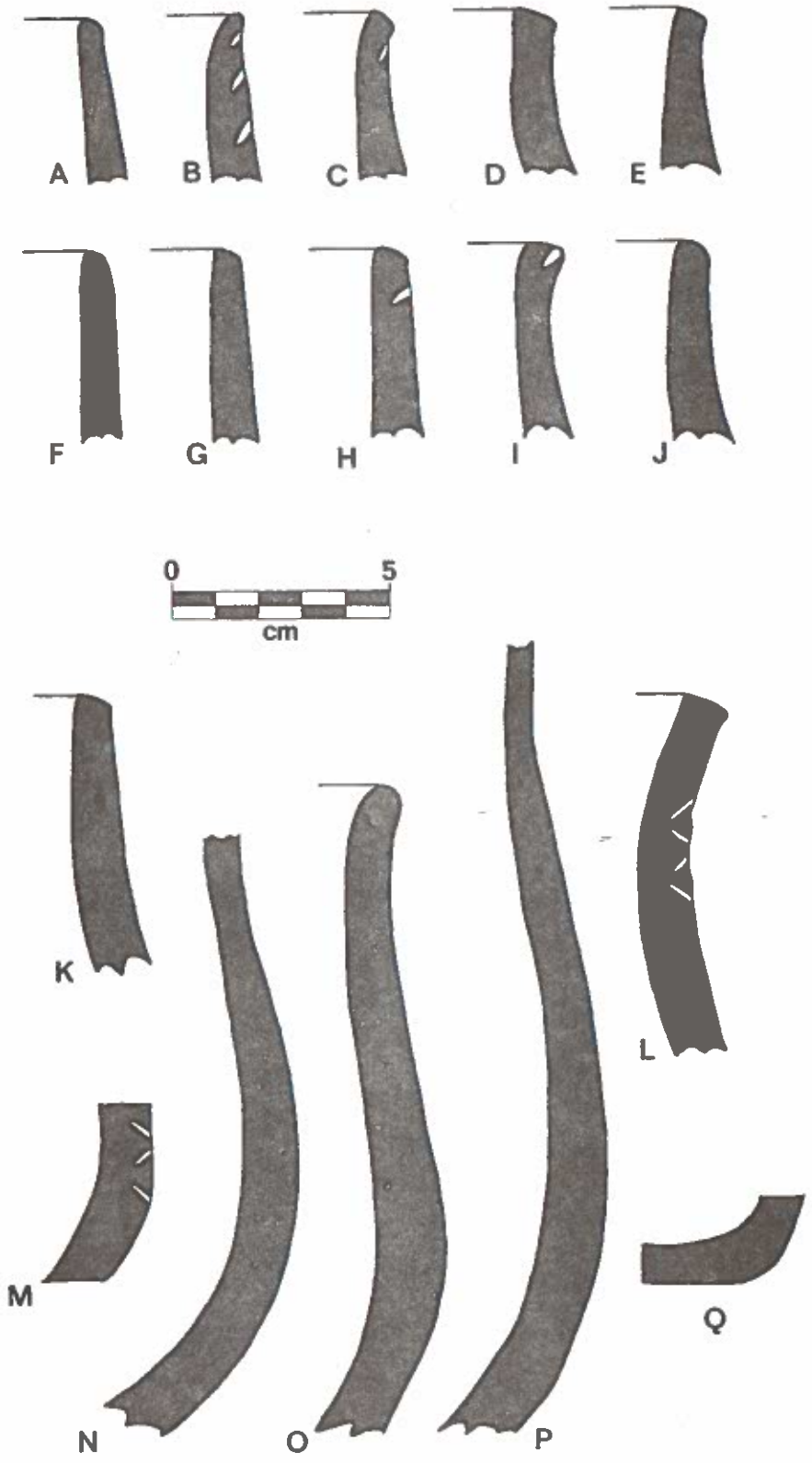
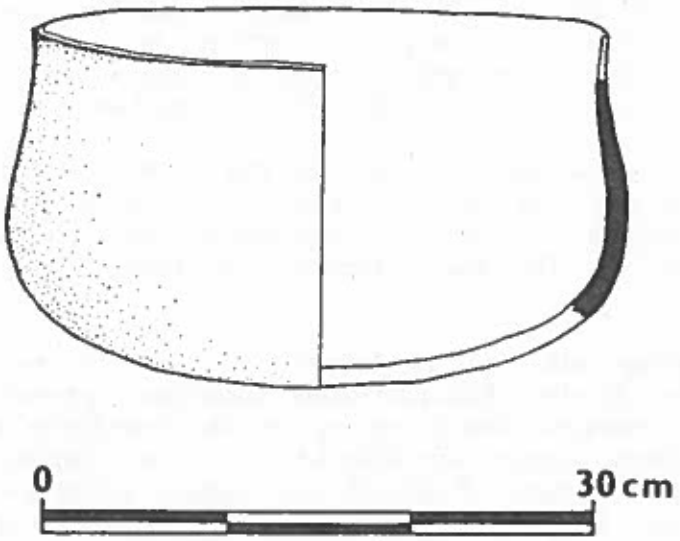


Figure 7. Fayette Thick Profiles: a-e,l,p-q, chert; f-j,k,m-o, limestone.



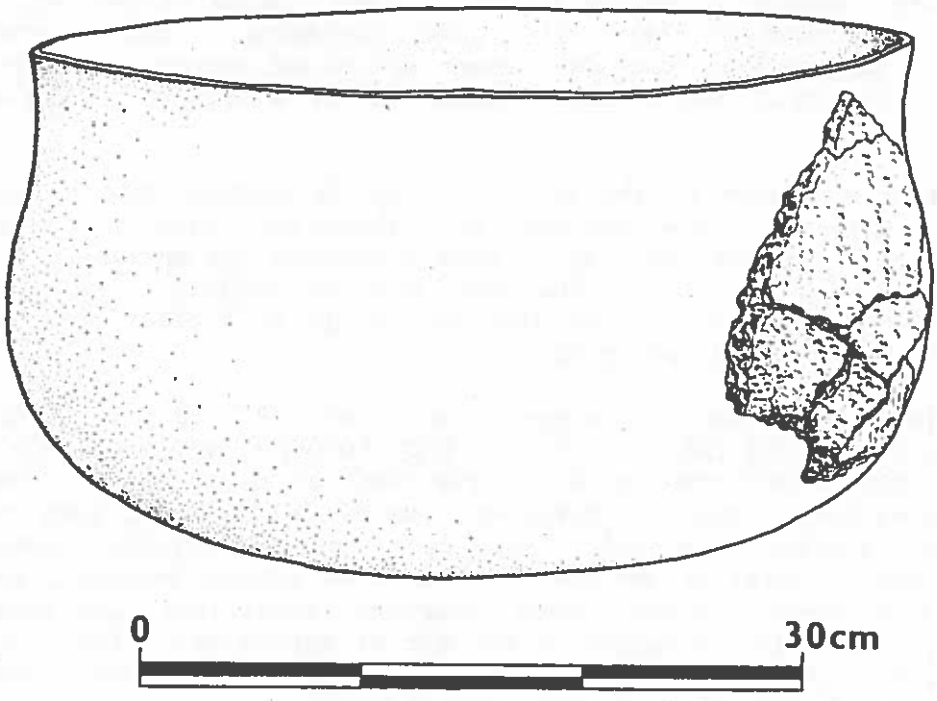


Figure 8. Fayette Thick Reconstructed Vessels: a, limestone tempered; b, chert tempered.

Limestone Tempered

A total of 89 sherds from both sites were placed in this variety. Of this total, 19 sherds were assembled to produce three larger vessel portions. The limestone tempered variety is similar to the chert tempered variety in most attributes, but differs with respect to temper, paste, and the frequency of certain types of surface finishes.

The method of manufacture is coiling. Unlike the chert tempered variety, coil breaks are smooth and do not show evidence of fingernail roughening, although one coil is impressed with a cordwrapped object. Also in contrast to the chert tempered variety, basal sherds are not molded.

The tempering material is limestone, which in most instances, is leached from the sherds. Fossiliferous limestone, present in two sherds, is similar to limestone which occurs in the immediate vicinity of both sites. The average temper particle size is 4 mm, but may vary from less than 1 to 8 mm. On many of the sherds, temper particles represented by angular voids are visible on both the interior and exterior surfaces. Temper density, determined by petrographic analysis, ranges from 8-19% of the total paste volume (O'Malley et al. 1983:145-154). A few sherds contain small amounts of grog (fired clay or crushed sherd) temper. Temper particles in the limestone tempered variety are smaller and temper density is less than that in the chert tempered variety.

Paste texture is medium to coarse, well consolidated, and appears more compact than in sherds with chert tempering. This is probably a result of the smaller size and lesser amount of temper particles within the clay matrix. Concretions appear to be scattered throughout the paste.

The paste color of the core is slightly lighter than in the chert tempered variety. Smudging and dark reduction cores are infrequent. Exterior and interior surfaces of most specimens are mottled and usually are somewhat lighter than in the chert tempered variety. Typical surface colors are pinkish buff rather than the orange buff color characteristic of the chert tempered specimens.

Exterior surfaces are primarily smoothed (63%) or plain (30%), with cordmarked (6%) and fabric impressed (1%) finishes occurring only rarely. Cordage width and orientation is the same as described for the chert tempered variety. Plain surfaces are poorly smoothed and, like the chert tempered sherds, probably resulted from smoothing cord/fabric impressions. Interior surfaces are usually plain, however, some body sherds with plain interiors have occasional indistinct cord impressions oriented at an oblique angle to the top of the vessel (Figure 6c). The impressions appear to have been made either with the edge of a cord-wrapped paddle or by a cord-wrapped stick.

Decorated specimens include three sherds with fingernail impressions and one sherd which is incised. The incised sherd is from Peter Village and contains decoration consisting of two lines intersected at an oblique angle by a third line. One of the fingernail impressed sherds is a

shoulder/basal fragment (Figure 7m) which exhibits rows of fingernail impressions above the angle of the shoulder and has a plain surface below.

Limestone tempered rim specimens (Figure 7f-j) are similar to those of the chert tempered variety, with the exception that lips are slightly more rounded. Thickness attributes are the same as for the chert tempered variety, with body sherd thickness averaging 13-14 mm.

Reconstructed portions of two limestone tempered vessels suggest a form similar to that for the chert tempered variety. Two large vessel wall sections indicate a shallow basin-shaped vessel, with a wide mouth and low shoulder (Figure 6a-b). The walls constrict slightly near the upper portion of the vessel and rims are direct. The shoulder (angular heel) gradually curves under to form a slightly rounded bottom. Although the exterior surface treatment is identified as smooth-textile, it is probable that the finish results from impressing the surface with fabric (Robert Maslowski personal communication 1983) (Figure 6a-b). The interior surface has a plain finish. The vessel has an estimated maximum body diameter of 34 cm and an estimated vessel capacity of 14.7 l (Figure 9).

The second vessel (Figure 8a) has a similar but slightly more rounded form. It also has the same maximum body diameter of 34 cm. The exterior surface has a plain finish. The interior surface is also plain with occasional indistinct cord impressions.

Miscellaneous Sherds

There are five body sherds which differ from the Adena Plain and Fayette Thick types. One specimen from Peter Village was thin-sectioned and examined petrographically (O'Malley et al. 1983:150). The specimen contains several large granite fragments, but is typical of Fayette Thick in all other attributes. It is probable that the igneous rock tempering agents were derived from portions of groundstone tools which are prevalent in the surface collections. Two sherds from Peter Village, apparently from the same vessel, have a sandy paste, and a smoothed-over cordmarked exterior and plain interior surface finish. The specimens have a maximum thickness of 7.5 mm and their color is a reddish brown. One sherd, with a plain exterior and interior surface finish, has a maximum thickness of 10 mm and is tempered with shale. Another specimen from Peter Village is tempered with hornblende and has a paste which is sandy and extremely hard. The tempering material and paste attributes suggest that this specimen was not manufactured locally. The exterior surface exhibits a plain finish with several shallow striations spaced 5 mm apart, possibly representing decoration. The interior surface is plain and the sherd has a maximum thickness of 11.5 mm. The sherd color is a dusky yellowish buff.

Ceramic Summary

Adena Plain specimens from recent collections and sherds in Griffin's original sample are similar in all respects, except mean wall thickness, to those described by Haag (1940) from the Wright Site. Existing surface collections, both recent and those examined by Griffin

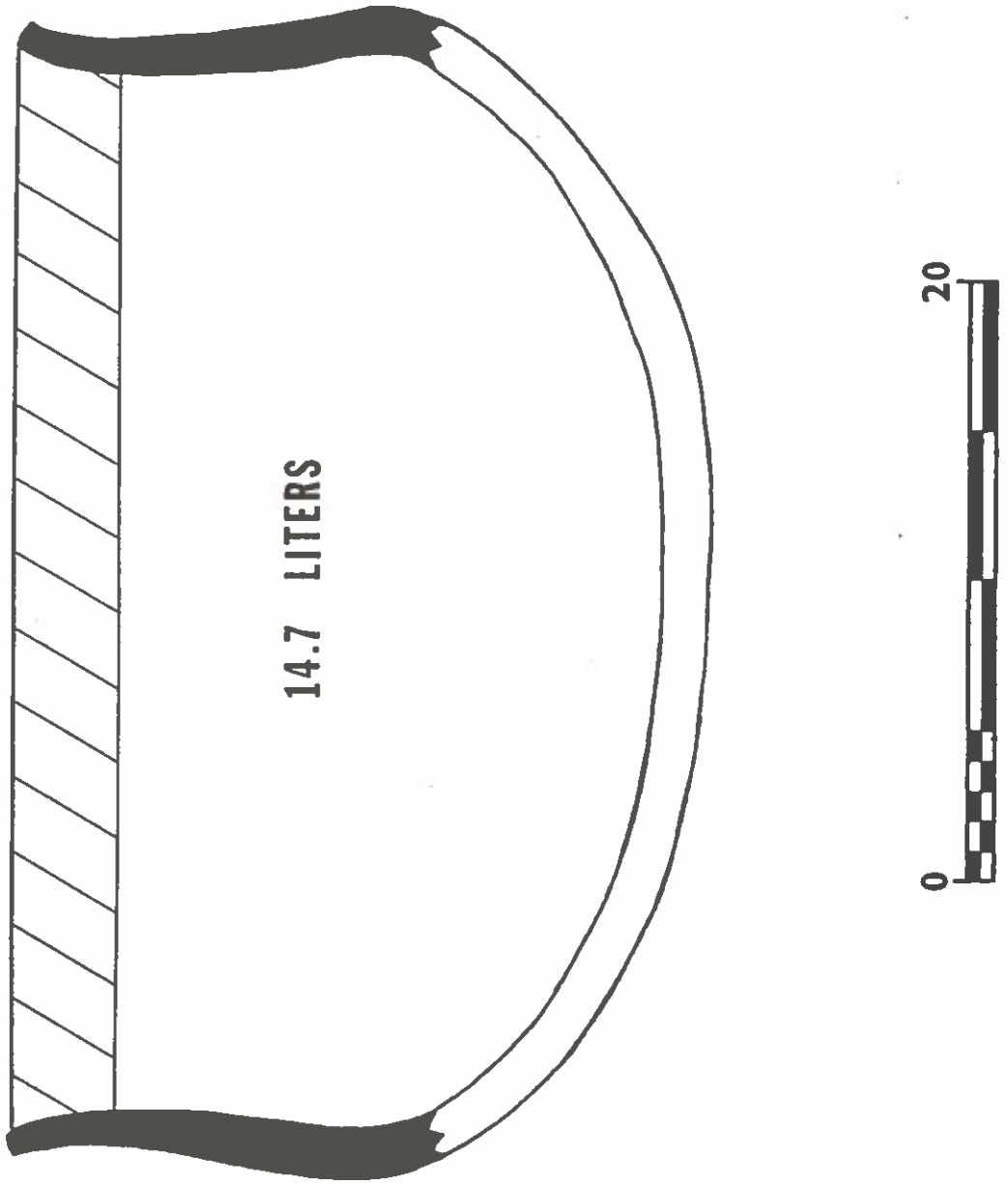


Figure 9. Reconstructed Limestone Tempered Fayette Thick Vessel.

from Peter Village, indicate that Fayette Thick specimens are more prevalent than Adena Plain sherds. In Clay's excavated sample from Peter Village, however, Adena Plain specimens outnumber Fayette Thick sherds. This reversal of sherd frequency suggests that surface collections may be subject to collector bias, resulting from the breakage of thinner Adena Plain specimens into smaller, less noticeable fragments.

The preceding Fayette Thick description is similar to Griffin's (1943) characterization of the type with the exception of a greater thickness range and the addition of a new vessel form. However, two varieties were distinguished on the basis of temper: a chert tempered variety and a limestone tempered variety. Based on petrographic analysis (O'Malley et al. 1983:145-154), very few sherds containing a mixture of limestone and chert temper were observed. Chert tempered specimens are most often indistinctly fabric impressed, while limestone tempered sherds tend to be smoothed or have a plain exterior surface finish. Interior surfaces are usually plain, however, some have fabric or scattered cord impressions. Decoration consists of finger pinches or fingernail impressions, usually in zones located just below the rim or just above the basal section.

The recently recovered large vessel sections indicate that vessel wall thickness is highly variable. In the present surface collections a mean sherd thickness of 13.5 mm is not significantly different from Griffin's 14 mm average thickness. However, the total range of thickness in the recent sample (6.5-25.0 mm) is much greater than Griffin's original range of 10-17 mm.

The new vessel form, a large shallow basin, is represented by a minimum of five individual vessels. Basal sections are slightly rounded and vessel walls are somewhat recurved. Rims are direct and lips are flattened with a slight outward bevel. Both the chert and limestone varieties have orifice diameters of 32-40 cm, indicating large heavy vessels. The size and weight of Fayette Thick vessels and their production from locally available materials (O'Malley et al. 1983:145-154) clearly indicates that they were manufactured at or within the immediate vicinity of the sites.

DISCUSSION AND CONCLUSIONS

Since Griffin's initial description, conceptions of the Fayette Thick type have suffered from increasing ambiguity. Confusion has resulted in part from a lack of definitive information on Fayette Thick vessel forms and the variability contained in other attributes of the type, including temper, surface treatment, and thickness.

This paper has described the Fayette Thick vessel form most common in recent collections from the type site (Peter Village), one which differs from the form usually associated with Fayette Thick: a flat-bottomed, barrel-shaped jar. How this concept became established is clear from a brief review of the literature. In the original description of Fayette Thick, Griffin (1943:669) discusses vessel form as follows:

> The three small rim sherds are too small to give any accurate idea of the vessel shape but they suggest a wide mouth bowl or

> vertical walled jar. ... A small number of sherds suggest that the base was flat. There is no evidence at present indicating either conical or rounded bottoms.

Subsequently, Webb and Baby (1957:20, 39) described the form of several nearly complete vessels from excavation of the Dominion Land Company Site in Ohio, which they classified as Fayette Thick. They state: "The vessels are large, ranging from 12 to 18 inches (30-45 cm) in height. The bodies are "barrel" shaped, with flat circular bottoms; the walls range from 12 to 17 mm in thickness (Webb and Baby 1957:20)". This barrel-shaped vessel form is illustrated as Fayette Thick by Dragoo (1963:181) in Mounds for the Dead. Perhaps because other Early Woodland ceramic types, such as Half-Moon Cordmarked (Mayer-Oakes 1955:187-190, 215) have this barrel-shaped form, and because of Webb and Baby's description of the Dominion Land Company Site pottery, it has been assumed that Fayette Thick vessels are predominantly flat-bottomed and barrel-shaped. However, the recovery of portions of five shallow, basin-shaped vessels from Peter Village, the type site for Fayette Thick, casts considerable doubt on the validity of the assumption that the barrel-shaped form is the sole vessel form.

In describing the variability of the Fayette Thick type, Griffin (1943:667) states:

> In marked contrast to the sherds attributable to Adena Plain are a group whose most noticeable feature is their thickness and the size of their tempering particles....Tempering material, surface finish, color and probably basal shape have some variability but the size of the vessel wall remains the unifying character of the type.

Recent ceramic collections from Peter Village indicate that vessel wall thickness is also highly variable. Given the variability in temper (chert, limestone, granitic rock, grit, clay or grog), basal shape (slightly rounded, and flat) and range of wall thickness (6.5-17.5), it is understandable why Fayette Thick as a ceramic type suffers from conceptual ambiguity.

In the present study, two varieties of Fayette Thick were recognized on the basis of temper, both of which share a shallow basin-shaped vessel form. While a flat-bottomed, barrel-shaped form is suggested by a single specimen, the basin-shaped form predominates in the recent assemblage. With larger samples, it may be possible to further separate Fayette Thick on the basis of other attributes. Refinement of our concept of Fayette Thick will ultimately allow questions of function and temporal position to be adequately addressed. Indiscriminate classification of all "thick" Woodland pottery as Fayette Thick, however, will do little to clarify the spatial distribution and temporal relationships of thick Woodland pottery in the middle/upper Ohio Valley.

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RESULTS OF THE BOYD COUNTY MOUNDS PROJECT AND THE PRELIMINARY INTERPRETATION OF PREHISTORIC MORTUARY VARIABILITY

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ABSTRACT

The Program for Cultural Resource Assessment at the University of Kentucky, under contract with the Kentucky Department of Transportation, excavated three sites within the right-of-way for the new U.S. Route 23 in Boyd County, Kentucky. These sites were judged to contain significant information on a poorly documented prehistoric mortuary site type, the small upland stone mound. However, only two of these sites proved to be prehistoric burial localities. The Viney Branch Site (15Bd306) was radiocarbon dated to the Early Woodland period, while the Brisbin Site (15Bd311a) was typologically dated to the Middle Woodland period. The internal composition of both sites is described and the observed mortuary patterns are interpreted and compared to previously excavated Kentucky mounds.

INTRODUCTION

When considering prehistoric mortuary behavior in the central Ohio River Valley during the Woodland period, the names Adena and Hopewell come immediately to mind. With these names come connotations of increasingly elaborate burial ceremonialism and status differentiation, as evidenced by earthen mound construction, prepared burial receptacles, and differential distribution of grave offerings (Brose and Greber 1979; Mills 1901; Moorehead 1922; Webb and Snow 1945; Webb and Baby 1957). Over time, the distribution of earthen burial mounds shows a growing concentration within ecological zones that are the most favorable for the cultivation of plants (Ford 1974; Dragoo 1976). Such areas contain broad alluvial valleys along major tributaries and their associated arable soils, and climatic conditions suitable for long growing seasons. Consequently, the development of burial ceremonialism has been correlated with increasing sedentism and trade relationships between groups (Caldwell 1964; Dragoo 1976; Ford 1974; Griffin 1967; Struever 1964). However, the social organization linking these groups appears not to have been be highly structured and formalized and may have operated discontinuously (Ford 1974).

The picture of prehistory for the Early and Middle Woodland periods visualized local groups becoming more concerned with external relationships, which are symbolized in mound construction and differential treatment of the deceased. However, such an interpretation may be oversimplified and premature; especially if the changing mortuary practices are viewed as evidence for increasing social complexity. Archaeologists are hard-pressed to determine and define boundaries in the

prehistoric record and to address questions concerning the maintenance of such boundaries (Hodder 1982). Adequate criteria linking archaeological remains with levels of social complexity below chiefdoms and states have not been developed (Renfrew 1984; Pebbles and Kus 1977). One common denominator all groups share is the communication of ideas, internally as well as externally. The degree of formalization and standardization a message takes symbolically can reflect differing levels of social complexity, and the social distances between members of the group (Wobst 1977). However, the symbols of social distance do not in and of themselves define group boundaries because they can reflect internal as well as external social interactions.

Symbols of social identity or status represent an individual's position within a group, regardless of space. Determination of ascribed versus achieved status or the hierarchical ranking of statuses must be determined by the frequency of occurrence and the distribution of the symbols. Symbols of social distance linking geographically separated individuals, or local groups through representative individuals, do not necessarily reflect the individual's status position within the group. Instead, such symbols may reflect group identities rather than status. When a social group reaches a certain degree of organizational complexity, some social identities can become synonymous with group identities, resulting in formalized positions and the possibility of hierarchical ranking of statuses. Conversely, groups with lower degrees of complexity in social organization tend to formalize group identities, while social identities are idiosyncratically symbolized. Consequently, the enumeration of individual and group identities in the archaeological record can be important in establishing social boundaries and studying group dynamics.

The enumeration of symbols of social distance does not rest solely on the formal and spatial attributes of the objects used to convey the symbolic message. The degree of standardization in symbol form, or style, represents the frequency of interactions between socially distant individuals and the need to convey a clear and precise message (Wobst 1977). Factors which can influence the frequency of social interactions include population size, degree of mobility, fluidity across internal and external social group boundaries, and time to engage in such activities. When considering the level of social complexity for groups, the degree of standardization in symbolic form appears to shift from group identities to social identities with increasing levels of social complexity. However, these social identities are formalized positions and represent sub-groups within a group. The segmentation of a group and the establishment of formalized social identities is one means by which a group can effectively manage its social and natural environment (Flannery 1972).

The concern rests on defining distinct groups, because the interactions between local groups can promote the growth of larger regional groups. Initially, the study of the processes of social change is secondary to the delineation of local group boundaries, because the processes of change are reflected in socioeconomic factors and historical events of a group, which requires an understanding of the social interactions involved. A group's success or failure rests on the decisions made by its members concerning their internal and external

social interactions. Such interactions can vary over time and space, depending on the perceived needs of the group. Consequently, variability in the archaeological record can occur, and points out the need for regional chronologies and the delineation of group boundaries.

THE STONE MOUND PROBLEM

Although Adena and Hopewell burial ceremonialism is usually associated with the construction of large earthen mounds along river valleys and bluff edges, other types of mortuary sites are known to occur in some regions. Whether this variation in mortuary site types reflects alternative internment practices for a social group, the presence of more than one social group in a region contemporaneously, or sequential change in mortuary practices over time is not well understood. One reason is the poor documentation of the range of variation in mortuary site types. Of interest here are those sites labelled "stone mound" and "stone grave".

Several reasons can be advanced for the lack of professional attention focused on these sites. Although stone mounds and graves appear to be quite numerous, their small size and paucity of artifacts were a deterrent to early investigators. Since stratigraphy and seriation were the only means to order sites in time, space, and form, it is understandable why attention centered on the larger, possibly stratified, earthen mounds. Additionally, the small stone mounds were easy targets for relic hunters and served as a ready source for construction material. Both types of activities destroyed the archaeological context of these sites, thus limiting the amount of potentially useful information. The most concise and descriptive account of small stone mounds in Kentucky can be found in Young (1910:26):

> In various parts of Kentucky burials were made under piles of stone or cairns. These have been found quite frequently in Nelson and adjoining counties. At least one has been observed in Union, and many in Greenup. It was evident that in this class of burials there was a slight excavation, half a foot to a foot deep, and over the body after it was deposited on the ground, were laid piles of stone varying from 2 to 4 feet in height and running from 6 to 12 feet in diameter. These stones were laid with some appearance of care, and while they were not put in courses, it was apparent that the structure had been carried upward by regular deposits of stone, and when completed a sort of arch was formed over the top of the ground. As these stones were penetrable by rains and melted snows, there was little to indicate the nature and character of the skeletons placed beneath. A fragmentary bone here and there, and always distinguishable dust which is created by the dissolution of the body were the only evidence that remained of those who were thus laid away in the long past.

This statement refers to the form and internal composition of small stone mounds and suggests a regular and static pattern in their construction and use.

Absent from Young's statement is any concern with the chronological placement of such sites in prehistory. Not until 1960, with Kellar's synthesis of the published literature on stone mounds and graves, does one see an attempt to document the variability in such sites and attribute it to different temporal and cultural periods. However, the data base was limited and comparisons had to be made over a wide geographical area. Such an analysis can obscure regional variation over time and space, and points to the need for corroborative absolute dates to establish contemporaneity between sites of similar form occurring in widely separated localities.

More recently, there has been a renewed interest in documenting the structural variability of stone mortuary facilities (Brown 1981; Ferguson et al. 1972). In addition, this issue has been partially examined in relationship to varying mortuary behavior and site function over time and space (Clay 1984). Much of the work has been done in Kentucky's neighboring states either to rescue the remaining contextual information from "potted" sites or in conjunction with federally funded projects which have endangered sites (Clark et al. 1960; Dowd 1972; Ferguson et al. 1972; Fowler et al. 1976; George 1978; Oakley and Futato 1975; Stewart 1981). Although local or regional variations in mortuary sites has been documented, the range of mortuary variability over time and space has not been fully identified.

Although limited in scope, this study had the opportunity to document a portion of the regional mortuary variability for the Big Sandy drainage. Since the sites involved were initially classified as stone mounds, a poorly documented mortuary site type in eastern Kentucky, contextual information recovered would be insightful and beneficial for understanding some of the region's prehistory. Of primary importance was the temporal placement of the sites. Once this was established, questions concerning the cultural relationships between small, upland stone mounds and large, floodplain earthen mounds could be addressed through a comparison of contextual information.

PROJECT PURPOSE AND EXTENT OF WORK

During the summer of 1984 the University of Kentucky's Program for Cultural Resource Assessment, Kentucky, under contract to the Kentucky Department of Transportation, excavated three stone mounds in Boyd County, Kentucky. Only two of the sites, the Viney Branch Site (15Bd306) and the Brisbin Site (15Bd311a), proved to be of prehistoric origin. The third site contained the remains of an Historic Euro-american structure from the latter half of the nineteenth century (Aument and O'Malley 1985).

Boyd County is situated in northeastern Kentucky along the border with Ohio and West Virginia, with the Ohio and the Big Sandy rivers serving as natural boundaries between the states, respectively. Physiographically, this area is referred to as the Eastern Mountain and Coalfield region and is characterized by a well-developed dendritic drainage pattern with narrow alluvial valleys, steep valley walls, and narrow relatively flat ridgetops (Thornbury 1965:130; Bladen 1973:23). The ruggedness of the terrain has been postulated as an inhibiting factor to mobility, communication, and cultural development for historic and

prehistoric settlement and use of the region (Bladen 1973:24; Dunnell 1972:6). Consequently, the major waterways served as the transportation network, with the present-day city of Ashland situated at a strategic location just north of the confluence of the Big Sandy and Ohio rivers. Interestingly, the Ashland area also contains the largest aggregation of prehistoric mounds (presumably Adena), and village sites in the region, suggesting the importance of this locality as a communication crossroads in prehistory.

The archaeology of Boyd County is characterized by a lack of professional attention, although the potential significance of the Ashland area sites was well known (Webb and Funkhouser 1932:39-42). Only within the last 10-15 years has professional attention returned to the area, primarily in conjunction with federally funded contract surveys (Aument and O'Malley 1985). Most of these surveys were concerned with locating floodplain sites and documenting the prehistoric settlement pattern (e.g. Hamilton et al. 1983). Only one project, concerned with the relocation of U.S. Route 23, surveyed upland areas and tested several mortuary sites (Schock and Foster 1976).

The work reported on in this paper is a direct outgrowth of the last mentioned survey and was designed to document the internal composition of the tested mounds in order to understand their constructional sequences and post-depositional disturbances. The importance of this project lies in the description of the sites, because the range of variation in form and composition of small, isolated, stone mounds situated on ridgetops is unknown. This mortuary site type is distinctly different in its external formal attributes and locational attributes from the mounds in and around Ashland, and the C. and O. Mounds further upstream in Johnson County which suggests the possibility of variation in their internal composition as well (Webb et al. 1942). Additionally, the preliminary testing of the Viney Branch Site and the Brisbin Site suggested the continuous use of ridgetop localities for mortuary activity during the Early and Middle Woodland periods and their relative contemporaneity with the larger floodplain earthen mound groups (Schock and Foster 1976).

Accurate description of the internal composition of these sites necessitated detailed mapping; including point proveniencing all rocks, features, artifacts, and changes in soil strata. A grid pattern of 2 x 2 m excavation units was established over the sites and each unit was excavated by hand to bedrock or sterile subsoil. Approximately 10 fieldwork days were needed to excavate and map each site. The excavation unit maps provided the data base necessary to address questions concerning contextual relationships.

Both sites had been previously disturbed by natural and cultural processes which altered their original structure and internal composition. Tree growth was the primary agent of disturbance at the Viney Branch Site. A series of trees had grown along the east-west centerline of the mound, altering the distribution and orientation of the surface rocks. The tree root systems complicated the interpretation of the horizontal distribution of artifacts and features, but had not severely disturbed the basic stratigraphy of the site. At the Brisbin Site, previous test excavations (Schock and Foster 1976) removed a major portion of the site, leaving little contextual information.

Consequently, reconstruction of the spatial relationships between the cultural materials recovered in 1984 and the burial feature and artifacts uncovered in 1974 necessitated the use of two different data sets with maps of varying scale and detail. Although highway construction had proceeded around these sites prior to mitigation, the sites were not directly affected. However, their natural setting had been completely altered and the area immediately around the sites, which might have contained associated activity areas, had been greatly reduced.

DESCRIPTION OF THE VINEY BRANCH SITE (15BD306)

The Viney Branch Site consisted of a small stone mound situated on a saddle overlooking a narrow tributary valley of Viney Branch. Most of the ridge had been removed by highway construction, but the remaining undisturbed portion containing the mound was characteristically flat and devoid of surface rocks. The surface distribution of rocks comprising the mound measured 4 x 2.5 x 0.5 m, with the long axis oriented east-west. The mound was composed of angular grayish-white limestone and dark red sandstone rock, which ranged in size from large cobbles to small boulders. Smaller fragments of rock were interspersed between the larger. Limestone was the predominate rock used, accounting for more than 75% of the surface fragments.

Excavation of the mound revealed three features and two associated artifacts (Figure 1). Feature 1 consisted of an accumulation of cremated bone occurring between and under the roots of a large tree at the western edge of the mound. This feature originated immediately below the surface rocks and humus. No associated pit was discernible. Approximately 30 cm west of this feature and immediately below the rocks forming the western perimeter of the mound, a broken projectile point was uncovered lying flat and pointed to the west (Figure 2a).

Feature 2 stratigraphically underlied Feature 3. These two features were separated by a layer of yellowish-brown clay loam, similar in color and texture, but not structure, to the surrounding subsoil. Feature 2 was the remnant of the probable hearth uncovered during the initial testing of the site (Schock and Foster 1976). This feature occurred approximately 60 cm south of the mound center at the lowest level in the mound, and probably represents the original surface (Figure 1). Originally the feature was 30-45 cm in diameter and composed of burned sandstone fragments and charcoal. The lack of cremated bone fragments and oxidized earth surrounding the feature suggests it was not used as a crematory facility.

Feature 3 was a 20 cm thick soil layer immediately underlying the surface rocks and humus, and overlying the subsoil. This layer was approximately 170 x 90 cm, with the long axis oriented east-west along the centerline of the mound (Figure 1). This layer was characterized by an amorphous plan outline within which were found numerous small concentrations of burnt clay nodules, cremated bone fragments, and charcoal mixed with the subsoil. The soil matrix of the feature had the same texture and structure as the subsoil, but had a more reddish tint from the natural disintegration of some of the burnt clay nodules. A Big

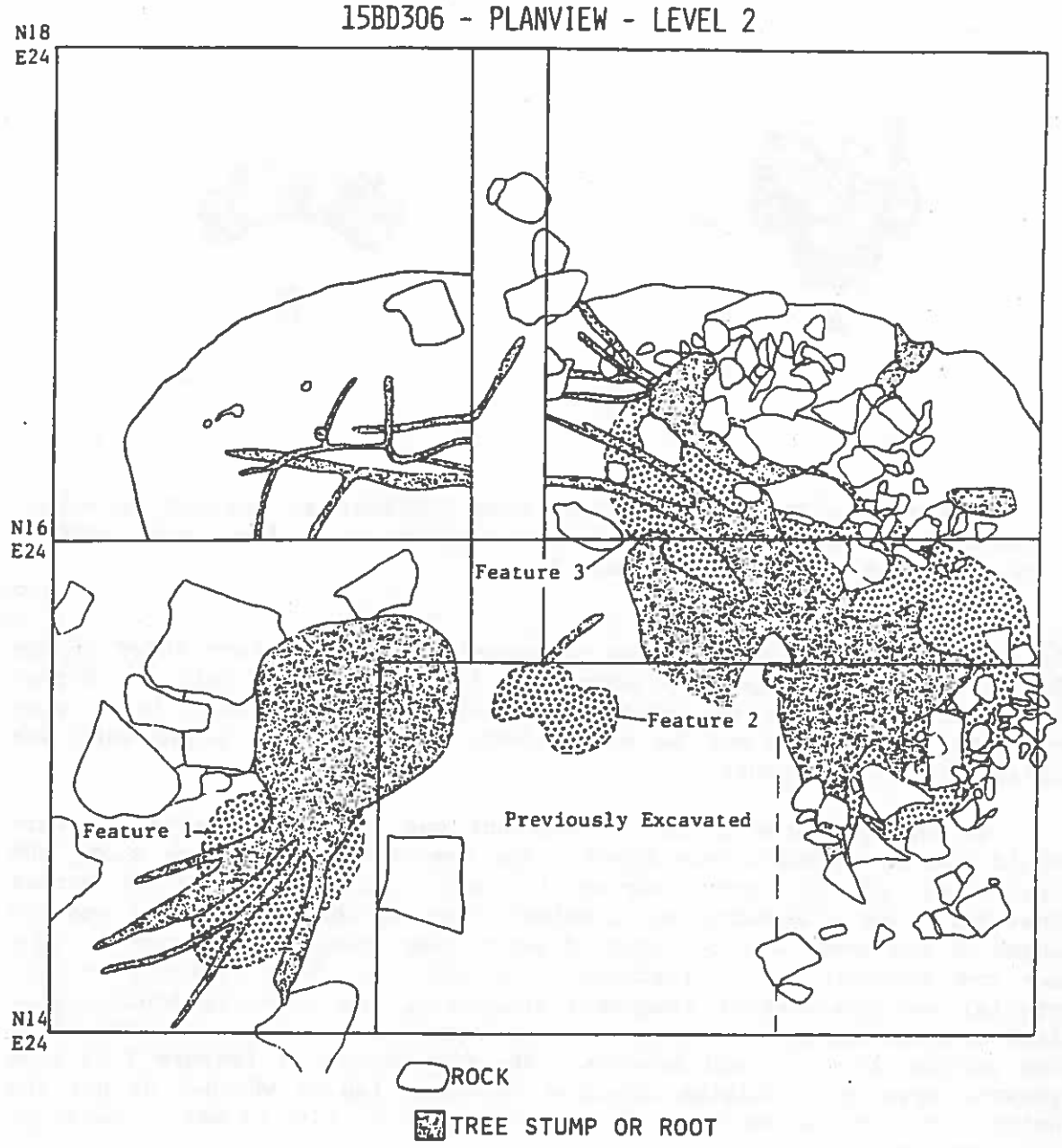

Figure 1. Plan Map of 15Bd306 at 20 cm Below the Top of Mound, Feature 2 and Previously Excavated Area at 40 cm Below.

Figure 2. Projectile Points from 15Bd306: a, untyped corner notched fragment in association with Feature 1; b, Big Sandy point base in association with Feature 3.

Sandy projectile point base was recovered from the western third of the feature, when a large tree stump was removed (Figure 2b). A direct association between the point base and one of the small burnt clay concentrations could not be documented. However, the point base was clearly from the feature.

Whether Features 1 and 3 represent one continuous burial feature could not be directly determined. The east-west orientation along the centerline of the mound argues for one naturally disturbed burial feature. The clustering of cremated bone on the eastern and western edges of the mound and the lack of burnt clay nodules in Feature 1 argue for two distinct burial features. In addition, both clusters contain cranial and postcranial fragments suggesting two separate individuals. Each cluster was also associated with a projectile point situated along the western side of each feature. The disturbance of Feature 3 by tree growth, however, prohibits accurate determination of whether or not the burnt clay nodules represent the remains of an in situ crematory basin or redeposition.

Wood charcoal from the hearth (Feature 2) provided a date of 360±165 B.C. while wood charcoal associated with bone fragments from Feature 3 provided a date of 520±125 B.C. These dates reverse the chronological sequence reflected in the stratigraphic positioning of the features. Consequently, the dates must be viewed as providing only a range of time in which the site was constructed.

Several alternative constructional sequences can be postulated from the contextual information. However, the most plausible includes the removal of vegetation from the original surface and the building of a

small hearth. Clay from the surrounding area was scraped up and over the hearth and the remains of two cremated individuals and the crematory facility were deposited in two piles above and on opposite sides of the hearth. A broken projectile point was placed near the western edge of each pile, and the raised area was then covered with rock to ensure its permanence.

DESCRIPTION OF THE BRISBIN SITE (15BD311A)

The initial observations and descriptions of the Brisbin Site are conflicting, and leave doubt to its original size, shape, and composition. The first report of this site (Brisbin 1974) called it "a large beautifully shaped stone mound, about 10 feet (3 m) high". Schock and Foster (1976) subsequently concluded it was "a natural mound or knoll which was utilized for a grave burial". At the beginning of the 1984 excavations, no surface distribution of rock suggestive of a stone mound was noted. Two large, flat-lying limestone slabs marked the crest of the knoll, and immediately south of them was the remains of a shallow rectangular trench, which had removed the southern half of the crest. Initially it was assumed this trench represented Schock's 1974 test excavation. Unfortunately it was not and represented an excavation by unknown individuals, which eradicated the southern third of the 1974 test trench.

The 1974 test excavation uncovered the only burial feature and the description of its formal attributes must rely on that project's report. The burial pit was approximately 1.8-2.0 x 0.6-0.8 x 0.5 m with the long axis oriented north-south (Figure 3). The fill consisted of large rocks, burnt bone, and occasional charcoal flecks mixed with a reddish clay soil. Slides taken in 1974 suggest the possibility that several of the large flat rocks had lined and/or capped the pit, and over time had collapsed into the grave cavity.

At the northern end of the burial feature, a cache of 23 artifacts was recovered from the lowest level by Schock in 1974 (Schock and Foster 1976). The cache included: one rectangular slate pendant, one sandstone whetstone, one copper awl fragment, six projectile points, one biface, eight bladelets, and five flakes (Figure 4). Although most of these artifacts could have been used for utilitarian purposes, they have characteristics which transcend utilitarian concerns and may have ritual significance or reflect personal sentiment. The whetstone (Figure 4r) showed extensive wear to the point where its effectiveness as a tool is questionable; yet, it was curated and included with the cache. Likewise, four of the projectile points had been broken and their effectiveness as tools reduced. Interestingly, the broken points were typologically similar to Late Archaic Lamoka (Figure 4j) and Early Woodland Adena Stemmed (Figure 4l) projectile point styles, while the two whole points were typologically similar to the Middle Woodland Baker's Creek point type (Figure 4n-o). This suggests that on occasion, projectile points may have a value transcending utilitarian concerns and they may be curated over generations.

The large biface superficially resembles a cache blade, but shows poor workmanship (Figure 4p). The general form of a cache blade has been executed but further reduction was not undertaken. Perhaps the

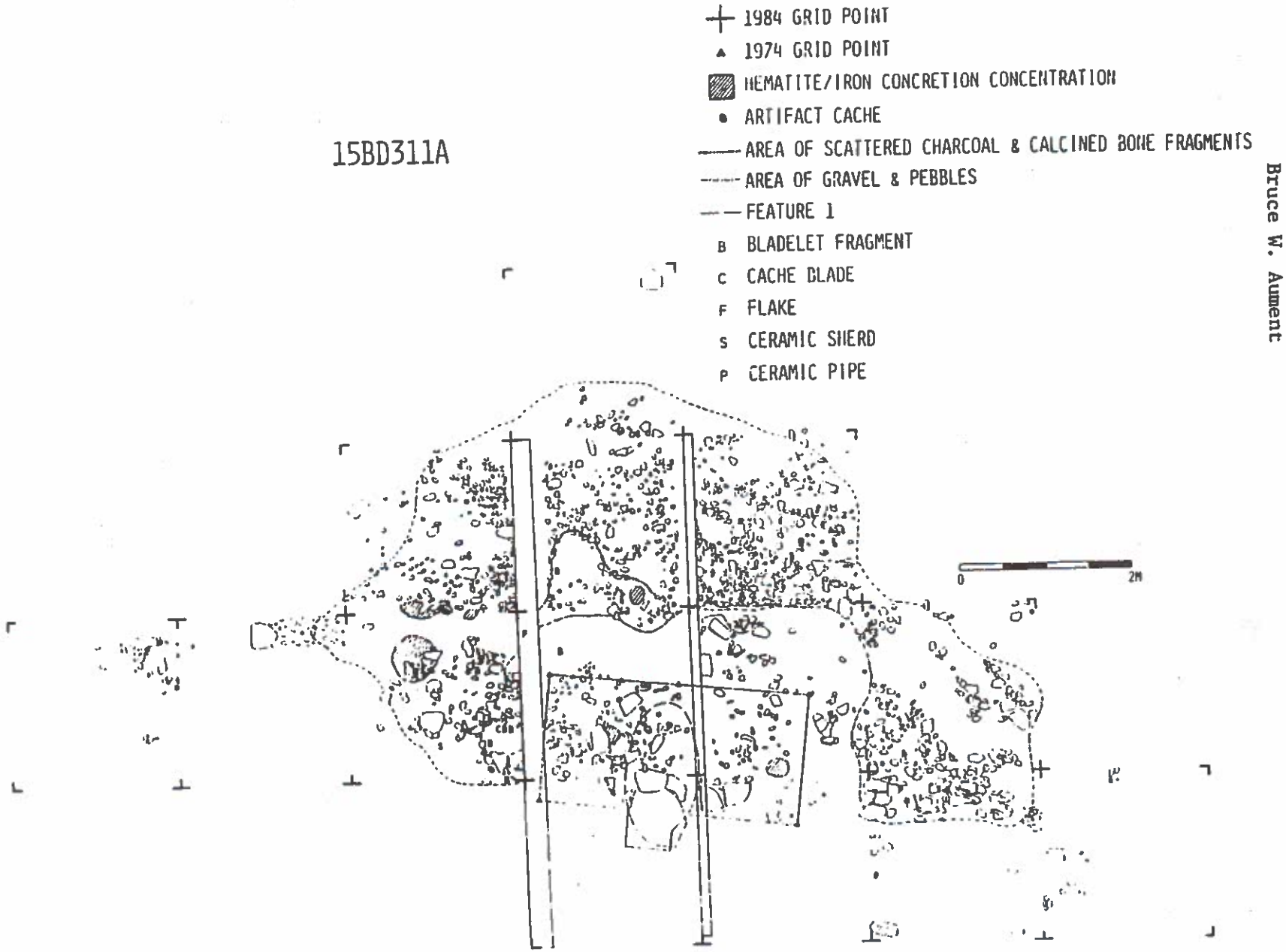

Figure 3. Plan Map of 15Bd311a, Distribution of Cobble and Gravel Layer with Locations of 1974 Test Excavation, Burial Feature, and Artifact Caches Superimposed.

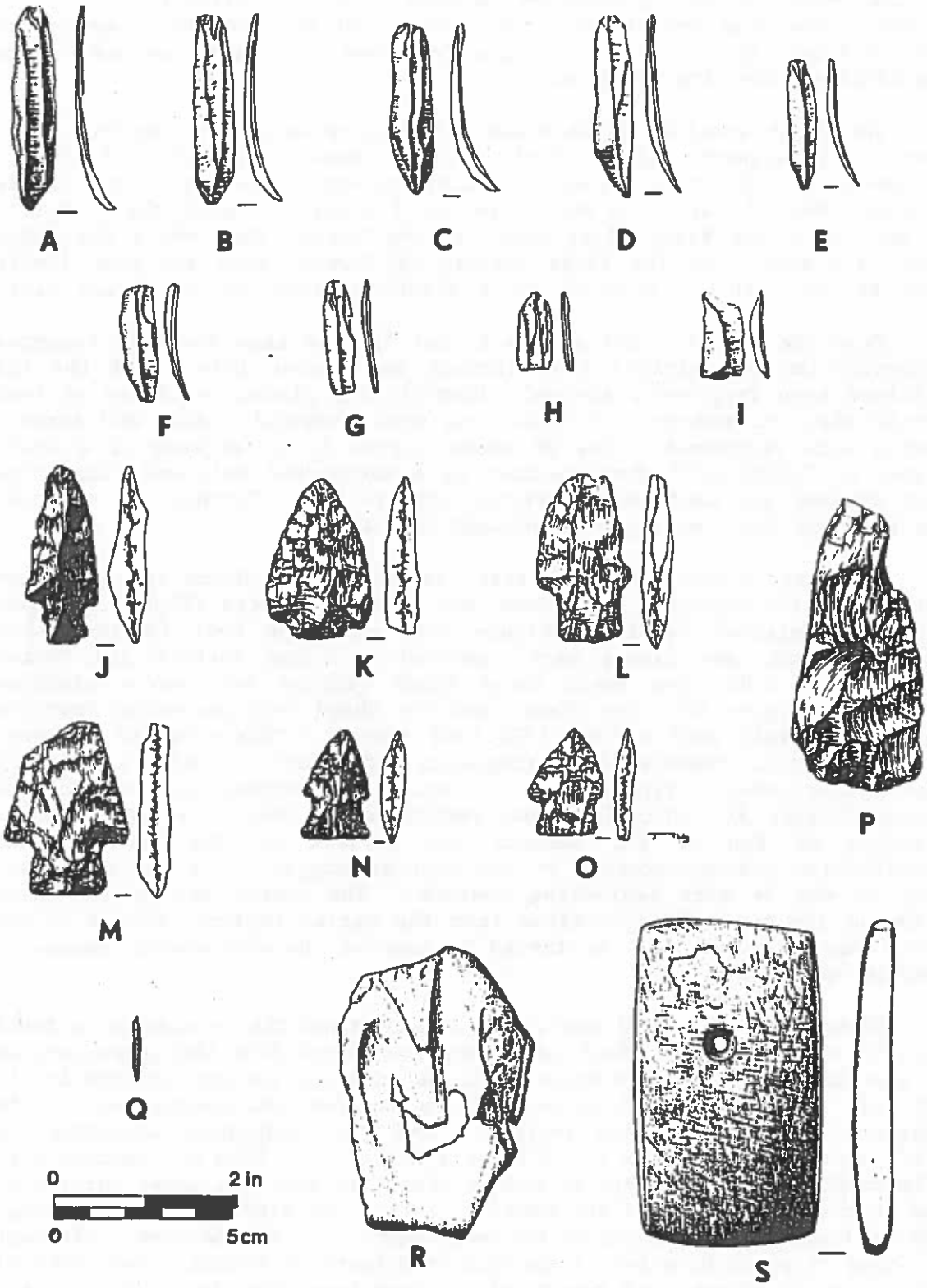

Figure 4. Artifacts from the Brisbin Site Burial Cache Recovered in 1974: a-h, bladelets; i, lamellar flake; j-o, projectile points; p, biface/cache blade; q, copper awl fragment; r, whetstone; s, rectangular slate pendant.

longitudinal facet along one lateral edge and the large deep flake scar on the opposite edge prohibited further reduction without drastically altering the size and shape of the piece. Still, the object was saved and included in the cache, suggesting that its form may have more significance than its function.

The eight lamellar flake bladelets (Figure 4a-h) are complete, well made, and unburnt, which distinguishes them from other bladelets recovered at this site. These bladelets resemble specimens from Middle Woodland Hopewell sites in both Ohio and Illinois. One of the bladelets is made of Flint Ridge flint from Licking County, Ohio while the other seven are made from the Paoli variety of Newman chert and most likely from the same core. None of these bladelets show traces of use wear.

From the southern end of the burial feature came the only reported concentration of calcined bone (Schock and Foster 1976). Of the 123 calcined bone fragments, the only identifiable pieces consisted of four turtle shell fragments. In this same area, several flakes and ceramic sherds were recovered. One of these sherds is a fragment of a small vessel or "pinch-pot" characterized by a cordmarked body and plain neck with crushed red sandstone tempering (Figure 5d). Neither the interior nor exterior surfaces appear blackened by use.

Immediately west of the burial feature in the humus and the upper portion of the subsoil, six broken and burnt bladelets (Figure 5a), one piece of polished hematite (Figure 5c), one pipe bowl fragment, and several sherds and flakes were reported to occur (Schock and Foster 1976). In 1984, one small cache blade (Figure 5e), seven bladelet fragments (Figure 5f), one flake, and one sherd were recovered from the area immediately west of the 1974 test trench. This material occurred with occasional cremated bone fragments and charcoal flecks within and immediately under a single layer of small- to medium-sized cobbles and gravel (Figure 3). This layer was restricted to the knoll crest and was situated on top of the subsoil and covered by the humus. The distribution and orientation of the cobbles suggest this layer was not part of the in situ weathering bedrock. The cobble and gravel layer extended 5-6 m in all directions from the burial feature, except to the south where it could not be traced because of the disturbance caused by unknown individuals.

Within the disturbed area, the remainder of the ceramic pipe found in 1974 and another artifact cache were recovered from the upper portion of the subsoil. The pipe appeared to be in situ, resting upright in the subsoil. It was oriented north-south and located immediately west of the southern end of the burial feature. The pipe fragments, including the piece recovered by Schock in 1974, were restored to form an L-shaped pipe (Figure 5b). This pipe has an unique shape, in that the upper surface of the stem and back side of the bowl are flat. The other sides are rounded and an incised band occurs on the underneath side of the stem. Although a number of pipes have been excavated from Kentucky burial sites, none of similar size, shape, and raw material have been reported. The closest similarity is with pipes from American Bottom sites in Illinois during the Patrick Phase of the Late Woodland period (A.D. 600-800) (Bareis and Porter 1984:125).

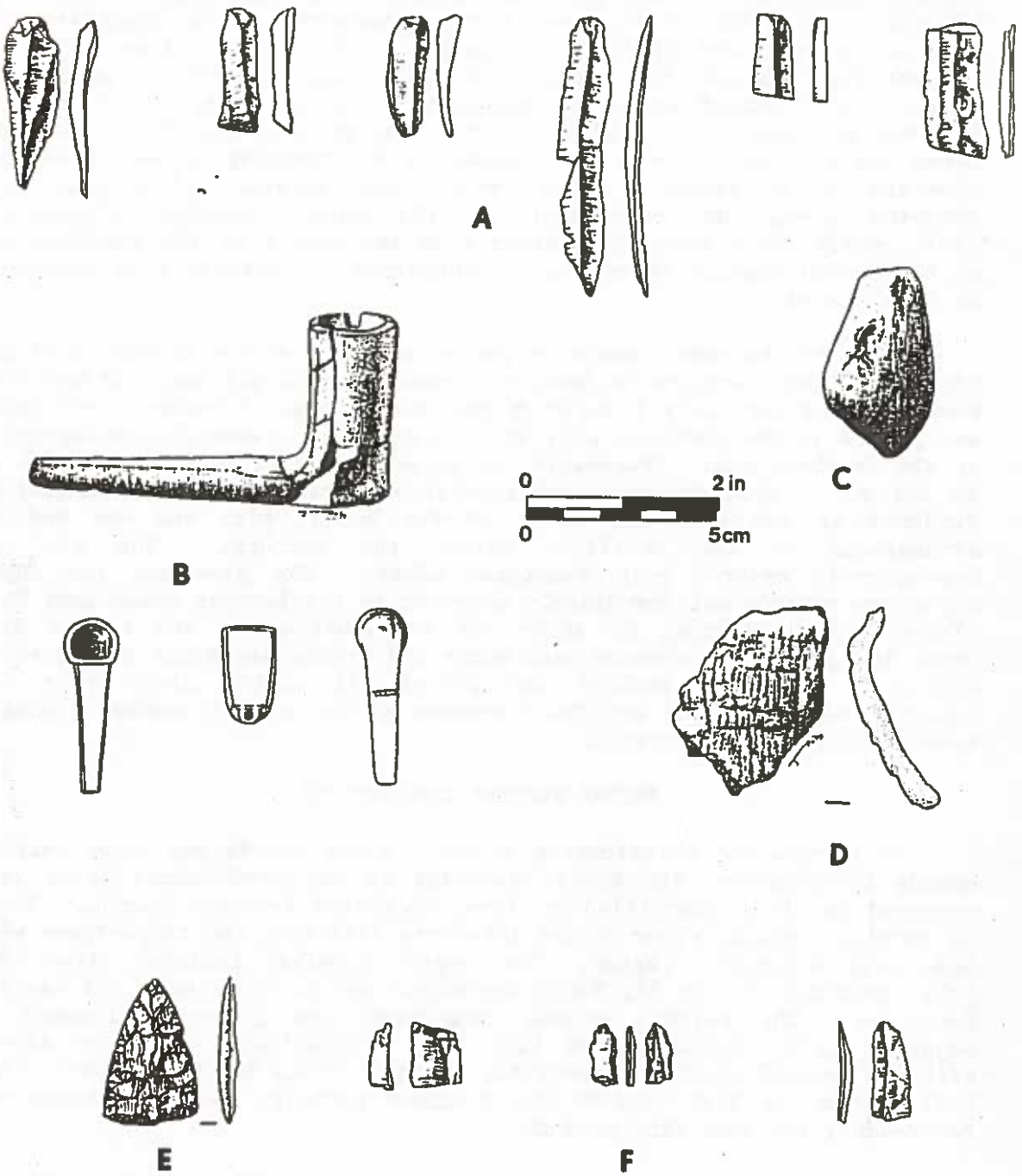

Figure 5. Artifacts from the Brisbin Site: a,f, bladelet fragments; b, ceramic pipe; c, partially polished hematite nodule; d, neck and body sherd; e, cache blade.

The cache recovered in 1984, approximately 1 m south of the burial feature, contained almost exclusively utilitarian objects and was not tightly clustered (Figure 3). In the cache were two flint celts, four bifaces, one flake drill, one flint hammerstone, one bladelet, one modified cobble, and 21 flakes (Figure 6). The cache did not occur in any pit-like feature, but appeared to be a dispersed pile of artifacts. The only artifactual evidence linking this cache to the burial feature was the presence of a bladelet. The spatial arrangement of the 1984 cache and the burial cache also suggest a relationship between these two clusters of artifacts. These caches were located 3.5 m apart and oriented along the centerline of the burial feature (Figure 3). Additionally, they were equidistant from the center of the southern end of the burial feature where the concentration of calcined bone fragments were recovered.

Prior to the construction of the stone mound at the Brisbin Site the top of the knoll appears to have been cleared and a pit dug. It may have been lined or partially lined with limestone slabs. A cache of artifacts was placed in the northern end, while a probable cremation was deposited in the southern end. Presumably, an extended inhumation was also placed in the pit. However, this interpretation rests on the circumstantial evidence of the size and shape of the burial pit, and the spatial arrangement of the artifacts within the feature. The pit was subsequently covered with limestone slabs. The pipe and the cache occurring outside but immediately adjacent to the feature could have been placed before, during, or after the construction of the burial pit. Since the ground was covered with burnt and broken artifacts incorporated within a layer of cobbles and gravel, it seems likely that the construction of the pit and the placement of the cache represent a single episode of mortuary activity.

BURIAL FEATURE COMPARISONS

To examine the relationship of small stone mounds and large earthen mounds in Kentucky, the burial features at the Boyd County sites were compared to those identified at other excavated Kentucky mounds. Since no excavated mounds occur in the immediate vicinity, the comparisons were made over a broader region. The region examined includes sites from other portions of the Big Sandy drainage, and north-central and eastern Kentucky. The earthen mounds considered are primarily located in adjacent river drainages and have been typologically dated to Adena, although several exhibit Hopewellian traits. Since the Boyd County sites fall within the Early and Middle Woodland periods, the comparisons are for roughly the same time periods.

The approach taken here was to compare burial feature contexts, emphasizing individual burial features, associated artifacts, and intra-site spatial relationships. Instead of comparing mounds as single entities with a trait list of features and artifacts, burial features are compared and then their position in the constructional sequence of the mound is examined. The underlying assumption is that similarities in burial feature contexts within and between sites result from similar mortuary practices and reflect shared ideas concerning the proper disposal of the dead. These ideas are symbolized in the form and arrangement of the burial facility, the deceased, and accompanying

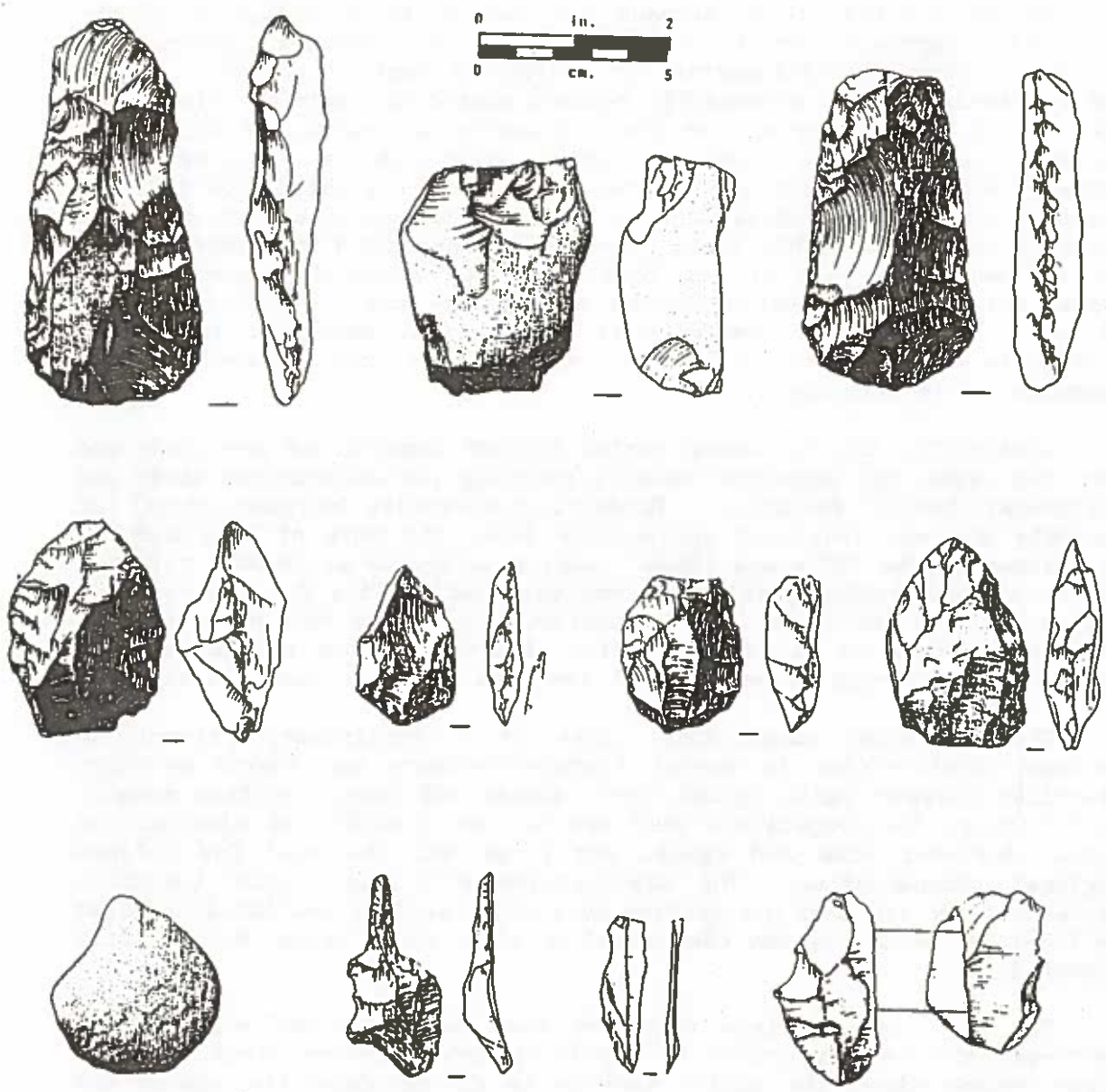

Figure 6. Artifacts from the Brisbin Site Cache, 1 m South of Burial Feature, Recovered in 1984: top row, two flint celts and a modified cobble; middle row, bifaces; bottom row, flint hammerstone, flake drill, bladelet, and two of the 21 flakes.

artifacts. The degree of similarity between attributes and contexts of different burial features is a measure of the shared meaning behind their construction and the social interactions they represent.

On the surface, this approach may seem to be a refinement of the trait list approach, and to some extent, it is. However, emphasis is placed on contextual information of individual burial features. Mounds and cemeteries do not necessarily reflect static mortuary practices over the time in which they are in use. A number of social and historical factors could promote changes, either short-term or long-term, in mortuary practices at any given site. Mortuary sites which have received cultural or temporal labels tend to obscure the variability in mortuary activity contained within them, especially those which are accretional, showing sequential use of the locality. The approach suggested here argues for dissecting mortuary sites in order to understand their history of use. With a finer control over the spatial, temporal, and formal attributes of mortuary facilities, questions related to social group dynamics can be addressed.

Admittedly, the following burial feature comparisons are crude and some may argue for selective bias in choosing the comparative sites and particular burial features. However, comparative mortuary data for Kentucky has not increased appreciably since the work of Webb and his associates in the 1930s and 1940s. Additionally, no systematic research effort at documenting prehistoric mortuary variability for a particular region has been undertaken. Consequently, the refined data necessary for accurate comparisons is not available. Likewise, means to quantify the degree of similarity between burial features have not been established.

The following comparisons represent a preliminary attempt to document similarities in burial feature contexts and shared mortuary practices between small upland stone mounds and larger earthen mounds. In so doing, the comparisons will demonstrate a number of similarities which cross-cut time and space, and point out the need for refined regional chronologies. The similarities will also raise questions concerning the range of alternative mortuary practices available and used by local groups during any one period of time, which cannot be presently answered.

The Boyd County sites represent two distinctly different burial features, and both appear to be single episode mortuary sites. At the Viney Branch Site, the burial feature is raised above the ground and encircled with rock to demarcate the space it occupies. The individual or individuals were cremated and deposited with few grave goods. Interestingly, the associated grave good was a broken and curated projectile point, unless one wants to argue that Archaic-like point styles have a later period of use in this area. At the Brisbin Site, the area of the burial feature is also delineated by rocks, but it is placed below the surface, with special care given to the placement and arrangement of the associated artifacts. Although no human remains were found, the overall size and shape of the burial pit suggests the possibility of an extended inhumation. A probable cremation was placed in one end of the burial pit in association with a non-utilitarian ceramic vessel. An artifact cache of ritually important utilitarian objects was placed at the opposite end of the feature, and by inference,

in association with the extended inhumation. A second artifact cache and pipe were placed outside but in close spatial association with the burial feature.

Comparison begins with the C. and O. Mounds (15Jo9), a site located further upstream within the Big Sandy drainage in Johnson County. This site showed a predominate occurrence of cremations (Webb et al. 1942). Of the 22 cremations at the C. and O. Mounds, six were associated with raised areas constructed of clay or logs. These were the only cremations containing associated artifact caches, and the inclusion of projectile points was the one common artifact in all of these caches. A chronological sequence was suggested for the transition in the practice of cremation from (1) simple, unprepared features through (2) log and clay platforms to (3) log tombs in burial mounds (Webb et al. 1942:361). The stratigraphic relationship between the first two stages is unclear and they may be contemporaneous rather than sequential. The second stage in this sequence is similar to the construction sequence proposed for the Viney Branch Site, except for the stone capping of the raised area at the latter site.

The Crigler Mounds (Webb and Snow 1943), in Boone County, show close similarities with the burial features identified at both Boyd County sites. The first Crigler Mound (15Be27) was a small earthen mound of homogeneous fill and no buried humus layer. At the mound base near its center the only burial feature was uncovered. A redeposited cremation associated with two broken and burnt points and a broken gorget was scattered over an area with a diameter 1.2 m. The points appear to be Late Archaic. Except for the mound being of earth rather than stone, there is little difference between this mound and the Viney Branch Site.

The second Crigler Mound (15Be20) shows interesting but not identical parallels to the Brisbin Site. The central burial feature was a log tomb placed on top of a raised clay platform and surrounded with earth to produce an above-ground pit. Within this cavity an extended inhumation was centrally placed with an expanded stemmed point, copper bead bracelets, and a mica head band (Webb and Snow 1943:513). Purposefully placed in the northwest and northeast corners of the feature were redeposited cremations. The one in the northwest corner rested on an expanded stemmed point. This site was termed Adena based on the circular structure in which this burial feature was located (Webb and Snow 1943:534). However, the associated burial artifacts, along with a cannel coal ring and a curved-base monitor pipe found on the original mound surface suggest Hopewell affiliation or at least a Middle Woodland period date. Although more effort was exerted in the construction of the burial feature at 15Be20 than at the Brisbin Site, both sites exhibit a similar internal arrangement of burials and artifacts. Conversely, the entire layout of features and burials at 15Be20 suggests a more involved mortuary activity and sequential use of this site (Webb and Snow 1943:515-522).

The smaller of the two excavated Wright Mounds (15Mm7) in Montgomery County contains a burial feature almost identical in size and shape to the Brisbin Site. This feature was an oval pit, 2.1 x 0.9 x 0.5 m, with 12 large limestone slabs filling the cavity (Webb 1940:103). In the bottom of this pit a layer of ash and the fragmentary remains of an

extended inhumation were identified, but no cremated bones or artifacts were recovered. The walls of the pit were burned to a brick-like consistency. The Brisbin Site did not have burnt clay walls, but the fill was characterized by a mixture of burnt bone, charcoal, and reddish clay, while the surrounding soil was a yellowish-brown. A second burial feature containing a redeposited cremation and an associated cache of personal items was also found at 15Mm7 (Webb 1940:105). However, its spatial relationship to the burial pit is unreported.

The Ricketts Site (15Mm3), also in Montgomery County, contains a number of burial features similar to both of the Boyd County sites. This site appears to have been used over an extended period of time and contains approximately 29 burial features and 43 burials (Funkhouser and Webb 1935:79; Webb and Funkhouser 1940:213). The site was excavated on two separate occasions, and the published data is insufficient to reconstruct the horizontal and vertical spatial relationships between the burial features. Of interest was the occurrence of small stone piles, averaging 3.6 x 1.8 x 0.6 m, within the mound. Their function, however, could not be determined (Funkhouser and Webb 1935:77-79).

There were a few cremations restricted to the mound floor and these were situated in a raised clay basin or shallow pits (Funkhouser and Webb 1935:80). Few or no artifacts were associated with the cremations. These lower level burial features at the Ricketts Site appear similar to those identified at the Viney Branch Site. The predominate burial feature type was a rectangular pit constructed of logs or puddled clay with multiple extended burials and large caches of artifacts. However, burial features with log tomb construction apparently were peripheral to the mound center, where puddled clay burial pits were common (Funkhouser and Webb 1935:80; Webb and Funkhouser 1940:212-213). Of particular interest are three log tombs constructed to form above-ground pits. All three log tombs contained multiple burials, each having two extended individuals with a third individual scattered over them (Webb and Funkhouser 1940). In one tomb, the third individual was cremated, while in the other two tombs, the third individual was fragmented and scattered over the pit.

Caches associated with the log tombs at the Ricketts Site are of interest in that those found with males have pipes and points as recurrent objects, while the cache associated with a female contained objects of personal adornment. The cache in one log tomb contained predominately bone and antler tools, but also had a sandstone elbow pipe, a stemmed point and a cache blade (Webb and Funkhouser 1940:218). In another tomb, the cache included a tubular pipe, two expanded stem points, a celt, and a copper bracelet (Webb and Funkhouser 1940:222). In each case, the caches were associated with a particular individual within each tomb. This site has been classified as Adena, although several distinctive Hopewellian traits were noted.

The Fisher Site (15Fa152), in Fayette County, contained nine burials, including one redeposited cremation in an oval pit and two presumably extended inhumations, each associated with a rock-lined and/or capped pit (Webb and Haag 1947). Of particular interest are the caches of objects found in these burial features. Three caches were found associated with the cremation in the oval pit; one cache was centrally

located in the pit and in direct association with the cremation, another was at the north end of the pit, and the third was at the east end. The types of objects included in these caches are similar to those found at the Brisbin Site, including whole and broken points, celts, whetstones, drills, cache blades, and pipes, but are of different stylistic form (Webb and Haag 1947:55-57)

One of the extended burials contained two caches, with one cache comprising predominately utilitarian objects and the other ritual objects. The cache of utilitarian objects does not appear to have any broken items, and one object (Webb and Haag 1947:Figure 6), a flake side scraper, resembles a large bladelet or at least a lamellar flake. Additionally, this cache appeared to be a scattered pile of items, not directly associated with the burial. The cache of ritual objects contained modified human cranial bones and teeth, a copper breastplate, and a boatstone. This cache was tightly clustered and directly associated with the shoulder area of the burial (Webb and Haag 1947:57).

The cache associated with the other extended inhumation occurred in a pit which was partially delineated by rock slabs (Webb and Haag 1947:62). The cache was centrally located in the burial pit and consisted of three celts, three whole and broken stemmed points, several antler tools, a broken pipe, and 75 ovate cache blades. The cache blades are of interest because of their uniform size and shape, the homogeneity of the raw material, and their apparent lack of use, all of which suggests they have a meaning which transcends utilitarian concerns (Webb and Haag 1947:62).

The chronological placement of this site has been debated. Webb and Haag (1947:101) argue for a Late Adena period date, possibly contemporaneous with Early Hopewell, while Dragoo (1963:193-197) argues for an Early Adena period date. The similarities between the burial features from this site and the Brisbin Site suggest that the Fisher Site may date to the Middle Woodland period.

SUMMARY

The comparisons between the Boyd County sites and the excavated Kentucky earthen mounds show a number of interesting similarities in burial feature form and arrangement, suggesting shared mortuary practices. However, there are differences which may be due to temporal and/or spatial separation and which suggest differing degrees of social interaction between local groups. At present, the comparative data does not allow for the accurate description of social group dynamics occurring in this region during the Woodland period. One can, however, speculate on changing mortuary practices and raise questions for future research.

This project was concerned with documenting some of the mortuary variability of the region by examining two sites which were constructed of stone. An unpublished account of a third site, White's Creek I (15Bd11), provides information on a stone box grave dated to A.D. 1390±50 (Brisbin 1974). With the information from this site and the Viney Branch and Brisbin sites, a tenuous chronological sequence for the use of ridgetops as mortuary localities can be presented.

Early Woodland mortuary behavior is characterized by stone mounds covering the remains of redeposited cremations with few associated grave goods, as seen from the Viney Branch Site. Since no absolute dates are available for the Brisbin Site, a relative date of A.D. 400-600 is postulated based on the artifact assemblage. This date may be terminal Middle Woodland or early Late Woodland. The mortuary activity at this site shows a greater concern with ritual associated with the burial of the deceased, as witnessed by the amount of associated artifacts and the concern with their spatial arrangement. Although most of the artifacts are utilitarian objects and reflect personal items, the formal attributes and the context of some of them suggest they may have also served a ritual purpose. Additionally, there appears to be less of a concern with providing a permanent visual marker of the burial locality. Though no Late Woodland mortuary sites have been excavated in this area, the White's Creek I Site represents a Late Prehistoric period mortuary site characterized by a stone box grave with the only associated artifacts being objects of personal adornment. Here again, the permanence of the burial facility is assured by its stone construction, but there is no visual marker of the locality.

When one considers the visibility of the mortuary locality and the associated grave goods, there appears to be a gradual change over time in social behaviors associated with the burial of the dead. The earliest site appears to show little concern with symbolizing the individuals contained within it. The ability to recognize the burial location, however, suggests an on-going group concern. The second site in the sequence shows a growing concern for symbolizing the individual through accompanying artifacts, while concern for the group appears to be restricted to the ritual performed during the internment of the individual. The latest site shows little concern for symbolizing the individual or the group.

For a period of roughly a thousand years, the ridgetops along the Big Sandy River were used as an alternative form of burial, where the individual was interred away from the group and away from the settlement. Whether this activity was continuous or periodic awaits to be determined. Burials associated with villages are known for the Early Woodland period at the C. and O. Mounds, and the Late Prehistoric period at several Pike County sites (Webb et al. 1942; Dunnell 1972). The aggregation of burials into a single locality appears to be correlated with a degree of sedentism on the floodplain. Since Boyd County appears to lack such settlements, except in and around Ashland, the ridgetop mortuary sites may reflect the accepted form of interment for mobile groups in this region during this period of prehistory.

Such a consideration brings up a number of interesting research problems. First, are isolated ridgetop burials really the accepted form of burial throughout the Woodland period? There appears to be a long term use of such localities, which suggests a degree of cultural and social continuity. However, the frequency and distribution of these sites is unknown. Second, what are the temporal and spatial relationships between the Viney Branch Site and the C. and O. Mounds? Are we dealing with contemporaneous alternative burial practices? It seems that the lowest level at the C. and O. Mounds, which contains the village cremations, may reflect an early and abortive attempt at

sedentism along the Big Sandy River. What is being suggested is that the C. and O. Mounds may represent an anomaly in the prehistoric sequence of the use of this valley.

Third, does the mound group at Ashland represent short-term or long-term use of this locality for mortuary activity? Although there is a group of mounds in Ashland, they tend to occur in several smaller clusters, which suggests periodic use of the area. Fourth, what are the spatial and temporal relationships between the White's Creek I Site and known Late Prehistoric village burials? The impression one gets is that local groups inhabiting the Big Sandy drainage were cognizant of cultural developments occurring elsewhere along the Ohio River Valley and attempted, from time to time, to adopt some of the ideas. However, the terrain made adoption of the entire repertoire of social innovations impractical. What was adopted were those symbolic objects and social behaviors which would maintain social contacts with neighboring groups, while permitting a mobile lifestyle to continue.

Webb and Haag (1947:100-101) argued, "(N)early every Adena trait that has its genesis in some Archaic site has widespread or common occurrence in the Eastern Woodlands...(S)light modification merely emphasizes resistance to change of socio-religious cultural items through time". This seems to be an apt statement for the Big Sandy drainage. Conversely, this may be too general a statement, and strict adherence to such an idea could lead to the masking of cultural variability, which might reflect local or regional group boundaries and interactions. The Boyd County sites exhibit a number of similarities in burial feature context to known Adena sites. However, artifact assemblages from the Boyd County sites clearly do not contain the diagnostic Adena artifacts found in the larger earthen mounds. A closer examination of the entire artifact assemblages from the earthen mounds and their contexts could show that some of these mounds were used into and throughout the Middle Woodland period. The need for corroborative absolute dates and regional chronologies is apparent. Emphasis needs to be placed on those "slight modifications" of mortuary variability in smaller regional settings, in order to understand the regional group dynamics occurring throughout the Woodland period.

A DESCRIPTIVE STUDY OF THE CERAMIC ASSEMBLAGE FROM SAVAGE CAVE (15LO11), LOGAN COUNTY, KENTUCKY

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ABSTRACT

Savage Cave is a large multi-component habitation site in Logan County, Kentucky. Under the direction of Dr. Don Dragoo, formerly of the Carnegie Museum of Natural History, excavations at Savage Cave took place during the years 1966-67. This paper describes the ceramic assemblage recovered during the Carnegie excavations, as well as the ceramic materials collected by Mrs. Genevieve Savage, former owner of the cave.

INTRODUCTION

The Savage Cave Site (15Lo11) has been the focus of numerous archaeological investigations since the mid-1950s. No less than 12 organizations, individuals, and institutions have conducted studies at the site, and at least six of these investigations have included excavation, surface collection, or both (Schenian 1984). With the exception of Cambron's (1974) brief site report and Guilday and Parmalee's (1979) faunal analysis, these collections remain undocumented.

Murray State University is now attempting to locate and acquire all existing collections from the site. Collections curated at Murray State University include all the cultural materials recovered during the Carnegie Museums's 1966-67 excavations, and artifacts collected by the site's former owner, Mrs. Genevieve Savage. As is stipulated by the Savage Cave Management Plan, all existing collections from Savage Cave must be assessed and reported on before any new investigations at the site are permitted. This paper and others (Lawrence 1984; Schenian 1984) have been written towards the accomplishment of this goal.

ENVIRONMENTAL BACKGROUND

Savage Cave lies within the Pennyroyal region of southwest central Kentucky, approximately 1.75 km east of Adairville, in Logan County. The cave was formed within St. Louis limestone of Mississippian age (Carstens 1980b:17). These limestone formations appear to have been the dominate source of temper for 99% of the sherds recovered from Savage Cave. St. Louis limestone as well as nodular Bangor chert compose the talus slope, and provided the site's inhabitants with an abundance of raw material for aboriginal chipped stone tools (Cambron 1974; Carstens 1980b). The vestibule of Savage Cave was formed by a collapsed sink, creating a large (25 m wide x 4 m high) opening (Mylroie et al. 1980:29). Permanent pools within the cave supply water in a karstic area where surface drainage is scarce (Carstens 1980b:19).

CERAMICS

Carnegie Collection

Of the 130 sherds in the Carnegie collection, 93% can be placed within the the limestone tempered Rough River series (Haag 1939), now referred to as Bluff Creek. The Bluff Creek series appears to have reached its height of popularity within the central Kentucky Karst region during the late Middle Woodland, ca. A.D. 400 to 600 (Carstens 1980a: 121). According to Carstens (1980b:120), Bluff Creek Cordmarked appears to be the limestone tempered predecessor of clay tempered Mulberry Creek Cordmarked ceramics.

Bluff Creek Cordmarked (n=82) is the most common ceramic variety (Figure 1a-b). Exterior surfaces appear to have been marked with a cord-wrapped paddle that was rolled or dragged across the vessel's surface. The size of the cordage ranges from 1 to 2 mm. Spacing between cords, however, is somewhat variable, ranging from 1 to 4 mm.

The limestone temper ranges from fine to very coarse with some minor inclusions of quartz and sand. Temper fragments are generally angular in shape and temper density is moderate, although in some sherds, limestone fragments compose as much as 40% of the paste.

Surface coloration ranges from light brown to dark gray. Oxidation is usually complete, although some color differentiation is possible between the exterior surface and the core. Interior sherd surfaces are usually smoothed, with tool marks frequently being visible. Carbon smudging as well as encrustations of cooking residue also occur on some interior surfaces.

Three Bluff Creek Cordmarked rim sherds display a flaring to slightly flaring rim, however, vessel form could not be determined (Figure 3a-b). Two of the sherds are decorated by thumbnail impressions along the rim, with a parallel set of impressions 2 to 5 cm below the lip. Cord malleations occur within the zoned area. One of these sherds displays a plain, polished surface below the lower series of impressions (Figure 1c-d).

Bluff Creek Plain comprises approximately 30% (n=39) of the Carnegie excavated ceramics. Plain surfaced sherds are generally identical to the cordmarked variety in terms of temper, paste, and coloration (Figure 1e). It should be noted that plain surfaced sherds and their cordmarked counterparts may have originated from the same vessel. This statement can be supported by the fact that a previously mentioned rim sherd displays cordmarking in addition to a plain polished exterior surface.

Wright Check Stamped (Haag 1939) is represented by five sherds within the Carnegie collection. Exterior surface treatment consists of a grid-like pattern created by stamping with a cross-hatched incised die. Individual impressions generally consist of 3 to 5 mm square blocks (Figure 1f). Limestone temper particles are usually fine, and are clearly visible throughout the paste. Wright Check Stamped, in association with Bluff Creek plain and cordmarked varieties, has been

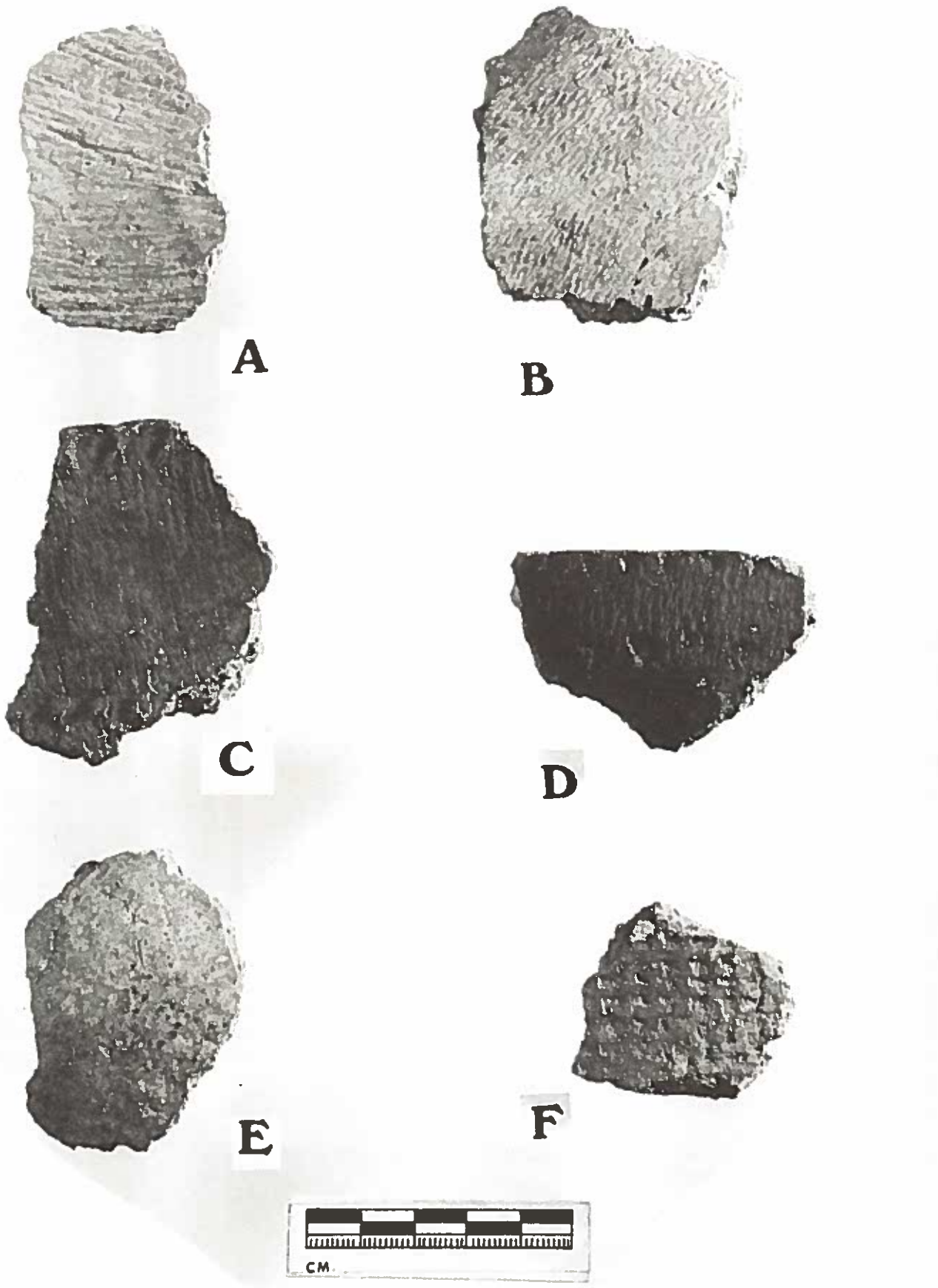

Figure 1. Middle Woodland Ceramics: a-b, Bluff Creek Cordmarked; c-d, Bluff Creek decorated rims; e, Bluff Creek Plain; f, Wright Checked Stamped.

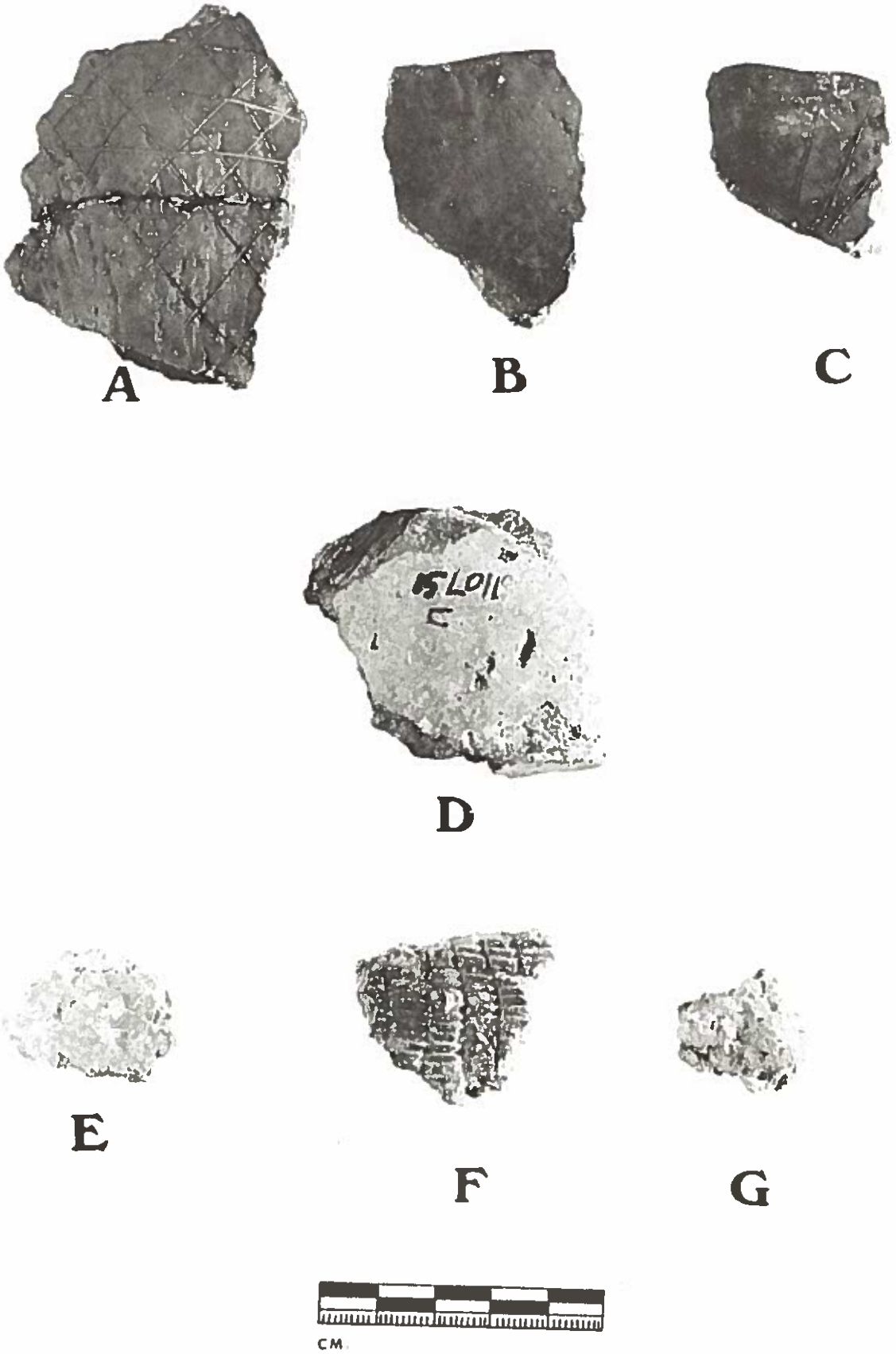

Figure 2. Other Ceramic Types from Savage Cave: a-c, unclassified incised rim and body sherds; d, unclassified fiber tempered sherd; e, g, shell tempered plain sherds; f, kimswick fabric impressed.

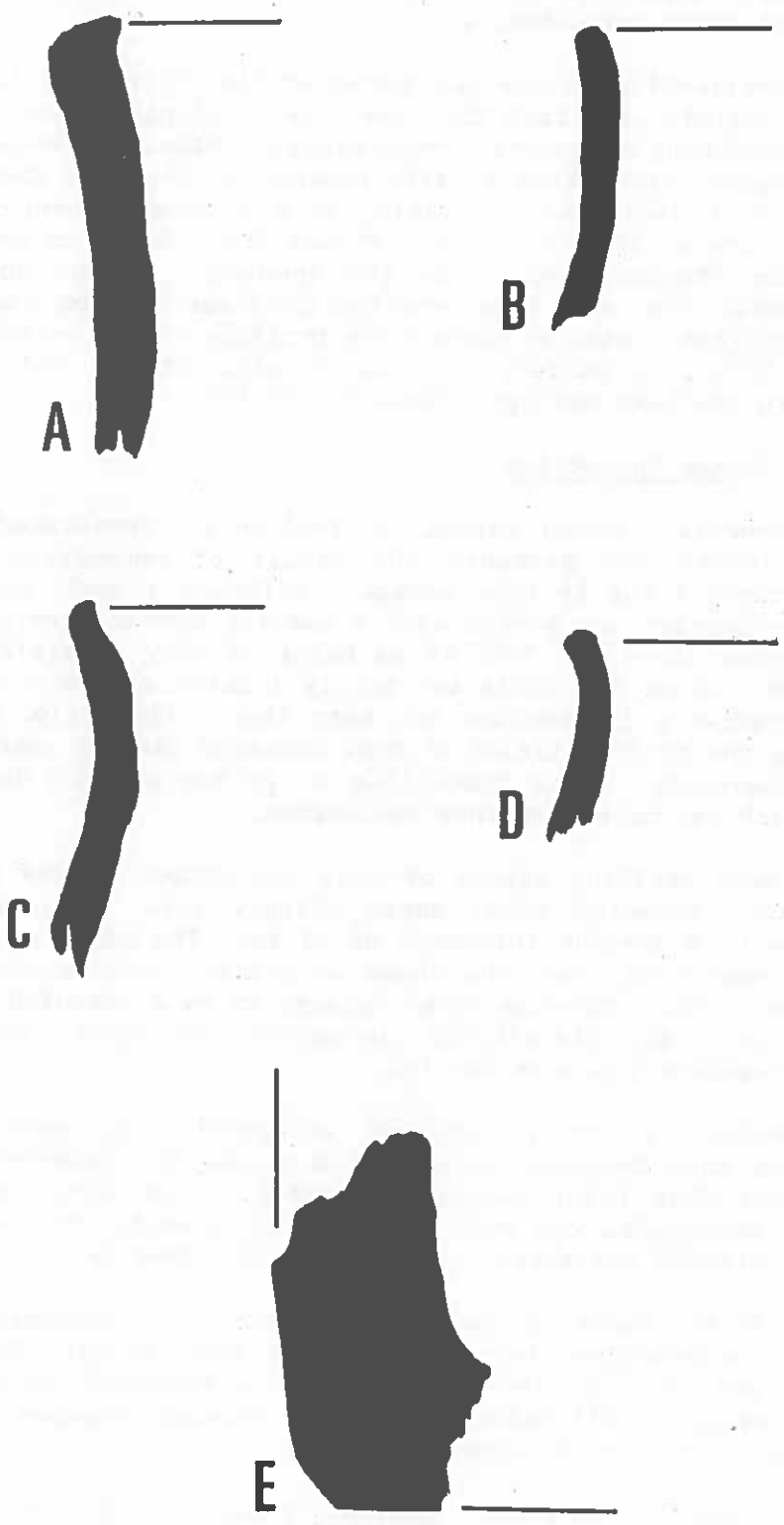

Figure 3. Rim and Basal Profiles: a-b, Bluff Creek rim sherds; c-d, unclassified incised rim sherds; e, unclassified fiber tempered basal sherd.

reported from Middle Woodland contexts at Patch Rockshelter along the Green River (Carstens 1980a:121).

Two unclassified limestone tempered rim sherds and two body sherds apparently originating from the same vessel, display a series of hatching and cross-hatching incisions, which create a diamond-like pattern (Figure 2a-b). Random cordmarking is also present on the body sherds. A series of nondescript incisions, radiating from a common point of origin are present on one of the rim sherds (Figure 2c). Both rim sherds display a flaring rim (Figure 3c-d). To the knowledge of the author, such an incised motif has not been previously described in Kentucky from a Woodland context. Similar decorative incising occurs on Wayne Crosshatch (Fitting 1965), a variety associated with Middle and Late Woodland cultures in southern Michigan (Halsey 1968:126).

Genevieve Savage Collection

The Genevieve Savage ceramic collection is represented by 40 sherds. These artifacts are probably the result of nonsystematic excavation episodes carried out by Mrs. Savage. Although a small number of sherds in this collection are marked with a catalog system previously described by the author (Lawrence 1984:2) as being of Mrs. Savage's own creation, this collection on the whole was rarely labeled with any catalog system, hence provenience information has been lost. Presently, no information concerning the interpretation of Mrs. Savage's catalog system is known to exist. Therefore, it is impossible to go beyond mere description when dealing with ceramics from this collection.

The most striking aspect of this collection is the inclusion of a single fiber tempered basal sherd (Figure 2d). This sherd is quite massive, with a maximum thickness of 24 mm. The basal shoulder is quite angular, suggesting that the sherd originated from a flat-based vessel (Figure 3e). The tempering agent appears to be a shredded grass or moss, which is uniformly distributed throughout the paste, and often leaves clear impressions in cross section.

Unfortunately, no provenience information is available for this sherd other than the site number inked across the exterior surface. Due to the fact that fiber tempered ceramics do not occur in the Carnegie excavated materials, one must consider the possibility that Mrs. Savage may have obtained the sherd from a site other than Savage Cave.

The Bluff Creek series, both plain and cordmarked varieties, dominate the Genevieve Savage collection with (n=34). Exterior surface treatment and various other attributes are identical to those described for the Carnegie collection. A Wright Checked Stamped sherd was also identified in this collection

Four shell tempered sherds possibly indicating a sparse Mississippian occupation at Savage Cave are present within the Genevieve Savage collection. These include two sherds which appear to be examples of Neeley's Ferry Plain (Phillips, Ford, and Griffin 1951), a Kimswick Fabric Impressed sherd (Cole et al. 1951), and an unclassified small red slipped eroded sherd.

Discussion

Although all of the materials excavated by Carnegie Museum are marked with provenience data, interpretation of this information has met with varying degrees of success. The Carnegie fieldnotes acquired along with the excavation materials are incomplete and often inconsistent. The lack of detailed documentation concerning cultural stratigraphic layering within each excavation unit prevents stratigraphic correlation across separate excavation unit boundaries. Therefore, the creation of a stratigraphic ceramic sequence is not possible at this time unless one is willing to assume that the cultural layers defined and excavated by the Carnegie Museum are uniform throughout the excavated area. This assumption is unwarranted considering the various erosional processes occurring within the cave today. As a result, although provenience information has been utilized whenever possible, given the nature of the Carnegie fieldnotes, it is difficult to go beyond simple description.

During the 1966-67 Carnegie field season, no less than 12 features were defined and excavated. At least one contained a substantial ceramic concentration. Feature 4, a large pit which measured 1.01 m north-south, by 1.42 m east-west, was excavated to a maximum depth of 71 cm. Recovered from the feature fill were 32 sherds or roughly 25% of the total ceramic sample. Other artifacts recovered from this feature included three bifaces, two projectile points, and a variety of faunal remains.

Ceramics included within the feature fill consisted of eight Bluff Creek Plain and 20 Bluff Creek Cordmarked sherds as well as the four cross-hatched incised sherds previously discussed. Since cultural affiliation for these four sherds has not been previously described it is important to note their association with Bluff Creek ceramics in Feature 4.

Of the two projectile points recovered from Feature 4, one has been classified as a Baker's Creek (Pamela Schenian, personal communication 1985) and the other is an unclassified fragment. Cambron and Hulse (1964) suggest an Early to Middle Woodland affiliation for the Baker's Creek type. Such a temporal assignment is consistent with the previously mentioned temporal affiliation for the Bluff Creek ceramics. The inclusion of the unclassified cross-hatched, incised sherds in Feature 4 suggests a similar Middle Woodland affiliation for these sherds.

RADIOCARBON DATES

Included within the materials excavated by Carnegie Museum during the 1966-67 field season were carbon samples from various locations within the cave. Radiocarbon determinations for five of these samples have been received from the Center for Applied Isotope Studies, University of Georgia, Athens (Table 1). All samples consisted of charred wood and woody stems, as well as smaller amounts of charred hickory nut hulls. Unfortunately, the exact provenience of each sample is rather vague. However, detailed descriptions of the various features, lenses, and levels from which these samples were collected do exist. Profile drawings or similar documentation necessary to precisely locate these areas within the excavation unit are not available.

Table 1. Radiocarbon Dates From Savage Cave.

Sample One Section 2LD Stratum III, Level 6	UGa 3592	1495±65 B.P. A.D. 455
Sample Three No. 5118	UGa 3593	1765±100 B.P. A.D. 185
Sample Four No. 5121	UGa 3594	2115±65 B.P. 165 B.C.
Sample Five No. 5123	UGa 3595	90±60 B.P. A.D. 1860
Sample Six No. 5527	UGa 3596	1735±35 B.P. A.D. 215

Although Bluff Creek Cordmarked sherds are present within the units from which radiocarbon dates are available, direct association is not presently evident. Thus, all that can be said with any certainty is that the dated carbon samples were recovered from ceramic bearing zones within the site. Sample Five is undoubtedly contaminated and should be disregarded. The other four dates, however, are indicative of a Middle Woodland utilization of the site.

CONCLUSIONS

Based upon the ceramic description and radiocarbon dates presented in this paper, it appears that the major ceramic producing occupation at Savage Cave took place during the Middle Woodland period. Bluff Creek ceramics both plain and cordmarked varieties, as well as smaller amounts of Wright Check Stamped ceramics dominate both the Carnegie and Genevieve Savage collections. In Kentucky, Bluff Creek and Wright Check Stamped are considered to be primarily Woodland types, and have been reported in contextual association from other Middle Woodland sites within the central Kentucky Karst region (Carstens 1980a:121). The association of a Baker's Creek projectile point with Bluff Creek ceramics in Feature 4 further supports a Middle Woodland affiliation for this type at Savage Cave. Radiocarbon determinations from the site also indicate a Middle Woodland occupation. Unfortunately, the lack of provenience information has obscured whatever direct associations that may have existed between ceramic materials and the dated carbon.

The presence of both fiber and shell tempered ceramics at Savage Cave must be interpreted cautiously at this time. Future excavation of the site will be necessary to determine if fiber tempered ceramics actually occur at Savage Cave, and to determine the extent to which Mississippian peoples utilized the site.

This paper has attempted to place at least one episode of occupation at this multi-component site into a general temporal framework. There is a great need for carefully controlled future excavations to accurately assess the prehistory of this significant archaeological site.

TESTING OF VANDALIZED SITES, IS IT WORTH IT?: TWO WOODLAND EXAMPLES

By
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ABSTRACT

During the winter of 1984, the United States Forest Service conducted test excavations at three sites in McCreary County, Kentucky. Primarily designed to determine the National Register status of each site, this project revealed interesting information concerning their prehistoric utilization. This paper presents data obtained during the excavation of two of these sites, 15Mcy292 and 15Mcy322, which were primarily occupied during the Woodland period. The similarity of the projectile points and ceramics indicate extremely close temporal and functional relationships between these two sites. Further conclusions concerning these relationships will be made once the faunal and floral remains have been completely analyzed.

INTRODUCTION

The purpose of this paper is twofold: 1) to present data recovered from the excavation of two sites in McCreary County which were primarily occupied during the Woodland period, and 2) to evaluate the value/necessity of testing heavily disturbed (80-90%) sites. Although three sites were tested, only two are reported on in this paper (see Knudsen et al. 1985 for additional information).

These sites were recorded as a result of a survey conducted by the Forest Service in response to a proposed land exchange. The cultural resource survey of the federally managed tracts to be exchanged located 16 sites, three of which were recommended for testing in order to determine if they were eligible for listing in the National Register of Historic Places. All three sites are located on an unnamed tributary of Lick Creek, which is part of the South Fork of the Cumberland River drainage system. All three shelters are located below clifflines, but access to the ridgetops is easily attained. Water is readily available at each site from perennial streams which are within close proximity to each shelter.

Since the major purpose of this project was to assess the National Register eligibility of each site, no formal research design was developed. The project was designed, however, to recover data in the following areas:

1) Cultural Chronology - emphasis was placed upon the recovery of samples for absolute dating and diagnostic artifacts in an attempt to develop a chronological sequence for each site and the region.

2) Intra-site Patterns - test units were placed in different areas of each site to determine if activity areas could be delineated by the association of features, specialized tool kits, and/or artifactual remains.

3) Subsistence Base - faunal and floral remains were collected from the screens and from flotation samples. Analysis of these remains can provide important information on prehistoric subsistence practices.

4) Settlement Patterns - comparison between these sites and those in the immediate vicinity and region was accomplished through background research.

It should be pointed out that several factors had a detrimental effect upon this project. Budgetary constraints are always a concern, particularly when it is an "in-house" project of a Federal agency. This restriction allowed for only one absolute date for each site. Adequate samples of datable materials are available if funds become available in the future, however. Time constraints upon this project were strict as a result of congressional involvement on behalf of the private individual interested in the land exchange. The time allotted for completion of this project was three months to excavate, analyze, and report the results. The time of the year (December) was not exactly conducive to good crew morale and presented interesting excavation problems as well. Despite these problems the project was completed within the established time frame.

Vandalism at these sites was the only factor which could not be adequately dealt with and turned out to be the most serious problem. This activity occurred during the period between the survey and the excavation project, as well as during excavation. Vandals destroyed the cultural deposits at one of the sites (15Mcy325) which was originally included in the study. This caused some rethinking of the testing strategies employed but did not hinder efforts to recover any of the remaining data.

METHODOLOGY

A few comments concerning specific field methods employed during this project need to be made. While accepted archeological practices were followed, on occasion, necessary adjustments were made in order to adequately achieve the goals of the project.

From past experience in investigating rockshelters having good preservation, it was determined that excavating in natural levels would be a nearly impossible task and, given the project's time constraints, would not be cost effective. Therefore, all test units were excavated in arbitrary 10 cm levels until sterile soil was encountered. Upon completion of a unit each of the walls were profiled. Flotation samples were collected from each excavated level to recover floral and faunal remains.

Unfortunately, time constraints prevented adequate evaluation and analysis of the materials collected during testing. While some detailed

analysis of certain artifact classes was conducted (lithics and ceramics), others were only cursorily analyzed (faunal and floral).

TOUGH TREE SHELTER (15MCY292)

Site Description

The Tough Tree Shelter is located at the base of an overhanging cliffline on the west side of a small perennial stream. The shelter is approximately 45 m long and 5 m wide (Figure 1a), creating a protected area of about 225 m^2. However, a waterfall cascading over the cliff in the central area of the shelter limits dry, usable space to 80-90 m^2. The cliffline north of the shelter continues unbroken, providing little access to the ridgetop. To the south, the top of the ridge is accessible from a break in the cliffline.

When this site was first recorded in the fall of 1983 (Knudsen and Ison 1984), vandalism had disturbed about 80% of the cultural deposits in the southern portion of the site and 50% in the northern portion. Additional disturbance occurred between the initial visit and the testing of the Tough Tree Shelter. However, the dripline and the bench appeared undisturbed. Artifacts collected during the survey indicated both a Late Woodland and Late Prehistoric utilization of the site. Profiles of the potholes indicated 30 cm of cultural deposits. Faunal and floral remains were scattered over the shelter floor which indicated the potential for good preservation of these remains.

Test Units

Four test units were excavated at this site. Unit 1 was situated such that it would sample a portion of the dripline and the interior of the shelter, including a vandalized area. This unit was situated in such a way as to determine if intact deposits were indeed present, if preservation was maintained in the dripline, and if the vandals had reached the bottom of the cultural deposits. Unit 4, an extension of Unit 1, was placed within the protected area of the shelter to determine if it's interior contained intact deposits. Unit 2 was placed on the bench outside the dripline in order to determine if cultural deposits were present in this area and if so, whether activity areas could be delineated. Unit 3 was placed in the northern end of the shelter in order to test the side opposite the waterfall for intact cultural deposits.

Stratigraphy

Unit 4's stratigraphy was the simplest: damp yellow sand. The upper 20 cm contained cultural materials assignable to the Late Prehistoric period.

Unit 2, located outside the dripline, contained two distinct zones. Zone I, a loose dark brown sandy loam 5 cm thick, contained Late Woodland ceramics and secondary reduction lithic debitage. Zone II, a more compact, lighter sandy loam with charcoal flecking, produced Chesser Notched projectile points and all other stages of lithic reduction. It also produced a Kirk Corner Notched point in the lower levels.

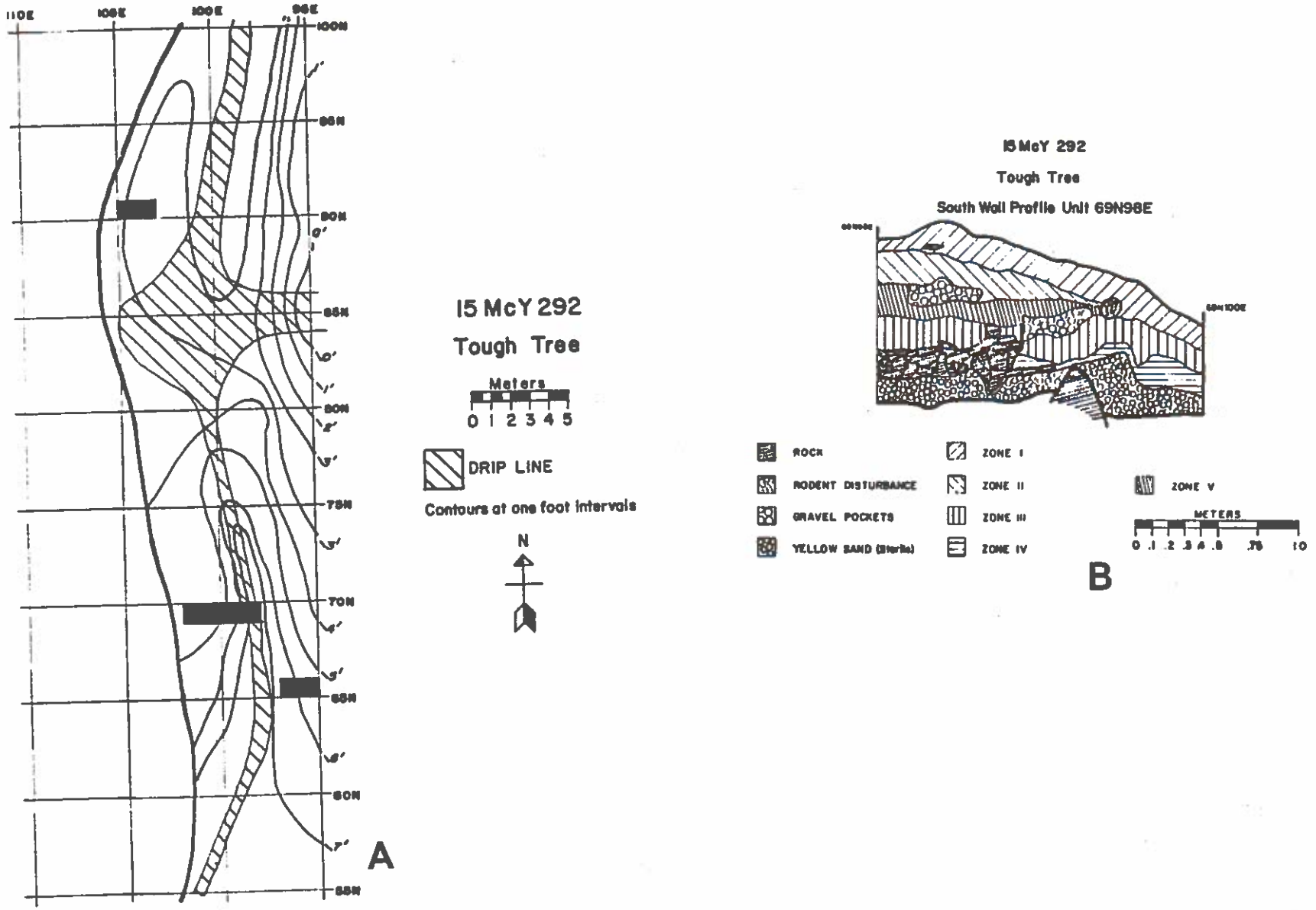


Figure 1. Tough Tree Shelter: a, planview; b, profile south wall of Unit 1.

Units 1 and 3 had a continuous stratigraphic profile. Zone I consisted of backfill from the vandal excavations. Zone II consisted of a dark sandy midden material which was greasy when wet. Zone III was very similar in nature to Zone II, but was separated from Zone II by Zone V. This zone consisted of a reddish/tan mottled sand with gravel. It was very compact and solid. Zone V appeared to pinch out near the division between the units, but was quite evident in the central portions of both units. The lower portions of Zone III in Unit 1 contained a large amount of stone which was determined to be the structural remains of either a protective wall or some other type of enclosure (Figure 1b). This wall was the dividing line between the wet and the dry sections of the shelter (wet outside and dry inside). Zone IV consisted of a gray ashy lens near the bottom of both units. It was very compact, but produced no cultural materials.

Artifacts

The most common artifacts recovered were lithic tools and debitage. The most common tools recovered were projectile points or point fragments (n=39). Projectile point types recovered included three small Mississippian/Fort Ancient triangulars (Figure 2a), eight Chesser Notched (Figure 2b-c), one MacCorckle Stemmed (Figure 2f), and two Kirks (Figure 2d-e), one of which is corner notched and another which is stemmed. A large triangular point base was also recovered in association with a Chesser Notched point. Other projectile point fragments (n=24) recovered could not be assigned to any specific type.

Several other types of stone tools were recovered which reflect wood and bone working technologies: one bipolar wedge (Pieces Esquilles), one drill, four spokeshaves, five scrapers, three gravers, and 14 whole or fragmentary blades. Another tool (Provisional Type A) was also identified. This tool is a unifacially flaked blade from a rectangular- or diamond-shaped flake which has elongated edges to one corner. Evidence of utilization points toward multi-functional usage as a graver on the long end and as a scraper on the shorter sides. Examples of primary and secondary lithic reduction stages were represented in the remaining debitage.

Groundstone artifacts consisted of grinding stones and worked siltstone. One groundstone fragment appeared to have been used as a cobble mano. Another large tabular sandstone fragment contained four circular depressions on one surface. These artifacts indicate the presence of nuts and other vegetable foodstuffs in the diet of this site's occupants.

The second largest group of artifacts was ceramic sherds. Tempering agents included shell, limestone, grit, siltstone, shale, and sandstone. Exterior surfaces exhibited cordmarked, check stamped, or plain surface treatments. Ceramic types identified included: shell tempered cordmarked (n=1), shell tempered plain (n=1), limestone tempered cordmarked (n=6), limestone tempered plain (n=25), limestone tempered check stamped (n=2), grit tempered cordmarked (n=2), grit tempered plain (n=7), sandstone tempered plain (n=2), siltstone tempered plain (n=1), siltstone tempered cordmarked (n=1), and shale tempered plain (n=1). A majority of the ceramics are types assignable to the Middle and Late

Woodland periods. The limestone tempered check stamped sherds have been tentatively identified as Wright Check Stamped (Haag 1942), which is usually associated with Middle to Late Woodland period occupations (Purrington 1967a; Salo 1969; Gatus 1981).

A cursory examination of the faunal remains resulted in the identification of several tools including an antler flaker, a bone flesher, a bobbin, and a number of awls. Although a detailed species analysis was not conducted, large and small mammal, snake, turtle, bird, and mollusk remains were identified within the faunal assemblage. Human skeletal remains were represented by an occasional incisor.

The small sample of floral materials which were examined revealed primarily wood charcoal, but hickory nut fragments were also identified.

Historic materials recovered from the site date to the late twentieth century. All are related to the recent episodes of vandal activity which have taken place at the site.

Discussion

Test excavations at the Tough Tree Shelter have revealed some interesting information. Despite heavy vandalism, intact deposits were identified at this site, particularly in the dripline and in the bench fronting the shelter. The main occupational zones have been assigned to the Late Woodland period, with evidence of occupation during the Archaic, Middle Woodland, and the Late Prehistoric periods as well. The Late Woodland assignment is based upon the ceramics, the Chesser Notched projectile points, and a radiocarbon date of A.D. 1040±60 from a circular hearth and Zone V (the central portion of the Woodland midden) in Unit 3.

The stone structure encountered indicates that at least portions of the shelter were enclosed. While the most intensive occupation area was in the southern portion of the shelter proper, the bench in the front of the shelter was also utilized as a work area. However, no distinct activity areas could be delineated.

The cultural materials recovered indicate that a wide range of activities were conducted at the Tough Tree Shelter. All reductive stages were identified in the lithic assemblage, which suggests that stone tools were produced, broken, and reworked into new tools within this shelter. The presence of limestone which does not occur naturally in the shelter indicates that ceramics were also produced. The recovery of stone tools for working wood and bone indicates that these activities were also taking place. Some of the bone tools and certain types of stone tools are suggestive of hide preparation and sewing activities. The wide variety of activities identified at this site may imply that the occupation of this shelter was year-round, but only further faunal and floral analysis can adequately address this question. The size of the utilized portions of the site suggests that a group of about six to eight individuals may have occupied this site at one time, probably as an extended family group (Narroll 1962).

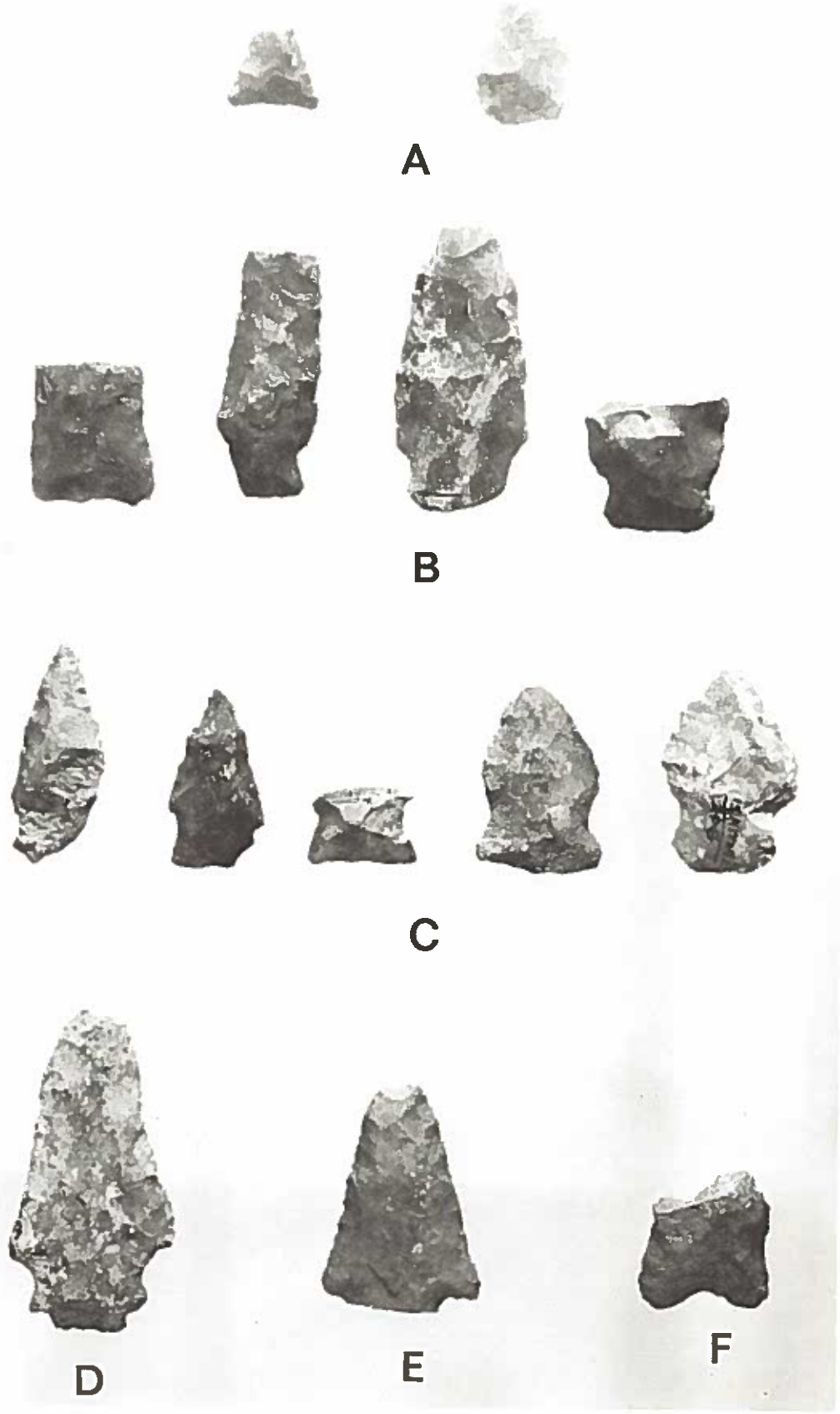


Figure 2. Projectile Points from Tough Tree Shelter: a, Late Prehistoric Triangular; b-c, Chesser Notched; d-e, Kirk; f, MaCorkle (all specimens actual size).

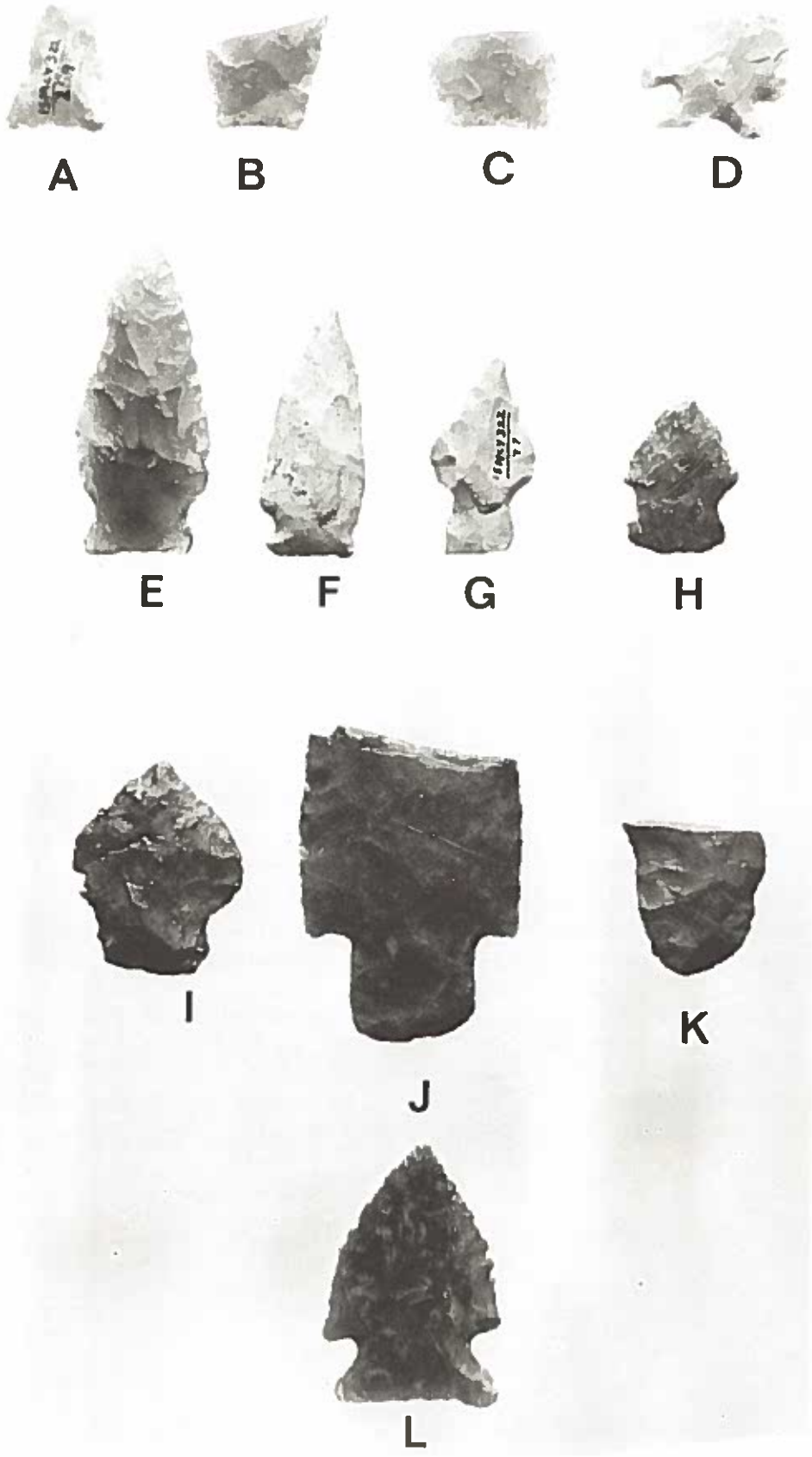


Figure 3. Projectile Points from Campbell Shelter: a, Fort Ancient Triangular; b-c, Jacks Reef Pentagonal; d, Jacks Reef Corner Notched; e-i, Chesser Notched; j, Robbins Stemmed; k, Adena Stemmed; l, Kirk Corner Notched (all specimens actual size).

CAMPBELL SHELTER (15MCY322)

Site Description

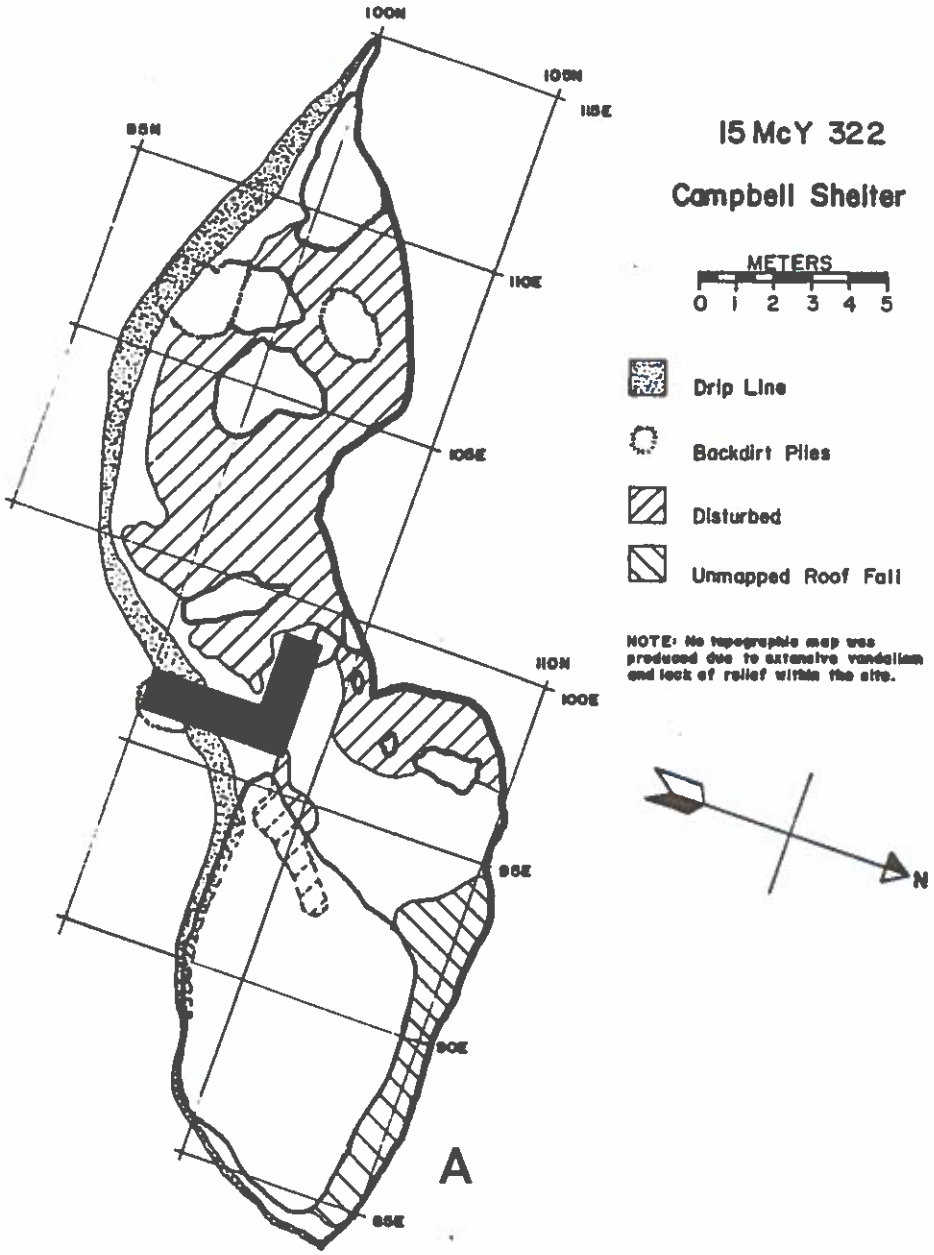
The Campbell Shelter occupies a moderate-sized overhang on the south face of a southwesterly trending ridge spur. Access to the ridgetop can be gained at the immediate eastern end of the shelter, where a small intermittent stream has cut a gap in the cliffline. A very large boulder occupies one-third of the eastern end of the shelter. The cultural deposits are located predominately west of this obstruction. Unlike its close neighbor, the Tough Tree Shelter, this overhang receives direct sunlight for most of the day, which greatly enhances its comfort factor. Along the east end and outside of the dripline is a gently sloping bench which would have been suitable for any number of prehistoric activities. While the deposits along the back wall are damp due to intermittent runoff, the central portion of the shelter is extremely dry.

When the site was initially recorded (Knudsen and Ison 1984) approximately 50 to 60% of the cultural deposits had been destroyed by relic-hunting activities (Figure 4a). The site sustained only minor damage to the deposits over the next year, but during excavation of the Tough Tree Shelter, vandals returned in an apparent "last ditch effort" to beat the archeologists to the "goodies". This final phase of vandalism destroyed over 90% of the remaining deposits and left very little for testing. The only intact areas were located along the dripline, a very thin strip along the eastern end of the site, and the bench.

Initial inspection of this site's stratigraphy indicated the presence of three distinguishable cultural zones. Despite the extensive vandalism, there appeared to be sufficient intact deposits at this site to recommend further testing to assess its National Register eligibility. Though the most recent vandalism of the site made testing questionable for this purpose, it was decided that it should be carried out, if only to recover any remaining intact data.

Test Units

Three test units were placed in the remaining undisturbed deposits. These units formed an L-shaped trench and allowed testing of backfill piles, the dripline, the shelter proper, and a vandal pit. Unit 1 was primarily situated outside of the dripline, although the northeastern quarter of the unit was actually below the protecting cliff face. Two-thirds of the unit was covered with backdirt and it was hoped that the backdirt covered intact deposits. This unit was also excavated to test the dripline and the bench for discrete activity areas. Unit 2 was a northward extension of Unit 1, and with the exception of the very southern portion of the unit, was completely protected by the overhang. Again, a large portion of this unit lay under backfill, so it was hoped that intact deposits were still present. A small portion of the unit was actually a vandal pit and was excavated to determine if disturbance had reached the lower portions of the deposits. Unit 3 was a westward extension of Unit 2 into the driest portions of the cultural deposits. These appeared to be heavily disturbed, but it was hoped that the vandals had not destroyed lower lying deposits. Units 1 and 2 contained two



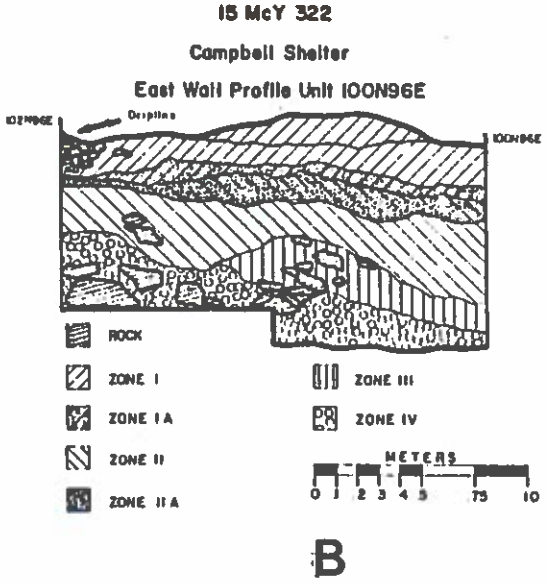


Figure 4. Campbell Shelter: a, planview; b, profile of Unit 1.

intact cultural zones. Only portions of the lower cultural horizon remained intact in Unit 3.

Stratigraphy

The stratigraphy at this site consisted of four zones. Zone I was the backfill from the looters' pits. Zone II consisted of a light, yellowish brown sandy silt loam with charcoal flecks throughout. In Unit 1 (Figure 4b) this zone contained two features which consisted of fire-cracked rock and charcoal and which appear to have been hearths. Charcoal from one of these features was combined with charcoal from an arbitrary level (Unit 1, Level 5) and was submitted for radiocarbon dating. All the ceramics from Unit 2 were recovered from this zone and included limestone tempered Wright Check Stamped, limestone tempered plain, and sandstone tempered plain types. Zone III consisted of a gray to reddish brown sandy silty loam some 15 to 25 cm in thickness. No diagnostic artifacts were recovered from this zone. Zone IV was the basal horizon of the shelter and consisted of culturally sterile yellow sand and large boulders resulting from roof fall.

Artifacts

Whole and fragmentary projectile points (n=33) represent the primary artifact category recovered from this site. A Fort Ancient/Mississippian triangular point (Figure 3a) was recovered from Level 3 of Unit 3. This unit also contained two Jack's Reef Pentagonal points (Figure 3b-c) in Levels 6 and 7. A Jack's Reef Corner Notched point (Figure 3d) was recovered from a vandal's discard pile. These point types are usually associated with Middle to Late Woodland cultures (Ritchie 1961). The most common point type recovered from the Campbell Shelter was the Late Woodland Chesser Notched (Figure 3e-i) (n=5). An Adena Stemmed (Figure 3k) base and one point which was very similar to the Early Woodland Robbins Stemmed (Figure 3j) variety described by Webb and Elliott (1942) were also found at the site. And finally, one Early Archaic Kirk Corner Notched point (Figure 3l) was recovered from the disturbed deposits. In addition, 21 specimens considered to be projectile point fragments could not be confidently placed into any typology. These consisted of 12 base fragments, six tips, and three edge/base elements.

Other chipped stone tools recovered during testing included both complete and fragmentary bifaces (n=40) representing all stages of lithic reduction. A bipolar wedge was also recovered as was a single broken adz found on the edge of the overhang above the shelter. Other identified chipped stone tools in the assemblage from this site include two spokeshaves, two drills, 14 scrapers (hafted and unhafted), 12 gravers, four unifaces, 51 flake blades, and 42 marginally modified flakes. The remaining materials consisted of 3,914 waste flakes, 21 cores, and 35 chunks.

Ground and pecked stone artifacts were also recovered. A spherical quartz core showed evidence of battering and use as a hammerstone. Grinding tools made up most of this category and consisted of one pestle, two mortars, three manos, and two grinding slabs. A celt fragment of hematite was included in this category, as was a piece of worked slate and two steatite vessel fragments.

Of the 18 ceramic sherds recovered from the Campbell Shelter, the exterior surface finish of three specimens could not be identified. The remaining sherds were grouped into four definable types: limestone tempered plain (n=2), limestone tempered check stamped (n=5), limestone and sandstone tempered plain (n=1), and sandstone tempered plain (n=7).

No detailed analysis of the charred floral material has been undertaken. However, wood charcoal and nut fragments representing both hickory and walnut were identified during a very cursory examination. Further analysis of this material awaits a thorough examination of the water screened samples.

Of the 478 faunal specimens recovered from the site, only one exhibited any evidence of being used as a tool. This object was a long bone splinter with a polished tip. A brief examination of the other specimens revealed both large and small mammal, large bird (probably turkey), turtle, and mollusk remains. Deer remains were by far the most common followed by turtle. As with the Tough Tree Shelter, human skeletal remains at the Campbell Shelter were represented by an occasional tooth.

Late twentieth century historic artifacts (n=111) were recovered from each of the excavated units. All are considered to have been discarded by vandals.

Discussion

Data recovered by these investigations indicate that, like the Tough Tree Shelter, the Campbell Shelter was occupied intermittently from at least the Early Archaic period through the Late Prehistoric period with the heaviest utilization occurring during the Woodland period. It must be pointed out that the evidence for Archaic and Late Prehistoric utilization of this shelter consists of only two projectile points, but one must also acknowledge the disturbed nature of this site.

The majority of the occupation at this site appears to have taken place during the Early and Late Woodland periods. The Early Woodland period occupation is represented by the Adena and Robbins Stemmed projectile points, as well as the steatite vessel fragments. Evidence for a Late Woodland utilization of the Campbell Shelter is supported by the presence of Chesser Notched points and the ceramic sherds. However, the radiocarbon date obtained from this site is not compatible with the type of artifacts (Chesser Notched points) associated with it. The 450±60 B.C. date may be explained by the fact that part of the sample was collected from an arbitrary level along the interface between the Late Woodland Zone II and the Early Woodland Zone III. Thus, the sample may have contained charcoal brought up from the earlier stratum. Such mixing is common in rockshelters where features of a later component were often excavated into the deposits associated with an earlier component.

The variety of activities identified at the site is what one would expect to find at an intensely occupied site: lithic production, ceramic production, food preparation, wood and bone tool manufacturing, and hide cleaning and tailoring. Again, as at the Tough Tree Shelter, the activities were not confined to the protected portion of the site.

Using Narroll's (1962) formula, it appears that about 10 to 12 individuals could have utilized this site at one time. While detailed data concerning the season of occupation and subsistence of the groups utilizing this site has not been generated, a cursory examination of the floral and faunal collection indicates a hunting and gathering strategy, as would be expected for these cultural periods.

CONCLUSIONS

The archeological investigations of the Tough Tree and Campbell shelters have demonstrated the presence of a long and diverse prehistoric occupation in this small nondescript drainage. These rockshelters provided the area's prehistoric inhabitants with ready made houses for at least 9,000 years. Some groups occupied these shelters only briefly, while other groups appear to have utilized the shelters for extended periods. While both shelters had been severely disturbed through vandalism, limited investigation of these sites has shown that considerable amounts of data pertaining to the cultural history of the area remained. However, because of the disturbed nature of the main occupational areas of these shelters, a holistic interpretation of these sites was not possible. Because of the thoughtless acts of a few individuals, portions of McCreary County's cultural heritage have been lost forever to the public and to the scientific community.

The earliest occupation of each shelter occurred during the Early Archaic period and is best represented by Kirk style projectile points. While these points exhibit a fair degree of heterogeneity, they are similar to styles dated elsewhere between 8000 and 6500 B.C. An upland site (Kirk Site, 15Mcy371) which appears to contain a single Early Archaic component, was discovered along a southwesterly trending ridge finger approximately 100 m east of the Campbell Shelter. Among the materials recovered from this site were bifaces, debitage, and two Kirk points. Both points closely resemble the Kirk specimen recovered from the Campbell Shelter and all three were manufactured from the same material. These two sites may be related, given their close proximity and the recovery of similar artifacts of the same chert type. The Kirk Site could possibly represent fair weather occupation and the Campbell Shelter inclement weather utilization of the immediate locale by the same group of Early Archaic peoples. Whether this Early Archaic group is the same as that which occupied the Tough Tree Shelter is questionable. However, it is likely that they were at least socially related.

The greatest homogeneity in artifacts between the two sites is represented by their Middle to Late Woodland cultural remains. The most prolific projectile point style from these deposits is the Chesser Notched type, which shows considerable stylistic variation within the assemblage from each site, but falls easily within the morphological range of the Chesser type described elsewhere. When stylistic variations from the Tough Tree Shelter are compared to those of the Campbell Shelter, it is apparent that these variations are the same at both shelters (Figure 5).

It also appears that not only are the same stylistic variations present in each shelter, but that certain of these variations were utilized for the same function. Chesser Notched points from both

shelters were manufactured from the same raw material and exhibit identical use wear patterns, with the tips and adjacent blade edges worn smooth.

The pottery recovered from these deposits is likewise very similar. Again there is considerable variation in the types of wares present, but they are equally represented at both shelters. The most conspicuous and diagnostic of these is Wright Check Stamped. Sherds of this type are virtually identical in surface decoration, tempering agent, and stratigraphic position at both sites.

The observed pattern in these Woodland assemblages can be interpreted in a number of ways, of which, two plausible explanations are put forth here. The Campbell and Tough Tree shelters are geographic neighbors, being situated more or less on opposite sides of the same drainage. One explanation may be that both shelters were occupied simultaneously by one related group. Because of the size of this group, they were forced to separate into two parties in order to accommodate the shelters comfortably.

An alternative and more preferable explanation is that each shelter was occupied by the same party during different portions of the year. As the fieldwork at the Tough Tree Shelter quickly illustrated, the shelter provides little relief from the cold during the winter, but its directional position would be ideal for occupation during the summer. The Campbell Shelter on the other hand receives direct sunlight for several hours which greatly enhances the comfort factor during the winter, but could be difficult to bear during the summer. It is possible that the Tough Tree Shelter reflects a warm weather occupation of the drainage, while the Campbell Shelter was utilized during colder periods by the same Middle or Late Woodland group.

Although neither explanation may be wholly or even partially valid, it is felt that the patterned similarities exhibited within both shelters are indicative of the material culture of a single related group. These hypotheses can be tested through analysis of the floral and faunal collections which has yet to be completed. By determining if there are seasonal differences in these assemblages, the above question may be resolved.

Another shelter situated directly across the intermittent drainage from Tough Tree may be related to the Woodland occupation of the Tough Tree Shelter. The One Sherd Shelter is a small overhang. Both visual and voice contact between the two sites is easily maintained. The only artifact recovered from this shelter was a single limestone tempered cordmarked sherd (not even a single flake could be found during an exhaustive search of the shelter floor). The lack of lithic debitage suggests a single functional utilization of this small site. It is possible that this shelter functioned in the same manner as "menstrual huts" on open habitation sites. According to the ethnographic accounts reported by Swanton (1946), many aboriginal groups required women to be isolated from the main group during menses or immediately after childbirth. The lack of lithic materials at the site which are considered to represent male oriented activities, strengthens this premise somewhat. However, this is only one of many plausible

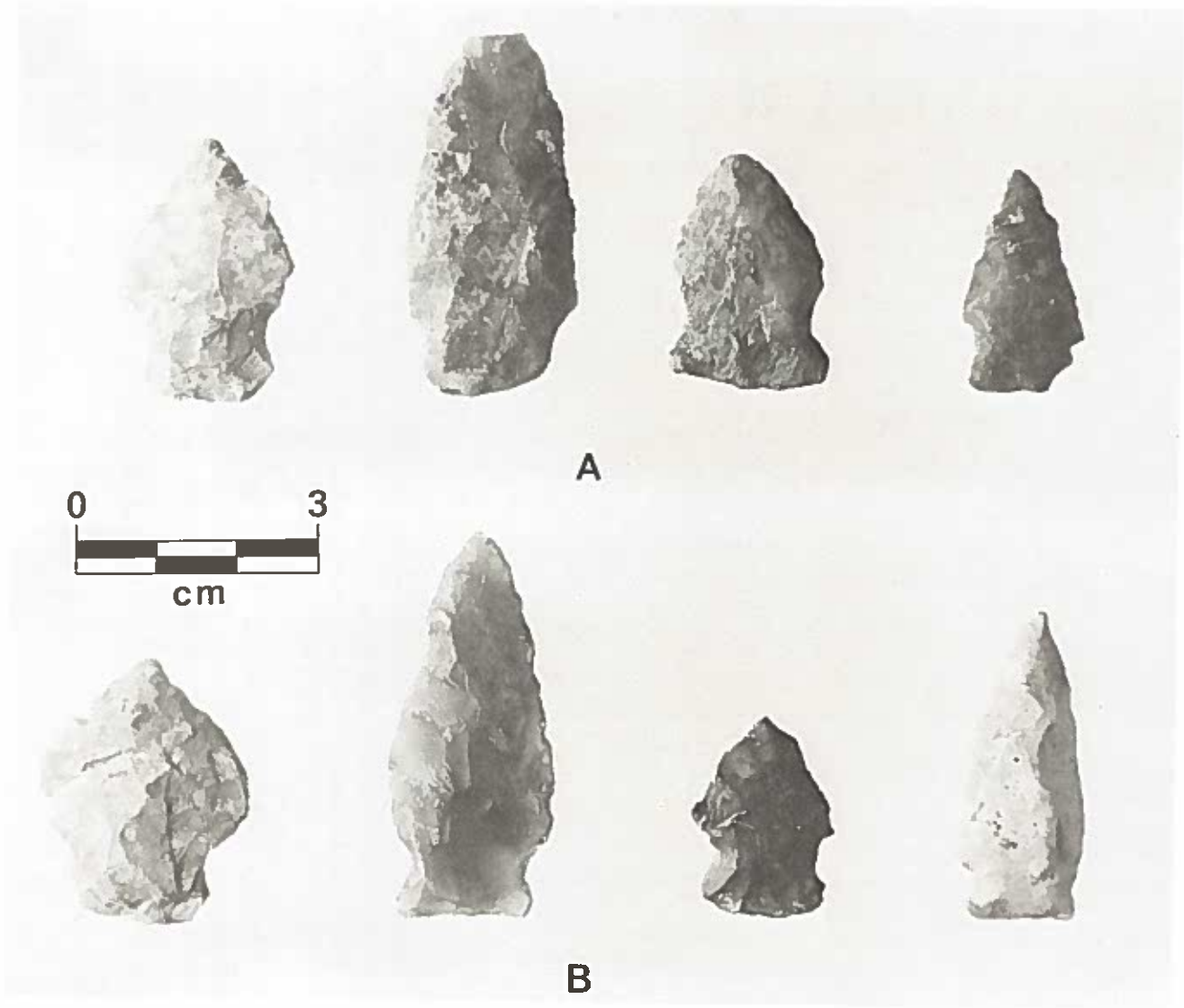


Figure 4. Chesser Notched Projectile Points: a, Tough Tree Shelter; b, Campbell Shelter.

explanations for the site's function; the sherd may represent only one incident which may have happened by accident in this shelter.

As artifact analysis proceeded, it became apparent that radiocarbon dates would be important for determining the temporal relationship between the Tough Tree and Campbell shelters. The A.D. 1040±60 date obtained from the Tough Tree Shelter appears to be well in line with the Late Woodland era artifacts recovered from this site. However, the 450±60 B.C. date obtained from the Campbell Shelter is not compatible with the Late Woodland artifacts retrieved from this site. One possible explanation is that since the Campbell Shelter sample was recovered from an arbitrary level along the interface between the Late Woodland Zone II and the Early Woodland Zone III, the radiocarbon sample may reflect cultural materials brought up from the lower stratum. Such mixing is common in rockshelters where features of a later component are often excavated into earlier deposits. Additional datable materials from this shelter's hypothesized Late Woodland zone will be sent for analysis when time and funding is available. This information should aid in interpreting the chronological relationship of the prehistoric utilization of these two sites.

Little can be said concerning the Late Prehistoric occupational episode at the two shelters. Materials from this period represent the uppermost prehistoric component at each shelter, and thus they were subjected to the most extensive disturbance. It is interesting to note that only the Tough Tree Shelter exhibited Late Prehistoric ceramics, while both contained projectile points associated with the Late Prehistoric period. Whether a relationship between these two sites such as that postulated for the Woodland period continued into this period is impossible to determine.

Despite extensive disturbance of their cultural deposits, testing of the Tough Tree and Campbell shelters produced significant amounts of data which have furthered our understanding of McCreary County's diverse cultural heritage. Excavations at both sites revealed that intact deposits do remain which can provide basic chronological information. In addition, features were encountered in areas that were initially considered disturbed. The presence of these features has enabled some interpretive conclusions to be made concerning the prehistoric occupation of both sites.

Testing of these two sites also demonstrated that activity areas may exist in the talus slope and the unprotected benches in front of rockshelters, which are usually untouched by vandals. These areas can provide archaeologists with valuable information concerning the prehistoric utilization of rockshelter sites. It is recognized, however, that with the main occupational area destroyed, usually the most well protected portion of the shelter, the data gained through excavation of the talus slope and unprotected shelter benches may only reflect peripheral activities. Investigation of these areas can none the less provide insights into the people that occupied these sites. It may well be that as more excavations are carried out in southeastern Kentucky, these data may become redundant and excavation of sites where the main occupational areas are preserved will become crucial. But until such a time, testing of heavily disturbed sites such as the Tough Tree

and Campbell shelters can provide a data base from which to build research designs and cultural models.

THE OLD BEAR SITE (15Sh18): AN UPLAND CAMP IN THE WESTERN OUTER BLUEGRASS

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ABSTRACT

This paper describes the results of limited investigations conducted at the Old Bear Site (15Sh18) during the spring of 1979. Two trash pits were exposed during construction of a softball field at Clear Creek Park, Shelby County, Kentucky. Remains from these features were salvaged by the Office of State Archeology and students from the Department of Anthropology, University of Kentucky, Lexington, Kentucky. The remains represent the first datable early Late Woodland manifestation in the western Outer Bluegrass.

INTRODUCTION

Considering the dearth of archaeological investigation in the western portion of the Outer Bluegrass region of Kentucky, it is no surprise that Late Woodland sites are almost totally absent in the statewide site inventory. Prior to the work at the Old Bear Site, in Shelby County, only two Late Woodland sites had been documented to any extent in this region. The first site identified was the Chilton Site (15Hy1), located in Henry County, some 38.5 km northeast of Shelbyville. In 1936, John L. Buckner of the University of Kentucky excavated 30 burials at this site (Funkhouser and Webb 1937). Although Chilton was initially defined as an Adena cemetery (Webb and Baby 1957), a clay elbow pipe and several Chesser style corner-notched points found in burial association bear witness to the site's function as a Late Woodland cemetery.

The second site investigated was Arrowhead Farm (15Jf237), located near the Ohio River in Jefferson County. This site was excavated by the University of Louisville Archaeological Survey (Mocas 1976) and contained ceramics and projectile points resembling those present at Yankeetown phase sites in western Kentucky and southern Indiana.

Other identified Late Woodland sites in the western Outer Bluegrass have been defined on the basis of stylistic attributes of projectile points. Due to the lack of precision in comparative dating of such items, however, many of these sites may not be Late Woodland, but in fact may be associated with cultures ranging in age from Early Woodland through Fort Ancient (this same problem in relative dating hinders interpretation of the Chilton Site).

Due to the absence of recorded Late Woodland sites within the region, researchers have modeled Late Woodland settlement-subsistence patterns for the western Outer Bluegrass region from sites in adjacent regions (c.f. Bader et al. 1977; Robinson et al. 1979). This information comes from Late Woodland occupations at upland ridge sites in northern

Kentucky (Collins 1980; Railey 1984), rockshelters in the mountains of eastern Kentucky (Cowan 1979), and from floodplain village sites in northeastern Kentucky and southern Ohio and Indiana (Henderson and Pollack this volume; Oehler 1973; Reidhead and Limp 1974; Seeman 1980). Cultural remains from these sites have been generally assigned a Newtown phase affiliation. One of the best documented Newtown phase occupations is present at the Leonard Haag Site in extreme southeastern Indiana where a radiocarbon date of A.D. 650 was obtained (Reidhead and Limp 1974). The William S. Webb Archaeological Society in conjunction with the Department of Anthropology, University of Kentucky, conducted work at the Pyles Site (15Ms28), an upland village in Mason County, Kentucky (Railey 1984). A radiocarbon sample from Feature 10 at the Pyles Site has been dated at A.D. 365±120. A Newtown phase component was also identified at the Bentley Site in Greenup County, Kentucky (Henderson and Pollack this volume). Here a date of A.D. 570±60 was obtained from a large pit feature. Yet another Newtown phase component was documented in Cowan's (1979) work at Rogers Rockshelter in Powell County, Kentucky. One of the radiocarbon samples from this site has dated this component to A.D. 465.

The Newtown phase appears to represent an early (ca. A.D. 350-750) adaptation of a Late Woodland cultural pattern. This phase continues for some 400 years and may contain antecedents of the Fort Ancient tradition. A few sites (e.g. Stateline and Turpin in southern Ohio) exhibit continuity from Newtown to Fort Ancient. Based on data from a limited number of sites, the Newtown pattern consists of semi-sedentary villages located along terraces and/or ridges overlooking major streams or rivers. Smaller occupations have been identified at open sites and rockshelters, potentially reflecting nuclear or extended family residences. In Ohio, Indiana, and Kentucky during the Newtown phase, as well as during the Late Woodland in general, an emphasis was placed on hunting and gathering with only minor evidence for horticultural activity. Cucurbits have been found in refuse deposits in rockshelters and villages, but no evidence exists for utilization of corn (Cowan 1979; Reidhead and Limp 1974). It is doubtful that the overall subsistence pattern was dramatically different than that of the Late Archaic or Early Woodland periods. Subsistence remains from Newtown phase sites attest to a diverse diet with considerable use of animal resources such as white-tailed deer, raccoon, wild turkey, black bear, waterfowl, and fish (Theler 1980; Reidhead 1981). Many Newtown sites have been considered fall-winter occupations.

Newtown sites often have a thin sheet midden containing an abundance of material remains and food refuse. The material inventory is characterized by cord-impressed ceramics; Lowe, Chesser, or Baker's Creek corner-notched dart points, chipped stone adzes; and groundstone items (celts, manos, limestone, and discs). Newtown assemblages also include large quantities of burned rock and animal bone. At some sites there is evidence for the presence of circular wattle and daub houses (Seeman 1980).

Although Newtown phase sites have been documented for areas of Kentucky east of the western Outer Bluegrass, there is some question as to the validity of using a Newtown model for Late Woodland settlements in this region. Typically, the western Outer Bluegrass represents a ecotonal boundary between the Inner Bluegrass to the east and the western

Knobs and contains little evidence for Late Woodland occupations. Farther to the west, other Late Woodland manifestations occur. In addition, material inventories of Late Woodland cultures in southern Ohio, southern Indiana, and central and eastern Kentucky exhibit only minor technological variation. The absence of such variation has served to diminish an interest in systematic studies of micro-regional variation or multiple-phase developments within a broader spatial context. Only more intensive research efforts can reveal whether the Newtown phase "model" is adequate for portraying Late Woodland developments in the western Outer Bluegrass.

THE OLD BEAR SITE

During the spring of 1979, the Office of State Archaeology undertook emergency excavations at a site exposed by construction activities at Clear Creek Park, Shelby County, Kentucky. This site (15Sh18) is located within the city limits of Shelbyville, a town approximately 80 km east of Louisville. The site was named the Old Bear Site due to the presence of the remains of an elderly female black bear found in one of the exposed trash pits. The site is situated on a ridge overlooking Clear Creek and consists of two refuse pits about 5 m apart (Figure 1). Two extended burials some 25 m to the northwest may also be associated with the site.

FIELD PROCEDURES

The two pits were initially exposed as dark circular stains during the construction of a softball field. In order not to hold-up construction activities, excavation of the trash pits began late in the afternoon and continued after dark with the aid of Coleman lanterns and floodlights. Excavation procedures consisted of the removal of the matrix from the two pits with shovel and trowel. Matrix from Pit 1 was screened through .625 cm hardware cloth with approximately 10 l of matrix reserved for flotation. Because of the emergency nature of the excavations, the majority of Pit 2 was shoveled into garbage bags for water screening and flotation. Work was resumed the following day when the pits were profiled and mapped. Fill recovered from the pits was subsequently water screened and floated at the Office of State Archaeology.

RESULTS OF EXCAVATIONS

As noted above, excavations at the Old Bear Site focused on the two pits revealed by mechanical stripping; no other soil anomalies were observed. Because of the extensive area exposed by stripping operations (ca. 40,000 m^2), it is likely that these were the only cultural features present. There was no evidence of a floor area or a postmold pattern suggestive of a structure. However, due to the unknown amount of overburden removed from the field, structural features could have been destroyed, whereas due to the greater depth of the pits, they were preserved.

The two pits were roughly circular, shallow basins, approximately 1.5 m in diameter and 30 to 40 cm in depth. The bottoms of the basins exhibited reddened surfaces with moderate scattering of burned limestone between the floor of the basin and the pit fill. An abundance of refuse

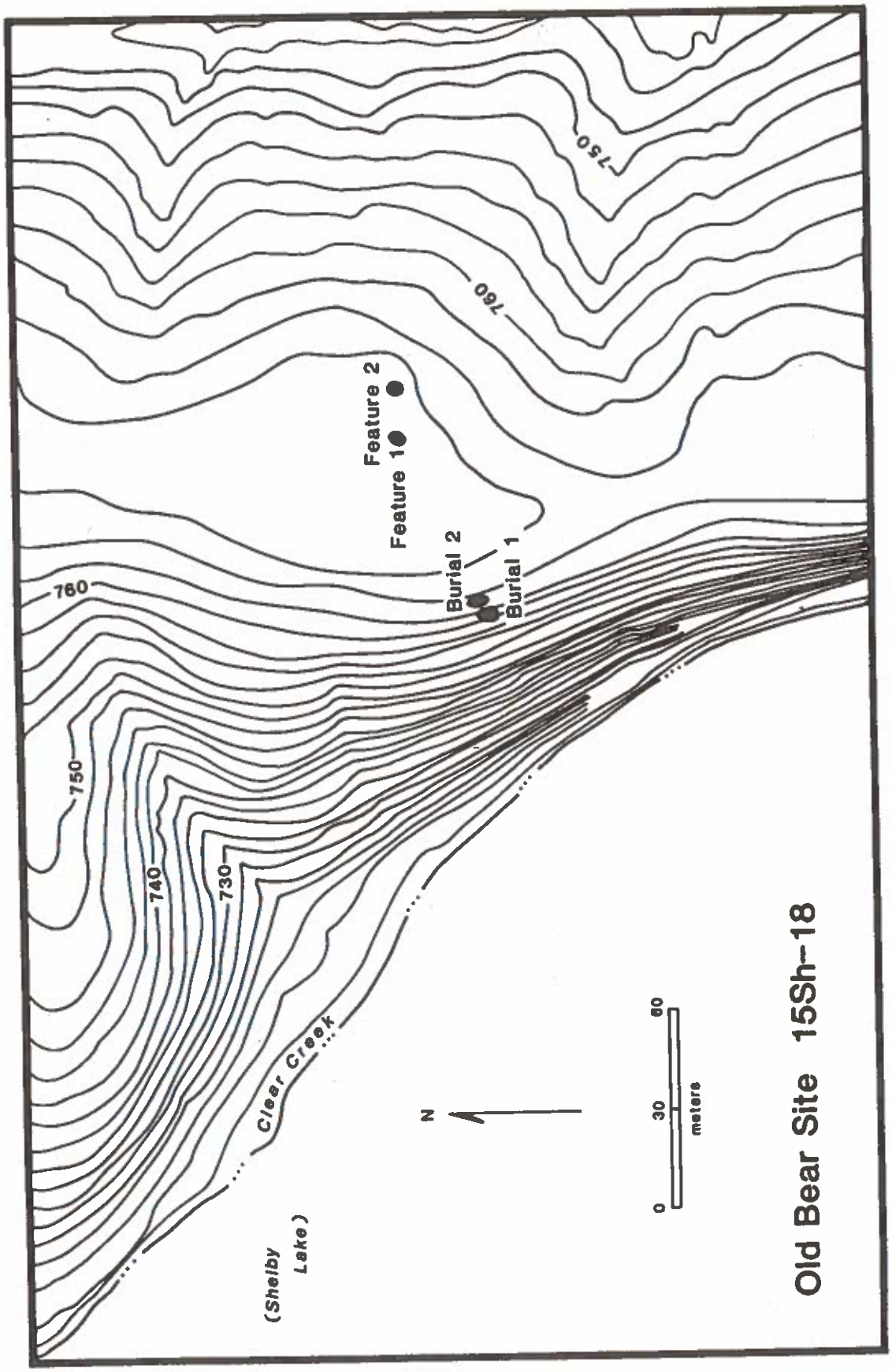

Figure 1. Distribution of Features at the Old Bear Site.

(ceramic, chipped stone, and faunal and floral remains) was identified within the pit fill, which can be characterized as a highly organic, gritty soil matrix. Matrix from both pits were submitted to the University of Kentucky, Agricultural Extension Center for analysis. This analysis revealed that the pit fill contained residual amounts of various minerals and trace elements associated with organic decomposition (Table 1). Soil ph was nearly neutral in both pits, which undoubtedly contributed to the excellent preservation of the animal bone. Analysis of a wood charcoal sample from Feature 2 yielded a radiocarbon date of A.D. 510±100 (UGa 3706). A corrected date for this sample is A.D. 592±100 (Klein et al. 1982). Both features are interpreted as roasting pits which were subsequently filled-in with occupational refuse.

Table 1. Results of Soil Chemistry Analysis Conducted on Features 1 and 2 at the Old Bear Site.

Selections	Feature 1	Feature 2
Phosphorous	300+	200+
Potassium	152	167
Calcium	7670	8250
Magnesium	108	101
Organic Matter	4.2%	6.8%
ph (water)	7.5	6.9

With the exception of organic matter and soil ph, measurements are in parts per thousand.

MATERIALS RECOVERED

The two refuse pits contained an abundance of ceramics, lithics, animal and human bone, and charred seeds and fruits. A total of 4,191 specimens were examined during analysis of the Old Bear Site remains. Artifacts recovered were divided into a number of different categories based on technological, morphological, and functional characteristics.

Chipped Stone

During analysis of the chipped stone assemblage nine categories of flaking debris and four categories of chipped stone tools were identified (Table 2). Flaking debris represents the spectrum of by-product categories expected in a normalized tool manufacture reduction sequence: initial, primary, and secondary flake products were present. Four cores or core fragments were found. The chipped stone tools consisted of blade preforms, modified flakes, unfinished bifaces, and three dart points. All three points exhibited an expanding stem and slightly concave to straight base (Figure 2). Shoulders were weakly developed with shallow corner-notching present. Their blades exhibited excurvate to straight lateral edges. These points are similar to a number of types defined for the late Middle and Late Woodland periods including Baker's Creek (Figure 2e) (Perino 1971), Chesser Corner-Notched (Prufer 1967), and Jack's Reef (Figure 2d) (Perino 1968). The above types fit within the time span suggested for the occupation of the Old Bear Site (ca. A.D. 500-600).

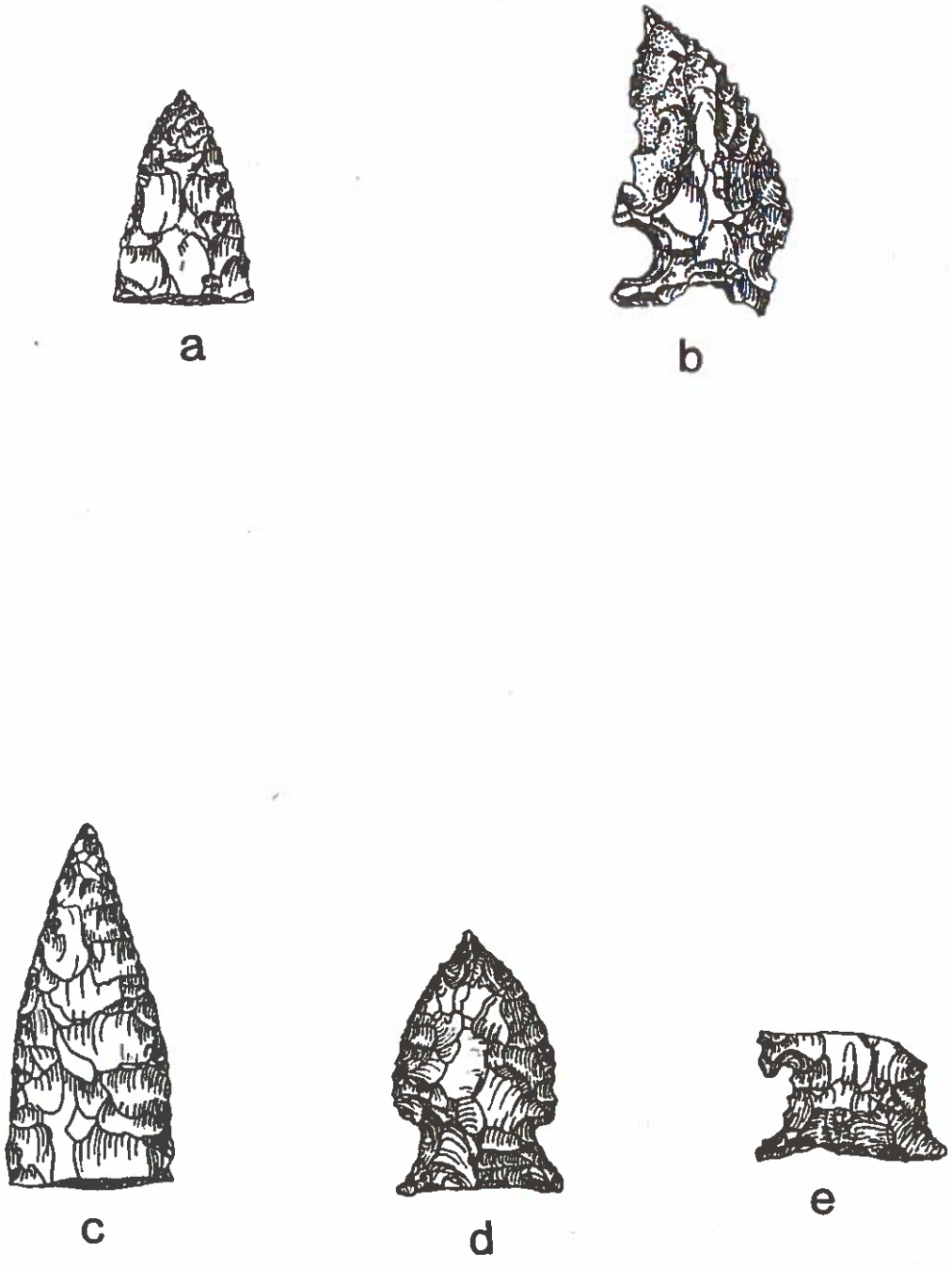

Figure 2. Chipped Stone Tools from the Old Bear Site: a-c, biface fragments; b, undefined corner-notched point damaged by pot lid fractures from fire; d, Jacks Reef-style dart point; e, Baker's Creek-style point.

Table 2. Chipped Stone Artifacts Recovered from the Old Bear Site.

Artifact Category	Feature 1	Feature 2
Raw Material	4	0
Cores and Core Fragments	2	2
Chunks/shatter	80	123
Initial Reduction Flakes	7	33
Primary Reduction Flakes	164	186
Secondary Reduction	27	57
Hertzian Cone Flakes	2	1
Erraillure Scar Flakes	1	0
Flake Fragments	43	2
Blade Preforms	5	7
Modified Flakes	3	2
Category III Bifaces	1	1
Category IV Bifaces	1	1
Dart Points	1	2
Totals	341	417

Two unusual products were encountered in the flaking debris assemblage. These included hertzian cone flake fragments and an erraillure scar flake fragment. These two categories, plus the presence of a rather high percentage of chunks/shatter (ca. 25%), are suggestive of a considerable amount of knapping errors associated with tool manufacture. Many of the flakes produced as by-products also exhibited hinge and step fractures or other evidence of poorly controlled manufacturing activities. This contrasts markedly with the flaking attributes present on the chipped stone tools. On these there is refinement and evidence of controlled knapping behavior. It is possible that the flaking debris and completed tools represent manufacturing by two different individuals with the abandoned tools resulting from an earlier manufacturing episode.

All of the chipped stone artifacts were manufactured from one chert type. This material is a blue-gray, fine-grained chert described in the literature as St. Genevieve (Gatus 1980:488). Although source locations for this material are reportedly farther to the west in Jefferson and Hardin counties, nodules of this chert have been found some 40 km north of the Old Bear Site in Henry County. Because of the absence of this chert type in the Shelby County vicinity, the materials must have been transported to the site. The volume of chert from both features is not extensive and transport to the site would not have been a serious problem.

Other Stone Artifacts

The only other artifacts in the lithic assemblage were four hammerstones found in Feature 2. These hammerstones were manufactured from igneous materials (basalt-like) or local sandstones and exhibited variability in size. The hammerstones recovered from the site display differences in hardness and size which might be expected in a flint

knapper's tool kit. In association with these hammerstones were a number of antler tines with end blunting and pitting that may have resulted from use as pressure flakers. It is extremely likely that the hammerstones and associated antler tines represent an individual knapper's toolkit.

Ceramics

A total of 669 identifiable sherds were recovered from the Old Bear Site. Approximately 55% of the ceramics were recovered from Feature 2, and 45% were from Feature 1. Of the 669 sherds, only one reflected substantial variation in temper and thickness. This rim sherd (from Feature 2) is a rather thick (8 mm) grit tempered specimen exhibiting well-defined smoothed-over cordmarking. This sherd may have been incidentally swept into the pit as a consequence of housekeeping activities around the site. Similar sherds were found at 15Sh17, an earlier Woodland occupation located some 100 m east of the Old Bear Site.

The remainder of the sherds can be considered to represent one type (Figure 3). These sherds are from thin-walled, (ca. mean=5.5 mm, range 3 to 7 mm) limestone tempered vessels with rounded bottoms. The paste is a smooth, fine-grained clay with limestone temper comprising 20-30% of the matrix. In many sherds the limestone temper has leached-out leaving a pock-marked appearance. Exterior surface treatment consists of smoothed-over cord impressions, which are rather haphazardly executed. Cord impressions are Z-twist and range from fine (2 mm) to very fine (.5 mm). Interior surfaces are smoothed. Surface colors range from gray to light buff to reddish brown to black. This color variability is probably a function of differential and secondary firing. Cores are uniformly black. Rims are usually straight with flattened lips although a few sherds display everted rims. Rim decoration consists of carinations (Figure 3j) and lip tabs (castellations) (Figure 3e,g). Basal sherds are indicative of rounded to conoidal bottoms.

An analysis of minimum number of vessels based on rim sherd differentiation (n=40) indicates that at least five vessels were contained within the two pits. Two vessels are relatively large jars. One has a castellated rim, whereas the other exhibits a carinated rim form. Two smaller vessels exhibit a similar pattern (i.e. one has a castellated rim and the other a carinated rim). Statistical analysis of vessel attributes revealed that the larger vessels have a significantly thicker wall at the shoulder than do the smaller vessels (t test significant at .005 level, d.f.=17). In addition, cord impressions on smaller vessels are considerably finer than on the larger pots. The remaining vessel is a bowl-like form with flaring walls and an everted rim.

Based on attributes such as vessel form, rim characteristics, surface treatment, and aplastics agents used as temper, the Old Bear Site ceramics most closely conform to Newtown Cordmarked (McMichael 1984; Seeman 1980). However, the Old Bear sherds lack the angular shoulders which are characteristically associated with Newtown ceramic vessels. In addition, because of the absence of any Newtown site (with the possible exception of the Chilton Site) in the general vicinity of the Old Bear Site, this type identification should not be considered to be definitive.

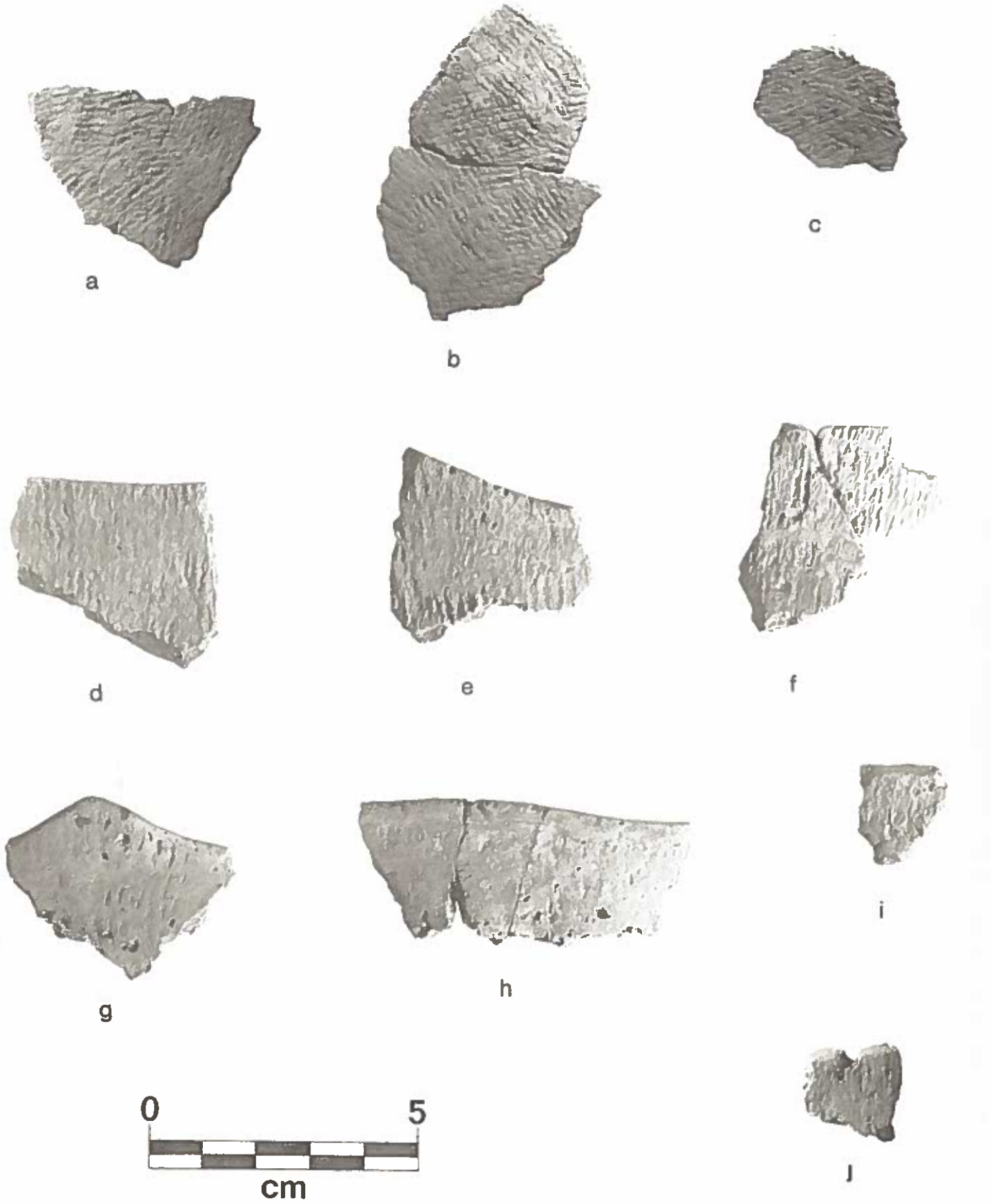

Figure 3. Ceramics from the Old Bear Site: a-c, cordmarked body sherds; d-f, cordmarked rim sherds (specimen e has a castellated rim); g-h, smoothed-over, cordmarked rim sherds (specimen g has a castellated rim); i, cordmarked flaring rim; j, cordmarked carinated rim (all sherds actual size).

For that matter, sherds bearing strong affinities to the Old Bear ceramic assemblage have been reported from sites further west which are clearly not Newtown phase occupations.

Bone Tools

Despite excellent bone preservation at the Old Bear Site, there was little evidence of bone tool utilization. Only two possible tool types were identified. The first of these are two beaver incisors found in Feature 2. Beaver incisors have been found at Woodland sites in Ohio (Prufer and McKenzie 1966) and are generally associated with socketed antler tines. However, the beaver incisors from Feature 2 show little evidence of use.

The second tool type is somewhat more definitive. These are antler tines used as pressure flakers in chipped stone tool manufacture. Five antler tines were found in Features 1 and 2 and exhibit end blunting as well as pitting from the application of pressure.

Faunal Remains

The faunal assemblage consisted of 2,282 unidentified bone fragments (burned and unburned) and 434 identifiable elements. Because of the absence of other unexcavated features, calculations of the minimum number of individuals were undertaken without serious concerns with sample bias. The MNI procedure was applied using the articulator end method proposed by Binford and Bertram (1977), Chaplin (1971), and others. Because of the likely contemporaneity of the two pits, MNI calculations were conducted for both features concurrently. Eleven species including white-tailed deer, raccoon, gray squirrel, wild turkey, woodchuck, beaver, striped skunk, black bear, soft-shelled turtle, and terrapin were identified. The minimum number of individuals and estimated meat yields from the 25 individuals was calculated to be over 575 kg (Table 3).

Table 3. Animal Species Represented at the Old Bear Site.

Species	Number of Individuals	Most Yield
Black bear	3	286.4
White-tailed deer	7+1 fetal	246.4
Gray squirrel	1	.5
Raccoon	5	18.2
Wild turkey	2	7.7
Woodchuck	1	1.8
Skunk	1	1.8
Canis sp.	1	3.6
Beaver	1	11.4
Soft-shelled turtle	1	1.4
Terrapin	1	*
Totals	25	579.2

Much of the bone at the Old Bear Site was extremely fragmented. This can perhaps be attributed to exhaustive attempts at marrow extraction. Virtually all shaft portions of white-tailed deer long bones were shattered. The most common articulator was the distal end of the

tibia. Black bear remains also presented excellent documentation on the marrow extraction process. The midsection of an adult black bear femur was intact but both articulator ends were broken off and all cancellous bone had been removed from the femur midsection. Black bear mandibles also displayed transverse fractures between the mandibular condyle and the gonial angle. This is a typical breakage pattern for marrow extraction (Smith 1975). Although burned bone was common at the Old Bear Site, it apparently had little to do with butchering practices. There were no significant patterns in species or elements which displayed evidence of burning and both burned and unburned bone were found intermixed in the pit fill.

Certain attributes of the faunal assemblage are suggestive of a fall-winter occupation of the Old Bear Site. Seasonal occupation of the site was inferred on the basis of the following three considerations:

1) The presence of mature antler in the refuse pits. While antler tines might be curated, some of the mast fragments remained attached to the deer crania. A fully developed in-place mast is indicative of a fall-winter season (Severinghaus and Cheatum 1956).

2) The remains of a late trimester or infant deer were found in Feature 2. Based on approximated conception and delivery date ranges for does, these remains seasonally date to late winter-early spring (Severinghaus and Cheatum 1956).

3) The remains of an elderly female black bear and two yearlings (?) were found at the Old Bear Site. Because yearlings may remain with their mother until the birth of other cubs, it is possible that the three bears represent a single kill episode. Blair (1911) reports that midwestern Indians most commonly hunted bears in the late fall-winter after the bears had denned for winter hibernation.

Thus, a site occupation period ranging from around September through March seems most appropriate.

An in-depth economic analysis has not been undertaken of resource exploitation strategies used by the Old Bear Site inhabitants. There are two reasons why this was not accomplished. First, the site appears to be a temporary occupation and projections of procurement strategies may be potentially biased and/or constrained by this condition. Secondly, an inability to adequately develop a catchment shape which would accurately depict a "resource exploitation space" limited interpretations of spatial patterns of resource procurement.

In attempting to derive a very preliminary model of resource procurement, two basic habitat groups were identified. One group, including species such as black bear, raccoon, beaver, woodchuck, and soft-shelled turtle, can be commonly associated with streams and stream valleys, whereas the second group, consisting of white-tailed deer, wild turkey, gray squirrel, striped skunk, canis (sp.), and box turtle, extend over both the upland ridges and the stream valleys. There was no strong evidence to demonstrate that one habitat was favored over the other in

procurement activities. This was particularly true since a number of the species in the second group routinely can be found in both habitats.

There is, however, some evidence of species selectivity. In respect to the amount of bone debris and number of individuals, white-tailed deer dominance may be a function of species selectivity, specific hunting practices, and/or localized deer availability. The density of other procured species is relatively consistent with what would be expected for an extended family or small band occupying a camp for a short duration (c.f. Reidhead 1981; Jochim 1976).

Human Remains

The remains of a young adult were recovered from Features 1 and 2. This individual was represented by midsections of the right and left tibias, the right fibula, the left humerus, two ribs fragments, and the right condyle of the mandible. As in the case of the black bear remains, the human long bones had the articulator ends removed and the cancellous bone had been extracted. Over half of these bone fragments also were burned. From the evidence, it would appear that some cannibalism was being practiced by the Old Bear Site inhabitants. Other cases of cannibalism have been noted for the Late Woodland period (Hall 1980) and Fort Ancient tradition (Carskadden and Morton 1977).

Floral Remains

A limited array of plant species were recovered from the Old Bear Site excavations. Approximately 350 g of floral debris representing six genera were identified (Table 4). In general, these remains provide little information on the subsistence practices of the site's inhabitants. Although nuts from four different types of trees were present (walnut, butternut, hickory, and oak), the nutshells could have been used for fuel as well as a food source. However, there is ethnographic documentation for the use of nuts as a food source during the fall-winter season (Gilbert 1943; Yarnell 1964). Honey locust seeds found in Feature 2 have been historically used as sweetening agents (Swanton 1946:285-287) which can be procured from mid through late summer

Table 4. Plant Remains Recovered from the Old Bear Site.

Category	Feature 1	Feature 2
Squash (?)	*	-
Honey locust	-	*
Butternut	.5	1.34
Shagbark hickory	32.9	88.36
Walnut	3.8	10.21
Unidentified nut fragments	39.1	105.11
Acorn	.4	1.08
Unidentified charcoal fragments	17.3	46.51
Totals	94.0	252.61

*refers to individuals counts. Other inventory data are presented by gram weight.

into early fall. One possible squash or gourd seed was found in Feature 1, but because of hydration from burning, this identification is tentative. In summary, plant remains recovered from Features 1 and 2 reflect an emphasis on the local environment around the site where walnuts, shagbark hickory, and a variety of oaks predominated. In addition, most of the remains bear witness to a fall-winter use of the Old Bear Site.

INTERPRETATIONS

The occurrence of only two refuse pits with an absence of structural remains, and no evidence of an accretionary midden area are attributes suggestive of a temporary occupation of the Old Bear Site. The uniformity of the ceramic and lithic assemblages also attests to a limited occupational episode. If the site was occupied for a longer period of time, greater variability would have been expected in the material inventory. This temporary "camp" was probably inhabited by an extended family or similar minimal kin/social unit. Seasonal analysis of plant and animal remains points to use of the site between late summer (September?) and early spring (March?).

The presence of corner notched dart points and limestone tempered cordmarked pottery in association with a radiocarbon date of A.D. 592 (corrected) clearly identify the Old Bear Site as Late Woodland. The assemblage also bears strong similarities to assemblages from Newtown phase sites such as Pyles in northeastern Kentucky (Railey 1984) and the Leonard Haag Site in southern Indiana (Reidhead and Limp 1974). However, before proposing the presence of Newtown phase sites in the western Outer Bluegrass, more and better documented sites must be available. There currently exists a high degree of correspondence between various Late Woodland manifestations in the larger region (c.f. Seeman 1980), and caution must be exercised in ascribing cultural labels to areas where the culture history is poorly defined.

Even with the limited data retrieved from the Old Bear Site, some comments can be made on the nature of the Late Woodland cultural pattern in the western Outer Bluegrass. First of all, the presence of a temporary camp in an upland setting during the fall-winter season hints of a settlement pattern where more intensive base camps (hamlets, or villages?) are focused in alluvial valleys during the spring-summer period. These settlements may possibly experience fissioning during the fall-winter period with smaller groups occupying temporary camps in the uplands. Such a Late Woodland settlement pattern has been proposed by Hall (1980) for the Illinois River Valley. Hall's model also suggests that the Late Woodland was a period of considerable nutritional stress. If true, this would account for the emphasis on marrow extraction and perhaps for the likely cannibalism found at the Old Bear Site. More than anything though, the limited work conducted at the Old Bear Site hints of the research potential of the western Outer Bluegrass region for enhancing our understanding of Late Woodland developments.

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THE CARROLL SHELTER: A MULTI-COMPONENT ROCKSHELTER IN NORTHEASTERN KENTUCKY

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ABSTRACT

Data recovered during excavations at the Carroll Shelter produced evidence of at least four prehistoric components (Early Archaic, Middle Woodland, Late Woodland, and Late Prehistoric). However, the shelter was most heavily occupied during the Late Woodland period. Structural remains along with an extremely varied floral and faunal assemblage suggest the site was utilized year round rather than seasonally during this cultural period.

INTRODUCTION

Within the mountains of eastern Kentucky lies the heaviest concentration of rockshelter sites east of the Rocky Mountains. These rockshelters, which provided the area's aboriginal inhabitants with ready-made houses, are unique for a number of reasons. In contrast to open sites where various day-to-day activities can take place over a wide area, the very nature of rockshelter sites confine these activities to a spatially restricted area beneath the overhang and any usable space near the mouth. Additionally, the dry conditions in many of these shelters has preserved large numbers of organic items that deteriorate under normal archaeological conditions. Analysis of the preserved organic materials contained within these shelters allows archaeologists to make inferences on various aspects of human behavior that are no often possible at open sites.

Unfortunately, this unique cultural resource is being destroyed at an alarming rate by relic collectors and alteration of the natural environment by modern land modification projects. A recent survey of rockshelters on Federal lands in eastern Kentucky revealed that over 80% exhibited some sort of disturbance to their cultural deposits and that virtually all shelters with substantial midden deposits had been looted (Ison et al. 1981; Pollack and Ison 1983). Because this ongoing problem threatens to destroy a vital part of Kentucky's cultural heritage, there is an urgent need to obtain as much data as possible from these sites. This paper presents the results of one such endeavor where a landowner brought a rockshelter site, the Carroll Shelter, to the attention of the archaeological community.

The Carroll Shelter (15Cr57) is located in northeastern Kentucky in Carter County, less than 20 km from the Ohio River. It lies at the head of a westerly-draining hollow feeding Everman Creek, and is located approximately 4 km northwest of Grayson, Kentucky and approximately 2.5 km from the Little Sandy River. This north-facing shelter is well protected from wind but receives little direct sunlight. The overhang

(Figure 1) creates a shelter approximately 60 m long and about 10 m wide. In the central and eastern portions of the site, large boulders cover the floor. A small intermittent stream cascades over the cliffline in the western portion forming a shallow pool about 5 m in diameter. The shelter was formerly dry, but modern agricultural practices above the shelter have altered the drainage patterns so that during heavy rains a small stream flows across the once dry deposits on the east end.

The archaeological investigations at the Carroll Shelter had two primary objectives. First, to determine the nature and extent of the cultural deposits and secondly, to collect as much data as possible from the areas which were being destroyed by uncontrolled excavations and the increasing dampness.

Limited testing indicated that the central portion of the shelter had been the most intensively utilized. In this area, the midden deposits were approximately 50 cm deep. Not surprisingly, this area was also the most extensively disturbed by landowner excavations. Deposits in this area were predominately composed of a dark brown sandy silt loam containing large quantities of cultural material. Large cobble- and boulder-size chunks of roof fall are contained within the midden deposits and indicate that roof breakdown was an active, ongoing process during the habitation of the shelter. Although a gradual vertical shift in diagnostic materials was observed during the excavations, no discernible cultural stratigraphy could be detected. This is a common problem in many multi-component rockshelters where the activities of a later occupational episode through normal foot traffic and the excavation of features such as storage pits and hearths, tend to obliterate any discrete interface between the two components. Features encountered in the central area ranged from shallow hearths to deep storage pits.

Near the back wall, east of Unit 1, the landowners had excavated an area containing an unusually high density of cultural remains. From this area they recovered a large quantity of bone, including the remains of a cremated individual as well as mica and simple stamped pottery. Between Units 1 and 4, another individual was excavated by the landowners. This individual was not an interred burial, but rather was the victim of a large boulder-sized chunk of roof breakdown.

Separate from the general midden deposits, a spatially confined, single component occupation floor was encountered on the western-most end of the cultural deposits. This area was comprised of a burned, compacted floor containing hearths and a series of postmolds. This appears to be the remains of a simple structure, in which the shelter's back wall and roof were incorporated into the building plan and only a front wall was constructed. The low density of materials such as bone and lithic debitage suggests that the structure may have functioned as a protected domicile for a nuclear family while most of the domestic activities such as stone tool manufacture, butchering, etc. took place elsewhere within the shelter. Materials recovered from the compacted floor matrix and features included small triangular projectile points and Peters Cordmarked and Plain ceramics. A carbon sample from a hearth containing a triangular projectile point and sandstone tempered ceramics yielded an

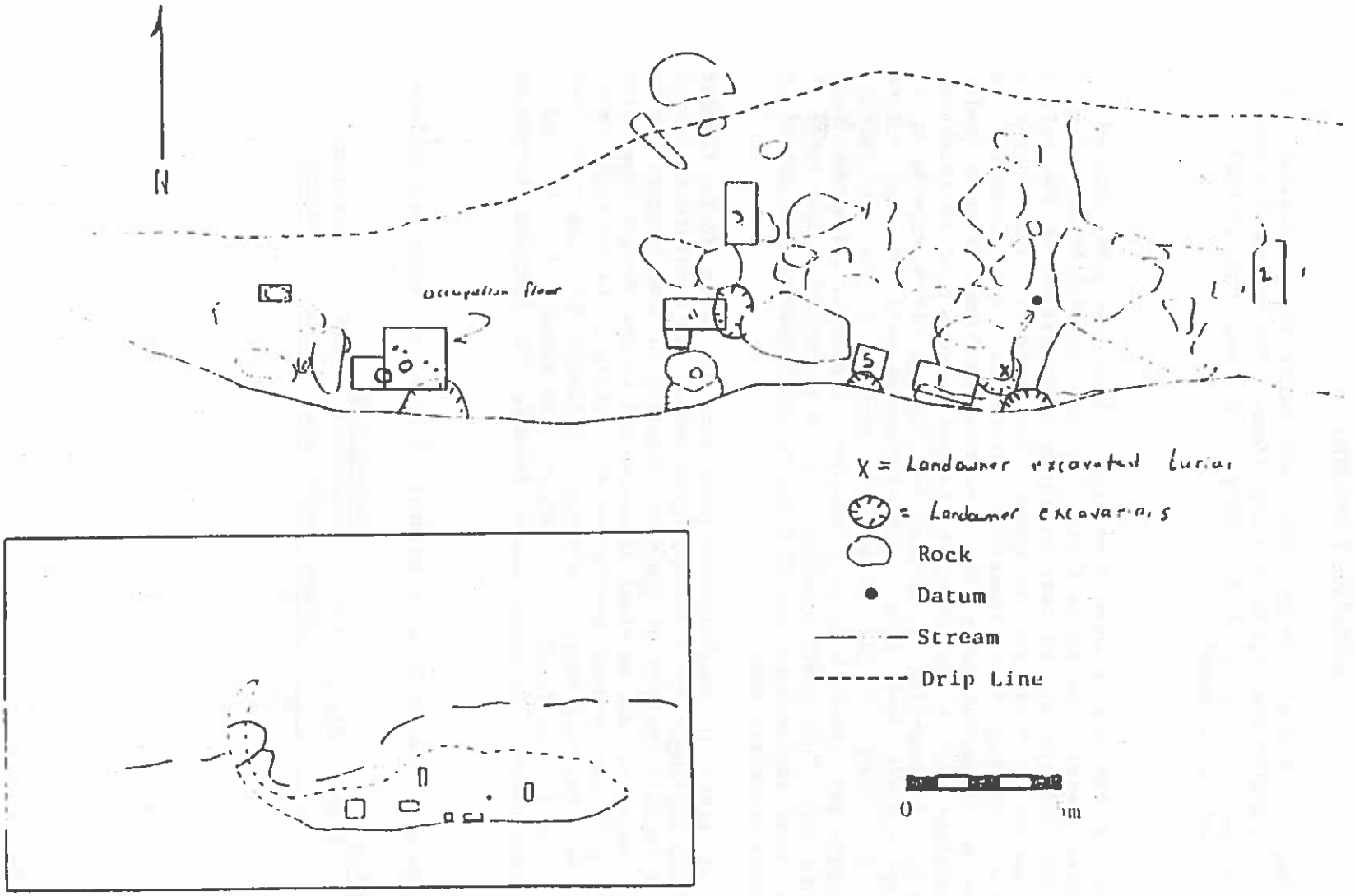

Figure 1. Carroll Shelter (15Cr57).

uncorrected date of A.D. 560±60 (Beta 4317). This date indicates an early Late Woodland affiliation for the feature.

MATERIALS RECOVERED

Excluding the floral remains which are still being analyzed, the investigations yielded over 9,239 cultural items. The general classes of artifacts included ceramics, daub, chipped, ground, and probably cut stone (mica), and faunal remains.

Ceramics

A total of 139 sherds were recovered. With the exception of 10 shell tempered sherds, one Adena Plain rim, and one Paintsville Simple Stamped sherd, all the sherds bear striking similarities to the Peters Cordmarked and Peters Plain pottery types. The temper in these sherds is quite varied, ranging from limestone, siltstone, and sandstone to combinations of limestone/quartz and limestone/sandstone (Figure 2a-d). Rims are straight with a flat angular lip and average 6 mm in thickness (Figure 2e-h). Cordmarking is applied vertically, often extends up to the lip, and exhibits both fine tight cordage as well as large coarse cordage. Smoothing of the cordmarked surface occurs frequently. Included within this assemblage is a limestone tempered, cordmarked bowl sherd (Figure 2i). This sherd averages 4 mm in thickness with a range of 3 to 5 mm. Cord impressions are of 2 ply S-twist cordage and extend up to the thinned incurvate rim.

While at sites in southeastern Ohio such as Raven Rocks (Prufer 1981) and Wise (Oplinger 1981) rockshelters temper was consistent through time, at the Carroll Shelter an apparent evolution of temper types can be documented. Based on the vertical distribution of the Peters types from Units 1 and 4 in the central portion of the shelter, the earliest wares appear to be limestone/quartz tempered, followed by limestone, and sandstone (Table 1). Although other temper types continued to be used in the later components, limestone temper becomes the dominant tempering agent.

Table 1. Ceramic Temper Types from Units 1 and 4 by Level and Feature.

Provenience			Temper Type				
Unit	Level	Feature	Shell	Limestone	Limestone/sandstone	Sandstone	Limestone/quartz
1	2		3	2			
1	3		1	2			
1	4		1	2			
1	5	12	1	2			
1	5			2	1		
1	6	8		3		1	
1	6					1	
4	2			4		1	
4	3			1			
4	4			1			1
Totals			6	19	1	3	1

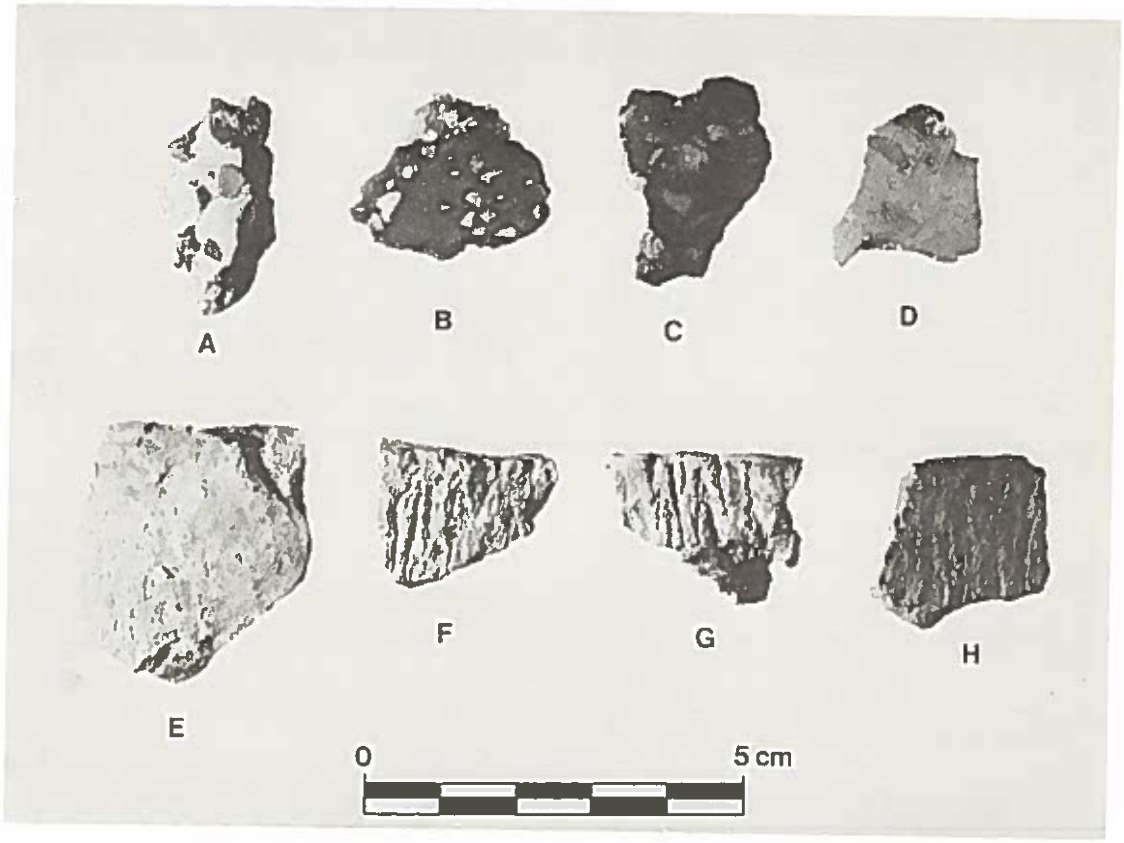

Figure 2. Ceramic Artifacts. Peters Temper Types: a, sandstone; b, limestone/quartz; c, limestone; d, siltstone. Ceramic Types: e, Peters Plain; f-i, Peters Cordmarked; j, Paintsville Simple Stamped.

Twist could be determined on 13 sherds: all are S-twist. This is consistent with Maslowski's (1984:51-60) findings that S-twist is the dominant twist pattern for Late Woodland ceramics in the central Ohio Valley.

Other Woodland pottery types recovered from the shelter include an Adena Plain rim sherd found in general association with an Adena Stemmed projectile point, and a Paintsville Simple Stamped sherd (Figure 2j). The simple stamped sherd was manufactured from a micaceous clay which had been tempered with a fine quartz sand whose grains average 1 mm or less in diameter. The exterior surface was malleated with a grooved wooden paddle which produced broad, shallow grooves approximately 3 mm wide.

In Johnson County, Kentucky, this type is referred to as Paintsville Simple Stamped (Haag 1942b:344). To the south in Tennessee, it is referred to as Connestee Simple Stamped (Keel 1976:247-254) and to the north in Ohio, as Turner Simple Stamped (Prufer 1968). All are apparently synonymous, representing the same widespread Middle Woodland ceramic type. A large neck sherd of this type in the possession of the landowners displays a chevron simple stamped pattern along the shoulder just below the neck. This was said to have been recovered from a large pit near the back wall which also contained the remains of a cremation and mica plates. Thus, at the Carroll Shelter this ware appears to have been associated with Hopewellian mortuary practices. A cache (15Cr58), discovered during barn construction on a ridgetop approximately 300 m south of the shelter, which contained over 100 blades, a slate pendant, and several pieces of mica, is probably related to the Hopewell component of the Carroll Shelter.

The 10 shell tempered sherds were primarily recovered from the uppermost levels of the test units. Surface treatment could only be determined on five specimens, which included one plain and four cordmarked sherds. One cordmarked rim sherd exhibited a straight rim with a rounded lip. Cordage twist could be determined on two sherds and revealed a Z-twist pattern. This pattern corroborates Maslowski's (1984) findings for the Fort Ancient culture in the central Ohio River Valley where Z-twist predominates.

Lithics

Debitage comprises the bulk of the lithic materials with all stages of reduction represented. Virtually all of the lithic materials were derived from the locally available Haney and Paoli cherts from the Newman and Breathitt formations. The chipped stone tools were predominately projectile points and bifaces. Surprisingly few scrapers were found. This may reflect the use of bone and wooden tools for this activity, a common occurrence on Woodland sites. At the Carroll Shelter this is supported by the recovery of a bone flesher.

Projectile Points

The earliest evidence of occupation comes from the LeCroy point (Figure 3a) recovered from the Carroll Shelter. This specimen is 29.5 mm long, 19 mm wide, and 5.5 mm thick. The expanding bifurcate base is unground and exhibits a deep basal notch.

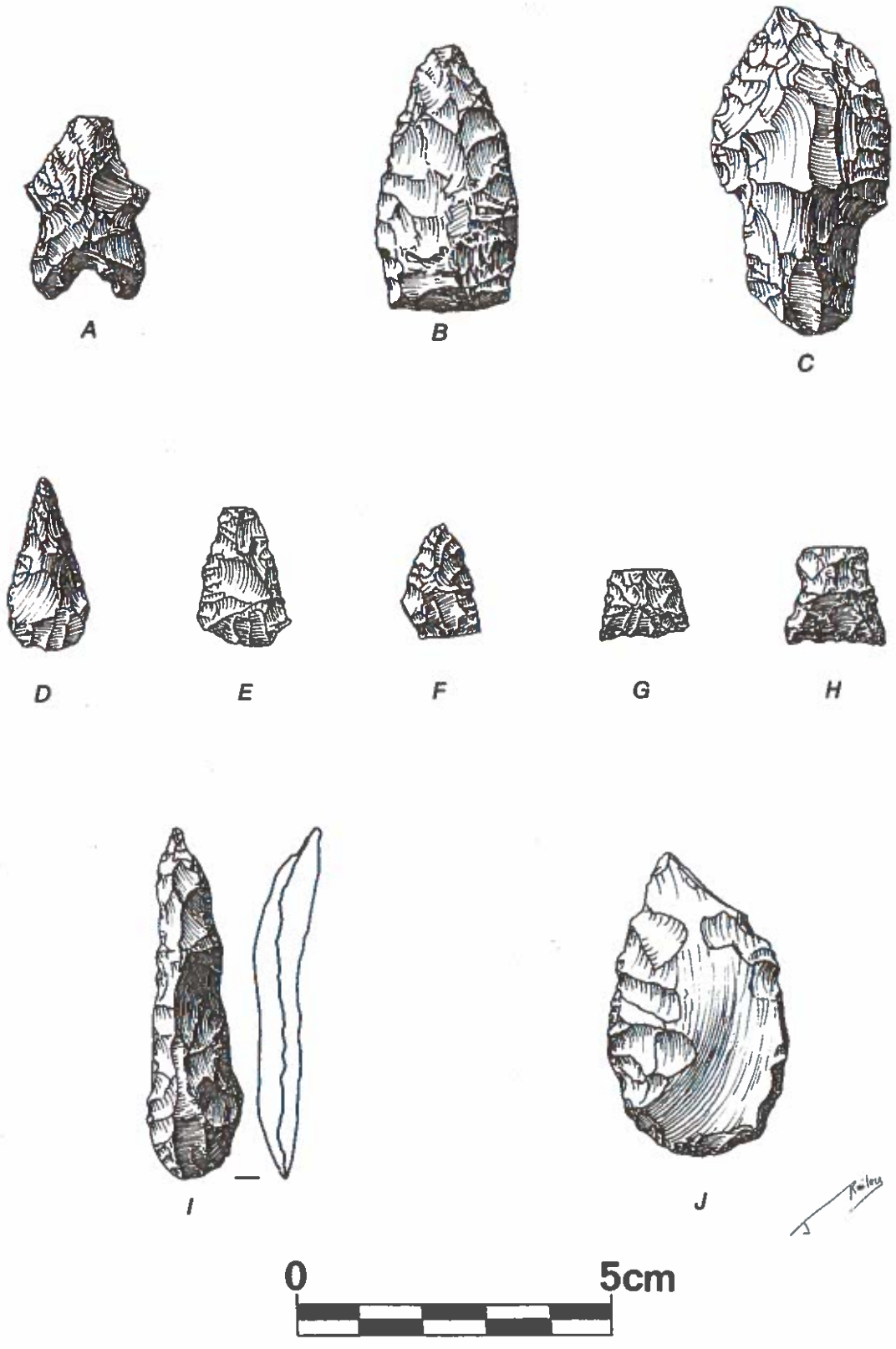

Figure 3. Chipped Stone Artifacts: a, LeCroy; b, Steubenville; c, Adena Stemmed; d-h, triangular points; i, graver; j, biface.

Radiocarbon determinations of 6,300 B.C. and 6,470 B.C. have been obtained from cultural components bearing LeCroy points in West Virginia and Kentucky (Broyles 1971:69; Collins 1979:579).

Another projectile point, tentatively identified as a Steubenville (Figure 3b), may reflect a Late Archaic utilization of the shelter. This specimen exhibits weakly defined shoulders which create a short stubby stem with an unground base. This specimen is 42 mm long, 22 mm wide, and 7.5 mm thick. The stem is 10 mm long and 19 mm wide.

The recovery of two Adena Stemmed points suggests an Early Woodland utilization of the shelter. The complete specimen (Figure 3c) was recovered from Level 4 in Unit 3 which also contained the Adena Plain rim sherd. Since this level contained substantial cultural mixing with later components, little can be inferred from this co-occurrence. The complete specimen appears to have a rejuvenated tip and is 53 mm long, 29 mm wide, and 14 mm thick. The stem is 20 mm long and 19 mm wide.

Small triangular points (n=7) (Figure 3d-h) were the most common projectile point type recovered during the excavations. Three of these were recovered from the disturbed upper levels in association with both shell tempered and Peters ceramics. Two other specimens were found in the lower levels in association with Peters ceramics only. Most importantly, the final two points were recovered in situ from the occupation floor (one from a hearth and one embedded in the burned occupation floor). These points are associated with Peters Cordmarked and Peters Plain ceramics. This co-occurrence coupled with the C-14 date for the hearth of A.D. 560±60 indicates that these specimens are indeed attributable to the Late Woodland occupational episode. This confirms data from other rockshelters in southeastern Ohio and eastern Kentucky in which small triangular projectile points have been found in Late Woodland contexts and suggests that they are not intrusive from Late Prehistoric deposits.

In addition to the points described above, five other specimens were recovered which appear to be fragments of projectile points. Because of their fragmentary nature these cannot be placed within a specific point type nor assigned to a particular cultural affiliation. It is worth noting that Chesser style points were not recovered from the Carroll Shelter. In the central Ohio Valley, expanded stem points are usually the dominant point style on Late Woodland sites, with the contemporary triangular points being a minority type (c.f. Maslowski and Dawson 1980; Prufer 1967, 1981). The absence of Chesser points may be the result of a sample bias from our limited excavations. An alternative explanation is the possibility that the dominance of small triangular projectile points concomitant with the exclusion of expanded stem varieties is indicative of cultural distinctions between groups residing in the area. This is a question that should be pursued by future research in northeastern Kentucky.

Drills

Both specimens of this tool type are fragmentary. One specimen is a distal portion with polished, worn edges, and a rounded tip. The second

specimen is a basal fragment which appears to have been manufactured from an initial reduction flake.

Gravers

Two artifacts have been assigned to this category. One specimen appears to be a lanceolate biface fragment which has been reworked into a graver. Numerous step fractures along one margin document the knapper's inability to thin the biface into a predetermined tool. The other specimen (Figure 3i) is long and narrow with an acute tip and a thinned convex base.

Bifaces

The 48 complete and fragmentary bifaces (Figure 3j) represent the entire range of the lithic reductive sequence. This category is comprised of five initial, two primary, and 22 secondary reduction artifacts.

Unifaces

Nine artifacts which could not be assigned within any specific tool type have been placed in this catch-all category. Specimens placed here exhibit what appears to be intentional flake removal from one or more margins on one surface of the implement.

Marginally Modified Flakes

This category contains 86 flakes that have slightly modified edges. This type of modification can occur through intentional use such as cutting or scraping actions or accidentally. In the absence of a detailed flake analysis, no attempt was made to distinguish between these two types of modification.

Debitage

The 5,536 waste flakes, chunks, and cores constitute the largest artifact category. Although a detailed analysis of these materials has not been undertaken, all stages of lithic reduction are well represented. The absence of "exotic" materials suggests that Haney and Paoli cherts were well suited for all types of chipped stone tools and that the inhabitants were relying totally on these local resources.

Faunal Materials

A total of 3,378 bone fragments were recovered from the Carroll Shelter. Species/genera could be identified for only 10.2% of the specimens (Table 2).

Mammal bones comprise 95.2% of the total bone recovered from the shelter (Table 2). However, only 9.1% (293 bones) of the mammal bone could be identified to the generic/specific level. Fourteen species were identified including: white-tailed deer (58.7%), raccoon (8.2%), eastern chipmunk (13%), squirrel (6.1%), groundhog (2.4%), rabbit (3.4%), mouse

(1.7%), rodentia sp. (1.7%), dog (1.0%), pine vole (1.0%), bear (.7%), mole (.3%), water shrew (.3%), and opossum (.2%).

Bird bones represent 3.3% of the total bone recovered (Table 2). Only 8.5% (n=9) of these bones could be identified to the generic/specific level. Three species were represented: passerine sp. (44%), passenger pigeon (44%), and turkey (11%). The absence of raptorial bird bones in the assemblage may reflect the lack of roosting places in the shelter.

Reptile bones account for 1.2% of the faunal remains recovered from the site (Table 2). Of these, 97.5% could be identified. Most of these were turtle bone (84.6%). The remaining identifiable reptile bones were snake (15.4%). A small amount of amphibian (.6%) and fish (bass) (.4%) bones were also identified in the assemblage (Table 2). In addition to the bone, small fragments of unidentified fresh water mussel shells were recovered throughout the deposits.

As is common in Woodland sites (Ormerod 1983:83; Prufer 1967:45) white-tailed deer was by far the most common species represented in the assemblage (fully 50% of the identified bone). The large variety of elements (vertebrae, crania, long bones, and phalanges) suggests that the deer were brought to the site and butchered. Deer bone in the assemblage is followed in frequency by eastern chipmunk (11.1%) and turtle (9.7%) (predominately eastern box turtle).

Small mammal bones have often been regarded in archeological assemblages as intrusive, rather than representing a portion of the aboriginal diet (Stahl 1982). However, the large percentage of these bones (especially eastern chipmunk) in the Carroll Shelter as well as in other southeastern Ohio and northeastern Kentucky rockshelters suggests that these animals may, in fact, have been widely and intensively exploited by aboriginal populations. Stahl (1982) states that the high ratio of edible meat to live weight, as well as the abundance of these animals under natural conditions, supports their dietary potential in the prehistoric diet. This is further supported at the Carroll Shelter by the recovery of charred chipmunk bones. In addition, the lack of roosting places in the shelter further supports the premise that these animals were intentionally exploited by the aboriginal inhabitants rather than by raptorial birds.

Squirrel, raccoon, and rabbit, also present in the assemblage, are considered to be probable elements of the diet. Groundhog, mouse, pine vole, mole, and water shrew, present in small frequencies, may be fortuitous occurrences or they may have been exploited in a limited way as a food source. The localized distribution of some of these bones, especially those of the groundhog, further suggests a natural deposition. The two bear bones (a metapodial and a mandible) may reflect exploitation either as a food source or for ceremonial use.

Table 2. Faunal Assemblage from the Carroll Shelter.

	Elements	Percentage of Identified Bone
Mammal (n=3217; 95.2% of all bone)		
White-tailed Deer (Odocoileus virginianus)	172	50.1%
American Black Bear (Ursus americanus)	2	0.5%
Groundhog (Marmota monax)	7	2.0%
Raccoon (Procyon lotor)	24	7.0%
Dog (Canus familiarus)	3	0.9%
Common Mole (Scalopus aquaticus)	1	0.3%
Pine Vole (Pitymus pinetorum)	3	0.9%
Eastern Chipmunk (Tamias striatus)	38	11.1%
Cottontail Rabbit (Sylvilagus flordanus)	10	2.9%
Squirrel (Sciurus sp.)	16	4.7%
Gray Squirrel (Sciurus carolinensis)	2	0.5%
Opossum (Didelphus marsupalis)	4	1.2%
Mouse (Peromyscus sp.)	5	1.5%
Rodent (Rodentia sp.)	5	1.5%
Water Shrew (Sorex palustris)	1	0.3%
unidentified mammal	2,891	
Bird (n=109; 3.3% of all bone)		
Passenger Pigeon (Ectopistes migratorius)	4	1.2%
Turkey (Melegris galloparo)	1	0.3%
Passerine (Passerine sp.)	4	1.2%
unidentified bird	100	
Reptile (n=40; 1.2% of all bone)		
Turtle (Terrapene sp.)	4	1.2%
Eastern Box Turtle (Terrapene carolina)	29	8.5%
Snake-nonpoisonous (Colubridae)	1	0.3%
Snake-poisonous (Crotalinae)	1	0.3%
Snake-unidentified	1	0.3%
unidentified reptile	1	0.3%
Amphibian (n=2; .06% of all bone)		
Frog (Rana sp.)	1	0.3%
Unidentified Amphibian	1	0.3%
Fish (n=1; .03% of all bone)		
Bass (Micropterus sp.)	1	0.3%
Total identified bone = 343		
Total bone = 3,378		

The limited number of bird bones suggests that while birds were a food source, they were not a major one. Of the four passenger pigeon bones, one was charred. The presence of these bones is not surprising, since the Carroll Shelter is on the edge of a major historic passenger pigeon nesting area (Schoger 1955). The scarcity of turkey (only one bone) in this assemblage is surprising in that Swanton (1946) stated that the turkey was the second most frequently exploited species by Historic Indian groups. However, data from other eastern Kentucky and southeastern Ohio rockshelters indicates that this may not have been true during the Woodland period (Ormerod 1983; Prufer 1967; Dirkmaat 1982). At the Carroll Shelter, it appears that a major diet of deer was supplemented by small mammals, birds, turtles, and mollusks. The variety of faunal remains recovered from the site suggests that the shelter's

residents had access to both forest and forest fringe areas. The amount of riverine exploited species (fish and mollusks) is remarkably low, given the close proximity of the Carroll Shelter to the Little Sandy River. The wide variety of faunal remains recovered from the site also suggests a nonspecific seasonal utilization of the shelter.

Only seven bone tools were recovered. These exhibited as much variability as the bone assemblage and include: a box turtle cup fragment, a bird bone awl, a drilled deer scapula, an antler tine flaker, a deer bone flesher, and two worked fragments of unknown function. With the exception of the drilled deer scapula, all of these tools are common on Woodland sites.

Floral Remains

The floral assemblage recovered from the site is still undergoing analysis. A cursory inspection of these remains revealed a considerable variety of charred seeds and nuts. As is common with most Woodland sites, charred hickory nut fragments predominate, suggesting a heavy utilization of this resource. Of special importance is the presence of corn (Jack Rossen, personal communication 1985) which indicates at least a partial reliance on cultigens.

SUMMARY

To summarize, the Carroll Shelter appears to have been intermittently occupied from the Early Archaic to Fort Ancient, with the most intensive occupation occurring during the Middle and Late Woodland periods. The Late Woodland assemblage closely resembles Woodland assemblages identified at southeastern Ohio sites such as Chesser Cave, and Raven Rocks, White Rocks and Wise Shelters (Prufer 1967, 1981; Ormerod 1983; Oplinger 1981). While morphological attributes of the ceramics are consistent, temper composition appears to reflect the utilization of locally occurring materials. Also the temper of Peters wares at the Carroll Shelter appears to reflect diachronic selection. While limestone temper is predominate throughout time, the minor temper types appear to change and decrease though time.

Analysis of the faunal remains from the site suggests that its inhabitants primarily exploited white-tailed deer supplemented with a wide variety of small mammals, birds, turtles, and mollusks. These faunal remains also indicate that both forest and forest fringe environments prevailed within close proximity to the site. The most likely area for a forest fringe would have been along the floodplains of Everman Creek and the Little Sandy River. Additionally, the presence of corn in the floral assemblage tends to indicate that these floodplains may have been utilized for small garden plots which would have enhanced a fringe environment.

Until analysis of the floral remains is completed, speculations on seasonality would be tenuous at best. Nevertheless, available data suggest that the shelter was utilized during the summer and winter months if not year-round. According to ethnographic accounts, faunal species such as mussel and box turtle were primarily exploited during the warmer

months. Bear was most often exploited in the winter and squirrel in the fall.

Other evidence which points towards a winter occupation is the presence of the small structure represented by postmolds and a burned occupation floor. While it is often thought that a rockshelter provides its inhabitants with adequate protection from the elements, it appears that small enclosures may have been erected for additional comfort. Excavations at other rockshelter sites in eastern Kentucky have revealed that enclosures or structures, presumably for added protection from the elements, are not uncommon (Knudsen et al. 1985; Purrington 1967; Webb and Funkhouser 1936).

In southeastern Ohio, Oplinger (1981) and other researchers see a general trend towards greater utilization of rockshelter sites by Late Woodland groups. This trend appears to continue southward into eastern Kentucky as well. While there were earlier and later components at the Carroll Shelter, the artifacts assignable to the Late Woodland component are by far the most abundant. Recent investigations at the Tough Tree and Campbell shelters (Knudsen, this volume) in McCreary County produced similar findings. As the data base is expanded by future work, archaeologists may be able to better understand the conditions responsible for this cultural phenomenon.

Clearly one of the most beneficial data sets which emerged from the investigation of the Carroll Shelter was the co-occurrence of sandstone tempered ceramics and small triangular projectile points. These were recovered from both the compacted floor matrix and features within the geographically isolated structure, as well as from the general midden deposits. A radiocarbon sample from a feature associated with the occupation floor and containing both Peters sandstone tempered ceramics and triangular points yielded a date of A.D. 560±60. This date firmly places both artifact classes within an early Late Woodland time frame.

In many cases, especially during survey and testing operations in eastern Kentucky, these artifacts have created an enigma for archaeologists attempting to place a site within a specific cultural/temporal unit. In many survey and testing reports where the assignment of cultural affiliation is based solely on the recovery of either small triangular projectile points or sandstone tempered ceramics, the sites are invariably placed within the Late Prehistoric period due to the presence of triangular points, or within the Early Woodland period, due to the presence of sandstone tempered ceramics.

Even when the two artifact classes were found to co-occurr, the association often could not be reconciled. At 15Jo17, a rockshelter located approximately 50 km south of the Carroll Shelter, for example, the association of these two artifact classes was not considered to be synchronous. The rationale for this was that sandstone tempered wares were thought to be absent in the Fort Ancient sites of the area, while triangular points were considered to be characteristic of only Fort Ancient (Dexter 1974:56). Yet, as additional data became available which placed various triangular point styles and sandstone tempered wares within Late Woodland contexts, the placement of these artifacts into a Late Woodland time frame still met with resistance. In the substantial

volume summarizing the extensive work conducted in the nearby Paintsville Reservoir, the authors conclude "No sandstone tempered wares in the Paintsville Reservoir study area evidence demonstrable Late Woodland affiliations, despite the not infrequent co-occurence of the these wares with small triangular projectile points" (Johnson 1982:790).

It is not the intent of this discussion to overly criticize those forced to rely on these two artifact classes for assigning a cultural affiliation to a specific site or horizon. Instead, the purpose is to demonstrate that there is a considerable temporal depth for both triangular points and sandstone tempered ceramics in eastern Kentucky, and as the Carroll Shelter has demonstrated, they do co-occur during the Late Woodland period.

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THE LATE WOODLAND OCCUPATION OF THE BENTLEY SITE

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Frankfort, Kentucky

ABSTRACT

A wide variety of Woodland period ceramics were recovered from the Bentley Site (15Gp15) in Greenup County, Kentucky. The majority of these ceramics were classified as Newtown Cordmarked. Small quantities of Middle Woodland Hopewellian and Southeastern series ceramics, as well as Late Woodland Peters ceramics were also recovered. Chronometric data, spatial patterning, and contextual associations of these Woodland materials suggest a single, early Late Woodland Newtown settlement dating ca. A.D. 500-600.

INTRODUCTION

Located near the Ohio River in northwestern Greenup County, Kentucky, the Bentley Site contains evidence of both Woodland and Historic Indian occupations in the form of subsurface features and a varied artifact assemblage. The Woodland period artifact assemblage contains a small quantity of diagnostic Middle Woodland Hopewellian and Southeastern series ceramics, and Late Woodland Peters ceramics. The vast majority of the Woodland periods ceramics, however, appear to be associated with a Late Woodland Newtown settlement.

After a brief description of the Bentley Site Woodland period ceramic assemblage, the patterning exhibited by these ceramics and their contextual associations within features will be examined in an attempt to understand the site's Woodland occupation. Radiometric dates and spatial patterning of features will also be discussed as they relate to the site's Woodland component.

GEOGRAPHIC SETTING

The Bentley Site is located in the westernmost portion of Greenup County, Kentucky, where the Cumberland Plateau begins to give way to "the Knobs". Physiographically, the region in general can be characterized as a maturely dissected plateau, with steep, narrow ridges and narrow, meandering valleys (Webb and Funkhouser 1932:152). Fairly extensive floodplains are located along the major rivers. Limestone, sandstone, shale, siltstone, and coal crop out in the area and are predominantly Pennsylvanian in age. Pliocene and Pleistocene river terrace deposits are composed of sand, gravel, and cobbles. Alluvium deposits of Quaternary age are found in the floodplains of the Ohio River and its tributaries. Prior to intensive land clearing at the beginning of the nineteenth century, vegetation was a mixed mesophytic forest known as the Lower Hills Belt (Braun 1950:93-95).

The site, which covers approximately 1.2 ha, is situated on a terrace approximately 400 m south of the Ohio River, directly across from

the former mouth of the Scioto River. Various cultural and environmental features of the immediate locale indicate that this area was a favored spot for a wide range of prehistoric activities. Two sites representing the remains of Group A of the Portsmouth Earthworks (an extensive series of Hopewellian earthen enclosures, mounds, and embankments described by Squier and Davis 1848) are located on the same terrace, south and southwest of the Bentley Site: Old Fort Earthworks (15Gp1), and Mays Mound (15Gp16). "A small branch of a very good water...and very good land" were noted for this locality by Robert McAfee when he visited the area in 1773 (Woods 1905:429). Squier and Davis (1848:80) mentioned that a noted saline spring called "McArthur's Lick" was also located in the vicinity.

An important north-south Indian trail, the Warriors' Path (Myer 1928:779-786), crossed the Ohio River just east of the Bentley Site and continued south into the Carolinas and Georgia. Although this trail is best known from historic accounts (c.f. Johnston 1898), Indian trails in the east may reflect considerable antiquity. Thus, it is entirely possible that the Warriors' Path or portions of it were used by Middle and Late Woodland peoples.

PREVIOUS RESEARCH

The Bentley Site was partially excavated in 1938 by a crew of Works Progress Administration laborers under the supervision of C. T. R. Bohannan. Approximately 918 m^2 were excavated in 1.5 x 1.5 m units and 15 cm levels (Figure 1). These investigations recovered Woodland as well as Historic Indian materials. The latter have been described previously (Pollack and Henderson 1983a, 1983b, 1984).

In 1981, the University of Kentucky and the William S. Webb Archaeological Society conducted a controlled surface collection of the site. These materials are still being processed and will be described at a later date.

During the summer of 1984, the University of Kentucky returned to the Bentley Site to conduct test excavations aimed at recovering Historic Indian subsistence information. Although this goal was not achieved, the University was permitted to investigate an area of the site known to contain Woodland materials. Excavations in this area identified several pits and three pebble-lined (chinked) postholes. Newtown ceramics and expanded base projectile points were the only diagnostic artifacts recovered from the pit features, and they have been assigned to the Late Woodland occupation. Based upon the spatial distribution of pebble-lined postholes excavated during the 1938 field season, this feature type has been assigned to the Historic Indian component (Pollack and Henderson 1984).

WOODLAND CERAMIC TYPES IDENTIFIED AT THE BENTLEY SITE

The Woodland ceramic assemblage recovered from Bentley is characterized by a wide variety of tempering materials and surface treatments. While major tempers include limestone, grit, and chert, other tempers such as siltstone, sandstone, and two distinctive types of sand temper are also present. Mixed tempered specimens also occur (such

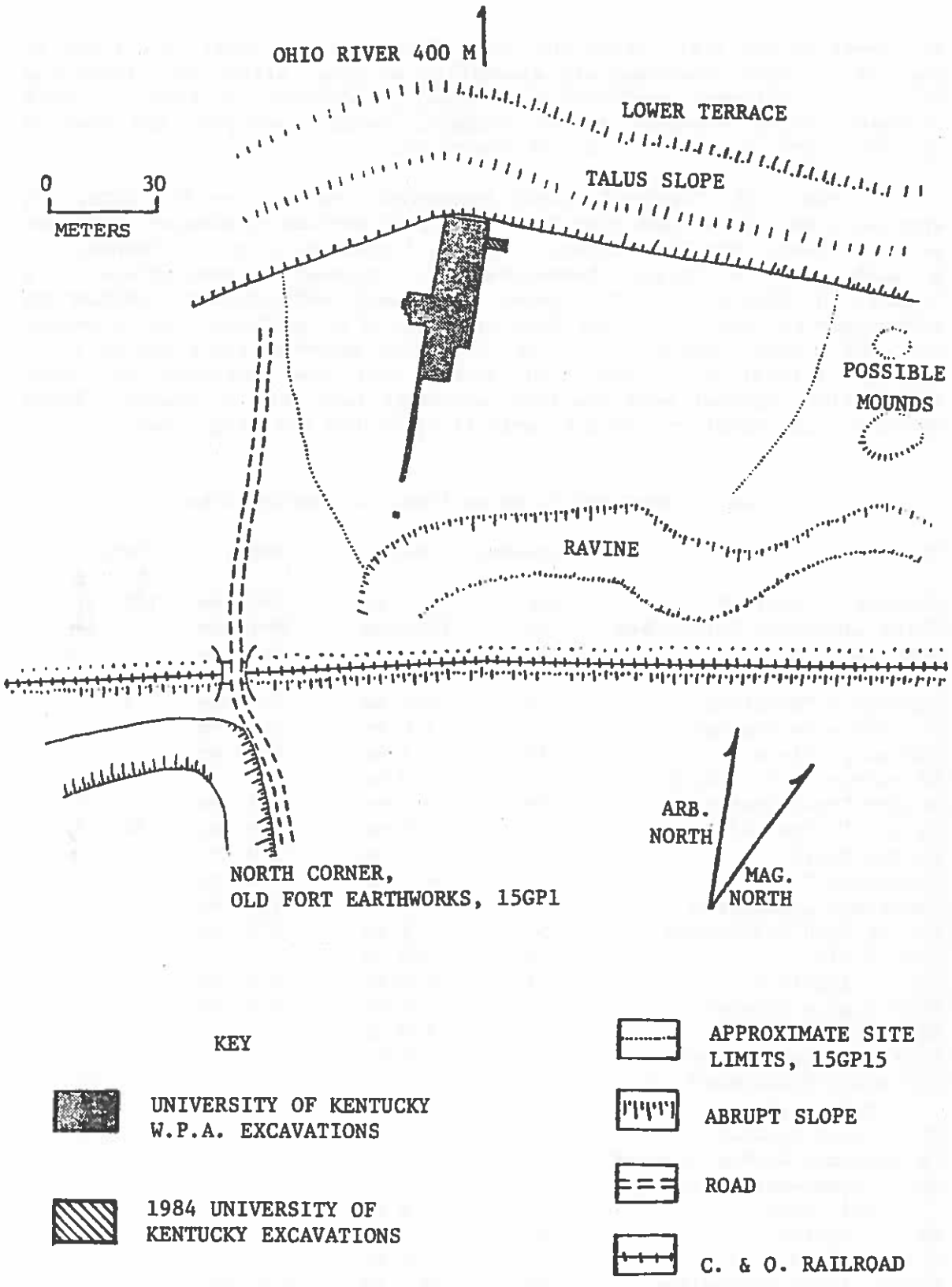


Figure 1. Bohannan's 1938 Map of the Bentley Site, Showing Location of the 1984 Excavations.

as limestone and grit, chert and grit, limestone and chert, etc.) but in this study, such specimens are classified by their predominant tempering material. Exterior surfaces are mainly cordmarked or plain. Check stamped, simple stamped, rocker stamped, dentate stamped, and brushed specimens are also present in the assemblage.

Of the 1,717 Woodland sherds recovered from the Bentley Site, 103 specimens were so eroded that their exterior surface treatment could not be determined. For 21 additional sherds, temper could not be identified. A number of different temper/surface treatment combinations were identified (Table 1). Of these, some were sufficiently similar to previously defined types that type names could be assigned. For a number of combinations, however, directly comparable examples could not be found in the literature. New type names were not assigned to these combinations because most are represented by less than 50 sherds. These specimens may simply represent variability within existing types.

Table 1. Woodland Ceramics From The Bentley Site.

Type	Frequency	Mean	Range	Twist S	Twist Z
Newtown Cordmarked	946	6.2 mm	3-12 mm	129	36
Thick Limestone Cordmarked	15	10.0 mm	8-12 mm	1	11
Limestone Plain	238	5.5 mm	3-11 mm		
Newtown Plain	77	7.1 mm	4-12 mm		
Limestone "Scratched"	12	9.1 mm	6-11 mm	5	
Siltstone Cordmarked	5	7.0 mm	5-8 mm	1	
Siltstone Plain	34	7.1 mm	4-10 mm		
Siltstone Simple Stamped	1	7.0 mm			
Wright Check Stamped	39	6.2 mm	4-8 mm		
Peters Cordmarked	132	7.0 mm	4-9 mm	32	1
Peters Plain	4	7.0 mm	5-9 mm		
Sandstone Plain	11	4.3 mm	3-7 mm		
Sandstone Cordmarked	8	5.7 mm	4-7 mm	4	
Coarse Sand Cordmarked	52	5.7 mm	4-7 mm	40	
Sand Plain	2	5.0 mm			
Sand Cordmarked	4	4.8 mm	4-5 mm	2	
Sand Simple Stamped	5	5.6 mm	5-6 mm		
Sand Brushed	2	6.0 mm			
Grit Dentate Stamped	2	9.0 mm			
Siltstone Fingernail Impressed	1	9.0 mm			
Grit Cross Hatched	1	7.0 mm			
Chillicothe Rocker Stamped	1				
Chert Cord-wrapped Dowel Impressed	1	8.0 mm			
Eroded Surfaces	103				
Unidentified Plain	7	7.0 mm			
Unidentified Cordmarked	14	6.6 mm	5-9 mm		
Totals	1717				

Newtown Cordmarked

The greatest percentage of Woodland pottery recovered from Bentley (Table 1) is represented by Newtown Cordmarked (McMichael 1984:132-135). Because of similar morphological characteristics, limestone (Figure 2d-f) as well as grit (Figure 2g) tempered specimens are included in this type. For most limestone tempered specimens, the limestone has leached out, leaving moderate-sized, angular temper casts in the paste. The grit temper is characterized as a "normal dirty sediment," possibly a river gravel or stream grit (William H. Dennen, personal communication 1984). Grit tempered specimens contain angular quartz, feldspar, mica, and hornblende particles which are also generally moderate-sized. Sherd thickness ranges from 3-12 mm, with a mean of 6.2 mm.

Sherd exteriors were cordmarked with S-twist cordage (Table 1), which varies from thin, closely spaced cordage to thicker, more widely spaced cordage. Some examples of smoothed-over cordmarking are also present. Interior surfaces are generally smoothed. Decoration on Newtown Cordmarked ceramics is rare and, when present, occurs in the form of parallel incised lines on exterior sherd surfaces (Figure 3j) (n=4) or cordmarking on vessel lips (n=3).

Rims tend to be slightly recurved or direct, and are usually unmodified (Figure 4a-d). However, some rims are outflaring. Lips are predominately flat, but round lips do occur. Cordmarking on rims extends to the lip and is usually vertical, although in a few cases impressions are oriented diagonally to the lip.

Angular shoulders (n=36) are a distinctive characteristic of Newtown pottery (Figure 2i-k). Most specimens from Bentley are limestone tempered (n=33). Cordmarking is oriented perpendicular to the shoulder angle and, in most cases, is present both above and below the angle. However, several specimens are smoothed-over in the shoulder area. Shoulder angle measurements range from 128° to 163°, with an average of 146.6° (Figure 4j-o). Attributes of Newtown Cordmarked angular shoulders from Bentley are extremely similar to those from the Pyles Site, a circular Newtown village in Mason County, Kentucky (Railey 1984:114).

Thick Limestone Tempered Cordmarked

Several thick, limestone tempered cordmarked sherds (Figure 3c) (n=15) which undoubtedly represent one vessel were distinguished from the limestone tempered Newtown Cordmarked specimens due to differences in thickness, rim and lip form, and cordage twist preference. These sherds range in thickness from 8-12 mm with a mean of 10 mm. Exterior sherd surfaces were deeply cordmarked with very wide Z-twist cordage; interiors are smoothed. The vessel represented exhibits a restricted orifice, with very incurvate sides and a rounded lip (Figure 5a).

These sherds are not quite as thick as Fayette Thick (Tune this volume) but they are much thicker than other Woodland types such as McGraw (Prufer 1965) or Peters Cordmarked (Prufer and McKenzie 1966). Brose (1982:31) recovered thick cordmarked ceramics from Grimes Village in southern Ohio. He suggested that these ceramics were associated with sand tempered simple stamped and brushed sherds which were recovered from a pit feature that yielded a radiocarbon date of A.D. 510±100.

Limestone Tempered Plain

Limestone tempered plain surfaced sherds (n=238) are smooth to well-smoothed on both surfaces (Figure 2a-c). They are generally thinner than Newtown Cordmarked specimens: thickness ranges from 3-11 mm, with a mean of 5.5 mm. Limestone tempered plain ceramics from Bentley are also much thinner than Newtown Plain sherds recovered from the Pyles Site, which had a mean thickness of 7.1 mm (Railey 1984:74).

Plain limestone tempered rims also occur in a distinctively different form from the cordmarked specimens. They tend to be slightly excurvate to outflaring and exhibit primarily rounded lips (Figure 4e-g). The recovery of plain angular shoulders (n=2), however, suggests that some limestone tempered plain sherds may be associated with vessel forms similar to Newtown Cordmarked.

Because the limestone tempered plain sherds are thinner than Newtown Plain and exhibit a rim form that has not been traditionally identified with Newtown ceramics (McMichael 1984; Railey 1984), they have not been assigned to the Newtown Plain type. Given the variety of Woodland ceramics from the site, it is possible that some limestone tempered plain ceramics represent a different type. In this regard it is worth noting that thin limestone tempered plain sherds were recovered from Blanton, a Middle Woodland site in Johnson County, Kentucky (Johnson 1982:805) and from Chesser Cave, a Late Woodland site in Ohio (Prufer 1967:14-15).

Newtown Plain

Grit tempered plain surfaced sherds (n=77) are smooth to well smoothed, and range in thickness from 4-12 mm, with a mean of 7.1 mm. In contrast to limestone tempered plain rims, grit tempered plain rims (Figure 4h) resemble Newtown Cordmarked rim forms and were assigned to the Newtown Plain type. One grit tempered plain specimen was a fragment of an angular shoulder. Grit tempered plain sherds from Bentley are similar in both thickness and form to the Newtown Plain ceramics described from the Pyles Site (Railey 1984:74).

Limestone Tempered "Scratched"

Limestone tempered "scratched" (n=12) specimens are distinguished from limestone tempered plain sherds by both surface treatment and thickness. These sherds are smoothed-over and exhibit multiple scratch or brush marks on their exterior surfaces. Five specimens exhibit faint impressions made by thin, tightly wound S-twist cordage in addition to the "scratch" marks. These sherds range in thickness from 6-11 mm with a mean of 9.1 mm. Because no rims were recovered, little can be said about vessel form.

Siltstone Tempered

Some of the sherds (n=40) from Bentley are tempered with siltstone particles that are generally light tan in color and irregularly shaped. The presence of some temper casts in the paste may also represent eroded siltstone or limestone particles. A number of specimens include heavy amounts of hematite inclusions in the paste. Well-smoothed, plain, matte

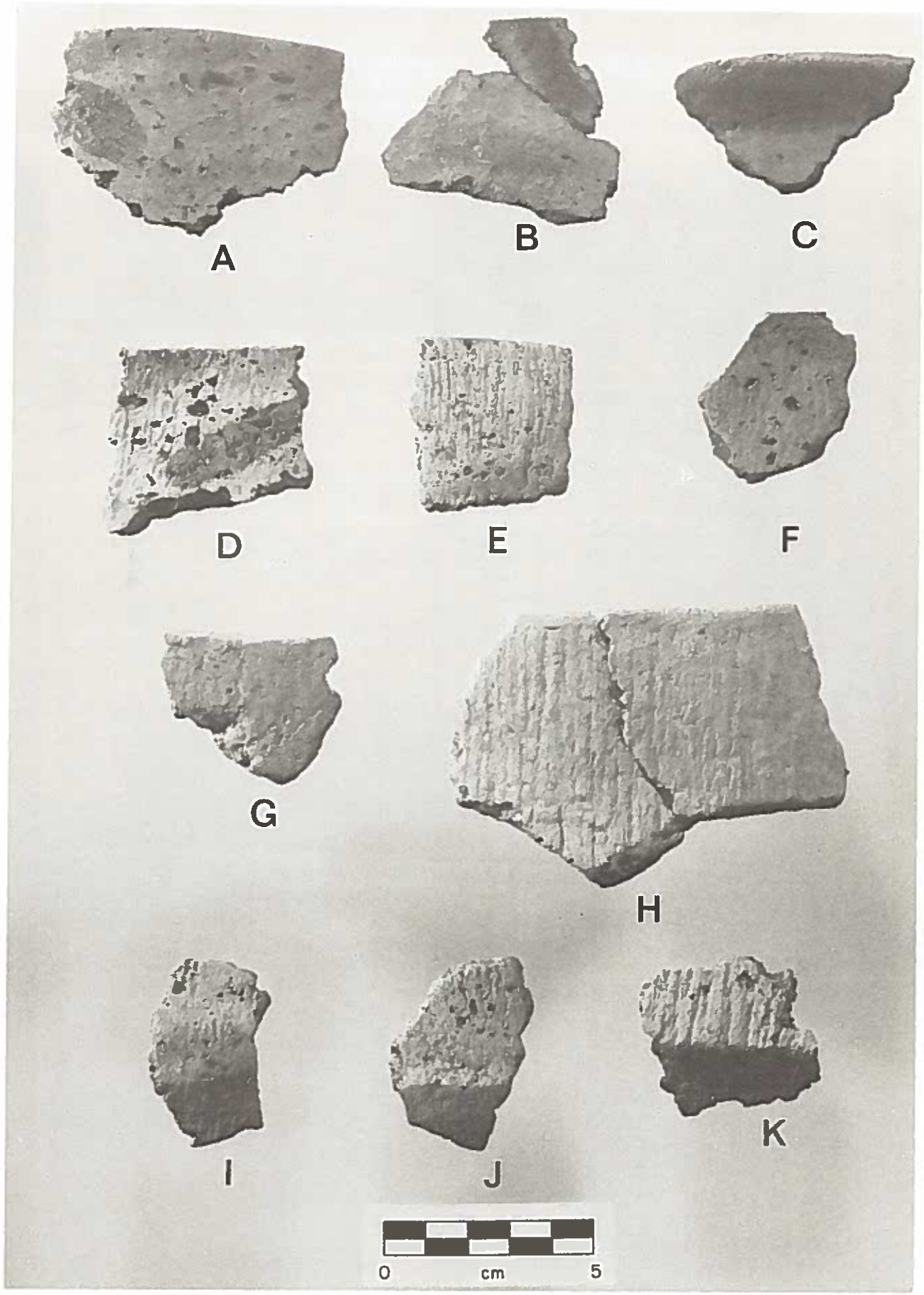


Figure 2. Late Woodland Ceramics: a-c, limestone tempered plain; d-g, Newtown Cordmarked; h, Peters Cordmarked; i-k, Newtown Cordmarked angular shoulders.

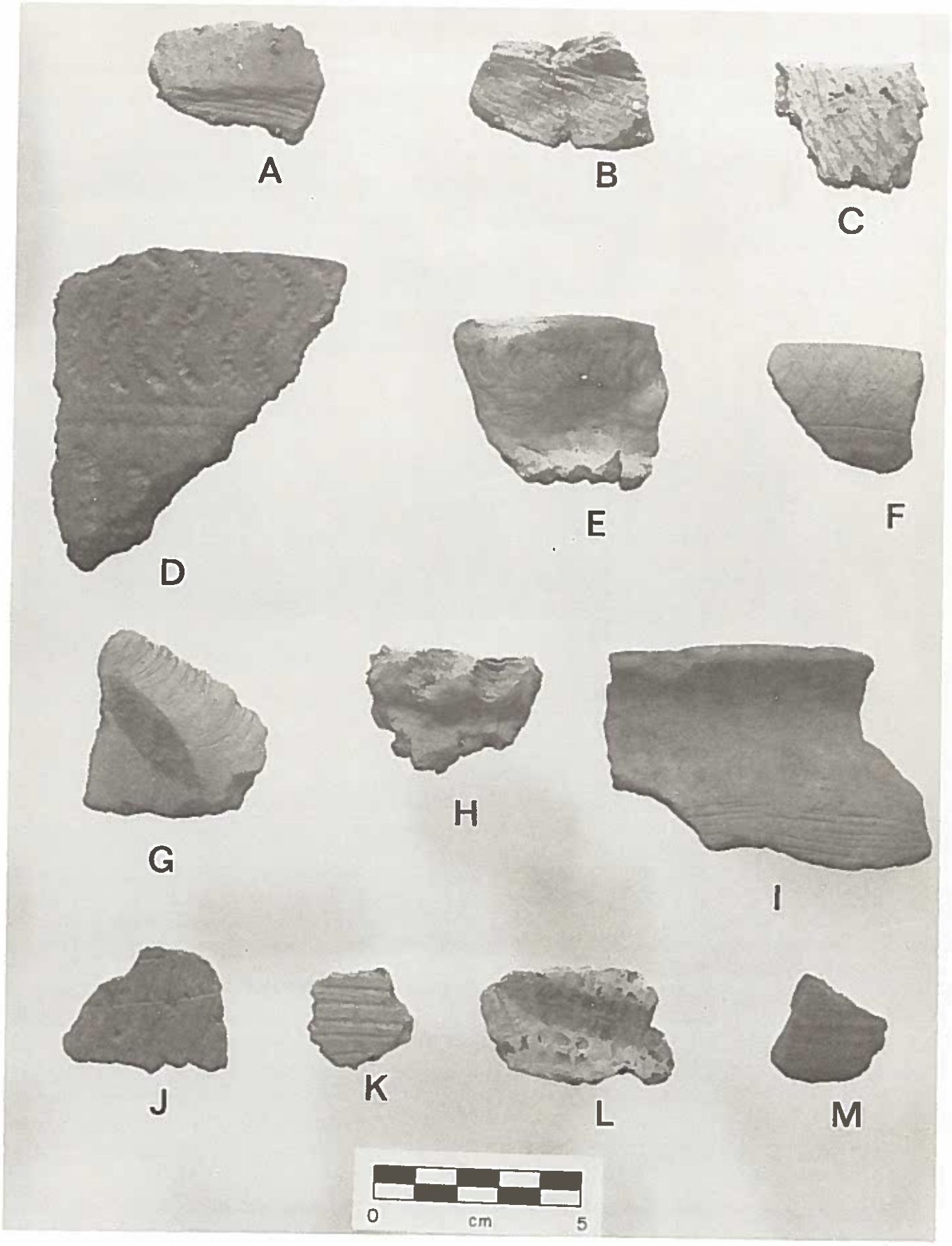


Figure 3. Other Woodland Ceramics from the Bentley Site: a-b, coarse sand tempered cordmarked; c, thick limestone tempered cordmarked; d, grit tempered dentate stamped; e, unidentified tempered fingernail impressed; f, grit tempered cross hatched; g, grit tempered rocker stamped; h, chert tempered cordwrapped dowel impressed; i, sand tempered brushed; j, Newtown Cordmarked incised; k, sandstone tempered incised; l, limestone tempered check stamped and cordmarked; m, sand tempered simple stamped.

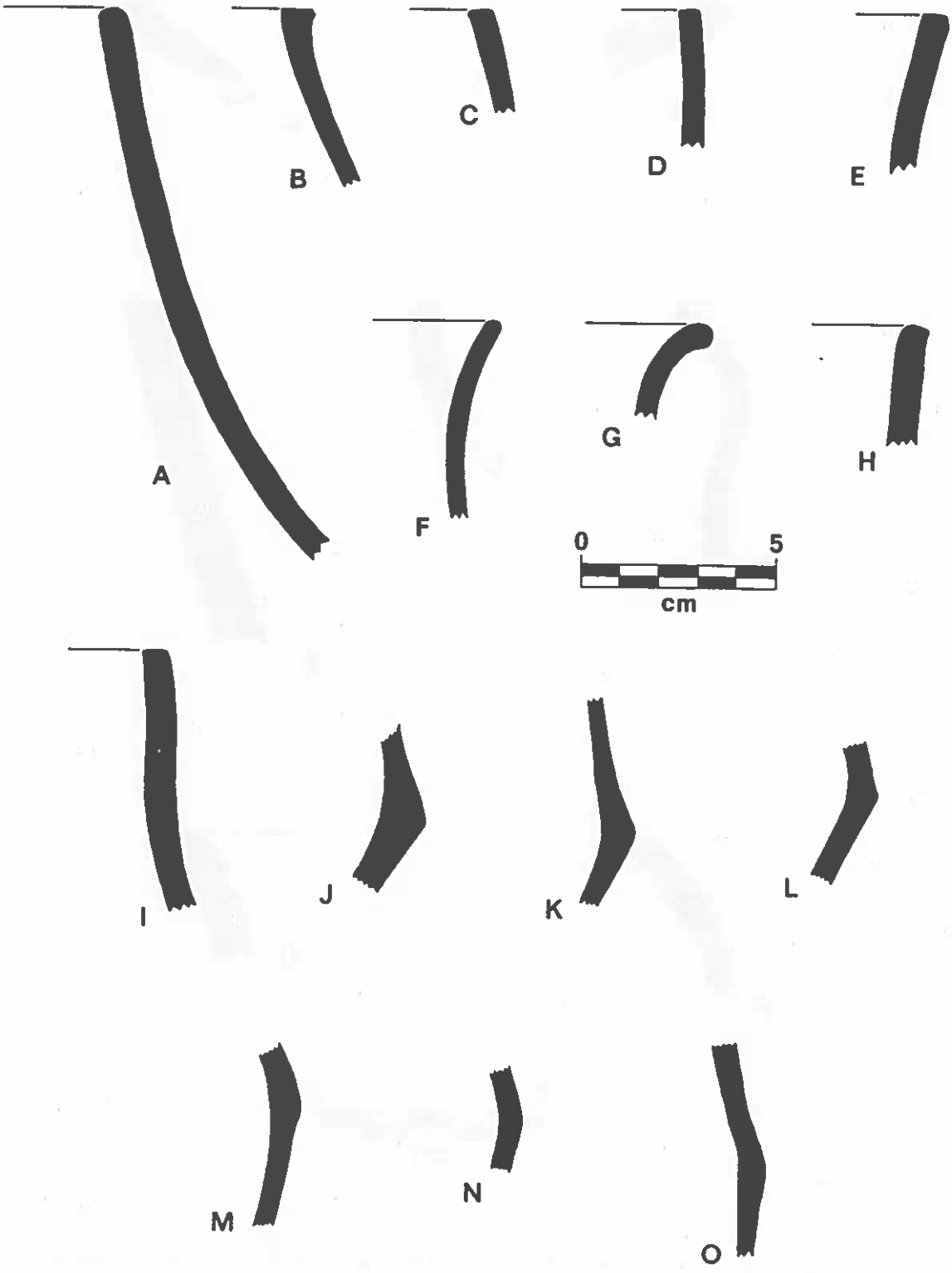


Figure 4. Rim and Angular Shoulder Profiles: a-d, Newtown Cordmarked rims; e-g, limestone tempered plain rims; h, Newtown Plain rim; i, Peters Cordmarked rim; j-o, Newtown Cordmarked angular shoulders.

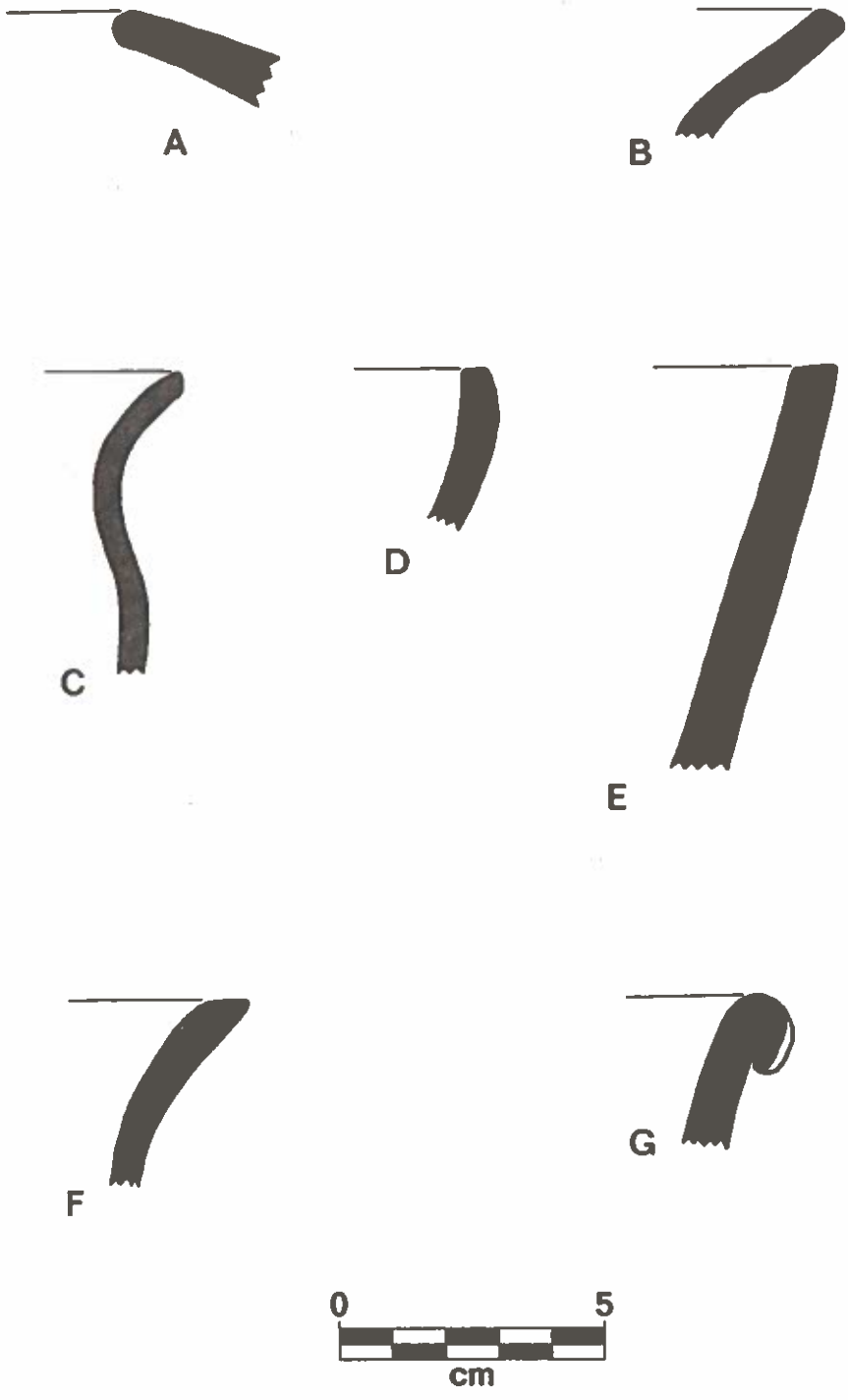


Figure 5. Additional Rim Profiles: a, thick limestone tempered cordmarked; b, coarse sand tempered cordmarked; c, sand tempered brushed; d, grit tempered cross hatched; e, grit tempered dentate stamped; f, siltstone tempered fingernail impressed; g, chert tempered cord-wrapped dowel.

exterior surfaces (n=34) predominate. Sherd thickness ranges from 4-10 mm with a mean of 7.1 mm. Two siltstone tempered rims are plain, with flattened lips. One is slightly outflaring and thickens towards the lip, while the other is incurvate.

No types could be identified in the literature which resemble the plain surfaced siltstone tempered specimens from Bentley. Though Armstrong ceramics defined in West Virginia for the Early and Middle Woodland periods (Wilkins 1979) are plain and siltstone tempered, they bear little resemblance to the Bentley specimens.

Cordmarked (n=5) and simple stamped (n=1) siltstone tempered sherds were also found at Bentley, but they exhibit few diagnostic attributes. Both types have an average thickness of 7.0 mm. Early Late Woodland siltstone tempered cordmarked ceramics (Lick Creek Series) have been identified in southern West Virginia (Henderson 1985), but assignment of a name to the specimens from Bentley would be premature.

Wright Check Stamped

Check stamped ceramics, regardless of temper, were considered to represent one type, Wright Check Stamped (Haag 1942). They are limestone (n=29), siltstone (n=9), or grit (n=1) tempered. Checks are rectangular to square and are generally 3-4 mm in size. Exteriors of some of the limestone tempered specimens exhibit check stamping in combination with impressions of S-twist cordage (Figure 31). The paste of the limestone tempered checked stamped specimens is similar to that of Newtown Cordmarked and limestone tempered plain sherds, which suggests that some of the check stamped vessels may have been locally manufactured.

Limestone tempered check stamped sherds tend to be thinner than their siltstone tempered counterparts. The former have a mean thickness of 6.2 mm and the latter, a mean thickness of 9.7 mm. The one grit tempered check stamped sherd is 7.0 mm thick. Although a description of vessel form is not possible because no check stamped rims were recovered, some specimens may represent thickened conical bases.

Peters Cordmarked and Plain

Chert tempered ceramics (n=136) are tempered with medium-sized, angular particles of an opaque white (or sometimes pink, blue gray, black or tan) chert. Some specimens also contain a combination of chert and minor amounts of slightly smaller grit temper identical to the particles described for grit tempered Newtown Cordmarked ceramics. Exteriors of cordmarked (n=132) specimens were deeply impressed by S-twist cordage. In some cases the cordmarks are somewhat smoothed-over.

Chert tempered cordmarked sherds (Figure 2h) range in thickness from 4 to 9 mm with a mean of 7.0 mm. These sherds tend to be thicker than Newtown Cordmarked ceramics, but are thinner than the thick limestone tempered cordmarked specimens. Cordmarking is oriented vertical to the rim, extending to within 3-5 mm of the lip, which is flattened and smoothed. Rims are direct and unmodified (Figure 4i). No chert tempered angular shoulders were found at Bentley, which supports assignment of the chert tempered specimens to a type other than Newtown Cordmarked.

Plain surfaced chert tempered specimens (n=4) are represented by body sherds only. They are 5-9 mm thick with a mean thickness of 7.0 mm.

Chert tempered cordmarked ceramics from Bentley are similar in both temper and vessel form attributes to the Late Woodland ceramic type Peters Cordmarked, defined by Prufer and McKenzie (1966) at Peters Cave in southern Ohio. The chert tempered plain specimens from Bentley are considered to be Peters Plain. Like the Peters ceramic assemblages from Raven Rock (Prufer 1981) and White Rocks (Ormerod 1983), the chert tempered ceramics from Bentley are almost exclusively cordmarked.

Sandstone Tempered

Sandstone tempered ceramics are present in low frequencies. The sandstone particles are gray in color, and are so poorly consolidated that they can be scratched with a fingernail. Some specimens contain minor amounts of grit or chert particles. Sandstone tempered ceramics are predominately plain (n=11). Plain surfaced specimens are extremely thin, with thickness ranging from 3-7 mm with a mean of 4.3 mm. Two plain surfaced specimens exhibit three or more deep regular incised parallel lines (Figure 3k). This is the only type of decoration observed on the sandstone tempered ceramics from the Bentley Site.

Cordmarked specimens (n=8) were marked by S-twist cordage. Cordmarked sherds range in thickness from 4-7 mm, with a mean of 5.7 mm. Cordmarking extends vertically to the lip. Two rims, one plain, the other cordmarked, are flat-lipped and represent unrestricted vessel forms with direct rims.

Sandstone tempered ceramic types such as Levisa Cordmarked represent the major ceramic series in nearby Paintsville Reservoir where they have been assigned a late Early Woodland to Middle Woodland date range (Johnson 1982). Ison and Ison (this volume), however, have obtained a C-14 date of A.D. 570 for sandstone tempered ceramics from the Carroll Shelter in Carter County, Kentucky and have suggested that these ceramics are similar to Peters Cordmarked. Given the small amount of sandstone tempered ceramics recovered from the Bentley Site, no attempt was made to assign a type name or temporal affiliation.

Coarse Sand Tempered Cordmarked

Coarse sand tempered cordmarked ceramics (Figure 3a-b) (n=52) are distinguished from other cordmarked types by their distinctive temper and vessel form. Temper particles contained in these sherds consist of medium to small, well-rounded opaque to translucent white quartz pebbles and smaller particles of grit (i.e. feldspar, etc.) in a densely tempered paste. Like the previously described grit tempered ceramics, the temper in these specimens can also be characterized as a "normal dirty sediment" or stream grit (William H. Dennen, personal communication 1984). The temper in these sherds can be distinguished from the other grit tempers, however, by virtue of the roundedness of the particles, indicating that they have witnessed more erosion and transport than the previously described grit particles.

These sherds were cordmarked by thin S-twist cordage. They range in thickness from 4-7 mm with a mean of 5.7 mm. Rims are very outflaring and are thickened (Figure 5b). Cordmarking is vertical on the vessel body, horizontal on the neck, and vertical once again on the rim. Cordmarking also partially extends onto the lip, which is beveled. These specimens undoubtedly represent at the most two vessels. Although no types which resembled these specimens could be identified in the literature, attributes of vessel form, rim form, and decoration indicate that these sherds do not represent traditional Late Woodland pottery.

Sand Tempered

Sand tempered (n=13) ceramics are almost exclusively tempered with dense amounts of well-rounded quartz sand particles. Surface treatments include cordmarked (n=4), simple stamped (Figure 3m) (n=5), plain (n=2), and brushed (Figure 3i) (n=2). Sherd thickness ranges from 4-6 mm with a mean of 5.3 mm. Rims are plain, unmodified and outflaring (Figure 5c). Lips are rounded and one is notched. The brushed specimen, which exhibits brush marks on the vessel body below the shoulder, has a plain neck and rim. This may explain why only plain sand tempered rims were recovered. These sand tempered ceramics resemble the limestone tempered plain specimens both in terms of sherd thickness and rim form.

The sand tempered ceramics from Bentley are similar to the Middle Woodland Connesstee series defined by Keel (1976) for the Appalachian Summit area and recovered from sites in east Tennessee (Chapman 1973; Chapman and Keel 1979). Johnson (1982:807-9) has described similar ceramics from the Blanton Site in Johnson County, Kentucky, and suggests that the presence of these sherds at that site reflects southern influence. Sand temperd ceramics were also recovered from the Carroll Shelter in Carter County, Kentucky (Ison and Ison this volume) and the Grimes Site in southern Ohio (Brose 1982). Other sand tempered Middle Woodland types identified in the Ohio Valley which are similar to the sherds from Bentley are Paintsville Simple Stamped (Haag 1942:344b), Turner Simple Stamped B (Prufer 1968:8-9), Southeast Series Untyped Cordmarked (Prufer 1968:14) and Southeast Series Untyped Plain (Prufer 1968:14-15).

Hopewellian Ceramic Types

A few clearly identifiable Hopewellian ceramic types are present in the Bentley Site ceramic assemblage. One plain surfaced rim, tempered with small grit particles, exhibits incised cross-hatched lines (Figures 3f and 5d), which are distinguishing features of Prufer's (1965:31) Hopewellian Series, Untyped Hopewell Rims. Another plain surfaced body sherd exhibits plain rocker stamped designs (Figure 3g) and can be assigned to Chillicothe Rocker Stamped, Subtype A (plain, short) (Prufer 1965:29-31). Two dentate stamped sherds tempered with larger grit particles are also clearly Hopewellian. One, a body sherd, is too small to determine the design. The other, a rim, exhibits a wide zone of vertically oriented, S-shaped dentate stamped lines directly below the lip. A horizontal line of dentate stamping bounds the zone, below which are ovoid stamped decorations (Figures 3d and 5e). Griffin (1945:243) has suggested that this sherd is similar in all respects to Naples Stamped pottery and that it represents an Illinois Valley Hopewell trade vessel.

Two other rims, due to their unique shape and decoration, are also considered to represent Hopewell sherds. One plain surfaced outflaring rim for which temper could not be identified exhibits a row of finger nail impressions 7 mm below a somewhat pointed lip (Figures 3e and 5f). The other, tempered with dark gray chert, exhibits a vertically cordmarked exterior. A thick, rounded lip, on a folded-over rim exhibits deep, diagonally-oriented cordwrapped dowel impressions (Figures 3h and 5g). This sherd is similar to a Miami Series sherd illustrated by Prufer (1968:30).

Discussion

From the previous ceramic descriptions, it is clear that sherds traditionally assignable to either the Middle or Late Woodland periods are present at the Bentley Site. Middle Woodland ceramics are present in a distinct minority. They include the Hopewellian sherds discussed above, the sand tempered ceramics, and the other stamped ceramic varieties (i.e. check stamped, and simple stamped).

The largest proportion of the ceramic assemblage, however, is represented by Late Woodland Newtown ceramics, which are both cordmarked and plain. Peters ceramics, which are almost exclusively cordmarked, also date to the Late Woodland, but constitute a much smaller percentage of the assemblage. Limestone tempered plain, thick limestone tempered cordmarked, limestone tempered "scratched", coarse sand tempered cordmarked, and siltstone, and sandstone tempered plain and cordmarked ceramics could not be dated to either the Middle or Late Woodland from the extant literature.

RADIOCARBON AND THERMOLUMINESCENCE DATES

In order to obtain absolute dates for the Woodland period occupation of the Bentley Site, 10 sherds representing the major ceramic types recovered from the site during the 1938 excavations were submitted for thermoluminescence (TL) dating (Table 2). Since these specimens had been subjected to over 40 years of potential contamination, control samples consisting of one radiocarbon date and three TL dates were obtained from a pit feature excavated in 1984 (Table 2). These samples were collected under optimal conditions.

The radiocarbon sample collected in 1984 yielded a date of A.D. 570±60 (Beta 11850) which corrects to A.D. 660±60 (Stuiver 1982). This date is considered acceptable because it falls within the recognized time range for Newtown (ca. A.D. 400-800) (Seeman 1980). Of the three TL samples from this feature, Sample 1 produced a date of 300±160 B.C., Sample 2 a date of A.D. 600±125, and Sample 3 a date of A.D. 190±150. Sample 2 is compatible with the C-14 date. Although the date for Sample 3 overlaps with both the date for Sample 2 and the C-14 date at two standard deviations, the Sample 3 date appears to be too early for a Newtown occupation and is at best marginally acceptable, given the character of the artifact assemblage. The date for Sample 1, on the other hand, is clearly much too early.

Table 2. Thermoluminescence Dates from the Bentley Site.

Samples from the 1938 Excavation

Sample No.	Temper/Surface Treatment	Particle Dated	Provenience	Date
A	Coarse Sand Cordmarked	Quartz	Feature 28	A.D. 730±160
B	Coarse Sand Cordmarked	Feldspar	Feature 28	A.D. 160±170
C	Chert Cordmarked		N190 E115	*
D	Chert Cordmarked		N190 E115	*
E	Grit Cordmarked	Feldspar	Feature 68	15±160 B.C.
F	Grit Cordmarked	Feldspar	Feature 68	850±190 B.C.
G	Limestone Cordmarked	Limestone	Feature 58	530±160 B.C.
H	Limestone Plain	Limestone	Feature 64	1550±320 B.C.
I	Limestone and Chert Cordmarked	Chert	Feature 47	A.D. 725±170
J	Grit Cordmarked	Feldspar	Feature 47	1230±200 B.C.
K	Limestone and Chert Cordmarked	Chert	Feature 56	1330±300 B.C.
L	Grit Cordmarked		Feature 56	1240±320 B.C.

Samples from the 1984 Testing

1	Grit Cordmarked	Feature 1-84	300±160 B.C.
2	Grit and Limestone Cordmarked	Feature 1-84	A.D. 600±125
3	Grit Plain	Feature 1-84	A.D. 190±150

* Unable to process samples.

As with the control samples, the dates obtained for the 1938 ceramic specimens exhibited a great deal of variation (even samples submitted from the same features exhibited widely divergent dates). The character of the suite of TL dates for the Woodland ceramics from the 1938 excavations at Bentley no doubt has been affected by a combination of factors: environmental contamination (both in the ground and during curation), significantly less than optimal placement of docimeters with respect to individual samples, and the possible incomplete or low firing of the ceramics themselves which would have failed to completely erase previous thermoluminescence.

Of the 10 samples collected in 1938, only Samples A, B, and I yielded dates which are similar to the acceptable dates obtained for the 1984 samples. Samples A (A.D. 730±160) and B (A.D. 160±170) were obtained from a pit feature located in the central portion of the block that contained Newtown and Hopewellian materials, while Sample I (A.D. 725±170) was obtained from a pit feature situated along the northern edge of the site that contained a substantial amount of Newtown ceramics. The two eighth century dates overlap with Sample 2 collected in 1984 at one standard deviation and are acceptable Newtown dates. Dates for Samples A and I also suggest contemporary Woodland occupation of the central and northern areas of the 1938 excavation block. The A.D. 160 date for Sample B, like the 1984 Sample 3 date of A.D. 190, appears to be much too early for the Woodland materials from Bentley. The remaining seven

samples all yielded dates which are clearly too early for the Woodland materials recovered from the Bentley Site and are not considered to be reliable dates. The fact that the majority of the TL dates obtained from the site are not acceptable indicates that even the acceptable TL dates must be viewed with some suspicion. The radiocarbon date, however, is considered to be acceptable, and documents the presence of a Late Woodland occupation at the site.

INTERNAL CORRELATIONS

Archaeological investigations of Late Woodland sites in the region immediately surrounding the Bentley Site (i.e. northern and eastern Kentucky and southern Ohio) have primarily been limited to the excavation of rockshelter sites and the testing of open habitation sites. The confined nature of rockshelters and their repeated use through time tends to obscure intra-site spatial patterns. This makes it extremely difficult to define activity loci within shelters for a specific cultural period. Thus, archaeological investigation at rockshelter sites has tended to focus on cultural historical questions and on describing the character of material culture assemblages.

Investigation of open habitation sites has a greater potential for documenting intra-site spatial patterning for specific cultural periods, but excavation of large horizontal areas is required. To date, however, archaeologists have had few opportunities to examine the intra-site structure of Late Woodland open habitation sites in the region. And as a result, the research focus at these sites has been similar to that undertaken at rockshelters.

Given the large labor force available during the Works Progress Administration era in Kentucky, more than 900 m^2 were hand excavated at Bentley. Examination of the horizontal spatial distribution of cultural materials and features can be undertaken at this site, thus providing archaeologists with the opportunity to examine the intra-site structure of this Late Woodland settlement.

Spatial Patterns and Contextual Associations

The Bentley Site's Woodland Period features and ceramics exhibit definable horizontal spatial patterning. A cluster of large pit features was identified along the northern edge of the site parallel to the terrace edge. Only an occasional posthole was identified in this area, and no overlapping features were identified. This pattern was confirmed during the 1984 investigations at the site, which identified two additional Woodland pit features directly east of Bohannan's 1938 excavation block (Figure 6).

In the central portion of the site, clusters of postholes were identified, many of which Bohannan classified as rock-lined (Figure 6). It has been suggested previously that based on their spatial distribution, the rock-lined postholes date to the site's Woodland occupation, and in conjunction with unlined postholes, may represent the remains of Late Woodland structures (Henderson and Pollack 1982). Also found in the vicinity of these clusters of posts were a few pit features and rockpiles. Although many of the pit features and postholes in this

area can be assigned to the Woodland period, few of the rockpiles contained artifactual materials and only two could be assigned to the site's Woodland occupation. Though we cannot confidently place any of the non-rock-lined postholes with the Woodland occupation, a substantial portion of these types of postholes were undoubtedly associated with the Woodland occupation of the site. Few features of any type were identified in the southern portion of the block (Figure 6).

The Woodland period ceramic assemblage exhibits discrete horizontal spatial patterns that are related in part to the feature patterns. Newtown Cordmarked ceramics, while recovered throughout the excavation block, tend to be concentrated along the site's northern edge (which corresponds to the linear cluster of pit features identified in this area), and the west-central portion of the excavation block (Figure 7). Of the Woodland sherds recovered from the northern cluster of pit features, 68.5% are Newtown Cordmarked (Table 3). The Newtown Cordmarked concentration in the west-central portion of the excavation block is associated with both pit features and general midden deposits.

Table 3. Ceramics from Pit Features Along Northern Edge of the 1938 Excavation Block.

Type	Frequency	Percentage
Newtown Cordmarked	302	68.5
Newtown Plain	6	1.4
Limestone Plain	70	15.9
Limestone "Scratched"	11	2.6
Wright Check Stamped	13	2.9
Sandstone Plain	5	1.1
Sandstone Cordmarked	2	.5
Siltstone Plain	5	1.1
Siltstone Cordmarked	1	.2
Unidentified Plain	2	.5
Unidentified Cordmarked	3	.7
Eroded Surfaces	21	4.8
Totals	441	100.0

Little can be said about the spatial distribution of Newtown Plain due to its low frequency. It is found throughout the block, and is generally associated, both spatially and contextually, with Newtown Cordmarked. On the other hand, the spatial distribution of limestone tempered scratched, another ceramic type which occurs in low frequencies, is quite clear. These sherds are found only along the northern edge of the excavation block, in the pit features which contain Newtown Cordmarked ceramics.

Limestone tempered plain sherds exhibit a spatial distribution which differs somewhat from Newtown Cordmarked. Although found along the northern edge of the site (where they account for 16% of the ceramics recovered from the northern cluster of pit features), limestone tempered plain sherds are concentrated mostly in the central portion of the excavation block, just east of the west-central concentration of Newtown Cordmarked (Figure 7). Here they tend to be associated with postholes,

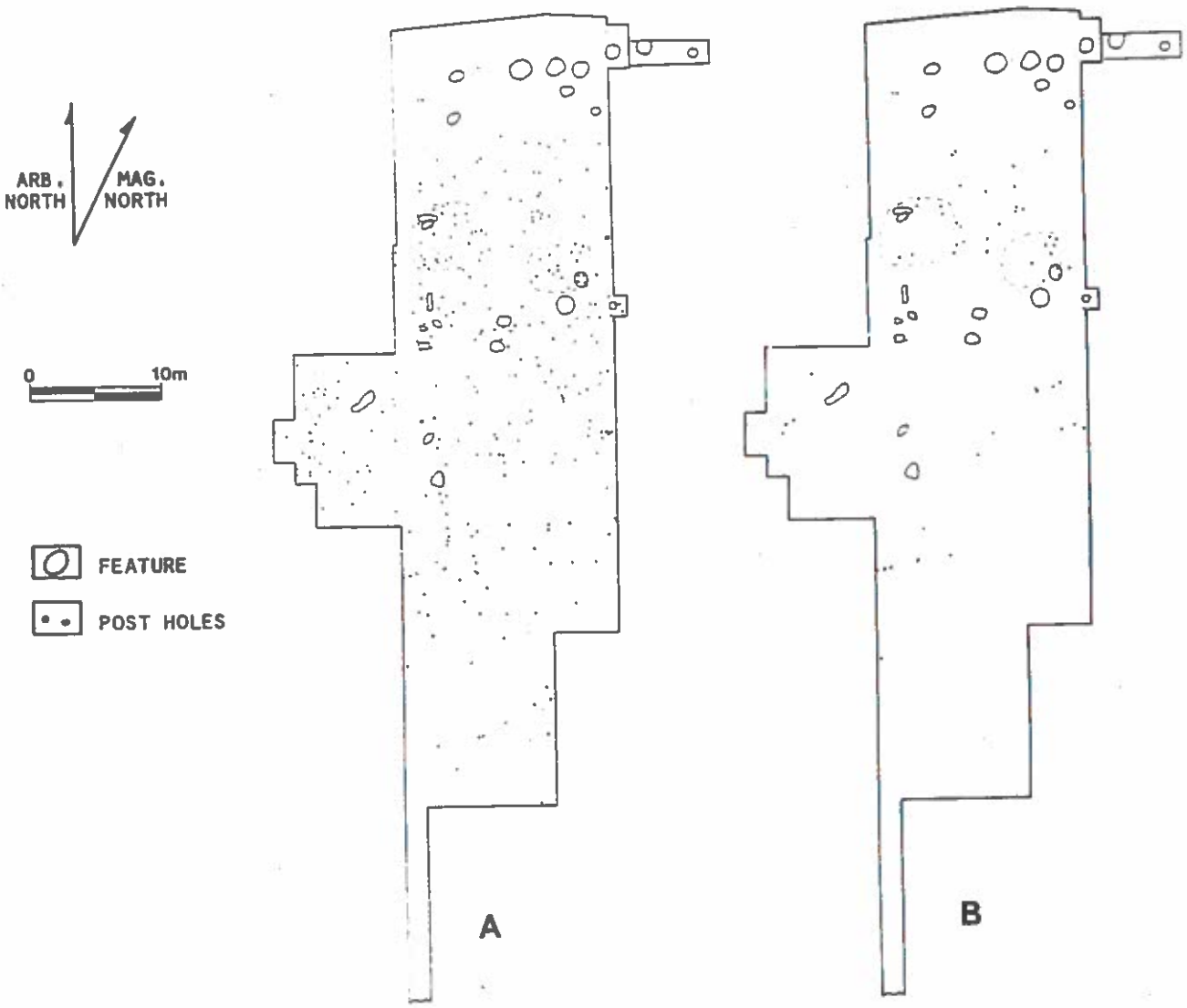
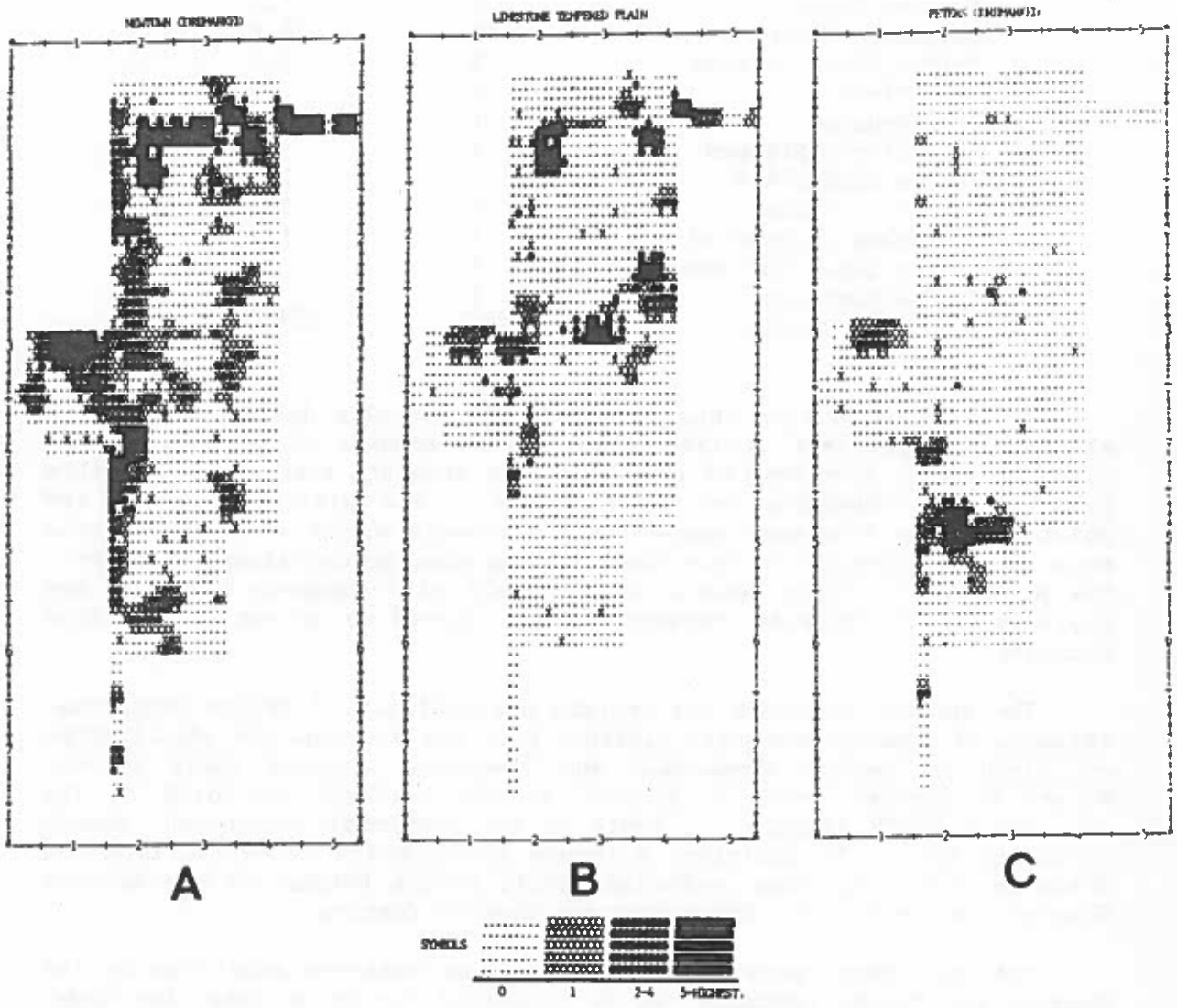


Figure 6. Maps of Bentley Site Excavations: a, Woodland features, rock-lined postholes, and unlined postholes; b, Woodland features and rock-lined postholes only (dashed areas indicate possible Woodland structures).



Feature 7. Symaps Illustrating the Spatial Distribution of: a, Newtown Cordmarked; b, limestone tempered plain; c, Peters Cordmarked.

accounting for 46.5% of the sherds found in these features (Table 4). In comparison, Newtown Cordmarked comprises only 27.6% of the sherds recovered from postholes.

Table 4. Ceramics from Postholes.

Type	Frequency	Percentage
Newtown Cordmarked	35	27.6
Newtown Plain	8	6.3
Limestone Plain	59	46.5
Wright Check Stamped	8	6.3
Sand Plain	1	.8
Sand Brushed	1	.8
Sand Simple Stamped	1	.8
Peters Cordmarked	2	1.6
Siltstone Plain	7	5.5
Siltstone Cordmarked	2	1.6
Unidentified Cordmarked	1	.8
Eroded Surfaces	1	.8
Totals	126	100.0

Bohannan classified these features as postholes due to their size, although the recovery of fairly substantial amounts of plain limestone tempered sherds from some of these features suggests that not all of them functioned as supports for wooden posts. The distinctive form and thinness of the limestone tempered plain vessels suggests that they would have been too fragile to have been used as storage containers. However, the placement of these vessels within small pits suggests that they may represent specially-made containers which served an as yet unidentified function.

The spatial patterns and feature associations of Peters Cordmarked ceramics at Bentley are quite distinct from the patterns and associations exhibited by Newtown Cordmarked and limestone tempered plain sherds. Peters Cordmarked tends to cluster in the southern one-third of the excavation block (Figure 7), south of the previously discussed ceramic concentrations. In addition, although occasionally recovered from pit features (n=4) and from postholes (n=2), Peters Cordmarked sherds from Bentley are rarely associated with any type of feature.

The different spatial distributions and patterns exhibited by the Newtown and Peters ceramics can be accounted for in at least two ways. The differences may indicate the presence of two temporally distinct Late Woodland occupational episodes at Bentley, each utilizing a different area of the site. Alternatively, the distributions may represent contemporary occupation by social groups with different ceramic tempering preferences or traditions. Peters materials from White Rocks yielded a radiocarbon date of A.D. 610 (Ormerod 1983), while the Newtown materials from Bentley produced a date of A.D. 570. These dates support the possibility that the Newtown and Peters materials at Bentley could be contemporary, and thus could represent interaction between these groups.

It is difficult to note any clear pattern in the spatial distribution of siltstone or sandstone tempered plain and cordmarked ceramics, since they occur in such low frequencies. These types are, however, found throughout the excavation block and are contextually associated with both Late Woodland Newtown and Peters ceramics.

With the major patterns exhibited by the Late Woodland ceramics identified, what remains to be discussed are the spatial patterns and contextual associations exhibited by the materials identified as Middle Woodland, and how these patterns and associations relate to the Late Woodland patterns previously identified. Middle Woodland ceramics as well as mica (Bohannan catalogued 18 lots of mica, one which he identified as worked) were recovered from pits, postholes, and the general midden. The majority of these materials were recovered from the central portion of the block, and this concentration overlaps with both the west-central concentration of Newtown Cordmarked, and the central concentration of limestone tempered plain ceramics.

One feature in particular, located along the southern edge of the west-central concentration of Newtown Cordmarked, contained a variety of Middle Woodland sherds in addition to Newtown ceramics. Middle Woodland ceramics recovered from this feature included a Chillicothe Rocker Stamped body sherd, a Hopewell Rim, and a sand tempered brushed body sherd. Other Middle Woodland artifacts from this pit included mica and a Synders projectile point.

This feature was also the only one which contained the coarse sand tempered cordmarked and thick limestone tempered cordmarked sherds which we have interpreted as non-Late Woodland ceramics due to their stylistic attributes. The restricted spatial location of these two ceramic types supports the argument that the sherds represent the remains of only a few vessels. Their distinctive forms and restricted spatial distributions, and their association with identifiable Middle Woodland ceramic types, suggests that they may be Middle Woodland ceramic types, and may possibly represent trade vessels.

As with limestone tempered plain and Newtown Cordmarked ceramics, check stamped sherds as well as sand tempered plain, brushed, and simple stamped ceramics and mica were recovered from postholes in the central portion of the excavation block.

Wright Check Stamped ceramics exhibited a somewhat different distribution, with 55% being recovered from the northern portion of the block. This ceramic type was recovered from 7 of the 8 Newtown pit features excavated in this area. Figure 8 illustrates the spatial relationship of Wright Check Stamped ceramics and angular shoulders, a distinctively Newtown ceramic attribute. It is evident from this figure that Newtown angular shoulders and Wright Check Stamped ceramics exhibit similar spatial distributions. This contextual and spatial association between Newtown ceramics and Wright Check Stamped ceramics argues for their contemporaneity.

Discussion

The relatively low density of artifacts recovered from the Bentley Site and the lack of feature overlap suggests that the Newtown occupation represents a relatively short habitation episode, perhaps less than 20 years. From an examination of the spatial distribution of features and ceramic materials, Newtown activity loci can be tentatively defined. The clusters of rock-lined postholes situated in the central portion of the site suggests the presence of structures, while the rockpiles, pits, and artifactual debris indicate that domestic activities were taking place in this area.

Fire cracked rock and ceramics recovered from the pit features along the northern edge of the site coupled with the absence of postholes in this area suggests that a more limited set of domestic activities, such as cooking or trash disposal, were carried out in this area. Since these features were located some distance from the main domestic activity area, they were probably not used as storage facilities. The area between the central portion of the site and the northern edge does not appear to have been heavily utilized by Newtown people. This is reflected by lower artifact and feature density. It is possible that this area served as a plaza, similar to the central area identified at the Pyles Site (Railey 1984).

Peters ceramics from Bentley, though occasionally found in Newtown features and in the same areas of the site as Newtown ceramics, are predominately found in midden contexts south of the central Newtown concentration. As previously noted, this pattern may represent contemporary utilization of the site by people with a somewhat different ceramic tradition from the site's main occupants. Alternatively, this pattern may represent the remains of a temporally distinct occupation. In either case, the Peters utilization of the site appears not to have been as intensive or extensive as the Newtown settlement, given the spatial and contextual configurations of the Peters ceramic assemblage. The Peters materials probably represent a brief encampment of people who interacted with Newtown people, or a temporary camp which post-dated the Newtown settlement.

EXTERNAL CORRELATIONS

As noted elsewhere (Henderson and Pollack 1982), the Bentley Site's Woodland ceramic assemblage exhibits characteristics similar to ceramic assemblages recovered from other Newtown sites. This includes such attributes as rim form, lip treatment, and the presence of angular shoulders. The presence of limestone tempered plain, and Hopewellian and Southeastern series ceramics (Prufer 1968) are aspects of the Bentley Site ceramic assemblage which make it different from other Newtown assemblages. Limestone tempered plain ceramics were recovered from the Pyles Site, but they differ from the Bentley Site specimens in both thickness and, more importantly, rim form (Railey 1984:74-75). Aside from the Hopewellian sherds reported from the Rogers Site in Boone County (Pollack 1983), and the six checked stamped sherds from Pyles (Railey 1984), Hopewellian and Southeastern series ceramics have not been reported for any other Newtown sites in southern Ohio or Kentucky.

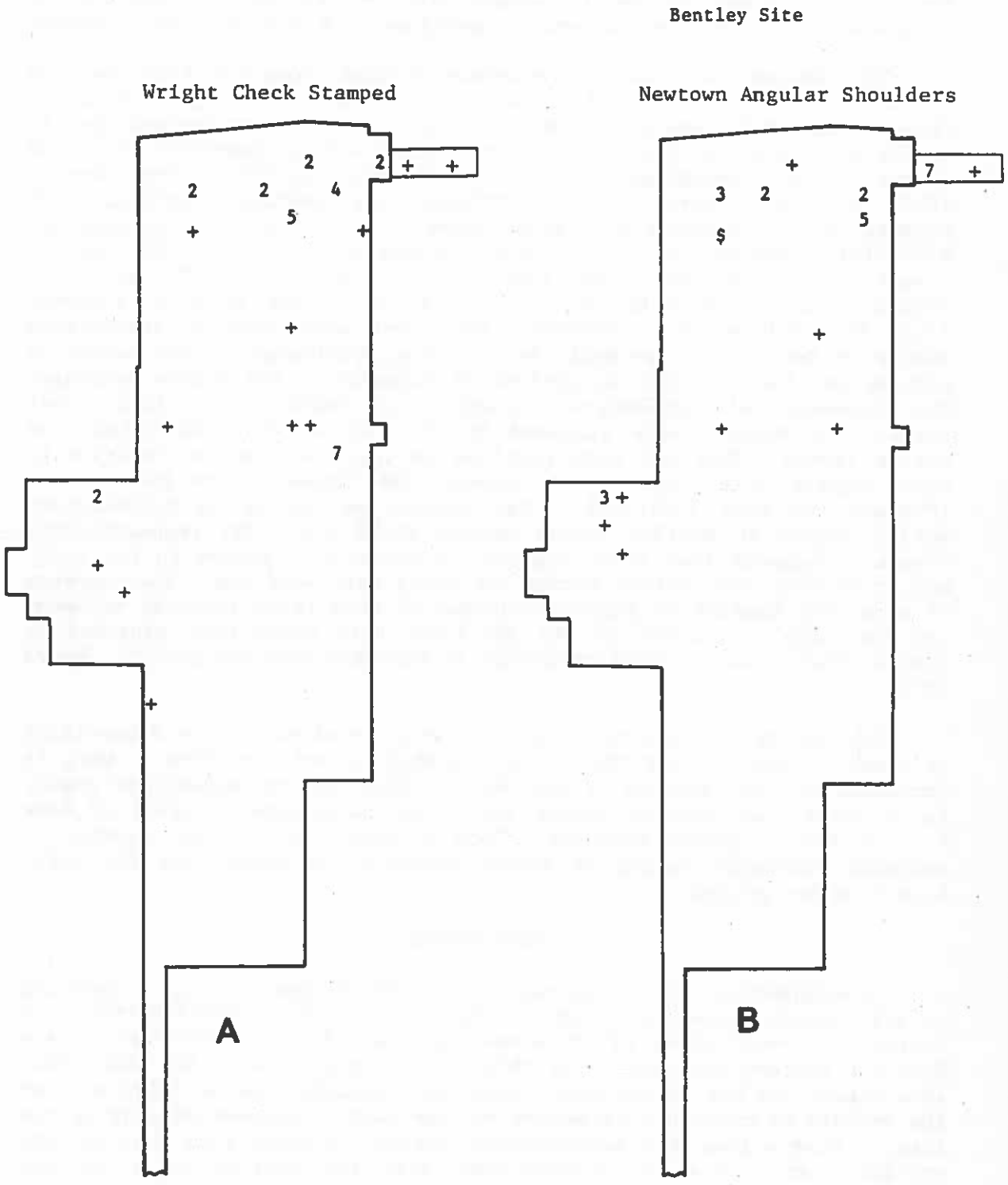


Figure 8. Spatial Distribution of Wright Check Stamped Ceramics and Newtown Angular Shoulders ($=10 or more Sherds).

Whether this trend is due to sample size or the lack of descriptive information for Newtown ceramic assemblages is not presently known.

The Hopewellian and Southeastern series ceramics from Bentley account for 3.6% of the entire Woodland ceramic assemblage. While at first glance this appears to be a rather insignificant percentage, it should be remembered that these same ceramic series comprised only 4.3% of the ceramic assemblage from the late Hopewellian McGraw Site (Prufer 1965) in south-central Ohio. Although the combined percentage of Hopewellian and Southeastern series ceramics from both sites is similar, Hopewellian sherds represent a much greater percentage of the ceramic assemblage at McGraw than they do at Bentley (3.3% and .3%, respectively). Since Bentley appears to have been occupied somewhat later than McGraw (A.D. 400-500), the lower percentage of Hopewellian sherds at Bentley can probably be directly attributed to its period of occupation, i.e., during the decline of Hopewell in the Scioto drainage. The presence of Hopewellian ceramics at Bentley may imply that Hopewellian vessels were regarded by the Bentley Site inhabitants as status items. This may have resulted in continued use or curation of such vessels after the end of Hopewellian dominance in the Midwest (Chapman and Keel 1979:160). The greater percentage of Southeastern series sherds at Bentley versus McGraw (3.3% and 1.0%, respectively), however, suggests that inter-regional exchange with groups to the south may still have been active during the early Late Woodland. The recovery of mica from Bentley is further evidence of such inter-regional exchange and the site's location on the Warriors' Path would have provided an almost direct link to southern groups in the Carolinas and Georgia (Myers 1928:779).

Whether the residents of Bentley were involved in the Hopewellian exchange system or remnants of that system is not important. What is important is that aspects of the Bentley Site ceramic assemblage appear to indicate that Newtown people who lived there were involved in some form of inter-regional exchange. This suggests that certain avenues of exchange initiated during or before Hopewell continued into the early Late Woodland period.

CONCLUSIONS

An examination of the characteristics of the Bentley Site's Woodland period ceramic assemblage, and the horizontal spatial distributions and contextual associations of these materials and features document a Late Woodland Newtown occupation for this site dating ca. A.D. 500-600. That this occupation was fairly short-lived but intensive can be inferred from the amounts of materials recovered and the lack of feature overlap at the site. Hopewellian and Southeastern series ceramics from Bentley are spatially and contextually associated with the Newtown materials and indicate that early Late Woodland peoples were participating in some form of inter-regional exchange. Peters ceramics recovered from the site tend not to be associated with Newtown materials and exhibit a different spatial pattern. Presently it is not clear whether the Peters ceramics represent a contemporary Late Woodland occupation, or post-date the Newtown occupation. In either case, the Peters occupation was not as intensive or extensive as the Newtown settlement.

ACKNOWLEDGEMENTS

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WOODLAND SETTLEMENT PATTERNS IN NORTHWESTERN KENTUCKY

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ABSTRACT

This paper discusses the settlement patterns derived from the results of a preliminary survey of Daviess, Henderson, and Union counties in Kentucky. For this physiographically diverse region, the paper explores the changes in these patterns in the transitional Archaic/Early Woodland, Middle Woodland, Late Woodland, and transitional Late Woodland/Mississippian periods. For each of these periods, a discussion of site type, site density, and site location with reference to physiographic zones and other environmental factors is presented and general trends in settlement pattern changes during the Woodland period are identified.

INTRODUCTION

This paper describes the distribution of Woodland sites and artifactual remains, and discusses some of the factors which influenced the locations of sites in a three county area in the northern section of the Western Coalfields: Daviess, Henderson, and Union counties. In order to place Woodland settlement patterns into a chronological context and identify diachronic trends, it will cover the Archaic through Late Woodland/Early Mississippian periods.

BACKGROUND

Research Strategy

The absence of precise chronological control for Woodland sites in the project area restricted this study to an examination of settlement patterns rather than settlement systems which requires site contemporaneity and functional differences (Clarke 1977; Flannery 1976; Issac 1981; Winters 1969). Consequently, this study focused on examining the distribution of sites across the landscape and the factors influencing site location. While sometimes appearing random, site location is the result of decisions made by at least a portion of the site's occupants (Zimmerman 1978:23). These decisions reflect cultural elements, such as economic activities, residence patterns, exchange, defense, efficiency of communication, and kinship as well as socio-political systems (Hodder 1977:224; Zimmerman 1978:33) and the more obvious environmental variables, such as proximity to water and ease of access to productive soils and other utilized natural resources (Muller 1978b:278; Wood 1978:258-61; Zimmerman 1978:33). The relative weight given to each of these factors will vary with the situation facing prehistoric groups and will be likely to fluctuate over time as changes occur in environmental and cultural processes (Zimmerman 1978:33).

When the research design for this project was developed, so little was known about the prehistory of the study region that the cultural

factors influencing site locations were unclear or unknown. It was therefore impossible to reconstruct these influences on a prehistoric group's decision-making processes. According to Curry (1964:138, 145-46), in this situation and from the perspective of location structure, the actions resulting from a group's decision-making process often appear random. Because of this element of randomness, the cultural factors seem unlikely to skew the influence of environmental variables. This study has therefore focused on correlating settlement patterns with environmental features which, as Plog et al. (1978:385) have indicated, is an efficient choice where cultural boundaries are unknown.

The sampling strategy was a proportionally stratified random sample based on environmental differences as recommended by a variety of archaeologists (Clarke 1977:24; Dunnell and Dancey 1983:276; Judge et al. 1975:110; Nance 1983:308; Plog et al. 1978:385; Ragir 1975). Though archaeologists usually stratify study areas by physiographic zones, in this research the stratification was based on soils because they correlate with other environmental features such as vegetation and physiography. The soil classification systems for the three counties are distinct, and have separate soil associations: areas characterized by a distinctive pattern in the arrangement and/or proportion of soil types (Converse and Cox 1967:2).

The sampling units selected in this study for use within soil associations are rectangular quadrats rather than linear transects. Although there seems to be some indication that transects are more efficient than quadrats in locating sites, the relative efficiency of each approach varies with different site types (Judge et al. 1975:110-1; Mueller 1975:30; Plog et al. 1978:401; Schiffer and Gummerman 1977:11-2). Judge et al. (1975:14), however, found that variation in site distribution, especially with respect to site location and resource acquisition, was more clearly recognizable when using quadrats. The quadrat sampling unit also appears to be more useful in determining site dimensions and boundaries. Each 1000 m^2 quadrat was walked at 10 m intervals on level ground and 15 m intervals on steep slopes.

Environment

The study area is included in the Western Coalfields, a designation for the Kentucky portion of the Shawnee Hills section of the Interior Low Plateau (Fenneman 1938:441-448). The three counties are part of a broad, shallow syncline extending into southern Indiana and Illinois (Clarke 1981:27). In Kentucky, this region is bounded by the Pottsville and Dripping Springs escarpments.

Within this region are two major physiographic zones, the broad alluvial valley of the Ohio River and the bottomlands of its tributaries, and the partially loess covered uplands. The Ohio River valley has a broad alluvial valley floor with discontinuous natural levees and a swidden, swale topography with several river terraces (Clarke 1981:47, 50). The uplands have been dissected by streams; the eastern and central portions are part of the Green River drainage basin, and the western portion is part of the Tradewater drainage basin (Clarke 1981:32). In the northern portion of the uplands, some low rank order streams flow

directly into the Ohio River. The larger streams have alluvial bottomlands as do the Green and Tradewater Rivers.

Currently, the upland area is covered by oak-hickory forest which seems to be the result of late nineteenth century farming and early twentieth century abandonment of much of the area (Clarke 1981:58-9). Prior to this, the area was covered by western mesophytic forest (Braun 1950:147-9). The alluvial bottomlands contain two types of plant communities. Along the banks of sloughs and in the water-logged swales is a plant community referred to by Braun (1950) as swamp forest, and by Kuchler (1964) as southern floodplain forest. Another plant community, dominated by walnut, pecan, sweet gum, poplar, and hackberry (Clarke 1981:60) is situated in better drained areas of the floodplain.

Soils in each of the three counties have been classified and mapped separately and at different times from 1967 to 1981. Thus, the classification systems and terminology used varied from county to county and it was impossible to completely correlate soil groupings for all the counties. The classification system used in this study divided the soils by soil association, soil series, and soil type.

Culture History

The Woodland period is usually distinguished by widespread use of ceramics, the burial of the dead in mounds, and the development and increasing importance of agriculture in subsistence (Murphy 1975:122). The division between the Late Archaic and Early Woodland periods is rather arbitrary because trends initiated during the Late Archaic continued into the Early Woodland period (Maxwell 1952:181; Muller 1978a:291-2; Murphy 1975:122). The earliest ceramics, the southeastern fiber tempered vessels, were made around 2000 B.C., a date which is clearly within the Late Archaic period (Muller 1978a:292). There is evidence in the central Kentucky Karst region that horticulture also started in the Late Archaic period (Watson 1969, 1974). The Late Archaic period witnessed the initial construction of earthen mounds in the Poverty Point culture (Ford and Webb 1956; Broyles and Webb 1970), and an increase in burial ceremonialism (Griffin 1978:240).

Early Woodland sites had previously been located within the project area (Hoffman 1966:88; DiBlasi and Sudhoff 1978:11). Hoffman (1966:88) and Bader et al. (1977:57) believe these sites relate to the Baumer phase in southern Illinois. The Early Woodland period, however, is poorly represented in the materials collected as a result of this study. Thus, it was not possible to evaluate the assignment of Early Woodland groups in the study area to the Baumer Phase.

Prior to this study, it was thought that the Illinois River-centered, Havana tradition represented the Middle Woodland culture in the three county area (Hoffman 1966:88). Analysis of the ceramics and lithics from the survey demonstrated a closer relationship with the nearby Crab Orchard tradition. Ceramics associated with the lower Wabash-Ohio Valley centered Crab Orchard tradition are fabric marked and cord wrapped stick impressed, with sand tempered grog, or grit temper (Winters 1967:51). In conjunction with the Crab Orchard tradition, there is a shift in settlement patterns from a dispersed multi-physiographic

zone pattern to one where sites are concentrated on broad river terraces and alluvial bottomlands (Winters 1967:51).

According to Kellar (1980:107), the Mann Complex in southwestern Indiana follows the Crab Orchard tradition, but the absolute chronological relationship between the two is not known. The Mann Site contained both geometric earthworks and burial mounds up to 150 x 75 x 4 m in size and, in one case, enclosed a central log tomb and associated grave goods (Kellar 1980:101-102). Ceramics from the Mann Site exhibit plain, cordmarked, complicated and simple stamped, zoned rocker stamped, zoned incised, punctuated and painted exterior surface treatments and were tempered with grog, or limestone and grog (Kellar 1980:103-5). The Lowe Flared Base projectile point is characteristic of this complex (Kellar 1980:105). In the absence of an organized survey of the area occupied by the Mann Complex, any discussion of settlement patterns would be questionable. However, most of the sites, other than the Mann Site, seem to have been small and temporary (Kellar 1980:106).

The early Late Woodland ceramics collected as a result of this study exhibit a combination of grog and limestone, or grog tempering, with complicated stamped, zoned rocker stamped, zoned incised, and cordmarked surface treatments. This correlates with the sherds illustrated in Kellar's (1980) report on the Mann Complex. Carstens (1980a:115) included Baker's Creek projectile points, which are similar to the Lowe Flared Base reported by Kellar, in his early Late Woodland artifact assemblage from the middle Green River area. Since there appears to be similarity between the ceramic characteristics and projectile points of the Mann Complex and Carstens' (1980a:115, 167) early Late Woodland (A.D. 500-1200) materials, the Mann Complex may represent the early Late Woodland period in the study area. If the Mann Complex does date to the early Late Woodland period, then we may have finally discovered which cultural group occupied this area between the Crab Orchard of A.D. 500 and the initial late Late Woodland Duffy/Yankeetown date of A.D. 1000 (Winters 1967:52) or A.D. 900±130 (Green and Munson 1978:306).

The Duffy/Yankeetown phase is clearly represented in the study area during the Late Woodland/Early Mississippian period. A majority of the ceramics collected during the survey belonged to this phase. Blasingham (1953:61-79) located Yankeetown sites in Henderson and Union counties as well as in southwestern Indiana. This cultural entity is characterized by grog tempered pottery which has plain, cordmarked, punctuated, incised, and raised rib or filleted surface treatments (Blasingham 1953; Dorwin and Kellar 1968; Vickery 1970). Also included in the material culture assemblage are small triangular projectile points, ceramic trowels and disks, salt pans, discoidals, and flint hoes (Blasingham 1953:25-6, 30; Dorwin and Kellar 1968:20, 26, 36; Green and Munson 1978:300).

Site Typology

The site typology for this study was based on settlement size, density of surface debris, structural remains, probable site function, and the presence of exotic raw materials. The first two categories can readily be determined during surface surveys. Locating structures other than mounds is a difficult task to perform although house locations can

be identified by the concentration of certain types of artifacts or where structural remains have been uncovered by erosion. In some instances, however, data regarding the presence or absence even of mound structures must await excavation.

Determination of site function(s) through surface survey is also somewhat difficult. The presence and relative frequency of certain types of artifacts at a site may provide a rough indication of the range of cultural activities conducted at a site. For instance, projectile points and other lithic debris could indicate hunting and/or manufacturing activities while hammerstones and other grinding stones might indicate plant food processing.

The site classification presented below is, in part, an expansion of the site typology for Mississippian sites in southern Indiana developed by Green and Munson (1978:310) and was used in order to simplify comparison of settlement patterns on both sides of the Ohio River:

1. Special Purpose Extractive Site
   - A. Usually small size, less than 1 ha
   - B. Evidence of a single activity and little other debris
2. Temporary Camps
   - A. Small size, less than .25 ha
   - B. Mounds absent
   - C. Low density of surface debris
   - D. Indications of hunting and gathering activities
   - E. Houses absent
3. Seasonal Camps
   - A. Medium size, .25-1 ha
   - B. Evidence of a single activity and little other debris
   - C. Medium density of surface debris
   - D. Indications of hunting and gathering activities
   - E. Houses present
4. Farmsteads
   - A. Small size, less than .25 ha
   - B. Mounds absent
   - C. Low density of surface debris
   - D. Indications of horticultural, hunting and gathering activities
   - E. Houses present
5. Hamlets
   - A. Medium size, .25-1 ha
   - B. Mounds absent
   - C. Low density of surface debris
   - D. Indications of horticultural, hunting and gathering activities
6. Small Villages
   - A. Medium size, .25-1 ha
   - B. Mounds absent
   - C. High density of surface debris (midden)
   - D. Indications of horticultural, hunting and gathering activities
   - E. Houses present

7. Large Villages
   - A. Large size, 1-4 ha
   - B. Mounds present or reported for Mississippian or Woodland sites
   - C. High density of surface debris (midden)
   - D. Indications of horticultural, hunting and gathering activities
   - E. Houses present
8. Towns
   - A. Very large size, 5-10 ha
   - B. Mounds present or reported for Mississippian or Woodland sites
   - C. High density of surface debris (midden)
   - D. Indications of horticultural, hunting and gathering activities
   - E. Houses present
   - F. Plaza may be present
9. Centers
   - A. Larger size, 10-30 ha
   - B. Substructure and burial mounds, also plaza present
   - C. High density of surface debris (midden)
   - D. Indications of horticultural, hunting and gathering activities
   - E. Houses present
   - F. Exotic raw material present
10. Regional Center
   - A. Largest size, 30+ ha
   - B. Larger numbers of substructure and burial mounds also plaza present
   - C. Evidence of town planning
   - D. High density of surface debris (midden)
   - E. Houses present
   - F. Indications of horticultural, hunting and gathering activities
   - G. Exotic raw material present

Artifact Group

During analysis, the "artifact group" classification was developed to serve as an aid in identifying the range of human activities which occurred at the sites under study. Artifact groups are clusters of artifact types which seem to be behaviorally related. Six groups were developed: manufacturing tools, projectile points, food processing tools, ceramics, lithic manufacturing tools, and faunal material. The specific items included in each artifact group are listed in Table 1.

SURVEY RESULTS

This section of the paper presents the survey results for each temporal period. The distribution of sites, site types, artifacts, and artifact groups are discussed with respect to the following environmental factors: soil, physiographic zone, location on river system, and drainage. Using this information and the available culture history, an attempt will be made to assess the significance of each environmental factor in influencing site locations.

Table 1. Artifact Types in Each Aritfact Group.

Artifact Group	Artifact Types
Manufacturing Tools	Knive, Drill, Spokeshave, Graver, Burin, Spokeshave/Burin, Scraper, Uniface, Biface, Celt, Axe, Celt/Axe preform
Projectile Points	All Projectile Point Types and Fragments
Food Processing Tools	Hoe, Anvilstone/Nutting Stone, Pestle
Ceramics	All Ceramic Sherds
Lithic Manufacturing Tools	Hammerstone, Blade, Flake, Worked Material, Unworked Flakes, Utilized Flake, Core, Shatter, Nodule, Piece, Pebble, Ground Stone Fragment, Stone Ball
Faunal Material	All Non-human Bone and Bone Fragments

Table 2. Artifacts and Sites in Each Period.

Period	Number of Artifacts	Percent of Artifacts	Percent of Sites
Archaic	404	20.3	57.4
Middle Woodland	194	9.7	8.5
Late Woodland	550	27.6	8.5
Late Woodland/ Mississippian	784	39.4	19.2
Mississippian	60	3.0	6.4
Total	1932	100.0	100.0

In the surface survey, 47 quadrats were walked, 2,634 artifacts were recovered and 89 sites were located. The artifactual contents of each site formed the basis for assigning the site to a chronological or cultural period. Because certain sites contained only non-diagnostic artifacts such as unworked flakes, the period or periods in which they were occupied could not be determined. The remainder of this paper will deal only with data collected from sites which could be attributed to a cultural period. In order to place Woodland settlement patterns into a chronological context and to reveal their position in diachronic trends, this paper will cover the Archaic through Late Woodland/Early Mississippian periods. There were so few sites with artifacts suggesting a Late Archaic/Early Woodland period assignment, that these sites were combined with other Archaic sites so that such discrepancies in sample size would not skew the statistical analysis.

Cultural Period

Most of the artifacts collected during the survey could be assigned to came two cultural periods. The Late Woodland/Early Mississippian period had the largest number (784), and the Late Woodland period was second with a frequency of 550 artifacts. The Archaic period followed with 404 artifacts but it must be remembered that the Archaic period includes a disproportionately large sample because it contains sites from all three sub-periods of the Archaic and from the Early Woodland as well. The Middle Woodland period had 194 artifacts (Table 2). In light of these figures it seems clear that there was an increase in the frequency of artifacts in the later periods, when people were more sedentary.

Density of Occupation

Some idea of the density of occupation within the project area was suggested by the proportion of sites occupied during each period. The Archaic period had the largest percentage, 57.4%, of the sites, with the Middle Woodland and Late Woodland periods each had 8.5% and the Late Woodland/Early Mississippian period had 19.2% (Table 2).

Although 57.4% of the sites were assigned to the Archaic period only 20.3% of the artifacts were associated with this period. This suggests that there were relatively few artifacts per Archaic site in the study area. This trend is in decided contrast to the situation for the Late Woodland and the Late Woodland/Early Mississippian periods. For the Late Woodland period, 8.5% of the sites produced 27.6% of all artifacts. Similarly, sites dated to the Late Woodland/Early Mississippian period comprised 19.2% of the sample, but contained 39.4% of the artifacts.

These disparities seem to be related to site size and duration of occupation particularly as reflected in site types. The large number of sites with relatively little artifactual material for the Archaic period correlated nicely with the expected non-sedentary hunting and gathering lifestyle. Short term occupation was also reflected by the types of Archaic sites identified in the project area. All of the Archaic sites were classified as camps, with 75% of them temporary rather than seasonal.

The trend toward greater sedentism in the later periods was reflected by the fact that fewer sites were documented, but these sites contained greater numbers of artifacts per site. An increase in site size was also noted. In the Middle Woodland period, an additional site type, a burial site, was added to the other types. Small villages as well as temporary camps were identified for the Late Woodland period, which with the increase in artifact density, indicated that an increase in site size and/or duration of occupation occurred during this period. These trends continued into the agricultural Late Woodland/Early Mississippian period, where there is also evidence for nucleation and a greater diversity of functional site types: temporary camps, hamlets, small villages, and large villages.

Artifact Groups at Site Types

The relative proportions of artifact groups associated with each site type for the different cultural periods gives an indication of some of the activities which occurred at each site type (Table 3). During the Archaic period, all the artifact groups occurred at both temporary and seasonal camps which indicated that a variety of activities took place at these types of sites. Evidence for food processing and lithic manufacturing seemed to be concentrated at seasonal camps. This was evidenced by the fact that, although this site type comprised only 25% of the Archaic sites, it contained 60% of the food processing and 53% of the lithic manufacturing artifacts. Other artifact groups were proportionately divided between these two site types.

Some unexpected distributions of artifact groups were noted between Middle Woodland site types. All the ceramic and faunal remains were found at the burial mounds. While both were probably deposited at these sites as grave goods or as the result of ceremonial activities, their absence at habitation sites is suspect.

For the Late Woodland period, the small village site type had the highest percentage for each of the artifact groups. The upland temporary camps contained relatively little of each artifact group, since the highest percentage for any group was 8.7% for projectile points. The absence of faunal material at temporary camps, considered to represent hunting camps, is difficult to explain unless the carcasses were transported and butchered at the small villages, or there was differential preservation between sites.

The relatively high percentage of faunal remains, manufacturing tools and projectile points at Late Woodland/Early Mississippian temporary camps indicates that hunting and certain types of manufacturing, but not lithic manufacturing, were important activities. It may be that hunting was done at this site type to provide meat for the occupants of the hamlet, because no projectile points were found in association with hamlets. It appeared that the emphasis at hamlets was on processing plant foods, since 66.7% of the artifacts associated with this function were found at this site type. Lithic manufacturing, as well as other kinds of manufacturing activities, seemed to have been the predominant activities at small villages, with one of the end products being projectile points. Large villages appeared not to have had a particular focus of activity, and thus a variety of tasks were probably

Table 3. Pecentage of Artifact Groups at Site Types in Each Period.

Period	Temporary Camp	Seasonal Camp	Hamlet	Small Village	Large Village	Indeterminate	Mound	Total
Archaic								
Manufacturing Tools	71.8	28.2						20.7
Projectile Points	66.1	22.2				16.7		41.4
Food Processing Tools	40.0	60.0						62.5
Ceramics						6.3		28.0
Lithic Manufacturing Tools	40.7	53.0						2.8
Faunal Material	60.0	40.0						
Middle Woodland								
Manufacturing Tools	25.0					12.5	62.5	4.3
Projectile Points	30.8					15.4	53.8	14.9
Food Processing Tools	11.7						100.0	8.4
Ceramics						14.9	73.4	8.8
Lithic Manufacturing Tools	11.7						100.0	23.7
Faunal Material								
Late Woodland								
Manufacturing Tools	1.9		7.7	90.4				55.3
Projectile Points	8.7		8.7	78.3		4.3		26.4
Food Processing Tools								
Ceramics	2.2		4.5	91.0		2.2		20.2
Lithic Manufacturing Tools	3.3		8.5	88.3				28.6
Faunal Material			14.8	22.2		63.0		15.5
Late Woodland/ Mississippian								
Manufacturing Tools	35.3		2.9	52.9	8.8			18.1
Projectile Points	35.7			50.0	14.3			16.1
Food Processing Tools			66.7		33.3			37.5
Ceramics	16.2		21.5	10.2	52.1			68.9
Lithic Manufacturing Tools	6.8		9.1	44.2	39.8			31.6
Faunal Material	78.0		4.4	1.6	16.5			51.4

undertaken at these types of sites. Ceramics were the most frequently occurring artifact group at these sites.

Soils

Only 14 of the 20 soil associations contained sites. The number of sites in an association ranged from 23 and 13 through one, but most of the associations had fewer than eight sites. There is also an uneven distribution with respect to the frequency of artifacts in each soil association, but this distribution shows little correlation with site frequency. Only one of the three soil associations with the highest frequencies of sites is among the three soil associations with the highest frequencies of artifacts.

In an attempt to discover which soil characteristics influenced decisions about site location, a search was made for consistent patterning in the most heavily utilized soil series. The most consistent characteristic was drainage. All of the top five series were well to moderately well drained. In fact, of all the soil series which contain sites, only one was less than moderately drained.

High soil fertility did not appear to be a consistent and important factor determining site location. Of the five most heavily utilized soil series, none had a high fertility rating. Instead, they ranged from moderate to moderately high. This suggests that moderate fertility was adequate to meet the subsistence needs of the prehistoric occupants of the study area.

Physiographic Zone

The culture history of the study area suggested that there would be differences in the utilization of the upland and lowland localities over time. During the Archaic period, the artifacts were fairly evenly distributed between the two zones. By the Middle Woodland period, there seemed to be a trend toward focussing on the lowland zone, because 86.6% of the Middle Woodland artifacts were found in this zone (Table 4). This trend reached its extreme in the Late Woodland period: 97.1% of the Late Woodland artifacts came from the lowlands (Table 4). Utilization of the two zones in the Late Woodland/Early Mississippian period was less skewed but the majority of the remains (81%) dating to this period came from the lowlands (Table 4). Consequently, an obvious change in the utilization of the physiographic zones with a transition from equally exploiting both, to a focus on the lowlands for the Middle Woodland period and after can be documented from this study. Some of the reasons for these changes should relate to the activities performed in each zone.

Activities will be reflected by the percentage of each artifact group in these two zones for the different cultural periods (Table 5). During the Archaic period, there was a clear concentration of projectile points in the uplands (72%) and a corresponding concentration of faunal remains (83%). The remaining artifact groups followed the expected distribution, by being approximately equal for each physiographic zone. In the uplands during the Middle Woodland period, a greater concentration was noted for both projectile points (31%) and manufacturing tools (25%), compared with 13% for all artifact groups. Much the same pattern

Table 4. Percentages of Artifacts in the Uplands and Lowlands in Each Period.

Period	Uplands	Lowlands
Archaic	46.4	53.6
Middle Woodland	86.6	13.4
Late Woodland	97.1	2.9
Late Woodland/ Mississippian	81.1	18.9

Table 5. Percentage of Artifact Groups in the Uplands and Lowlands During Each Period.

	Archaic		Middle Woodland		Late Woodland		Late Woodland/ Mississippian	
Artifact Groups	Lowl.	Upl.	Lowl.	Upl.	Lowl.	Upl.	Lowl.	Upl.
Manufacturing Tools	59.0	41.0	75.0	25.0	98.1	1.9	73.5	26.5
Projectile Points	27.8	72.2	69.2	30.8	91.3	8.7	85.7	14.3
Food Processing Tools	40.0	60.0					100.0	
Ceramics			100.0		97.8	2.2	83.8	16.2
Lithic Manufacturing Tools	48.5	51.5	78.7	21.3	96.7	3.3	95.3	4.7
Faunal Material	16.7	83.3	100.0		100.0			

occurred in the Late Woodland period, where projectile points were more than twice as common in the uplands. Percentages for projectile points for the Late Woodland/Early Mississippian period, showed a slight reversal of this trend. For this period only 14% of the projectile points, compared with 19% for all the groups combined occurred in the uplands.

In order to assess the pervasiveness of each type of activity, each period was examined for the percentages different artifact groups represented of the total artifacts recovered from each site type in the two zones (Table 6). At temporary camps during the Archaic period, manufacturing tools were more common in the lowlands while food processing tools were limited to the uplands. Lithic manufacturing tools, in contrast to manufacturing tools, were found mainly in the uplands.

The pattern for seasonal camps in the Archaic was almost a complete reversal of that for temporary camps. With the exception of projectile points, over 60% of each artifact group was found at seasonal camps in the lowlands. This suggests that seasonal camps were predominately in the lowlands, but that those in the uplands were used more for hunting.

Although disproportionately few remains dating from the Middle Woodland period occurred at temporary camps, these camps contained much evidence for lithic manufacturing (especially of projectile points - over 60%), since this artifact group comprised over 22% of all the remains at both Middle Woodland lowland and upland sites. The mounds, which contained more materials and have a burial function exhibited a different pattern. All of the ceramics associated with the Middle Woodland period were found in these mounds. The proportion of lithic manufacturing remains and projectile points were lower at the mounds than at the camps.

All of the sites occupied during the Late Woodland period were habitation sites: temporary camps, hamlets, and small villages. Manufacturing remains predominated in both the uplands and lowlands. With respect to projectile points, the largest proportion, 12.5%, occurred in upland temporary camps. This suggests that hunting was probably an important activity associated with temporary camps, a situation which correlates well with the pattern observed for the previous periods. Ceramics were found in significant amounts at all site types in both zones.

There is an interesting contrast between the Late Woodland/Early Mississippian temporary camps located in the lowlands and those situated in the uplands with respect to the presence or absence of certain artifact groups. These patterns are questionable, however, because so few artifacts were recovered from the lowland sites in comparison to the upland sites. Ceramics and faunal material were found only at the upland sites. The relatively small proportion of projectile points at all the site types in the lowlands, suggests that hunting was not a pervasive activity in this zone.

Table 6. Relative Importance of Artifact Groups at Site Types in Physiographic Zone.

Period	Temporary Camp		Seasonal Camp		Hamlet		Small Village		Large Village		Mound	
	Lowl.	Upl.	Lowl.	Upl.	Lowl.	Upl.	Lowl.	Upl.	Lowl.	Upl.	Lowl.	Upl.
Archaic												
Manufacturing Tools	21.7	12.0	7.1	4.3								
Projectile Points	11.6	13.0	1.8	8.6								
Food Processing Tools		1.9	1.8	1.4								
Ceramics												
Lithic Manufacturing Tools	62.4	73.1	89.3	82.8								
Faunal Material	4.3			2.9								
Total	100.0	100.0	100.0	100.0								
Middle Woodland												
Manufacturing Tools	12.5	11.1									3.1	
Projectile Points	25.0	22.2									4.4	
Food Processing Tools												
Ceramics											23.1	
Lithic Manufacturing Tools	62.5	66.7									43.1	
Faunal Material											26.3	
Total	100.0	100.0									100.0	
Late Woodland												
Manufacturing Tools		12.5			18.2		20.0					
Projectile Points		12.5			4.5		3.8					
Food Processing Tools												
Ceramics		12.5			9.1		17.2					
Lithic Manufacturing Tools		62.5			59.1		57.7					
Faunal Material					9.1		1.3					
Total		100.0			100.0		100.0					
Late Woodland/Mississippian												
Manufacturing Tools	23.1	8.4			0.9		9.2		1.3			
Projectile Points	23.1	1.7			1.9		3.4		0.6			
Food Processing Tools									0.3			
Ceramics		41.2			63.2		15.0		50.1			
Lithic Manufacturing Tools	53.8	13.4			30.1		72.4		42.9			
Faunal Material		35.3			3.9				4.8			
Total	100.0	100.0			100.0		100.0		100.0			

Location on River System

Another environmental feature which was assessed in this study of prehistoric settlement patterns was location on the river system. This feature is related to the closest type of water source to sites as well as the relationship of sites to the regional river system. These locations are: main river, major tributary, minor tributary, and headwater.

Both the Archaic and Late Woodland periods had sites in all four locations on river systems, but the Archaic sites were evenly distributed among the locational types whereas the Late Woodland sites were concentrated in the vicinity of the main river. Middle Woodland sites were generally associated with minor tributaries, although 25% were situated along the main river. The reverse was true for the Late Woodland/Early Mississippian period, which indicates a shift though time to a greater emphasis on the exploitation of the main river, though never to the exclusion of the other river locations.

The activities identified for each of the various river system locations are presented in Table 7. In the Archaic period, the predominant artifact groups associated with all site types and locations were lithic manufacturing tools, manufacturing tools, and projectile points. This indicated that hunting and the manufacture of hunting equipment was important to roughly the same extent at all site types and all locations. There appeared to be some temporal consistency in the utilization of temporary camps between the Archaic and Middle Woodland periods because the percentages for each artifact group were almost the same. As mentioned earlier, the activities at the burial mounds were related to the different function of this site type. In the Late Woodland period, the location of sites seemed to vary with site size. Temporary camps occurred in all four river locations, but the other settlement types tended to occur mainly on certain river locations (e.g. farmstead is with headwater, hamlet with minor tributary, and small village with main river). At the main river sites, lithic manufacturing tools, ceramics, and manufacturing tools were the most prevalent artifact groups, suggesting again that manufacturing was an important behavioral element in that location. The differences in the prevalence of artifact groups in sites associated with minor tributaries suggest that other activities were important at this location: faunal materials occurred in greater percentages than manufacturing tools. Among the assemblages associated with headwater locations, projectile points comprised up to 20% of the assemblage, indicating that this location seems to have been an area most important for hunting.

As with the earlier periods, temporary camps in the Late Woodland/Early Mississippian period were associated with more than one of the different river system locations: they tended to be associated with a main river or a minor tributary. More emphasis appears to have been placed on manufacturing and hunting at temporary camps located near the main river, however. This is not surprising because the larger settlements where agricultural activities were more important were

Table 7. Relative Importance of Artifact Groups at Site Type at Locations on the River System.

Period	Temporary Camp				Seasonal Camp			Hamlet		Small Village		Large Village	Mound
	Main Riv.	Maj. Trib.	Min. Trib.	Head	Main Riv.	Min. Trib.	Head.	Main Riv.	Min. Trib.	Main Riv.	Min. Trib.	Maj. Trib.	Min. Trib.
Archaic													
Manufacturing Tools	21.6		10.3	6.8	10.4	4.5	4.3						
Projectile Points	11.4	33.3	15.4	11.4	6.2	5.6	2.1						
Food Processing Tools					4.2		2.1						
Ceramics													
Lithic Manufacturing Tools	63.6	66.7	74.3	81.8	79.2	89.9	87.2						
Faunal Material	3.4						4.3						
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0						
Middle Woodland													
Manufacturing Tools			11.8										3.1
Projectile Points			23.5										4.4
Food Processing Tools													23.1
Ceramics													43.1
Lithic Manufacturing Tools			69.7										26.3
Faunal Material													
Total			100.0										100.0
Late Woodland													
Manufacturing Tools			100.0					22.2	20.0				
Projectile Points				20.0				5.6	3.8				
Food Processing Tools									17.2				
Ceramics	33.3	100.0							57.7				
Lithic Manufacturing Tools	66.7			80.0				72.2	1.3				
Faunal Material													
Total	100.0	100.0	100.0	100.0				100.0	100.0				
Late Woodland/Mississippian													
Manufacturing Tools	23.1		8.4				0.9		11.1	8.2	1.3		
Projectile Points	23.1		1.7						1.5	4.4	0.6		
Food Processing Tools							1.9				0.3		
Ceramics			41.2				64.5		38.8	2.2	50.2		
Lithic Manufacturing Tools	53.8		13.4				29.0		48.6	85.2	42.8		
Faunal Material			35.3				3.7				4.8		
Total	100.0		100.0				100.0		100.0	100.0	100.0		

located in the bottomlands, especially on the Ohio floodplain, and the temporary camps may well have served to obtain meat for the inhabitants of the larger sites.

For the other site types and locations, the variations are more apparent than real. The small village located nearest a minor tributary was situated on the lowest terrace along the Ohio River, hence in the valley of a main river. A large village near the junction of the Green River and the Ohio in the Ohio River Valley, was located slightly closer to the Green River. This meant that all sites assigned to these site types were located in the Ohio River Valley even though a smaller stream was their closest water source. At all of these site types, lithic manufacturing tools and ceramics tended to predominate. The relative absence of projectile points, however, indicates that while this artifact group may have been manufactured at these site types, projectile points were used elsewhere.

Drainage

The drainage system located within the project area was separated into three components. One of these was the Ohio River and the smaller streams flowing directly into it. The other two components, both of which are major tributaries of the Ohio, are the Green and Tradewater rivers and their tributaries.

Although Archaic sites were identified in all three drainages, 63.6% of them were associated with the Ohio drainage. In the Middle Woodland period, the Tradewater drainage appears to have been abandoned. However, 50% of the sites dating to this period were located in the Green River drainage. The Tradewater was reoccupied during the Late Woodland period, as 12.5% of the sites were situated in this drainage, with the remaining 87.5% located along the Ohio. In the Late Woodland/Early Mississippian period, 90% of the sites were found in the Ohio River drainage. It is therefore obvious that there was an increasing focus on the Ohio River in the later periods.

In the Archaic period, 46.7% of the artifacts were from the Ohio drainage, 27.9% were from the Green River drainage and 25.4% were from the Tradewater drainage. In the Middle Woodland, only 13.9% of the artifacts were recovered from 50% of the sites in the Green River drainage. This suggests that the Green River Middle Woodland sites contained fewer artifacts per site than sites in the other drainages. The same situation is true, although to a lesser extent, for the Tradewater sites during the Late Woodland period, because 2.4% of the artifacts were from 12.5% of the sites. Once again, both of these drainages appear to have been less heavily utilized in comparison with the Ohio.

Additional understanding of the behavioral correlates of these drainages can be provided by integrating data on drainages, artifact groups and site types as presented in Table 8. Although many site types were found only in one drainage for a cultural period, temporary and seasonal camps were not. For the Archaic period, the temporary camps in the Ohio and Green river drainages appear to have been utilized for

Table 8. Relative Importance of Artifact Groups at Site Types in Each Drainage.

Period	Temporary Camp			Seasonal Camp			Hamlet	Small Village	Large Village	Mound
	Ohio	Green	Tw.	Ohio	Green	Tw.	Ohio	Ohio	Ohio	Ohio
Archaic										
Manufacturing Tools	16.9	18.6	8.3	7.1	2.1	4.3				
Projectile Points	9.9	14.3	13.9	1.8	10.4	2.1				
Food Processing Tools	2.8			0.9	2.1	2.1				
Ceramics										
Lithic Manufacturing Tools	66.2	60.1	77.8	90.2	35.4	87.2				
Faunal Material	6.2	7.0			50.0	3.3				
Total	100.0	100.0	100.0	100.0	100.0	100.0				
Middle Woodland										
Manufacturing Tools	14.3	10.0								3.1
Projectile Points	14.3	30.0								4.4
Food Processing Tools										
Ceramics										23.1
Lithic Manufacturing Tools	71.4	60.0								48.1
Faunal Material										26.3
Total	100.0	100.0								100.0
Late Woodland										
Manufacturing Tools	66.7		15.4				18.2	20.0		
Projectile Points							4.5	3.8		
Food Processing Tools										
Ceramics			7.7				9.1	17.2		
Lithic Manufacturing Tools	33.3		76.9				59.1	57.7		
Faunal Material								1.3		
Total	100.0		100.0				100.0	100.0		
Late Woodland/Mississippian										
Manufacturing Tools	9.8	11.1					0.9	9.1	1.3	
Projectile Points	3.3	11.1						3.4	9.6	
Food Processing Tools							1.9		0.3	
Ceramics	39.8						64.5	14.9	50.2	
Lithic Manufacturing Tools	13.0	77.8					29.0	72.1	42.8	
Faunal Material	34.1						3.7	0.5	4.8	
Total	100.0	100.0					100.0	100.0	100.0	

general manufacturing and lithic manufacturing. At these camps, projectile points were most common in the Green River drainage. A somewhat different situation existed for seasonal camps, however. Both manufacturing groups occur at seasonal camps in all three drainages, but they predominate in the Ohio drainage and larger percentages were present for the Tradewater drainage than the Green River drainage. As with temporary camps, projectile points have their highest percentage in the Green River drainage.

At Middle Woodland period temporary camps, manufacturing activities appear to have been evenly divided between the Ohio and Green River drainages but once again, projectile points were concentrated in the Green River drainage. This suggests that there was a greater emphasis on hunting in the Green River drainage during the Middle Woodland as well as the Archaic period. Artifact groups at Late Woodland temporary camps were evenly split between the Ohio and Tradewater drainages, except for lithic manufacturing, which is concentrated in the Tradewater drainage. In the Late Woodland/Early Mississippian period, the temporary camps in the Ohio drainage had a much higher percentage of all artifact groups than those in the Green River drainage.

Examination of the percentage different artifact groups represent of the entire artifact assemblage at each site type for the three drainages (Table 8) can provide additional information concerning not only the activities emphasized in each drainage but differences between drainages as well. During the Archaic, lithic manufacturing debris comprised over 60% of all the materials recovered from temporary camps in all three drainages, while both kinds of manufacturing tools formed over 78% of the artifacts. Projectile points were the most common artifact group after manufacturing tools, but they accounted for a somewhat greater proportion of the artifacts at temporary camps in the Green and Tradewater drainages where food processing tools were not found. The same focus on manufacturing occurred at seasonal camps in the Tradewater, and especially in the Ohio drainage where more than 97% of the artifacts associated with this site type were manufacturing tools or debris. The occupants of seasonal camps in the Green River drainage seem to have placed a greater emphasis on hunting than manufacturing, because manufacturing tools comprised only 37% of the assemblage, while faunal material and projectile points accounted for 60%. The percentage of projectile points is five times larger for the Green River drainage seasonal camps than in the other two drainages.

Temporary camps in the Middle Woodland period were located in both the Ohio and Green River drainages. In both drainages, manufacturing and hunting were important, but projectile points were twice as prevalent in the Green River drainage. Manufacturing tools of both kinds were less common at the burial mounds in the Ohio River drainage. At this site type, ceramics and faunal material each comprised almost 25% of all the artifacts. As mentioned earlier, the difference in relative frequency of these artifact groups at temporary camps and burial mound sites is directly related to the range of activities which were conducted at these types of sites.

The Late Woodland temporary camps in both the Ohio and Tradewater drainages contained mainly manufacturing artifacts. Temporary camps in

the Tradewater drainage, however, contained over 75% lithic manufacturing tools in contrast to only 33% at the Ohio drainage sites. The absence of projectile points from temporary camps in both drainages is puzzling. Projectile points formed roughly 4% of the assemblage from hamlets and small villages in the Ohio drainage. Some of these were probably knapped at the temporary camps and transported, but with lithic manufacturing tools comprising over 55% of all artifacts at these site types, some points would have been made there also. Ceramics were more common at the more sedentary site types; hamlets and small villages.

Clear differences in the activities which took place at temporary camps in the Ohio and Green River drainages during the Late Woodland/ Early Mississippian period were documented. Manufacturing and hunting were clearly dominant activities in the Green River drainage. It should be noted that during the three earlier cultural periods, camps in the Green River drainage had a larger percentage of projectile points and presumably a greater emphasis on hunting than camps in the other two drainages. Activities associated with temporary camps in the Ohio drainage are less clear, except that manufacturing and possibly hunting were not of major importance. There is, however, some contradictory evidence with respect to hunting. While projectile points account for only 3.3% of the debris, faunal material (the results of hunting) comprised 34.1% of the deposits. Ceramics (39.8%), however, were the most prevalent artifact group at these types of sites in the Ohio drainage.

At the larger, more sedentary site types, the relative percentages of artifact groups indicated that a variety of activities were pursued at these sites. There is no consistent pattern between site size and amount of manufacturing, but manufacturing seems of little importance at hamlets (29%), of the greatest importance at small villages (72%), and of medium importance at large village (43%). There seems to be an inverse ratio between the percentage of ceramics and lithic manufacturing artifacts at the larger, more sedentary site types.

SUMMARY OF SETTLEMENT PATTERNS

The two Archaic period site types were temporary and seasonal camps. These sites were relatively evenly distributed in a variety of environmental and physiographic zones. Archaic camps were found in all three drainages and in all locations on the river systems. They occurred in the largest number of soil associations and soil series. Although these camps all exhibited the diversity of activities commonly associated with hunting and gathering habitation sites, the data suggest that hunting was emphasized more in the Green River drainage. There is, however, no evidence of an intensive Archaic occupation along the lower Green River with concentrations of shell mounds similar to the more sedentary Indian Knoll culture found farther up the Green River.

Too few Early Woodland sites and artifacts were found to be able to discuss settlement patterns for this period. The Middle Woodland period occupation of the area, which seems to belong to the Crab Orchard tradition, shows a trend toward focussing on fewer environmental regions and an increasing diversity of functional site types.

During this period, burial mounds which contained the majority of artifacts occur in addition to temporary and seasonal camps. The sites were found in a relatively few soil associations and soil series; fewer than half the number occupied during the Archaic. This concentration of activities in the lowland physiographic zone is reflected in the association of 87% of the artifacts with this zone. Within the lowlands, the sites occurred predominately on the main river, but also near minor tributaries in the Green and Ohio River drainages.

The trend toward greater diversity of site types continued into the early Late Woodland period Mann Complex, with the addition of small village as a habitation site type. The appearance of this site type suggests that there was increased sedentism associated with the increased importance of agriculture. Sites and activities were concentrated in the lowlands since 97% of the artifacts were found there. The sites in the uplands were associated with headwater or minor tributaries, or the main river in the Ohio or Tradewater River drainages.

The trend towards nucleation intensified during the Late Woodland/ Early Mississippian period, as increased emphasis was placed on agricultural subsistence activities. There was an increase in the diversity of site function in the direction of habitation sites with larger populations or longer occupation. Large villages occurred as a site type, in addition to temporary camps, hamlets, and small villages during the Yankeetown phase. These sites were distributed among five soil associations, but most were located in the lowland alluvial bottomlands. This lowland utilization can be clearly demonstrated since 81% of all artifacts from this period were collected from this zone. The emphasis is also visible in the focus on the main river in location of river system with some sites, however, located on minor tributaries. The location of many of the Green River drainage sites in the Ohio River floodplain near the junction of the two rivers also demonstrates this focus. It should be noted that the lowland sites were found on the slight ridges in the bottomlands and especially in soils with good drainage.

This study has been able to demonstrate a trend from widely dispersed small temporary and seasonal camps located in a variety of environmental zones, toward increased sedentism, and nucleation coupled with a focus on a few environmental zones. This seems to be related to an increased dependence on agriculture and a decreased emphasis on hunting activities. The concentration of sites during the later periods in the lowlands suggests that hunting activities were being carried out in this physiographic region (near sloughs) as well as in the uplands. This settlement pattern trend is also probably correlated with a shift towards well or moderately drained soils and an increase in the influence of non-environmental or social factors such as ease of communication, warfare, or a hierarchical socio-political situation in decisions about site locations.

ACKNOWLEDGEMENTS

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PRELIMINARY FINDINGS AT THE PIT OF THE SKULLS (15BN51)

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ABSTRACT

This paper discusses the location, physical setting, and skeletal remains recovered from a pit cave in Barren County, Kentucky. When this site was discovered in 1981, it was found to contain several human skulls and a pelvis. Human remains representing five individuals were recovered and the results of the analysis are presented here. Two skulls appear to be males exhibiting an unusual form of extra-normal mastication (use of their mouths as vises). Both skulls exhibit cranial deformation, indicating a Woodland association. The dentition is extremely worn, abscessing is extensive, and one individual shows evidence for the treatment of an abscess by "grooving". A right innominate, representing a female, shows evidence of this individual being dismembered.

INTRODUCTION

The Pit of the Skulls (15Bn51) is located in Barren County, Kentucky. It is situated on the edge of a wooded area on the north side of Prewitts Knob. The surface sink or entrance to the site is situated approximately 265 m above mean sea level.

The site was first discovered and explored in June 1981 by members of the Cave Research Foundation. Scattered human remains were observed during the initial exploration. Since these remains were loose in the matrix, they, along with a biface, were collected.

The survey and mapping of the pit took place on August 30, 1981, and was accomplished with a Suunto compass and tape using backsights. Survey efforts disclosed the pit to have four distinct levels, a depth of 30.48 m, and a total surveyed length of 81.99 m (Figures 1, 2 and 3).

A third trip was conducted on September 7, 1981 to collect animal bones observed on the earlier visits. Faunal remains recovered during this trip included reptiles (box turtle, and copperhead), birds (red-tailed hawk, and crow), and mammals (opposum, short-tailed shrew, gray squirrel, fox squirrel, woodrat, white-footed mouse, rabbit, white-tailed deer, elk, cow, raccoon, gray fox, and striped skunk). Materials collected on this and earlier trips were donated to the Louisville Museum of History and Science. The human remains, collected on the first trip, were reconstructed in September 1981 and were analyzed in March and April 1982. The analysis of the human remains is the major focus of this paper.

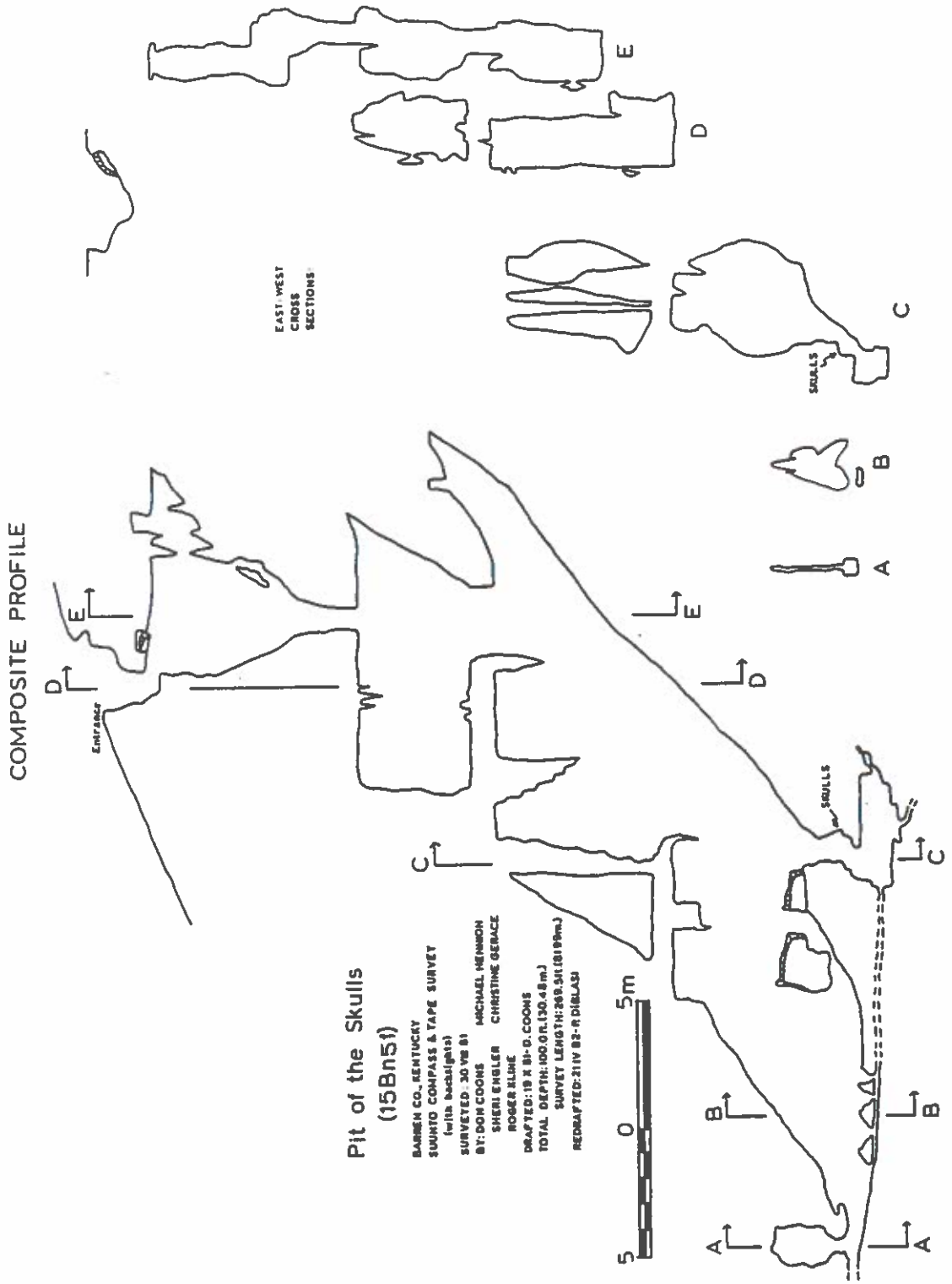

Figure 1. Pit of the Skulls: composite profiles.

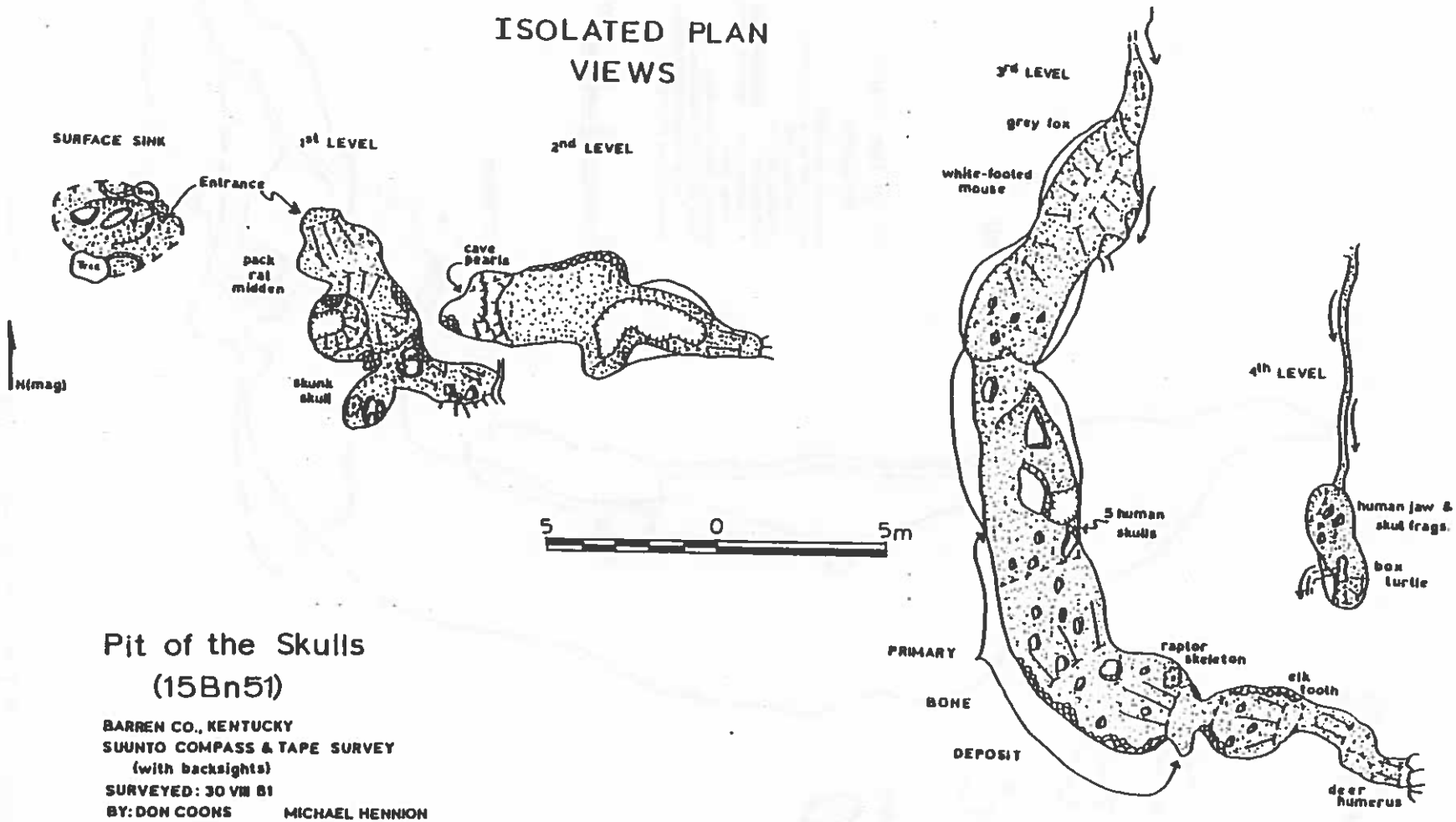

Figure 2. Pit of the Skulls: isolated planviews.

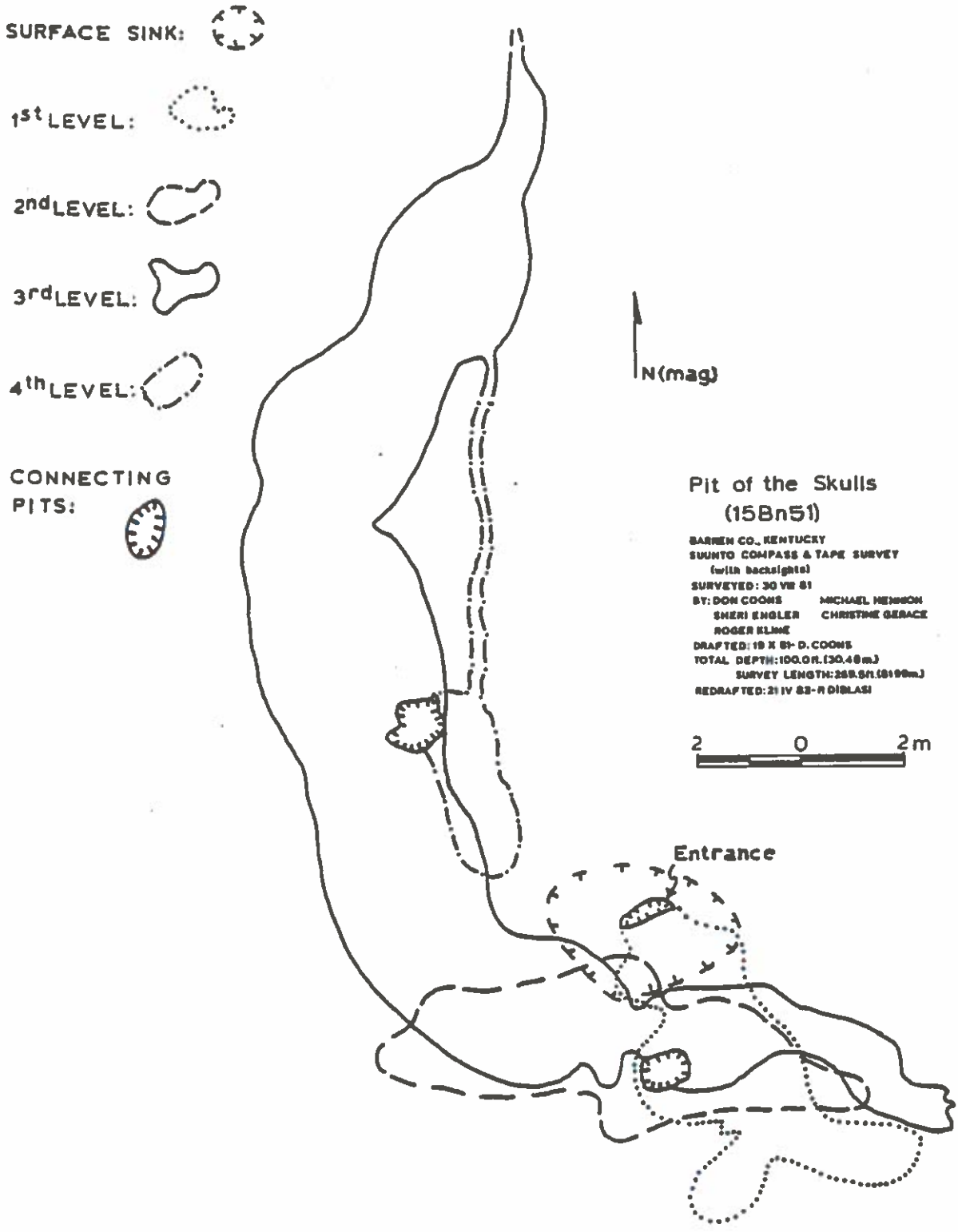

Figure 3. Pit of the Skulls: composite planviews.

HUMAN OSTEOLOGICAL REMAINS

A minimum of five individuals were recovered from the Pit of the Skulls. None of these were complete due in part to the method of collection. Other reasons for the fragmentary nature of the skeletal remains include rodent gnawing and method of disposal.

It should be noted that while the human remains are discussed as five separate individuals, fewer may be represented. Reconstruction of the material using an adhesive soluble in acetone was accomplished before analysis in an attempt to accurately determine the number of individuals. It is difficult, however, to make a more precise determination at present.

Individual One

Individual One is represented by an incomplete cranium (Figure 4c). This cranium exhibits artificial cranial deformation of the occipital, a type known in Kentucky during the Adena phase of the Woodland period and the Mississippian period (Neumann 1942:307-308).

Postmortem losses of the left zygomatic arch and portions of the left parietal, right parietal, left temporal, left mastoid process, and left eye margin are due to breakage and rodent gnawing (Figure 4b). The evidence for gnawing appears on the bone in the form of scoring (Binford 1981:44-49).

The maxillary region of Individual One was very deteriorated. There were no teeth remaining on the right side and the left medial incisor and the third molar were missing. On the left side, the lateral incisor through the second molar remained (Table 1). Considerable resorption was noted around the teeth. A line of tartar receding with the gums was located 3-4 mm proximally to its normal position along the enamel.

Table 1. Individual One - Dentition and Attrition Rates.

	Maxilla	
	Left	Right
Medial incisor	P	A
Lateral incisor	5+	P
Canine	5++	P
Premolar one	5++	P
Premolar two	6	A
Molar one	6	A
Molar two	6	A
Molar three	A	A

Notes: Mandible not recovered. All teeth present are worn to pulp cavity. A=Antemortem loss, P=Postmortem loss. All other codes - Brothwell 1981:72.

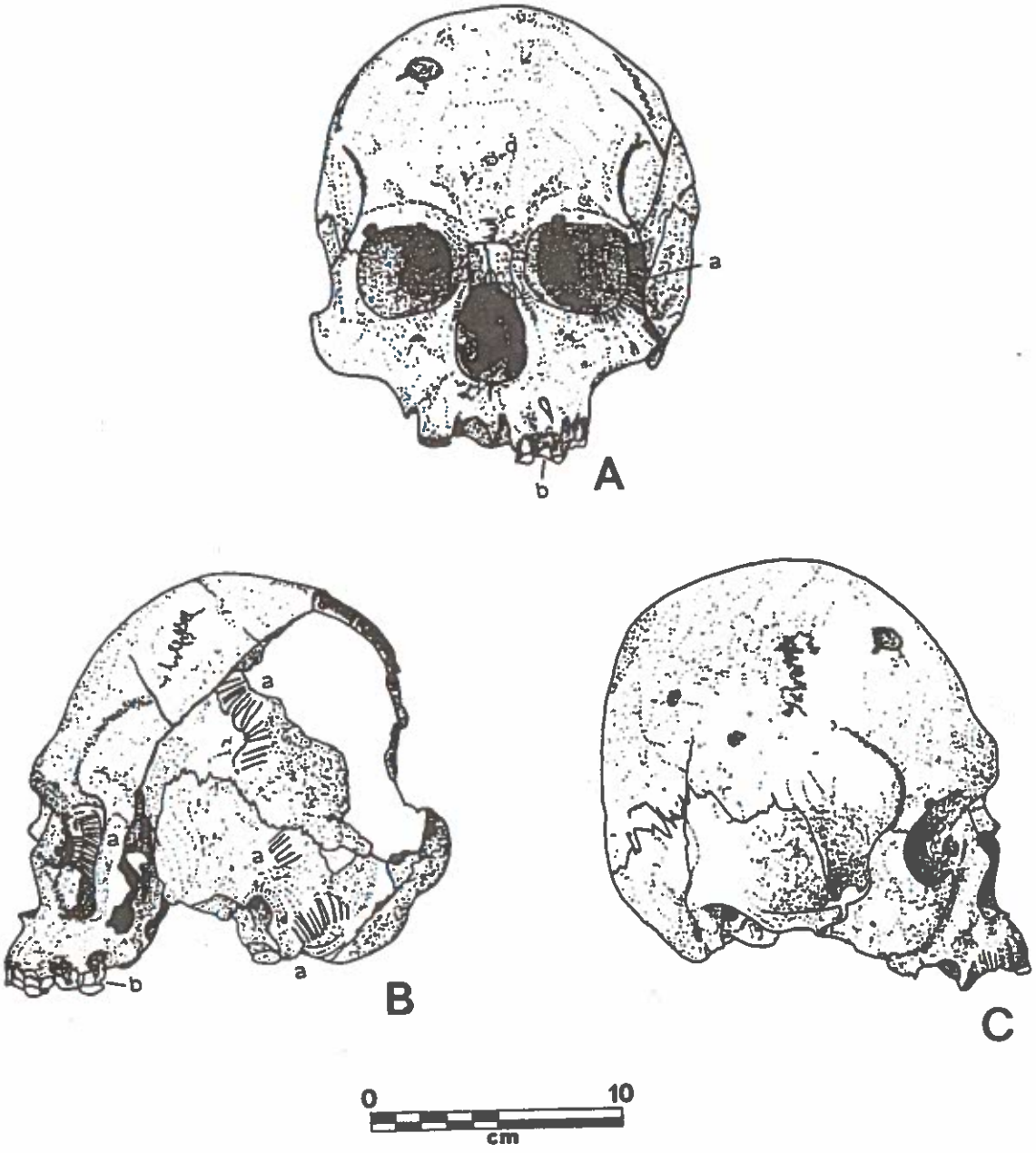

Figure 4. Individual One: a, facial aspect; b, left profile; c, right profile.

Several observations made on the teeth and abscesses were:

1) The upper left canine had a macroflake removed from the labial surface. Tartar was present where the flake had been removed and a considerable amount of polish was noted. The flake removal and polish indicates extranormal mastication (Trinkhaus 1982:38-40). It would seem that Individual One consistently used his mouth as a vise, pulling material gripped by the teeth outward.

2) The upper left first premolar had an antemortem flake removed from the buccal side, but no polish was noted. This tooth and the upper second premolar were worn unevenly toward the lingual side.

3) The upper left first molar had shifted lingually. Polish was noted on the buccal side towards the neck of the tooth's root. Before the tooth shifted lingually it was being worn unevenly toward the lingual side.

4) The upper left second molar was worn unevenly toward the lingual side. A massive cari was present on the distal surface which had removed approximately one-fifth of the tooth mass. Associated with the cari was artificial deformation in the form of grooving. The grooving appears on the distal surface at the junction of the root and crown. Such an incidence of grooving has been explained in the following manner: "The frequent association of the grooves with carious lesions, alveolar abscesses, and alveolar resorption resulting from peridontal disease, suggested that these grooves were produced in an attempt to relieve discomfort in the immediate area" (Bass 1971:241).

5) Abscesses-
   a) The socket for the upper right medial incisor has been totally resorbed and its original size and shape can no longer be determined.

   b) The entire right posterior portion of the maxilla, beginning with the second premolar, is totally eroded due to chronic abscessing. The abscesses are approximately 13 by 37 mm.

   c) Abscessing on the left side of the maxilla appears at three isolated points. The first, located on the buccal side of the second premolar and first molar, exposes the roots of these teeth, measures 11 by 11 mm and has laterally displaced the first molar. The second abscess, located on the buccal side of the second molar exposes the root and measures 8.5 by 9 mm. Although the third abscess is located at the socket of the third molar. The resorption at this site is severe, the distal root cavities are still discernable.

Metric observations were made on the cranium where possible. Not all of the standard measurements suggested by Bass (1971) and Brothwell (1981) were feasible, due to the fragmented nature of the cranium. Table 2 contains the measurements taken according to Bass (1971). Included are several indices which express metrically the subjective observation of

Table 2. Individual One - Metric Observations and Indices.

	OBSERVATION (in mm) and/or index
CRANIAL VAULT:	
Maximum length	173.0
Maximum breadth	157.0
Basion-bregma height	148.5
Cranial Index	90.8 Hyperbrachycrany (very broad)
Cranial Module	159.5
Cranial length-height Index	85.8 Hypsicrany (high skull)
Cranial breadth-height Index	94.6 Metrocrany (average or medium)
Mean height Index	90.0 (high)
Mean basion-height Index	90.0 (high)
Minimum frontal breadth	98.0
Fronto-parietal Index	62.4 Stenometropic (narrow)
PALATE:	
External:	
Maxillo-alveolar length	57.5
Maxillo-alveolar breadth	68.0*
Maxillo-alveolar Index	118.3 Brachyurany (broad palate)
Internal:	
Palatal length	47.5
Palatal breadth	40.0
Palatal Index	84.2 Mesostaphyline (average)
FACIAL:	
Total facial height	NA
Upper facial height	81.0
Bizygomatic breadth	NA
Total/Upper facial Indicies	NA
NOSE:	
Nasal height	51.0
Nasal breadth	24.5
Nasal Index	48.0 Mesorrhiny (average or medium)
ORBITS: (left, standard)	
Orbital height	33.0
Orbital breadth	38.0
Orbital Index	86.8 Mesoconchy (average or medium)

NOTES: All measurements after Bass 1971.
NA= Not Available.
* There is distortion on the right alveolar surface due to exostoses caused by abscessing.

occipital cranial deformation. Table 3 contains additional measurements suggested by Brothwell (1981).

Table 3. Individual One - Additional Observations.

	Observation (in mm)	Biometric Symbol
Commonly Reported Measurements:		
Basi-nasal length	106.5	LB
Basi-alveolar length	101.9	GL
Bimaxillary breadth	101.0	GB
Less Commonly Reported Measurements:		
Frontal arc	120.0	S1
Occipital arc	83.0	S3
Frontal chord	112.0	S'1
Parietal chord	143.0	S'2
Occipital chord	70.5	S'3
Foraminal length	37.0	FL
Foraminal breadth	31.0	FB
Simotic chord	12.0	SC
Bi-dacryonic arc	34.0	DA
Bi-dacryonic chord	22.5	DC
Biasterionic breadth*	110.0	Biast B
Transverse biporial arc	334.0	BQ'

Notes:All measurements after Brothwell 1981. *Taken on the asterion (Brothwell 1981:94).

Many nonmetric observations were possible because of changes caused by the occipital flattening. These are mainly concerned with the sutures and the presence of Wormian bones or ossicles in the cranium. Individual One exhibits metopism, which is the retention of the medio-frontal suture (Brothwell 1981:93). Its length is 10 mm (Figure 4a). The coronal suture of this individual has fused for the majority of its length (Figure 4a). It has been obliterated in all areas, including at the pterion (Brothwell 1981:46; Bass 1971:31) except from the left temporal line 31 mm towards bregma, from the right temporal line 30 mm towards bregma, and for a distance of 15 mm at bregma (This is somewhat uncertain due to postmortem breakage). Where the coronal suture is present it is extremely complex. Its course of irregularity is approximately 5 mm wide at some points. The sagittal suture follows a reasonably straight course originating anteriorly, at bregma, for a distance of 100 mm. Beyond this point it takes an abnormal course to the right. The apparent junction of the lambdoidal and sagittal sutures along the right parietal occurs at a 40° angle. This could indicate the presence of os incas, extremely complex lambdoid ossicles, or an irregularity in the lambdoidal suture. On the squamosal suture of the left side, the posterior portion has been partially obliterated by gnawing. A parietal notch bone is present on this side. On the right side, a faint extranormal suture line is noted indicating the presence of a squame-parietal ossicle. A parietal notch bone was also noted on this side (Brothwell 1981:94). On the lambdoidal suture, ossicles were noted at asterion. In the area of the right

asterion seven lambdoidal ossicles were noted. In the area of the left asterion, the lambdoidal suture is present only along the occipital. Those portions of the left parietal that should articulate with the occipital are missing, therefore the presence or absence of lambdoid ossicles or os incas cannot be determined.

Observations of other anatomical features were made on the cranium, including unusual foramina, protuberances, osteoma, pitting, and discoloration. A "cigar shaped" protuberance known as Torus palatinus was found along the median palatine suture anterior to the lateral incisive foramen. This protuberance, once thought to be due to mechanical stress, is now thought to be a genetic trait (Brothwell 1981:95). Two accessory foramina were noted in the maxillary region. The first was an extra infraorbital foramen on the left maxilla (Brothwell 1981:95). The second extra foramen was a lesser palatine foramen of Stenson (Gray 1977:86) or the result of ancillary pitting due to the abscess of the upper right medial incisor. In the area of the occipital condyle, several canals were noted. A posterior condylar canal was present posterior to the right occipital condyle. One was not present on the left side. In a normal population a high degree of variability in this condition can be expected (Brothwell 1981:94-95; Gray 1977:56). On both the left and right side of the foramen magnum, the presence of double anterior condylar canals were noted (Brothwell 1981:95; Gray 1977:56). The supra-orbital foramina of this individual are asymmetrical. The left foramen is more completely enclosed than the right (Brothwell 1981:95). A round flattened osteoma was noted on the frontal, centered above the nasals (Figure 4c). It is approximately 0.01 mm high and 3.50 mm in diameter. The cause of this type of osteoma is undetermined (Morse 1969:21). Several areas of pitting were noted on the cranium, on both the interior and exterior surfaces. The cause of this pitting is undetermined but it seems reasonable to state that the conditions in the Pit of the Skulls contributed to the deterioration.

The estimation of Individual One's gender was based upon nonmetric observations, since only the cranium was recovered. Subjective observations which indicated that Individual One was a male were: the prominence of the supra-orbital ridges; the bluntness of the upper edges of the eye orbits; a large broad palate; large teeth; well developed sites of muscle attachment indicating great upper body strength; extension of the posterior end of the zygomatic process as a well developed crest well beyond the external auditory meatus; and a large mastoid process (Bass 1971:72-74).

No attempt was made to estimate the age of Individual One beyond adulthood, based on the eruption of the third molars (Bass 1971:223). An age could have been estimated based upon attrition rates. However, abscessing and abnormal wear patterns would have produced misleading results.

Individual Two

Individual Two is represented by a fragmentary cranium. There is enough of the cranium present, however, to determine that this individual exhibits the same type of cranial deformation as Individual One. The portions of the cranium present are the frontal, the right

parietal, the majority of the left parietal, a portion of the left nasal, the majority of the left eye orbit, the left maxilla from the first incisor to the third molar, and the right maxilla from the first incisor through the first molar. The missing portions are the result of breakage as indicated by the condition of those portions recovered.

The maxillary region of this individual, as with Individual One, was in an advanced state of deterioration. The left maxilla contained only one tooth, the lateral incisor. The medial incisor through the third molar were missing on this side. The canine through the second premolar remained in the right maxilla. The right incisors and the first through third molars were missing (Table 4). Considerable resorption was noted around the teeth. Tartar had begun to recede with the gum line and the upper right second premolar is 1 mm proximal to its normal position.

Table 4. Individual Two - Dentition and Attrition Rates.

	Maxilla	
	Left	Right
Medial incisor	P	P
Lateral incisor	5++	P
Canine	P	5++
Premolar one	U	5++
Premolar two	U	5++
Molar one	A	U
Molar two	A	U
Molar three	A	U

Notes: Mandible not recovered. All teeth present are worn to pulp cavity. A=Antemortem loss, P=Postmortem loss, U=Undetermined due to postmortem breakage. All other codes - Brothwell 1981:72.

Several observations made on the teeth and abscesses were:

1) The upper right canine had a macroflake removed on the labial surface. Where the flake had been removed tartar was present in the random striae which were observed under magnification (9x). Flake removal, striae and polish on the labial surface indicates extranormal mastication (Trinkhaus 1982:38-48). As in the case of Individual One, it would seem that Individual Two used his mouth as a vise, pulling material gripped by the teeth outward.

2) The upper right first and second premolars were worn unevenly toward the lingual side. A minor amount of polish appears on the buccal side of the second premolar.

3) The upper left lateral incisor was worn unevenly toward the lingual side. Several microchips were observed, under 9x magnification, in the enamel of the labial surface. This chipping indicates extranormal mastication (Trinkhaus 1982:38-40).

4) Abscesses-

a) The abscesses at the site of the upper left first and second molars involve the distal side of the first molar and the mesial side of the second molar. Abscessing was so severe that the buccal side of the left maxilla had been eroded to the inferior surface of the left maxillary arch. The abscess is 8 by 18 mm.

b) The socket for the upper left third molar has been so totally resorbed that its original size and shape can no longer be determined.

c) The extent of the abscessing in the area of the upper right first molar cannot be determined. Breakage of the maxilla posterior to the upper right second premolar has removed the buccal and distal portions of this abscess.

It was not possible to take any measurements on this cranium since most of the landmarks needed were missing (Bass 1971:55-77). Non-metric observations made on this individual are concerned primarily with the general condition of the cranium. The frontal and the right parietal are very heavily eroded, with the surface exhibiting a rough texture. Above the right eye orbit there is a diagonal line (groove) running from lower left to upper right at approximately a 45° angle. It's cause could not be determined due to the roughened texture of the frontal in this area.

Several instances of cave deposits altering the nature of the cranium were noted. A ridge of travertine (Palmer 1981:120) is present on the interior of the cranium, running diagonally from the left portion of the frontal across the right parietal. Flowstone (Moore and Sullivan 1978:51) was found deposited on the exterior of the right parietal and at the junction of the frontal with the left and right parietals. The flowstone followed the sutures at this junction. The exterior of the cranium was blackened by manganese deposits (Moore and Sullivan 1978: 77-78). The areas involved are the frontal, the right parietal, the maxilla, and the teeth.

Other observations made on the cranium include an ossicle and an accessory foramen. One lambdoidal ossicle was located at the apparent junction of the lambdoidal and sagittal sutures. Others may have been present, but breakage along the sutures at this point made such a determination impossible. The accessory foramen noted was a supra-orbital foramen, located on the left eye orbit. The normal supra-orbital foramina of this individual were completely enclosed (Brothwell 1981:95). Tentatively, Individual Two was identified as a male based upon the presence of prominent supra-orbital ridges and blunt upper edges of the eye orbits (Bass 1971:72-74).

Individual Two was estimated to be an adult based upon eruption of the third molars (Bass 1971:223). The only other method to further assess this individual's age would have been to use dental attrition. Individual Two's dental attrition is skewed by abscessing and abnormal wear patterns and would be of little benefit in an accurate estimation.

Individual Three

Individual Three is represented by two fragments of cranium, a right parietal edged by temporal, coronal and sagittal sutures and a right temporal. It was not possible to take metric observations or estimate the age of this individual.

Individual Three's gender estimation was based upon nonmetric observations since only the right parietal and right temporal were recovered. Two subjective observations on the right temporal which indicated Individual Three was a female were: no extension of the posterior end of the zygomatic process as a crest beyond the external auditory meatus, and a small mastoid process (Bass 1971:72-73). Assignment of Individual Three as a female is very tenuous, since only two points of observation were possible. Age could not be determined. Recovery of other portions of this individual would greatly aid in proper sex and age estimation.

Individual Four

Individual Four is represented by a partial left parietal. This fragment is edged by coronal, sagittal, lambdoidal, and squamosal sutures. An attempt was made to fit this parietal with the right parietal identified as Individual Three without success. It was not possible to make metric observations or estimate the sex and age of this individual.

Individual Five

Individual Five is represented by a right innominate so damaged that metric observations are not possible. The iliac crest beginning with the anterior superior iliac spine to the posterior superior spine is almost entirely eroded. A small portion of the iliac crest's inferior spine, approximately 37 mm, survives. The epiphysis is totally closed at this point. The edges of the acetabulum, particularly along the iliac portion and the entire articulating surface of the pubic symphysis is damaged. The ischial tuberosity and ischial pubic ramus exhibit minor damage.

On the external surface of the right ilium, eight linear depressions were observed. These depressions are roughly parallel to one another and to a line from the posterior superior spine of the iliac crest to the anterior superior spine. They range from 22 to 53 mm in length and vary in width from 1 to 1.5 mm.

The location and physical appearance of these marks indicate that Individual Five was dismembered before deposition in the Pit of the Skulls. These marks are associated with the articulation of the femur and innominate, a usual point of animal dismemberment (Binford 1981:107). More specifically, the marks are concentrated posterior to the acetabulum on the ventral surface of the innominate, the same location described by Binford (1981:114) for removing the rear leg of an animal. The marks are correctly positioned for the dismemberment of Individual Five, being at the location of greatest musculature on the human innominate. The three major muscles at this point are the Gluteus maximus, Gluteus medius and Gluteus minimus (Gray 1977:426-428). Additionally, the marks exactly

match a description given by Binford (1981:105) for cuts made by stone tools:

> Cutting with stone tools requires a much less continuous action, more a series of short parallel strokes. Also most stone tools, particularly ones that are retouched, do not have straight or single-plane cutting edges. Marks from stone tools tend to be short, occurring in groups of parallel marks, and tend to have a more open cross section. They also have a more ragged appearance when viewed from the top.

This dismemberment most likely occurred as part of processing prior to deposition in the Pit of the Skulls.

Estimation of Individual Five's gender was based upon nonmetric observations as compared with other right male and female innominates. The eight subjective observations made on the right innominate which indicated that Individual Five was a female were: a large subpubic angle; an elevated ridge of bone on the ventral surface of the ischial pubic ramus; a narrow medial aspect of the ishial pubic ramus; a wide sciatic notch (very characteristic of females), the presence of a preauricular sulcus (very characteristic of females); a raised sacro-iliac articulation; the smallness and triangular shape of the obturator foramen; and the smallness of the acetabulum (Brothwell 1981:62-62; Bass 1971:157-162; Gray 1977:171-183).

Individual Five's age estimation was based on epiphyseal closure on the right innominate. Complete closure of the epiphyses on the iliac crest and the ischial tuberosity allow this individual's age to be placed at 23 years plus. A much more accurate age could have been obtained had the pubic symphsis not been damaged.

SUMMARY AND CONCLUSIONS

A thorough examination of the skeletal material from the Pit of the Skulls resulted in the following conclusions. First, the animal bones recovered from this site were either washed in or animals accidentally fell into the pit and died. No butchering marks were noted on any of the animal bone nor was there any evidence of burning. Also the depth of the pit (30.48 m) prohibited its use as an animal trap by prehistoric hunters. Secondly, the pit served as a specialized disposal area for human remains. It is highly unlikely that some people accidentally fell into the pit, because the incidence of two males exhibiting the same type of cranial deformation and extranormal mastication suggest a specialized use of the pit. The dismemberment of Individual Five, a female, is further evidence against accidental inclusion and indicates that some form of processing was taking place prior to final deposition in the pit.

Further work at this site should focus on recovering radiocarbon samples and diagnostic artifacts which will aid in more accurately identifying the depositional sequence. Any additional human remains recovered should be analyzed with several questions in mind. How many additional crania are deformed and what are their gender? Do any other individuals exhibit butchering marks indicating they were dismembered prior to disposal? Is there any correlation between the incidence of

butchering marks and the age or gender of the individuals? Is any bone burned which would suggest cremation or cannabilism?

ACKNOWLEDGEMENTS

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Recognition must also go to the Cave Research Foundation and the following persons who first discovered, collected and surveyed the site: Michael Hennion, Don Coons, Sheri Engler, John Branstetter, Ronald C. Wilson, Roger Kline, and Christine Gerace.

AN INCIDENT OF VICTORIAN ARCHAEOLOGY IN KENTUCKY AND ITS HISTORICAL AND REGIONAL IMPLICATIONS

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ABSTRACT

The archaeological survey work of W. M. Linney in Boyle and Mercer counties, Kentucky, communicated to the Smithsonian Institution in 1881, is reviewed. The drastic modification of the detail in his survey over the next 50 years is documented, in which all sites were reduced to mounds and only some of them were mentioned. It is suggested that the contemporary assault on the mound builder myth was responsible for the modification. Obviously, it has introduced real biases into our site inventory record.

Our sanctioned historiography of North American archaeology sees the close of the nineteenth century as a period of change, during which "...amateur enthusiasts were replaced by local college and university scholars and researchers" (Willey and Sabloff 1974:48). Conveniently for the historians of anthropology, this change coincides with the "birth" of anthropology as a profession, from which stem the American archaeological fighting words "American archaeology is anthropology or it is nothing" (Willey and Phillips 1958:2). The marriage is one of coincidence. Prehistoric archaeology in the New World came to rest in anthropology, but it need not have done so. As it did in the Old World, for example in France, it might have remained closer to, if not intimately involved with geology.

In the Ohio Valley, a new spirit in science developed with the frontier. The guiding structure in Kentucky, replacing dilletantism, random speculation, and eastern scientific excursions, was the "geological survey", which began tentatively in Kentucky under William Mather in 1838 and became established under David Dale Owen in 1854. One aspect of the survey was the identification of archaeological sites. Although archaeology was of secondary interest to the survey, in the years between 1854 and 1885, information on a large number of archaeological sites was collected. The significance of this information has never been fully appreciated.

When Webb and Funkhouser assembled their "Archaeological Survey of Kentucky" in 1932, they tapped this information in its most accessible form, the published maps of the Proctor Geological Survey. From the maps of 10 central Kentucky counties, they drew descriptions and locations of 82 sites. By far the majority of them were mounds or related earthworks. The Bluegrass, influenced by this distribution, became their Area I, the Mound Area. While they visualized other culture periods in it (Webb and Funkhouser 1932:417-419), it was the mounds, and obvious fascination with their explanation, which established Webb's later regional research interests.

William Marcus Linney (1835-1887) was largely responsible for the identification of sites in central Kentucky. He was a systematic and able recorder of variation in the archaeological record, whereas earlier writers had concentrated upon the unique and spectacular sites. Linney came from a rural background and according to his daughter, his early life was "but the short and simple annals of the poor" (Hutton 1921:25). While working in Campbellsville learning shoemaking, he became interested in geology and began to collect specimens "though he knew not the names or origin of any of them" (Hutton 1921:25). In 1866, he moved to Perryville, and by 1871, he was teaching science in Harmonia College.

In 1875, he attended the Harvard geology summer school taught that year at Cumberland Gap. Here he received scientific training and made contacts with developing American science. As his daughter informs us, "he was soon solicited as a correspondent by naturalists, was employed by Harvard in certain botanical work and in a few years was given an important position in the geological corps of the state" under Nathaniel S. Shaler, the State Geologist and a Harvard professor (Hutton 1921:25).

In 1878, he returned to Harrodsburg where he taught field work in geology and botany for several years at Daughters College. He maintained his connection with the Proctor Geological Survey, wrote, did geological surveys for central Kentucky counties, prospected in Colorado in 1881, and arranged exhibits for the state at the Atlanta, New Orleans, and Louisville Expositions (Hutton 1921:26).

Linney's contributions to archaeology consist of at least 12 publications; 11 county geological surveys published by the Geological Survey, and a letter to the Smithsonian Institution. The latter is of principal interest, for in it Linney (1881) revealed his ability as an archaeologist. He identified 37 sites in adjacent Boyle and Mercer counties (Figure 1).

Although titled "Mounds in Boyle and Mercer Counties, Kentucky", Linney did not restrict himself to mounds; in fact the first line speaks of "mounds, graves, etc." (Linney 1881:603). This map was keyed for six different site types, and while they were not formally defined as such (Linney was by no means an archaeological theoretician), they can be identified from the site descriptions as graves, earth mounds, villages, workshops, piles of rock, and earthworks.

Site Type	Frequency	Linney Designation
Graves	14	B,C,D,G,K,L,N(2),O,P,Q,S(3)
Mounds	10	A,J,M,P,T(4),U(2)
Villages	5	A,E,F,I,H
Workshops	4	A,P,R,S
Rock Piles	3	W,V,X
Earthworks	1	A
Totals	37	

Linney was ignorant of a culture sequence, but it is possible to place at least the majority of these sites into some sort of minimal time-space framework because of the care he took in their description.

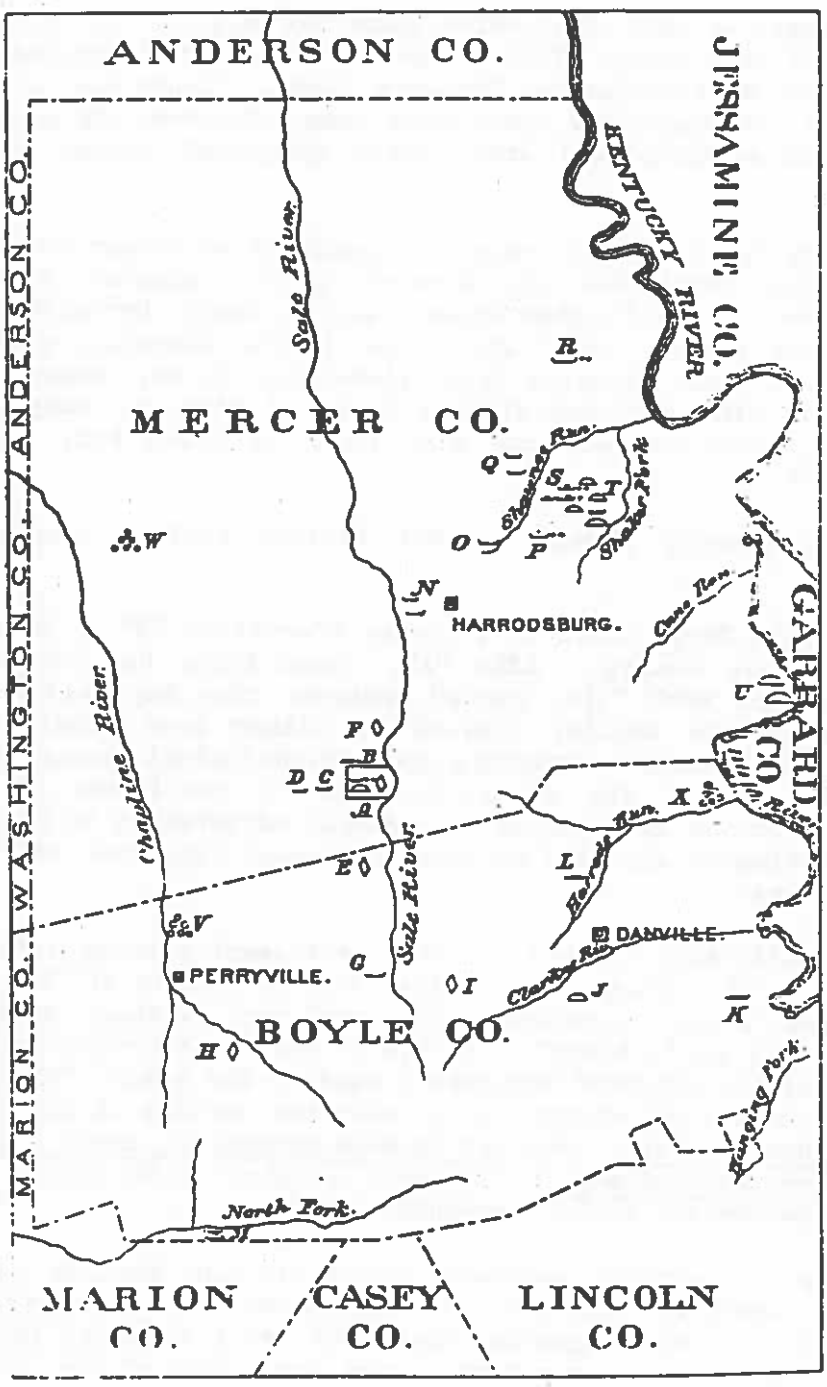

Figure 1. W. M. Linney's Map of Archaeological Sites in Boyle and Mercer Counties, Kentucky (Linney 1881:604).

Expectably, the majority were probably Late Woodland and Late Prehistoric.

For Linney, a most impressive site was his "A" in Boyle County. This consisted of a mound (Collins 1882:605) set in a ditched enclosure (both had been obliterated by Linney's time). There had been burials reported from the mound and tools with them. Between the mound and the river there were discolored areas which suggested houses, and in and around them

> have been found a great number of specimens of broken crockery, plain and ornamented in crossed lines; grooved axes of greenstone; celts in greenstone, jasper, agate, hornstone, and limestone; pipes, arrow and lance heads, chisels, grinding stones, pestles, sinkers, flint flakes and cores, ornaments in slate and other colored stones; bones of fish and many other animals, horns of deer and elk, teeth of bears etc. (Linney 1881:605).

This site is clearly 15Me15, a Fort Ancient village complex (Carter 1961).

On the Salt River above "A", Linney identified "F" in Mercer County and "E" in Boyle County. Like "A", these sites had pottery on the surface, together with "etc. tools" whatever they may have been. They would appear to be smaller hamlets of either Late Woodland or Late Prehistoric affiliation. Depending upon chronological sequencing, Linney was recording either the diversification of settlement in the Late Prehistoric, perhaps in response to seasonal adjustments in lifestyle, or shifts in settlement size and nucleation through time near the headwaters of the Salt River.

Linney (1881:605) fleshed out this settlement picture with his sites "B", "C", and "D". These were located "within a mile of "A". All were "single graves", each containing one skeleton "without implements or ornaments so far as is known". In one of these (otherwise unidentified) there was a single extended interment, head to the east. "There seems to have been a stone cist erected on or near the surface of the ground; and then rocks appear to have been set on edge around it, until a space 10 or 12 feet square was enclosed. If ever covered with earth, time has removed it down to the rocks" (emphasis added).

Recently, a similar mortuary structure in Bourbon County, the Goodman-Clay Cemetery (15Bb21), was described in the literature (Clay 1984:135-139). It was suggested that this was a mortuary facility used during the Fort Ancient occupation of the South Fork of the Licking River after ca. A.D. 1100. Hypothetically, it was a place of exposure from which fleshed bones could be removed for reburial or ritual manipulation in some centralized village. Linney's grave site, within the orbit of a large Fort Ancient village, may have been just such a structure.

It is instructive to indicate what happened in time to the "A" complex. First, on the Hoeing geological map, the location was accurate. However, to represent Linney's entire site complex, the Hoeing map of 1882 charted a single circle for one mound. Whereas Linney had used five

symbols indicating different site types in 1881, the geological survey maps used only one.

In their 1928 statewide survey volume, Funkhouser and Webb (1928:326-327) transferred the mound locations from the Hoeing map to their survey summary. Site "A" became their Mercer County 2, and possibly "E" became their site 1. Both were described as mounds. Though they referenced Linney's Smithsonian communication in their bibliography (Funkhouser and Webb 1928:337), there is no indication that they consulted it, for surely the lack of fit with the Hoeing map would have been apparent.

For their 1932 statewide survey, Webb and Funkhouser solicited site information from locals, typically advertising in papers and distributing a catchy hand out. In response, D. M. Hutton of Harrodsburg, Linney's son-in-law, advised them to refer to Linney's work (letter in the files of the Office of State Archaeology). But their transfer of 1928 locations to their 1932 survey (Webb and Funkhouser 1932:284-286) only removed Linney's site data one step further from reality and Hutton's admonition was in vain. Sites 1 and 2, Linney via Hoeing, were apparently dropped altogether. Instead they put "A", which they described as a "mound" on the north end of the county, one mile (1.6 km) from the Anderson County, not Boyle County, line. Here, perhaps, they were misled by the Collins description of the site, which placed it "about 4 miles (6.4 km) above Harrodsburg" (Linney 1881:603). Webb and Funkhouser appear to have interpreted above as north of Harrodsburg but this site, however, is located upstream (up the Salt River) above or south of Harrodsburg.

The fate of "A" is only an example of the modification of Linney's 1881 survey data. In summary, where he noted 37 sites, 10 of them mounds, the Hoeing maps located 20 mounds, the Funkhouser and Webb 1928 survey, 12 mounds, and the Webb and Funkhouser 1932 survey, 10 mounds. It is a devastating critique of 1932 professional archaeology to note that only four of the 1932 "mounds" had been called mounds by Linney in 1881, and that the majority of his sites were simply not mentioned.

While most sites recorded by Linney (1881:606-607) were mortuary, they were far from "mounds". In fact, they included a wide variety of stone structures whose cultural placement in the Ohio Valley has been a topic of discussion since then (c.f. Kellar 1960). As previously discussed site B, C, or D, was a Late Prehistoric place of exposure. Others may have been, more narrowly, stone box graves such as his "S", "three graves covered with stones placed on edge". Sites "V", "W", and "X", however, were described as large piles of rock "giving no evidence of ever having been covered with earth". Linney thought this class of graves covered recent Indian burials, in the case of V, "probably those of Indians killed in some attack on Harrodsburg". They contained burials as their early excavation established, but no evidence that they dated to the Historic period, which surely would have been reported given the tenor of the "Thomas era" of mound exploration. In all likelihood, they were fully prehistoric, perhaps, like the C. L. Lewis mound in Indiana (Kellar 1960), earlier Woodland structures.

There is little artifactual evidence to judge the temporal placement of Linney's sites, and this portion of Kentucky has suffered from the lack of systematically recovered and curated collections. It is probable that some of the earth mounds, possibly stone graves, span the Early/Middle Woodland periods as evidenced by a copper bead found in one mound at "T", and mica sheets in a stone grave at "S". But if allowances are made for the distortion of the mound record post-Linney, it will be seen that the density of mounds was hardly as great as ultimately came to be recognized. In sum, mound cemeteries take their place as one form of prehistoric cemetery in these two Kentucky counties, probably restricted in time and certainly followed if not also preceded by other distinctive mortuary site types.

Here Linney unwittingly put his finger on a simple fact which set the character for the archaeology of central Kentucky during the Woodland period and into the Late Prehistoric. In contrast to the earlier Archaic, and to the Woodland and Late Prehistoric time periods elsewhere, in central Kentucky during the Woodland period, the cemeteries tended to become spatially separated from villages. With the exception of his site A, Linney did not recognize burials in what would appear to be "village" contexts. Rather than this being an error in his recording, Linney was probably accurately reflecting reality: the majority of the mortuary sites he identified were not in or near villages. Only with Fort Ancient, involved in the first real development in this portion of the state with nucleated settlements, were skeletal remains again interred within villages. Even then, burial or exposure away from the village continued to be practiced for certain individuals (Clay 1984).

Despite the preponderance of mortuary sites in his lists, Linney did note village sites, workshops, and scattered finds of tools or relics, all details lost by those who followed. While the villages, identified by sherds, were probably Fort Ancient, perhaps Late Woodland, only the workshops and scattered tools, referencing chert tools by and large, are possibly assignable to pre-Woodland cultures. In 1881 the complexities of the evidence for Archaic and earlier prehistoric lifeways were far from being recognized, much less worked out.

The final distortion of site location information from the 1928 to 1932 surveys cannot be explained with the available documentation. What is more important was the initial generalization on the Hoeing map which made Linney's reported variability around "A" into a single mound. At a single stroke, the prehistoric record at this location and others was made "one dimensional". Rather than an isolated example, this information transformation was a process which went on widely in Kentucky, affecting those sites identified on the Proctor Geological Survey maps. Importantly, it was these mound locations which provided grist for the Smithsonian Institution mound study program under Thomas. Though there is no record that Smithsonian workers recorded or excavated sites in this portion of Kentucky, the Hoeing mound sites show up very distinctly on the published map of mound distribution (Powell 1894:Plate XX). The real variability of sites detailed in Linney's communication to the Smithsonian itself never surfaced in its scholarly output.

The process of homogenizing site survey data, of which Linney's Kentucky case is one example, was a product of the assault on the mound

builder myth by field archaeologists in the late nineteenth century. This was the attack, spearheaded by the Smithsonian, on the explanation that the mound builders had formed a race distinct from modern Indians. Through a number of related arguments, Thomas and his workers were able to demonstrate that there was good evidence that Indians had constructed the mounds. Incorrectly, they also assumed that they were of no great antiquity.

However, their arguments had the effect of emphasizing mounds as subjects of scientific interest, or more accurately, their efforts did not deflect any of the existing and growing interest in mounds to a broader range of prehistoric sites. The "mound builder hypothesis" in its extreme form, linked to White Indians, Welshmen, and others, retreated to the low background level where it simmers today, occasionally selling books but not contributing significantly to a developing interpretation of prehistory. Notions that the mounds of the Ohio Valley were somehow linked to the "high" cultures of Mexico and Central America were not vanquished, and such explanations remained exceptable until after World War II. Explanations that mounds and related structures could be used to characterize eastern United States cultural development, stemming perhaps from the work of Thomas and his associates, are still vital in regional archaeology (c.f. Ford and Willey 1941). Nowhere along the line were mounds per se de-emphasized. In the Ohio Valley, the archaeologist of the 1980s faces the conceptual product of this historical development. The Early and Middle Woodland are viewed as the archaeology of "Adena" (known principally from mounds), and "Hopewell" (again known as mounds and earthworks).

The space-time revolution influenced Ohio Valley archaeology really only 50 years into the twentieth century. Thomas and others in the late nineteenth century viewed prehistory in the Ohio Valley from a chronologically featureless point of view.

Linney's sensitivity to variation in archaeological sites was more widespread than most archaeologists realize. Other late nineteenth century investigators also appear to have been sensitive to variation in the archaeological record. For example, Kellar (1960:407) notes for Ohio that Morehead reported 199 "stone graves" of several different types in 1899 for only one portion of the state, whereas Mills, in 1914, reported only 17 for the state as a whole. In the context of the last two decades of the nineteenth century, under the influence of Smithsonian leadership, there was little room in the field to emphasize variation in finds. Eastern prehistoric cultures by the beginning of the twentieth century were being systematically swept under the "mound builder rug" (c.f. Fowke 1910).

Any consideration of the history of archaeology should have a point and this one has several. First, lacking a temporal framework, variation through time collapses and understanding of the past becomes a hopeless process of flogging a patchwork of undated prehistoric events for some palpable meaning. Unfortunately for the Ohio Valley (and elsewhere), that yardstick was late in developing and still has to be perfected. Lacking a yardstick, the response of archaeologists in the late nineteenth century to variation in archaeological remains, especially those of the Smithsonian who were committed to a short chronology, was to

try to fit it into a single "mound builder" culture. This was not a good starting point for the realistic appraisal of the prehistoric past.

Secondly, this examination illustrates the power of concepts once they get into the literature. Adena and Hopewell are really little more than the "mound builders" of 100 years ago. Once they are established, it is difficult to modify explanatory concepts. Archaeology is finally moving into a new period of the consideration of Woodland cultures in the Ohio Valley. This will require, to some extent, that archaeologists set aside any thought of "mound builder", and start from scratch, carefully fitting the data into a chronological framework.

Discarding mound builders is easy, for professionally archaeologists have outgrown the concept, or have we? Do not some of us still look back to the "good old days" ca. 1941 when "Burial Mound I" and "Burial Mound II" succintly and adequately told it like it was? Perhaps no one reads James A. Ford and Gordon R. Willey (1941), "An Interpretation of the Prehistory of the Eastern United States", one of the relatively few essays of eastern United States archaeology in the hallowed pages of the American Anthropologist. But the spirit of their sequence was built upon and lives on in the concepts of Adena and Hopewell.

The detail of Linney's survey data was ahead of its time. But in the context of the late nineteenth century, it could not be expected to have a dramatic effect on the developing professional view of Ohio Valley prehistory. What is cruel to Linney is that the inherent detail to which one can respond today, was lost in the history of the profession and had to be rediscovered. Rather, a bowdlerized version of his observations became embedded in professional orthodoxy.

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