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THE ARCHAEOLOGY OF ROCKSHELTERS ON FOUNTAIN CREEK MAURY COUNTY, TENNESSEE

A Thesis
Presented for the
Masters of Arts
Degree
The University of Tennessee, Knoxville

Robert F. Entorf

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ABSTRACT

The purpose of this study is to describe and compare 11 archaeological assemblages recovered from six rockshelters located along Fountain Creek, a major tributary of the Duck River in Middle Tennessee. A theoretical model of forager and hunter-gatherer subsistance-settlement organization provide a framework for the evaluation of the rockshelter assemblages. The analytical and comparative procedures indicate that (1) there are significant differences in the content of contemporaneous assemblages, and (2) there is a significant increase in assemblage variability and breadth of activities represented at the rockshelters through time. It is suggested that this patterning may reflect a gradual change in subsistence-settlement organization from more residentially mobile foraging systems to a more logistically orientated hunter-gatherer organization in the study area.

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CHAPTER I

INTRODUCTION

This study is directed toward the description and interpretation of archaeological materials recovered from six rockshelters located along Fountain Creek, a major tributary of the Duck River in Middle Tennessee. This research forms part of the ongoing Columbia Archaeological Project in the proposed Columbia Reservoir area in Middle Tennessee. Two additional studies which directly relate to this thesis are currently being carried out by graduate students at The University of Tennessee, Knoxville. These are studies of the floral and faunal remains recovered from the Fountain Creek rockshelters. The final results of this research should greatly augment the present study.

Most contemporary research resulting from archaeological investigations at rockshelters has had the development of local and regional culture chronologies as its primary underlying concern. Little effort has been made toward integrating these results into more general models of regional settlement-subsistence strategies. Notable exceptions to this trend include Modock Rockshelter (Fowler 1971), Gatecliff Rockshelter (Thomas 1983a;1983b), and Rodgers Rockshelter (Wood and McMillan

1976). Attempts to suggest the `type´ of activities conducted at particular rockshelters have typically been steeped in the investigator´s personal paradigm of how a rockshelter was utilized prehistorically.

It is intended that this study serve as an initial departure from the trend of considering all shelters as limited activity locations without the benefit of analytical and statistical comparisons of site assemblages. This research represents an effort to analyze prehistoric archaeological materials recovered from six rockshelters at the assemblage level. A set of statistical procedures has been utilized in an effort to operationalize the variables being considered in the assemblage analysis and the subsequent intrasite and intersite comparisons. The statistical procedures are expected to reveal fundamental patterns of assemblage similarities and differences. The primary interest is in gaining an understanding of the role and function the Fountain Creek rockshelters played in the overall subsistence-settlement organization of prehistoric foragers and hunter-gatherers.

Chapter II presents the theoretical background and problem orientation of the research. The recent works of Lewis R. Binford have been influential in structuring the subsistence-settlement site patterning considered in this

research. A literature search is included in Chapter II.

The results of the Fountain Creek rockshelter survey and test excavation program are presented in Chapter III. This includes a discussion of location of the study area and a regional geographic history. A discussion of the lithic, ceramic, bone, and historic artifact analytical methods is also provided. The lithic Indices formulas and the lithic artifact numbering sequence used in this study conclude Chapter III.

Chapters IV through IX describe the excavations and artifactual material recovered from each of the rockshelters. The stratigraphy and assemblages represented at each shelter are described.

Chapter X presents the statistical analysis of the assemblages recovered from each of the rockshelters. The assemblages are then compared synchronically and diachronically.

Chapter II

THEORETICAL BACKGROUND AND PROBLEM ORIENTATION

The focus of research presented below is directed toward understanding a particular type of archaeological site. Specifically, how did rockshelters function within the organizational strategies of prehistoric cultural systems. Also of interest is the investigation of diachronic and synchronic intrasite variability. In the discussion that follows the underlying theoretical basis of this research will be outlined, the questions that are of immediate importance in understanding the role of rockshelters on Fountain Creek played in past settlement systems will be presented, and the units of analysis that will be employed in addressing the questions being asked of the archaeological record will be defined.

1. Literature Search

A cursory examination of the literature pretaining to rockshelter excavations illustrates three approaches to rockshelter investigation. The primary concern of nearly all rockshelter analyses is the development or refinement of a regional culture chronology. Attempts to interpret the range of activities conduced at rockshelters have taken two forms. First is the

interpretation that rockshelters functioned primarily as limited activity sites in prehistoric subsistence-settlement systems (Adovasio et al. 1978:649; Carlisle and Adovasio 1983; Carstens 1980; Griffin 1974:109; Hall 1985; Oplinger 1981:56; Prufer 1981:84), and in one instance (Dincauze and Gramely 1973) limited historical activities. The second interpretation has held that activities conducted at rockshelters may be extremely variable through time and that during certain cultural periods rockshelters have functioned as more than ephemeral locations (DeJarnette et al. 1962; Fowler 1971:46-55; Thomas 1983b).

2. Theoretical Orientation

Recent writings of L. R. Binford (1978a, 1978b, 1980, 1981a, 1982, 1983) have greatly influenced the approach taken in this thesis. As stated in the introduction, primary interest is in gaining an understanding of the function rockshelters played in the overall subsistence-settlement organization of prehistoric foragers and hunter-gatherers (i.e. collectors). Foraging systems are characterized by groups who make "seasonal residential moves among a series of resource `patches´" (Binford 1980:15). As a result of these frequent moves foragers typically occupy

two types of sites. The residential base is the location where a group carries out bulk extraction tasks as well as "processing, manufacturing and maintenance activities" (Binford 1980:9). The material consequences of such diverse activities being carried out at a single location is what Binford has termed a "coarse-grained" assemblage (Binford 1978a:17). Factors which serve to condition the coarseness of the assemblage are duration and intensity of use, spacing between sites, and group size and composition.

The second type of site generated by foragers is the location (Binford 1978a:9). A "location is a place where extractive tasks are carried out" (Binford 1980:9). Locations are generally low bulk procurement sites. Therefore, "the use, exhaustion, and abandonment of tools is at a very low rate" (Binford 1978a:9). The material consequences of activities carried out at locations are termed "fine-grained" assemblages (Binford 1978a:17). Factors conditioning the assemblage are duration and intensity of use, group size and composition, and distance from the residential base.

Hunter-gatherer settlement systems differ from that of foragers in that while the latter are highly mobile with respect to their residental bases, (i.e. moving consumers to resources), hunter-gatherers are less

residentially mobile and consequently move resources to consumers "logistically through specially organized task groups" (Binford 1980:10). Logistically organized hunter-gatherers operate out of a residential base and occupy locations the same as foragers do; however, by virtue of the logistical nature of their settlement organization, Binford (1980) has recognized three additional types of sites which he designates as field camps, stations, and caches.

Field camps are temporary headquarters for logistically differentiated social aggregates. "It is where a task group sleeps, eats, and otherwise maintains itself while away from the residential base" (Binford 1980:10). Factors conditioning the material assemblage of a field camp are similar to that described for locations in foraging systems. Additionally, field camps "may be expected to be differentiated according to the nature of the target resources" (Binford 1980:10).

"Stations are sites where special-purpose task groups are localized when engaged in information gathering" (Binford 1980:12), or they may be hunting stands or ambush locations. The material consequences of activities carried out at stations would be fine-grained assemblages which may be differentiated according to the activity conducted there.

Caches are sites where bulk resources are temporarily stored. The material consequences of caches would be storage facilities such as storage basins, pits or alternate forms of containment.

In summarizing the subsistence-settlement models of foragers and hunter-gatherers given above, it becomes clear that as groups become increasingly sedentary, logistical organization becomes increasingly complex. Archaeological implications suggest "we can expect greater ranges of intersite variability as a function of increases in the logistical components of the subsistence-settlement system" (Binford 1980:12). It should be pointed out that foraging subsistence-settlement systems and hunter-gatherer subsistence-settlement systems are not dichotomous, instead they are viewed as being flexible and a mix of the two strategies may occur as conditions warrant. Binford points out that:

> Many human groups may move through seasonal phases in which their coverage and positioning tactics change. For instance, in some systems people may be dispersed in summer behaving like foragers by employing a mobility strategy designed for coverage, seeking to maximize the "encounter" with resources, yet during the winter they may be living from stores at a site which was positioned in terms of logistical concerns. Mobility patterning may be both geographically variable and regionally complicated (Binford 1982:11).

3. Research Problem

The goal of this thesis is to better understand the role rockshelters on Fountain Creek played in past subsistence-settlement organization. In order to accomplish this three procedures will be employed.

1. The initial procedure is to describe the Fountain Creek Rockshelter survey and to describe the materials and contexts at the six rockshelters that form the data base for this thesis.
2. A functional analysis of artifact assemblages recovered from the rockshelters should provide information about the the activities conducted there. The analysis will consider all formal lithic tools, expedient lithic tools, lithic debitage, bone tools, ceramics, and shell artifacts. The functional analysis of individual artifacts is based on artifact morphology as micro-ware studies have not been done on individual specimens. An end scraper then is infered to be a hide working tool based on techno-morphological attributes and not by micro-polish or micro-striations on the working edge. Tool ratios of functionally related

artifacts will form the basic unit of analysis by which assemblages are described and compared.

3. A comparison of between-site and intrasite assemblage variability is expected to provide information about the subsistence-settlement organization of past cultural systems.

> Among mobile people the differentiation of activities among places in both form and frequency of use carries direct information about the organization of a past system of adaptation, as do patterns of occupational redundancy (Binford 1982:28).

The analytical unit in this analysis will be the assemblage. Assemblage is used here to refer to all artifacts and features that are associated together stratigraphically (c.f. Dunnell 1971). Within strata multiple assemblages will be partitioned based on features and artifact frequency curves. These assemblages will then be compared and contrasted within shelters and between shelters.

Finally, a synthesis of these three analytical approaches will form the basis for the conclusions. It is anticipated that this synthesis will add to our understanding of the role and function rockshelters played in past subsistence-settlement organization in

Middle Tennessee. As Binford acknowledges "To understand the past we must understand places" (Binford 1982:6).

CHAPTER III

FOUNTAIN CREEK ROCKSHELTER SURVEY

1. Location

The survey area is located within the Interior Low Plateaus province (Fenneman 1938). This province may be characterized as a generally horizontal plateau which was first uplifed as a low dome structure, called the Cincinnati Arch or geanticline, during the Paleozoic Era. Subsequent erosion of the dome has formed a 5,000 square mile oblong depression called the Nashville Basin (Fenneman 1938).

Physiographically, the Nashville Basin has been divided into an inner and outer portion. The inner basin is characterized by flat to rolling karst terrain with frequent exposures of argillaceous limestone (Harmon et al. 1952). The inner basin is completely encircled by the outer basin which generally is higher in elevation. The latter is characterized by long finger-like ridges that radiate inward from the surrounding Highland Rim. The Highland rim is the remaining uneroded portion of the Cincinnati Dome structure and appears as an elevated "collar" around the Nashville Basin. The Highland Rim is partially bounded by the Cumberland Plateau on the east

and southeast and by the scarp of the Tennessee River Valley on the southwest and west.

The rock units in the study area range in age from Ordovician to Mississippian and are composed primarily of limestone and shale formations. The rock units in ascending order from the oldest to the youngest are the Lebanon, Carters, and Hermitage formations. The Lebanon formation consists of a blue to gray colored limestone. The bedding varies from 1 to 6 inches in thickness and is typically separated by thin partings of gray and grayish blue calcareous shale that weathers to a yellowish color. A massive bedded member averaging 5 feet thick occurs 57 feet from the bottom of the formation and approximately 33 feet from the top (Wilson 1949). It is immediately below this massive member in the thinner and structurally weaker limestone and shale partings that a number of shelters are located.

The Carters formation consists of massive members of dark gray and light gray colored limestone (Wilson 1949). The average thickness is approximately 50 feet (Hershey 1963). The Carters Formation uncomformably overlies the Lebanon limestone and forms the steep valley slopes along Fountain Creek. A number of rockshelters are located in this formation.

The Hermitage Formation consists of both massive and thin bedded members of blue to gray limestone with thin partings of gray shale (Wilson 1949). The Hermitage Formation is approximately 70 feet thick and overlies the Carters Formation. In the study area the Hermitage Formation occurs only on the highest ridge crests.

2. Previous Research in the Study Area

Prior to 1972, the extent of prehistoric occupation in Maury and Marshall counties was poorly understood. The first sites were recorded in the Columbia Reservoir area, Maury and Marshall Counties, Tennessee, by David Evens of the University of Missouri, Columbia. Under sponsorship by T.V.A. Evans (1972) made a brief helicopter and pedestrian survey of the reservoir.

The first extensive site survey was conducted under the direction of D. Bruce Dickson. During 1972 and 1973 360 prehistoric loci were recorded. Of these, 261 sites were ultimately assigned state site numbers (Dickson 1976). Forty seven of these 261 sites were located along Fountain Creek. Notable is the fact that of the 47 sites reported by Dickson none were rockshelters. Dickson´s survey methods were initially focused towards skirmish line pedestrian surveys of cleared and cultivated farmland with little or no attention paid to

wooded or pasture lands. As noted by Dickson (1976:26) however, "it did not take long to realize that survey teams following forest trails or hiking along stream beds are often able to locate sites."

In view of the previous survey designs, the absence of reported rockshelters in the study area is seen as the result of extensive rather than intensive coverage, and possibly the failure of surveyors to recognize deeply alluviated rockshelters. An illustration of the highly alluviated nature of two rockshelters located on Fountain Creek are illustrated in Figures 3.1 and 3.2.

3. Rockshelter Survey and Testing Techniques

During the summer and fall of 1980 and 1981 a program of rockshelter testing was conducted along a 5.6 km section of Fountain Creek, a major tributary of the Duck River. Two testing strategies were employed. During the 1980 season 1 x 1 M^2 or 1 x 2 m^2 test pits were excavated into several previously located rockshelters. While this strategy proved very effective in determining if there had been prehistoric utilization of the shelter being tested, it was not cost effective in view of the large number of shelters which did not contain archaeological deposits.

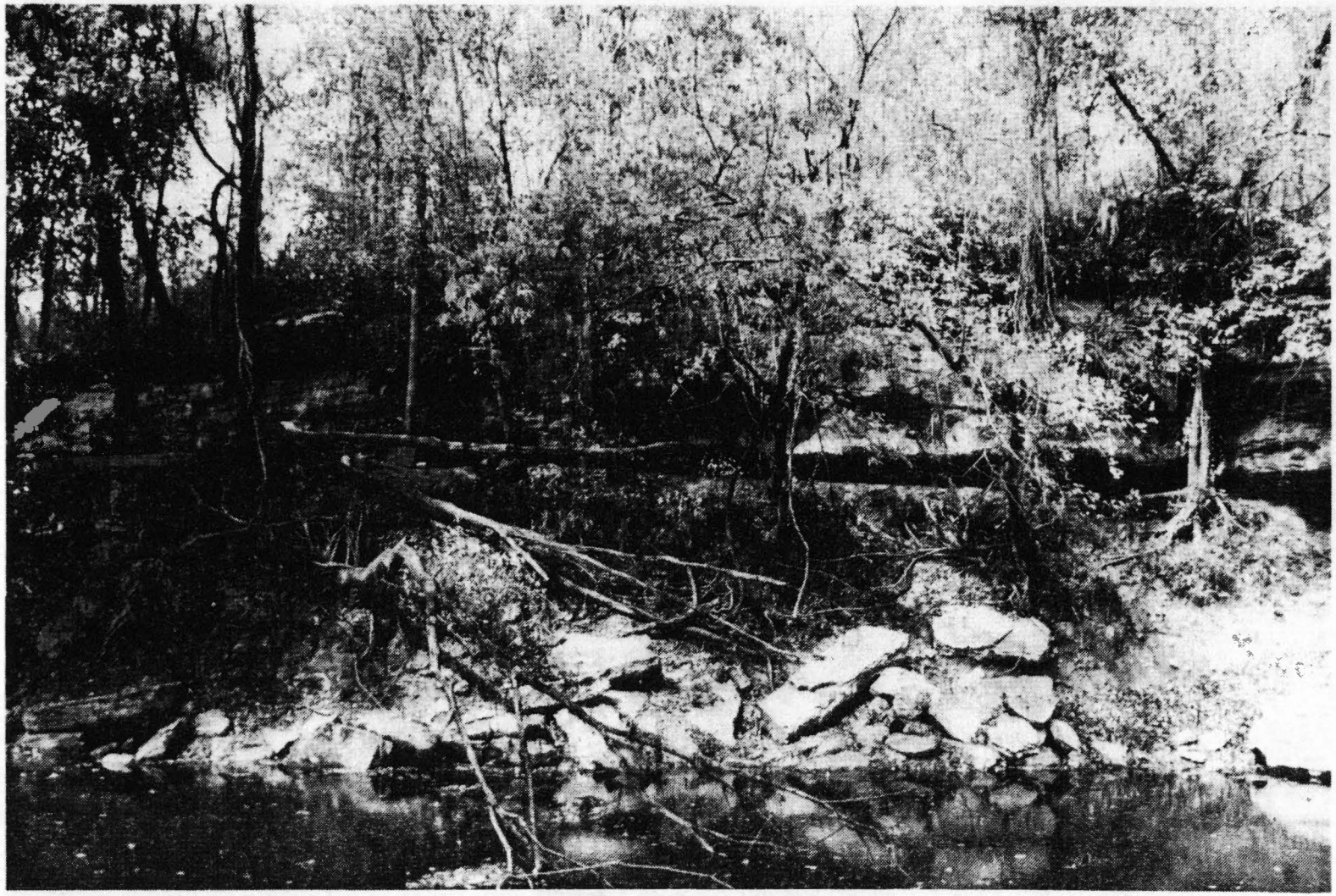


Figure 3.1 View to the West, McCollum Rockshelter, 40MU390.

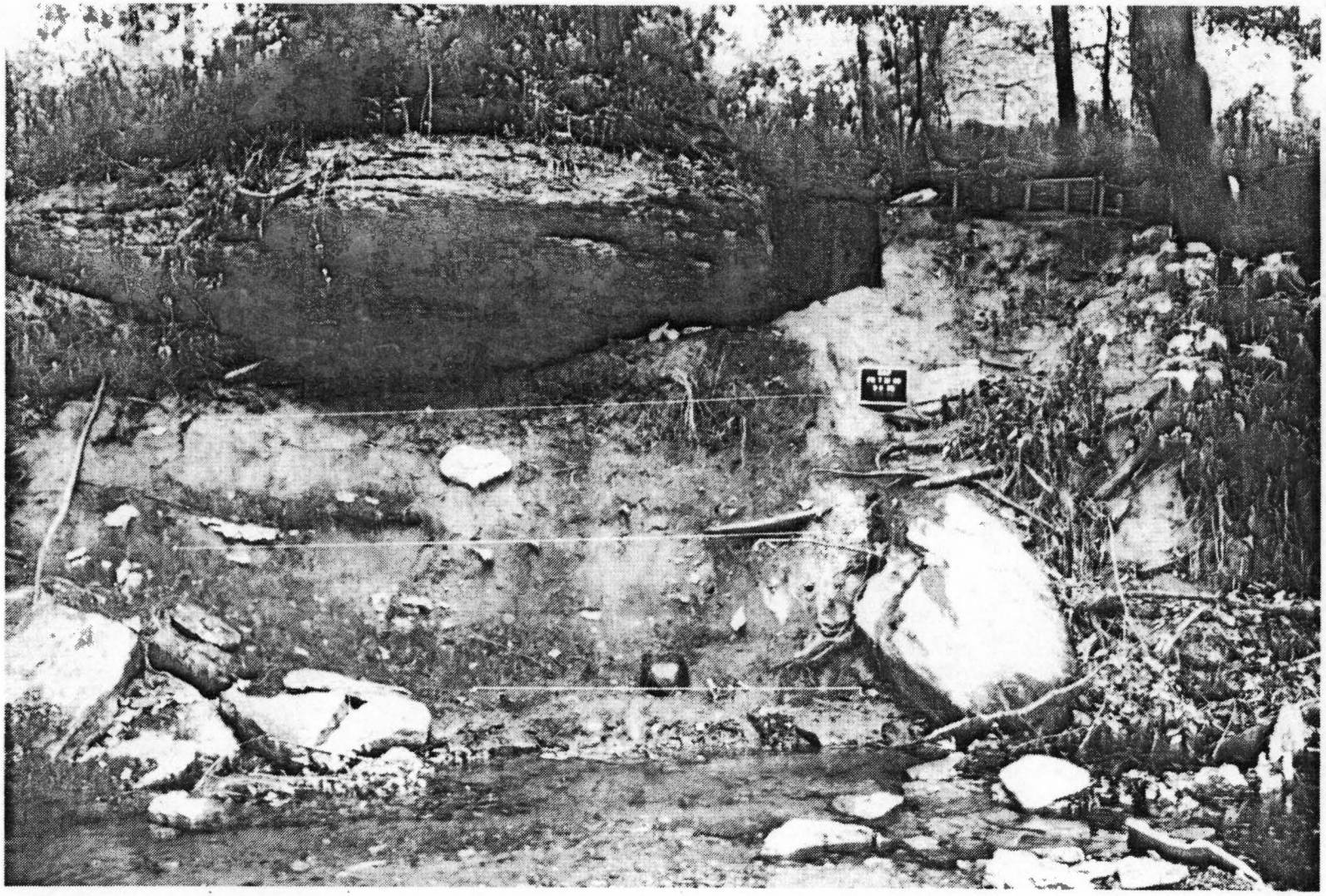


Figure 3.2 View to the North, Pilkinton Rockshelter, 40MU422.

In 1981 shelters which were not previously tested during 1980 were located and tested by a two man crew. When a rockshelter was located, the surveyors augered a test hole at approximately the center of the shelter near the dripline, with a six inch hand auger. If no archaeological materials were recovered from the auger hole a series of auger holes were excavated along a transect that paralleled the dripline of the shelter. A second transect of auger holes was excavated from near the back wall of the shelter to approximately 1 m past the dripline. If an auger test was "positive" the shelter was revisited and test excavations were conducted. Of the 30 rockshelters tested along Fountain Creek eight were found to contain archaeological deposits. Seven of these shelters were subsequently test excavated to bedrock. The eighth rockshelter was not tested because permission to do so could not be obtained. The locations of the rockshelters tested along Fountain Creek are illustrated in Figure 3.3.

4. Lithic Artifact Descriptions

All lithic artifacts recovered from the Fountain Creek rockshelters were coded following the Columbia Archaeological Project Coding Format developed by Hofman and Turner (1979). Most of the descriptive lithic

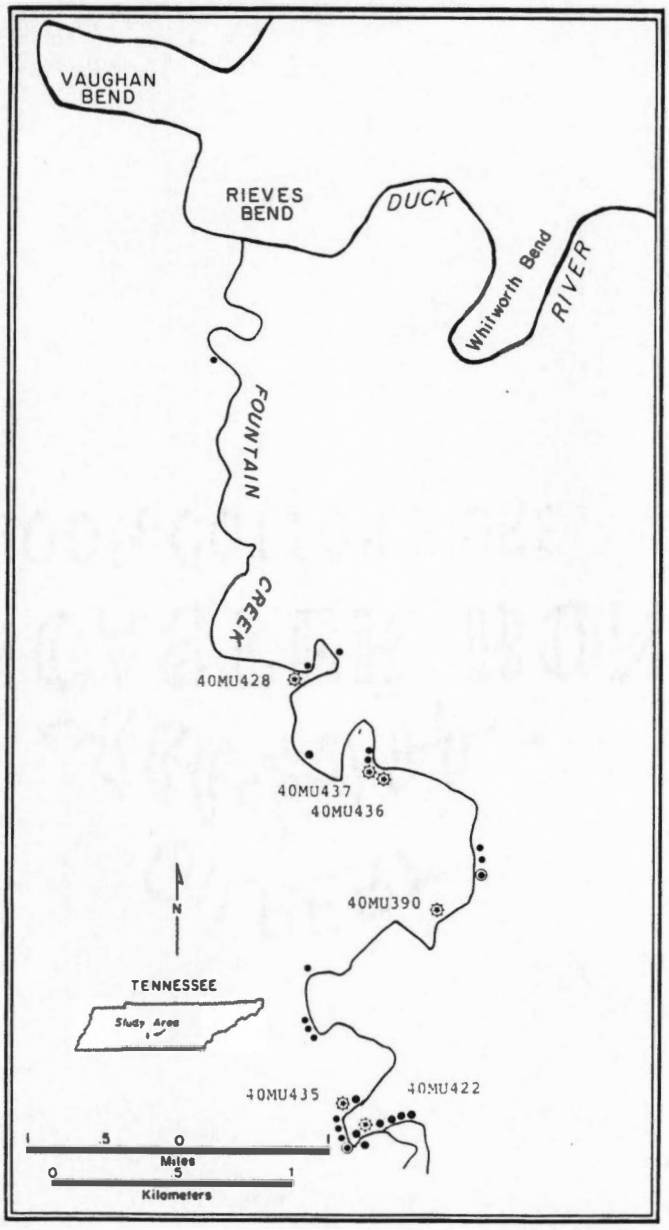


Figure 3.3 Fountain Creek Rockshelter Locations. Solid Dot Indicates Rockshelters Which Tested Negative. Circled Star indicates Rockshelters Which Tested Positive. Circled Dot indicates Rockshelters which Tested Positive but are not Included in the Analysis.

terminology can be found in Binford (1963), Cambron and Hulse (1975), Crabtree (1972), and White (1963). Lithic fracture terminology can be found in Johnson (1979, 1981a, 1981b). Raw material type determinations were made in reference to the Columbia Archaeological Project chert type collection. A description of these chert types can be found in Amick (1984).

5. Ceramic Artifact Descriptions

The ceramic analysis considers both ceramic temper and surface treatment. Sherds which share a common nonplastic temper are termed "wares" (Heimlich 1952:5). Ceramics are further separated within ware groups based on the type of surface treatment exhibited on the sherds. The collective attributes of temper and surface treatment have been used extensively in the Southeast to define ceramic "types" (Heimlich 1952:5). The ceramic artifacts are described and compared to previously defined types in the Southeast. In addition, all sherds were coded following the Columbia Ceramic Coding Format developed by Hall (1983).

6. Bone Artifact Descriptions

Bone artifacts are defined as any osseous artifact that exhibits intentional modification by human activity

(ie. abrading, drilling, smoothing). Bone tools recovered from the Fountain Creek rockshelters are described and compared to other bone tool forms reported from the southeastern United States.

7. Historic Artifacts

A limited number of artifacts of historic origin was recovered from two of the Fountain Creek shelters. These artifacts are described and discussed.

8. Lithic Indices

In order to link behavioral implications to the archaeological record at each rockshelter a set of function-specific indices is used. A series of standardized indices developed by Faulkner and McCollough (1973:67-71), which were adapted from Sonneville-Bordes and Perrot (1953, 1954, 1955, 1966a, 1956b), have been calculated for use in describing and comparing the lithic artifacts from each rockshelter. These indices have been slightly modified but remain essentially the same. It is realized that there are potential problems involved in the use of function-specific tool types in the absence of micro-wear analysis; however, these indices are appropriate for bridging the gap between behavioral

implications and the archaeological record (see also Thomas 1983a:72-73, 1983b:438-440).

The formulas for the indices which have been computed are given below. It should be noted that tool type numbers used here do not correspond to Faulkner and McCollough's (1973) numbering scheme or to the Columbia Archaeological Project Codeing Format. The tool type numbering sequence used in this analysis follows the lithic indices formulas.

Piercing Implement Index:

(PI): = (PPK)

Cutting Implement Index:

$$(CI): \ ^{*}\frac{(n,\ TT\ 34\text{-}35\text{+}53\text{+}55\text{+}57\text{+}59\text{+}67)}{N,\ Collection} \times 100$$

*optionally combined with (PI) = (PP/K) and TT 34+35+68

Scraping Implement Index:

$$(SI): \ ^{*}\frac{(n,\ TT\ 36\text{-}40\text{+}42\text{+}54\text{+}56\text{+}58)}{N,\ Collection} \times 100$$

*Type 41 optionally included.

Perforating Implement Index:

$$(PI): \frac{(n,\ TT\ 27\text{-}32\text{+}38\text{+}43\text{+}44)}{N,Collection} \times 100$$

Drilling Implement Index:

$$(DI): \frac{(n,\ TT\ 27\text{-}31)}{N,\ Collection} \times 100$$

Sawing/Shredding Implement Index:

$$(SSI): \frac{(n,\ TT\ 45)}{N, Collection} \times 100$$

Hammering/Pounding Implement Index:

$$(HPI): \frac{*(n,\ TT\ 64+72)}{N,\ Collection} \times 100$$

*Type 67 optionally included.

Grinding/Sharpening Implement Index:

$$(GSI): \frac{(n,\ TT\ 64+65+70-71)}{N,\ Collection} \times 100$$

Primary Lithic Index:

$$(PL): \frac{*(n,\ TT\ 19+23-24+49-61+63-65+73-79)}{N,\ Collection} \times 100$$

*Types 19+23-24+49-61+63-65 optionally excluded.

Finished Implement Index:

$$(FI): \frac{*(n,\ all\ other\ Tool\ Types)}{N,\ Collection} \times 100$$

*Types 15-17+25-26+41+48 optionally included.

Unifacial Implement Index:

$$(UI): \frac{(n,\ TT\ 36-48)}{N,\ Collection} \times 100$$

Bifacial Implement Index:

$$(BI): \frac{(n,\ TT\ 1-35)}{N,\ Collection} \times 100$$

Utilized Implement Index:

$$(UII): \frac{(n,\ TT\ 51-62)}{N,\ Collection} \times 100$$

Projectile Point/Knife Index:

$$(PP/K): \frac{*(n,\ TT\ 1\text{-}15+19\text{-}22)}{N,\ Collection} \times 100$$

*Types 16-18+23-26 optionally included.

Ground Stone Index:

$$(GS): \frac{(n,\ TT\ 63\text{-}67+69\text{-}71)}{N,\ Collection} \times 100$$

Hunting Implement Index:

$$(HI): \frac{(n,\ TT\ 1\text{-}14)}{N,\ Collection} \times 100$$

Butchering Implement Index:

$$(BI): \frac{*(n,\ TT\ 15+19\text{-}21+34+45+53+55+57+59)}{N,\ Collection} \times 100$$

*Types 22+62 optionally included.

Wood working Implement Index:

$$(WWI): \frac{*(n,\ TT\ 33\text{-}34+39+45\text{-}47+60+61+71)}{N,\ Collection} \times 100$$

*Types 53-59+62 optionally included.

Hide working Implement Index:

$$(HWI): \frac{*(n,\ TT\ 32+36\text{-}40+42\text{-}43+46\text{-}47+51+54+56+58+60)}{N,\ Collection} \times 100$$

*Types 41+48 optionally included.

Bone Working Index:

$$(BWI): \frac{(n,\ TT\ 43+45+47+69\text{-}70)}{N,\ Collection} \times 100$$

Plant Food Processing Index:

$$(PPI): \frac{*(n,\ TT\ 19\text{-}21+34+45+60+63\text{-}65)}{N,\ Collection} \times 100$$

*Types 51-58+61-62 optionally included.

23. Stage I Preform Bases.

24. Stage II Preform Bases.

25. Miscellaneous Biface Blade Fragments.

26. Miscellaneous Biface Fragments.

27. Expanding Incurvate Base Drill.

28. Expanding Straight Base Drill.

29. Expanding Convex Base Drill.

30. Contracting Round Base Drill.

31. Drill Shaft Fragments.

32. Perforator.

33. Elongate Biface Chisel.

34. Core Choppers.

35. Digging Implement.

Unifacial Implements.

36. End Scraper.

37. Side Scraper.

38. Sidescraper/Graver.

39. Core Scraper.

40. Backed Scraper.

41. Miscellaneous Scraper Fragments.

42. Pebble Tool.

43. Gravers.

44. Perforator.

45. Denticulate.

46. Notched Flake.

The following are the formulas used to compute the lithic indices.

Bifacial Implements.

1. Short, Broad Blade, Tapered, Short Broad Stem.
2. Broad Blade, Rounded, Short, Broad Stem.
3. Large, Narrow Blade, Short, Straight Stem.
4. Broad, Ovate Blade, Corner Notched.
5. Medium Large, Narrow Blade, Contracting Stem.
6. Large, Broad Blade, Long, Broad Straight Stem.
7. Short Broad Blade, Corner Notched, Short Expanding Stem.
8. Short Broad Blade, Short Straight Stem.
9. Short Broad Triangular Blade, Expanded Excurvate Base.
10. Medium, Isosceles Triangular, Narrow Blade.
11. Small, Triangular, Broad Blade.
12. Medium Large, Triangular, Narrow Blade.
13. Medium Large, Thick, Triangular, Asymmetrical Blade.
14. Small, Lanceolate, Narrow Blade.
15. Small, Rectangular, Projectile Point/Knife Preform.
16. Miscellaneous Projectile Point Bases.
17. Miscellaneous Projectile Point Blades.
18. Miscellaneous Projectile Point Tips.
19. Thick, Lanceolate, Biface/Knife.
20. Large, Asymmetrical Blade, Bifacial Knife.
21. Ovate, Asymmetrical, Preform/Knife.
22. Thin, Rectangular, Bifacial Knife Base.

47. Splinter Wedge.

48. Miscellaneous Unifacial Fragments.

49. Cores.

50. Tested Cobbles.

Utilized Flake Implements.

51. Robust Projection (Graver).

52. Perforators.

53. Utilized Distal Margin $\leq 45^{o}$.

54. Utilized Distal Margin $> 45^{o}$.

55. Utilized Oblique Distal Edge $\leq 45^{o}$.

56. Utilized Oblique Distal Edge $> 45^{o}$.

57. Utilized Lateral Edge $\leq 45^{o}$.

58. Utilized Lateral Edge $> 45^{o}$.

59. Utilized Multiple Edges.

60. Utilized Notch.

61. Utilized Cores.

62. Miscellaneous Utilized Flake Fragments.

Ground Stone Implemens.

63. Metate.

64. Pitted Cobble.

65. Siltstone Palette.

66. Digging Implement (Hoe).

67. Celt.

68, Miscellaneous Celt Fragments.

69. Chert Abrader.

70. Siltstone Abrader.

71. Worked Shale.

72. Hammerstones.

Debitage.

73. Primary Decortication Flakes.

74. Secondary Decortication Flakes.

75. Tertiary Flakes.

78. Biface Flakes.

79. Broken Flakes.

80. Core Rejuvination Flakes.

81. Blocky Debris.

CHAPTER IV

McCOLLUM ROCKSHELTER

1. General Setting

McCollum Rockshelter (40MU390) is a stratified multicomponent site located on the left (West) bank of Fountain Creek 12.87 kilometers (8 mi.) southeast of Columbia, in Maury County, Tennessee (Figure 3.3, page 19). The exact location is 35° 30′ 16" North Latitude, 86° 56′ 2" West Longitude (U.S.G.S. Glendale 7.5′ Quadrangle). UTM Reference: 16/3929780/505540. The rockshelter is located on the property of the late J.B. McCollum for whom the shelter was named.

McCollum Rockshelter has a southeastern exposure. The rockshelter measures 30 m in length and 2.9 m from the dripline to the back wall as measured along the north profile of Test Trench 1. Elevation of the rockshelter is approximately 186 m above mean sea level (AMSL). The roof height along the dripline varies from a maximum of 75 cm to a completely buried condition at the southwestern margin of the shelter. The total protected present day surface at the rockshelter is approximately 35.78 m^2.

2. Excavation Methodology

A permanent datum (designated A_1) was established at the western margin of the rockshelter. This datum was given the arbitrary coordinates 100N, 100E. From Datum A_1 a baseline was established in front of the dripline parallel to the back wall of the shelter. Utilizing this baseline, the surface of the shelter was partially grided into 1 m^2 units by triangulating from the baseline. All unit designations refer to the southwest corner of the unit and reflect its position north and east of Datum A_1. Two additional datums, designated A_2 and A_3, were affixed to two trees in front of the shelter and reflect "0" elevation or absolute ground surface which was originally defined as the natural ground surface at the southwest corner of excavation unit 114N, 99E. All vertical measurements were calculated in reference to Datum A_2, A_3 or both. This combination of fixed elevational points and a grid system provided absolute Cartesian coordinates for all features and artifacts encountered in situ during excavation. The plan map (Figure 4.1) of the shelter was made by triangulating distances from the baseline as it was not possible to use an alidade and plane table for this task.

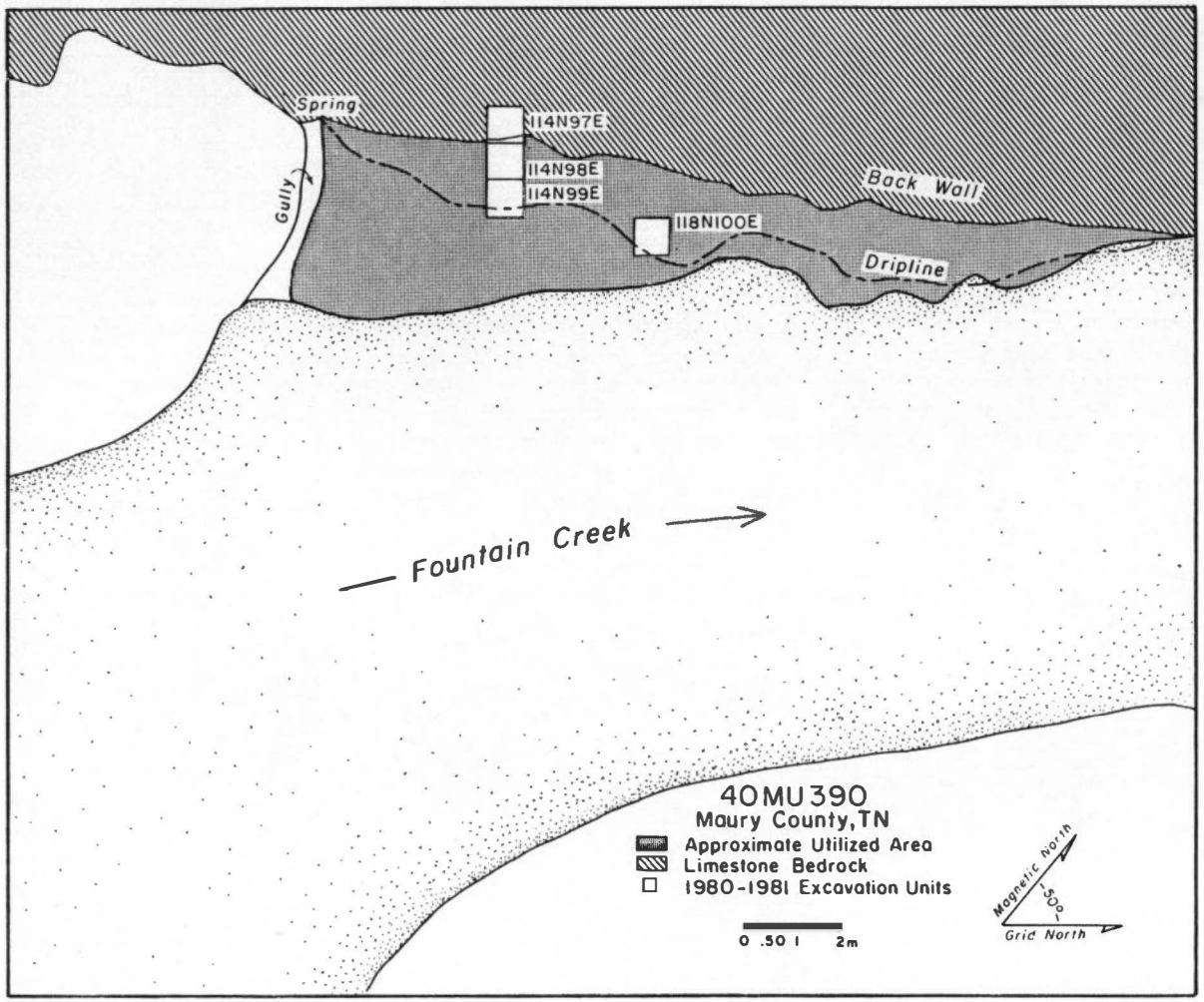


Figure 4.1 Plan Map of McCollum Rockshelter, 40MU390.

Due in part to the alluviated nature of the rockshelter, selection of excavation units was based on the following criteria.

1. The initial excavation unit would have to be located, at least partially, outside the dripline; this factor being dictated by the nearly buried condition of the overhang. From this initial unit a trench composed of contiguous 1 m^2 units could be excavated into the interior of the rockshelter.
2. An adequate baulk would have to be maintained between the excavation units and the channel of Fountain Creek.
3. The units would need to be easily accessible to the excavation crew.

Based on these criteria, Test Trench 1, composed of the contiguous excavation units 114N, 99E, 114N, 98E, 114N, 97E and Test Pit 1, 118N, 100E, were excavated to a maximum depth of 350 cm below surface.

The exact areal extent of the utilized area(s) at the rockshelter have not been absolutely defined at this time; however, for present purposes the site is defined as that area extending from the juncture of the cliff face and floodplain at the northeastern margin of the overhang to the gully on the southwestern margin (Figure

4.1). This area is 64.2 m^2 of which 10.44% of the deposit inside the dripline and 0.93% of the area outside the dripline was excavated.

Initially, the alluvium overlying the cultural deposits were hand excavated in arbitrary 30 cm levels. Upon encountering cultural material the level thickness was reduced to 10 cm. When a recognizable change in color, texture or both were encountered these natural divisions were removed separately within each 10 cm level when possible. Cultural material encountered in situ was piece plotted. Features were mapped and photographed. All fill, excluding a 4 liter flotation sample, was water screened through 6.35 mm and 1.59 mm mesh hardware cloth. A 20 x 20 x 10 cm (4 liter) flotation sample was randomly located within each level using a table of random numbers. Excavated flotation samples were taken to the laboratory for processing.

3. Stratigraphy

Sediment Sources

Six distinct sources have supplied sediment to the deposit at McCollum Rockshelter. The clayey contact between Stratum I (Lowermost) and the Lebanon Limestone basement structure, represents an in situ decomposition of the limestone floor of the rockshelter.

Rock fall from the cliff face above the shelter and from the overhang itself comprise the second source of sediments. Sediment size ranges from small chips up to large slabs several meters in diameter. The exact processes which caused the rock fall is not completely known but most likely include water penetration of the limestone plates, freeze/thaw cycles, hydration, root penetration, and on the slopes above the shelter sediment creep and tree "tip-ups". The fact that these processes have fluctuated in magnitude through time is indicated by the major roof fall episodes demarcating the contact between Stratum I and Stratum II, Stratum IV and Stratum V, and Stratum VI and Stratum VII (Figure 4.2). These periods of increased roof fall may be indicative of cooler and/or wetter conditions which would tend to accelerate weathering along and between the plates of the limestone formation.

The third source of sediment consists of the grain-by-grain attrition of individual limestone particles from the walls and roof of the shelter. This attrition provides a slow but constant "rain" of sediment onto the surface of the deposit. Again the exact physical and chemical processes responsible for this attrition are not known but temperature fluctuations and moisture probably play a significant role. Fires built

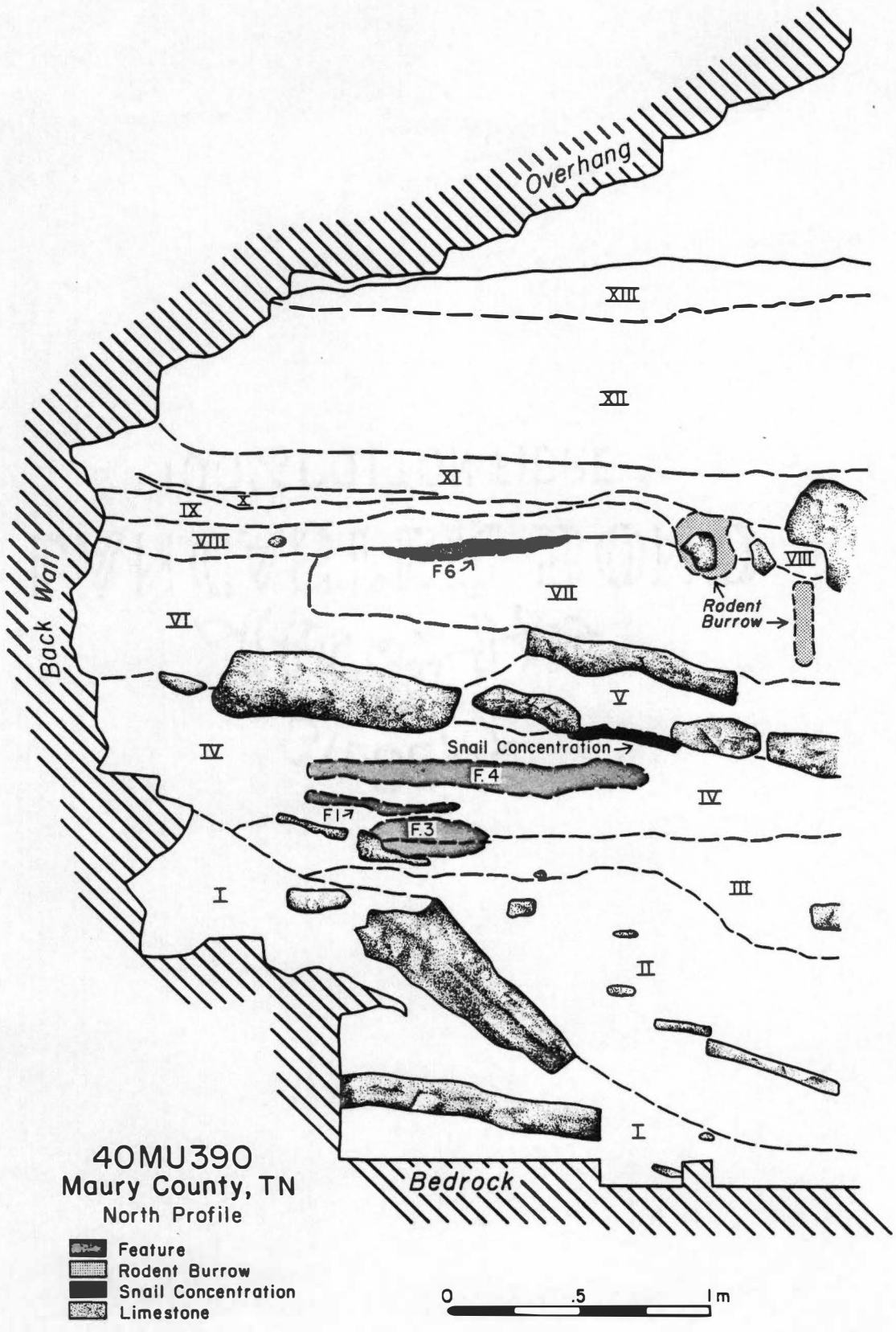


Figure 4.2 North Profile of Test Trench 1, 40MU390.

within the shelter by aboriginal occupants may have accelerated this process in localized areas within the shelter. Historic fires built within a rockshelter downstream from McCollum Rockshelter have actually accelerated the attrition of the back wall and roof near the hearth to the point that a thick attritional "fan" has developed on the shelter floor.

The fourth sedimentary source consists of sheetwash (i.e. solifluction) entering the shelter during periods of heavy or prolonged rainfall. The actual contribution of sediments by sheetwash to the deposit is unknown; however, this process appears to have contributed significantly to the formation of Stratum X (see below).

Material introduced to the deposit by humans comprise the fifth sediment source. This includes lithic artifacts, bone, shell, floral material and site furniture such as clay lined hearths. A description of this material forms the baulk of Chapters IV through X. Various other animals may have also introduced a variety of bone, shell, and floral material to the deposit.

The sixth sediment source consists of fluvial deposits. The bulk of the fill at McCollum Rockshelter represents terrace formation along Fountain Creek during the Holocene Period (c.f. Brackenridge 1982). Although

more than a single terrace may be represented in the fill, the complex nature of the deposit composition at the shelter and in particular the modifying effects of human occupation (see Butzer 1982:123-156; Siirianen 1977; Stockton 1973; Villa 1982) precludes any specific geomorphological determinations of the fill at this time.

Analytical Methods

Thirteen strata were recognized at McCollum Rockshelter on the basis of color, gross composition, texture, and where discernable, structure. The strata vary considerably in thickness and generally slope toward Fountain Creek. The strata are labeled in ascending order from the oldest to the youngest. The sediments in Test Trench 1 are presented in Figure 4.2 and a second profile of the sediments in Test Pit 1 are presented in Figure 4.3. Munsell color determinations were taken from moist soil samples and read in direct sunlight. Gross composition of the strata was determined in the field by the author and is to be regarded as tentative until a standard sieve analysis of the sediments can be completed.

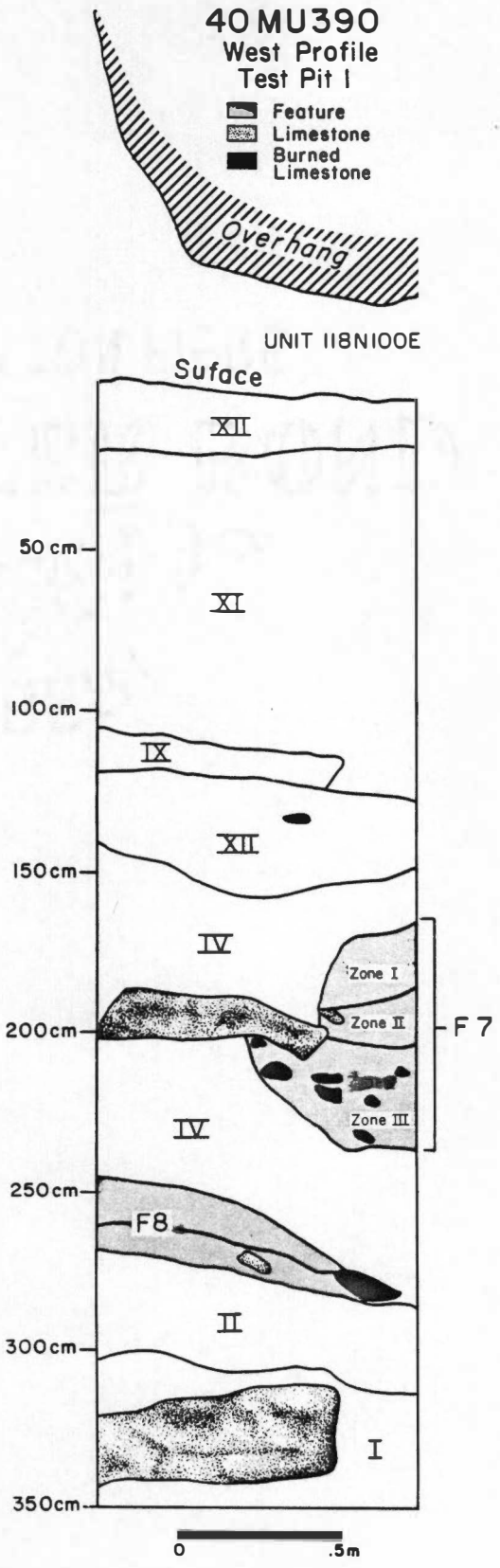


Figure 4.3 West Profile of Test Pit 1, 40MU390.

Stratum I (Lowermost).

Extent: Stratum I was the basal unit at McCollum Rockshelter. Horizontally, it was continuous in all excavated squares. Vertically, the irregular top of Stratum I occurred at a depth of 260 cm below surface at the back (West) wall of the shelter and dipped to a maximum depth of 340 cm below surface at the front of the shelter (Figure 4.2). Thickness varied from 60 cm at the back wall to a maximum excavated thickness of 101 cm near the front of the shelter.

Description: Stratum I was a dark yellowish-brown (10YR4/4 to 7.5YR4/5) loose to compact agglomerate of limestone slabs, rubble and clay. Floral and faunal turbation (bioturbation) was minimal.

Cultural Affiliation: One fragmentary projectile point recovered from near the back wall of the shelter, in excavation unit 114N, 97E, Level 250-260 cm below surface, suggests a Middle Archaic (Morrow Mountain) association for the upper portion of this stratum; however, the projectile point was too fragmentary to be formally placed in the Morrow Mountain cluster and may be intrusive from Stratum II where a complete Morrow Mountain pp/k was recovered. The lower portion of Stratum I was void of time sensitive artifacts in the excavated squares; however, a significant amount of

lithic debitage was recovered which may antecede the Middle Archaic utilization of the shelter or may in fact be the result of postdepositional trampling or size sorting within the Strata (c.f. Siirianen 1977; Stockton 1973; Villa 1982). The cultural affiliation of the lower half of Stratum I is indeterminate at this time.

Stratum II.

Extent: Horizontally, Stratum II was discontinuous across the excavated squares. Vertically, the irregular surface was encountered at 230 cm below surface near the back wall and dipped to a depth of 262 cm at the front of the shelter (Figure 4.2). Thickness varied from 1 cm to a maximum of 105 cm. The lower contact was abrupt.

Description: Stratum II was a dark yellowish-brown (10YR4/4) clay loam interspersed with limestone rubble and aquatic gastropods. Bioturbation was minimal.

Cultural Features: Feature 2 was wholly contained within Stratum II.

Cultural Affiliation: One projectile point (Morrow Mountain) recovered from unit 114N, 98E Level 250-260 cm below surface indicates a Middle Archaic association for the upper two-thirds of the strata. The cultural affiliation of the lower one-third of Stratum II is not known.

Stratum III.

Extent: Horizontally, Stratum III was discontinuous across the excavated squares. Vertically, the top of Stratum III occurred at a depth of 213 cm below surface near the back wall and gradually dipped to a depth of 215 cm below surface front of the shelter. Thickness varied from 1 cm to a maximum of 46 cm. The lower contact was gradual.

Description: Stratum III was a dark brown to reddish-brown (10YR4/4 to 7.5YR3.5/3.5) clay loam. Limestone rubble and bioturbation was minimal.

Cultural Features: Feature 3 was intrusive from overlying Stratum IV (Figure 4.2, page 35).

Cultural Affiliation: Stratum III is attributable to the Middle Archaic period.

Stratum IV.

Extent: Horizontally, Stratum IV was continuous in all excavated squares. Vertically, the top of Stratum IV was encountered at 152 cm below surface at the back wall of the shelter and dipped to a depth of 192 cm below surface at the front of the shelter (Figure 4.2, page 35). Thickness varied from a minimum of 30 cm in Test Trench 1 to a maximum of 136 cm in Test Pit 1. The lower contact was gradual.

Description: Stratum IV was a dark yellowish-brown to dark brown (10YR4/4 to 7.5YR3.5/3.5) moderately compact clay loam. The pedological structure was angular. Limestone rubble and aquatic gastropods occurred throughout the strata. Bioturbation was extensive particularly at the front of the shelter. A major roof fall episode marked the otherwise abrupt contact between Stratum IV and Stratum V.

Cultural Features: Features 1, 4 and 6 are contained within Stratum IV. Feature 3 originates in Stratum IV and was intrusive into Stratum III (Figure 4.2, page 35).

Cultural Affiliation: Lithic frequency curves suggest the lowermost 10 cm of Stratum IV is attributable to the Middle Archaic period and the upper 50 cm of the strata is attributable to the Late Archaic period.

Stratum V.

Extent: Horizontally, Stratum V was discontinuous in the excavated squares. Vertically, the top of Stratum V occurred at a depth of 149 cm below surface near the middle of the shelter and dipped to a depth of 159 cm below surface at the front of the shelter (Figure 4.2, page 35). Thickness varied from 10 cm to a maximum of 29 cm. The lower contact was abrupt, being partially demarcated by limestone roof falls.

Description: Stratum V was a dark yellowish-brown (10YR4/4) compact clay loam interspersed with limestone rubble and aquatic gastropods. Aquatic gastropods are particularly profuse beneath the larger limestone rubble (Figure 4.2, page 35). Bioturbation was not evident.

Cultural Affiliation: One projectile point (Ledbetter) recovered from excavation unit 114N, 99E, Level 7 160-170 cm below surface, indicates a Late Archaic period association for Stratum V.

Stratum VI.

Extent: Horizontally, Stratum VI was discontinuous across the excavated squares. Vertically, the irregular top of Stratum VI was encountered at 105 cm below surface at the back wall and dipped to 136 cm below surface near the middle of the shelter (Figure 4.2, page 35). Thickness varied from a minimum of 10 cm to a maximum of 50 cm. The lower contact was diffuse.

Description: Stratum VI was a dark yellowish-brown (10YR5/5) compact sandy, silty matrix. Bioturbation was minimal. During excavation of unit 114N, 97E a fissure in the back wall of the shelter was encountered at approximately 120 cm below surface. Subsequent observation indicated that ground water seepage from this fissure continued on a year-round basis. This constant seepage appears to have leached the clay fraction out of

Stratum VI. Therefore, Stratum VI may actually represent portions of Stratum V and Stratum VII which have undergone postdepositional illuvial transformation via clay translocation.

Cultural Affiliation: A Late Archaic association for the lower 10 cm of Stratum VI is indicated. The upper 40 cm of Stratum VI is attributable to the Woodland Period.

Stratum VII.

Extent: Horizontally, Stratum VII was discontinuous across the excavated squares. Vertically, the top of Stratum VII occured at 110 cm below surface near the middle of the shelter and dipped to a depth of 119 cm below surface at the front of the shelter (Figure 4.2, page 35). Thickness varied from 24 cm to a maximum of 49 cm. The lower contact was gradual.

Description: Stratum VII was a dark yellowish-brown (10YR4/4) medium compact coarse clay loam. Limestone rubble and aquatic gastropods occurred throughout. Bioturbation was evident throughout the strata.

Cultural Affiliation: Limestone-tempered Long Branch Fabric Marked and Mulberry Creek Plain ceramics recovered at the shelter suggests an Early to Middle Woodland association for the lower portion of Stratum

VII. The clay and grit-tempered McKelvey Plain and Mulberry Creek Cord Marked ceramics recovered from the lower middle portion of the strata indicates a Middle Woodland association for this portion of the deposit. The two chert-tempered sherds, Elk River Cord Marked and chert-tempered residual, suggest a Late Middle to Late Woodland association for the upper portion of Stratum VII.

Stratum VIII.

Extent: Horizontally, Stratum VIII was discontinuous in the excavated squares. Vertically, the top of Stratum VIII was encountered at 95 cm below surface at the back of the shelter and dipped to a depth of 100 cm below surface at the front of the shelter (Figure 4.2, page 35). Thickness varied from 10 cm to a maximum of 15 cm. The lower contact was abrupt.

Description: Stratum VIII was a yellowish-brown (10YR5/6) medium compact coarse clay loam interspersed with profuse limestone rubble and aquatic gastropods. Bioturbation was minimal.

Cultural Affiliation: Three shell-tempered sherds of Mississippian Plain recovered from Stratum VIII suggest a Mississippian period association for Stratum VIII.

Stratum IX.

Extent: Horizontally, Stratum IX was discontinuous in the excavated squares. Vertically, the irregular top of Stratum IX was encountered at 86 cm below surface at the back wall and dipped to a depth of 110 cm below surface at the front of the shelter (Figure 4.2, page 35). Thickness varied from 8 cm to a maximum of 13 cm. The lower contact was abrupt.

Description: Stratum IX was a brown (10YR3/3) medium compact clay loam interspersed with minimal limestone rubble and aquatic gastropods. Bioturbation was minimal.

Cultural Affiliation: An 1820 dime recovered from excavation unit 114N, 98E, Level 10, 90-100 cm below surface, indicates Stratum IX is associated with the Historic period.

Stratum X.

Extent: Horizontally, Stratum X was discontinuous in the excavated squares and occurred predominately at the back of the shelter. However, inspection of the cutbank in front of the shelter suggested Stratum X extended, more or less, across the entire length of the shelter. Vertically, the top of Stratum X was encountered at a depth of 88 cm below surface near the middle of the shelter. Thickness varied from

1 cm to a maximum of 5 cm. The lower contact was abrupt.

Description: Stratum X was a fire-reddened (7.5YR5.5/8) compact silty, sandy, clayey matrix void of limestone rubble. Bioturbation was not evident.

Cultural Affiliation: Based on the discussion presented below (also see Brackenridge 1982; Edwards et al. 1974:2), it is suggested that Stratum X was associated with the initial historic land clearing activities (i.e. tree felling, overburning etc.) conducted prior to cultivation of the floodplain, higher terraces and uplands along Fountain Creek. The Historic period is indicated.

Comments: During excavation of Stratum X a number of observations were made which may help explain it's depositional history and temporal position. The observations were as follows: (1) Stratum X sediments were discontinuous across the excavated squares yet appeared to extend across the entire length of the cutbank at the front of the shelter; (2) the sediments which comprise Stratum X appeared to have been thermally altered (i.e. reddened); (3) the surface of Stratum X exhibited numerous random pockets or pits approximately 10-20 cm in diameter and 3-5 cm in depth; (4) the basal contact of overlying Stratum XI was abrupt; (5) the basal

contact of Stratum X was abrupt and (6) an 1820 dime was recovered in the underlying stratum. Based on these observations the following scenario is presented. Sometime after 1820 (this approximate date was determined by the lost 1820 dime recovered from Stratum IX) the initial land clearing activities conducted prior to intensive cultivation were being carried out along this reach of Fountain Creek. The practice of overburning, typical of the 1800's, may have generated sufficient heat (350°C) to thermally alter the very top of the A soil horizon. Furthermore, this "total" land clearing method leaves the soil vulnerable to erosion during periods of heavy or prolonged precipitation (see also Butzer 1982:123-156). It is suggested then, that Stratum X was deposited during one or more high energy hydraulic episode(s) following the initial clearing of vegetation along Fountain Creek. The sediments which comprise Stratum X were eroded from the floodplain and terraces of Fountain Creek and redeposited along horizontal and low areas across the site during one or more winter/spring flood cycle(s). After deposition, continuing heavy or prolonged precipitation formed the drip pockets in the deposit as moisture migrated inward along the underside of the shelter roof before dripping onto the surface of Stratum X forming the pits. The initial deposition of

overlying Stratum XI followed shortly thereafter as indicated by the abrupt contact between these two strata.

Stratum XI.

Extent: Horizontally, Stratum XI was continuous across all excavated squares. Vertically, the top of Stratum XI was encountered at a depth of 60 cm below surface at the back wall and dipped to a depth of 77 cm below surface at the front of the shelter. Thickness varied from a minimum of 15 cm to a maximum of 25 cm. The lower contact was gradual to abrupt.

Description: Stratum XI was a dark yellowish-brown (10YR4/4) compact, laminated, loam matrix void of limestone rubble. Bioturbation was present throughout Stratum XI.

Cultural Affiliation: The Historic period is indicated.

Stratum XII.

Extent: Horizontally, Stratum XII was continuous across the excavated squares. Vertically, the top of Stratum XII was encountered at 14 cm below surface at the back wall and dipped to a depth of 22 cm at the front of the shelter. Thickness varied from 50 cm to a maximum of 104 cm. The lower contact was abrupt.

Description: Stratum XII was a very pale brown (10YR7/4) compact, laminated, loam matrix void of limestone rubble. Bioturbation was present throughout.

Cultural Affiliation: The Historic period is indicated.

STRATUM XIII (UPPERMOST).

Extent: Horizontally, Stratum XIII was discontinuous in all excavated squares. Vertically, the top of Stratum XIII represents the modern day land surface at the shelter. The surface slopes gently in the direction of Fountain Creek (Figure 4.2, page 35). Thickness varies from 4 cm to a maximum of 24 cm. The lower contact was abrupt.

Description: Stratum XIII consists of a light yellowish-brown (10YR6/4) loosely laminated, silty, sandy, clayey matrix with a few pieces of limestone roof fall on the surface. Bioturbation was evident throughout the strata.

Cultural Affiliation: The Historic period is indicated.

4. Cultural Features

A total of eight cultural features was encountered during excavations at McCollum Rockshelter. Small, irregularly circular, clay lined, basin-shaped firepits

were the predominant feature. Other features encountered include firefloors and what was apparently an earth oven. A summary of these cultural features encountered at 40MU390 is presented below. Profiles of the eight features encountered at the rockshelter are presented in Figure 4.4.

Feature 1 Probable Firepit (Figure 4.4).

Description: Feature 1 was irregularly circular in outline and lenticular in cross section. It was clay lined and fire-reddened. The fill was dispersed and consisted primarily of mussel shell, lithics, and charcoal flecks.

Measurements: Length: 60 cm, Width: (N.A.), Maximum Depth: 5 cm.

Comments: Feature 1 was wholly contained within Stratum IV. A Middle Archaic association for this firepit is suggested.

Feature 2 Probable Firepit (Figure 4.4).

Description: Feature 2 was irregular in plan view and basin-shaped in cross section. It was also clay lined and fire-reddened. A charcoal and ash lens occurred below the clay lining near the center of the

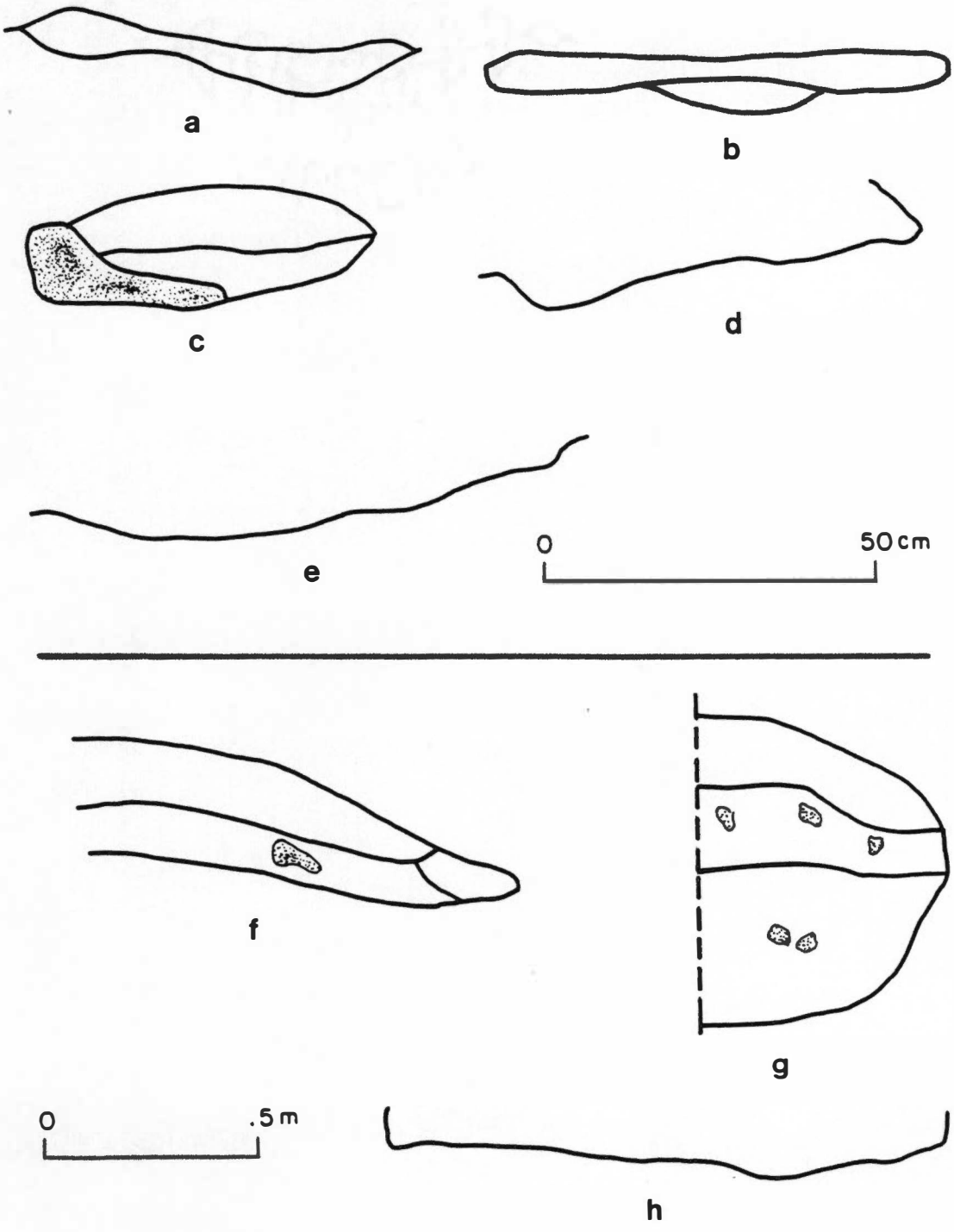


Figure 4.4 Cultural Features from McCollum Rockshelter.
a: Fea. 1. b: Fea. 2. c: Fea. 3. d: Fea. 5.
e: Fea. 6. f: Fea. 8. g: Fea. 7. h: Fea. 4.

firepit. The fill consisted primarily of mussel shell, lithics, charcoal, and charred nutshell.

Measurements: Length: 71 cm, Width: (N.A.), Maximum depth: 7 cm.

Comments: Feature 2 was wholly contained within Stratum II. Feature 2 was antecedent to Feature 1. A Middle Archaic association for this feature is suggested.

Feature 3 Probable Firepit (Figure 4.4).

Description: Feature 3 was circular in outline and basin-shaped in cross section, clay and rock lined, and fire-reddened. A charcoal and ash lens occurred above the lining. The fill consisted of lithics, charcoal, and charred nut shell.

Measurements: Length: 52 cm, Width: (N.A.), Maximum Depth: 19 cm.

Comments: Feature 3 originates in Stratum IV and was intrusive of Stratum III. This hearth was antecedent to Feature 1 and occurred directly below it. A Middle Archaic association is indicated for this feature.

Feature 4 Probable Firefloor (Figure 4.4).

Description: Feature 4 was irregular in outline and basin-shaped in cross section, unlined, and fire-reddened. No discernable fill was encountered.

Associated material included mussel shell, lithics, bone, and charcoal flecks.

Measurements: Length: 129 cm, Width: (N.A.), Maximum Depth: 12 cm.

Comments: Feature 4 was contained within stratum IV. A Late Archaic association is suggested for this firefloor.

Feature 5 Probable Firepit (Figure 4.4).

Description: Feature 5 was irregular in outline, basin-shaped in cross section, unlined, fire-reddened, and contained no discernable fill. Associated material included mussel shell, bone, lithics, and charcoal.

Measurements: Length: 65 cm, Width: (N.A.), Maximum Depth: 12 cm.

Comments: Feature 5 was wholly contained within Stratum V. A Ledbetter projectile point was recovered from Stratum V which indicates this feature was associated with the Late Archaic period.

Feature 6 Probable Firepit (Figure 4.4).

Description: Feature 6 was circular in plan view, lenticular in cross section, unlined, and fire-reddened. Associated material included lithics, baked clay, and charcoal.

Measurements: Length: 73 cm, Width: (N.A.), Maximum Depth 6 cm.

Comments: Feature 6 originated in Stratum VIII and was intrusive into Stratum VII. Ceramic artifacts recovered from Stratum VII and Stratum VIII indicate a Woodland association for this feature.

Feature 7 Probable Earth Oven (Figure 4.4).

Description: Feature 7 was circular in plan view, basin-shaped in cross section, unlined, and fire-reddened. The basal portion of Feature 7 was a dark black fill containing burnt limestone cobbles. The middle portion of Feature 7 contained less burnt limestone and the fill was interspersed with baked clay fragments. The uppermost portion of the feature consisted of an ashy fill.

Measurements: Length: (N.A.), Width: (N.A.), Maximum Depth: 69 cm.

Comments: This probable earth oven was wholly contained within Stratum IV. A Woodland association for this feature is indicated.

Feature 8 Probable Firefloor (Figure 4.4).

Description: Feature 8 was irregular in outline and lenticular in cross section. The sloped

fire-reddened base was overlain by a dispersed charcoal fill.

Measurements: Length: (N.A)., Width: (N.A.), Maximum Depth: 25 cm.

Comments: This probable firefloor lies between Stratum II and Stratum IV. The cultural association of this feature is not known; however, a Middle Archaic association is suggested.

5. Ceramic Artifacts

A total of 45 ceramic sherds was recovered during excavations at McCollum Rockshelter. The 45 sherds are referable to four wares and seven types. All ceramic artifacts were recovered from Stratum VII and Stratum VIII. Although the overall paucity of the ceramics recovered from the rockshelter is apparent, mixing of the sherds by floral and faunal turbation as well as by aboriginal activity at the shelter precludes any definite cultural associations for specific portions of Stratum VII and Stratum VIII at this time. General cultural associations are suggested for the two strata based on ceramic frequency curves. The minority of the ceramics recovered 37.8% (N=17) were relegated to a residual category while 62.2% (N=28) were assignable to previously named wares and types. A summary of the ceramics is

presented below and are presented by cultural period in Table 4.1.

Limestone-Tempered Ware (N=15)

Limestone-tempered pottery is represented by 15 sherds constituting 33.3% of the ceramic collection. Six are body sherds, one is a rim sherd, and the remaining nine are residual sherds. Two previously named types are represented in the collection: (1) Mulberry Creek Plain (Haag 1939:9; Heimlich 1952:15-16) and (2) Long Branch Fabric Marked (Haag 1939:9; Heimlich 1952:17).

1a Limestone-Tempered Residual (N=7).

Within the limestone-tempered ware the seven residual sherds represent 47% of the limestone-tempered ceramics and 16% of the total ceramic collection. Limestone-tempered residual sherds are followed in frequency by Mulberry Creek Plain 40% (N=6) and Long Branch Fabric Marked 13% (N=2). Undoubtedly the residual sherds would have been assignable to one of the types described below if they had been recovered with intact exterior surfaces.

1b Limestone-Tempered Plain (N=6) (Figure 4.5).

Six plain surfaced sherds constituting 40% (N=6) of the limestone-tempered ware and 13% of the total ceramic collection, are attributable to the type Mulberry

Table 4.1 Ceramic Artifacts from McCollum Rockshelter by Cultural Period.

Cultural Period	1a	1b	1c	2a	2b	2c	3a	3b	3d	4a	4b	7a	Total
Mississippian/ Late Woodland	7	6	2	7	6	2	1	1	1	1	3	8	45
Total	7	6	2	7	6	2	1	1	1	1	3	8	45
% Total	15.6	13.3	4.4	15.6	13.3	4.4	2.2	2.2	2.2	2.2	6.6	17.8	100

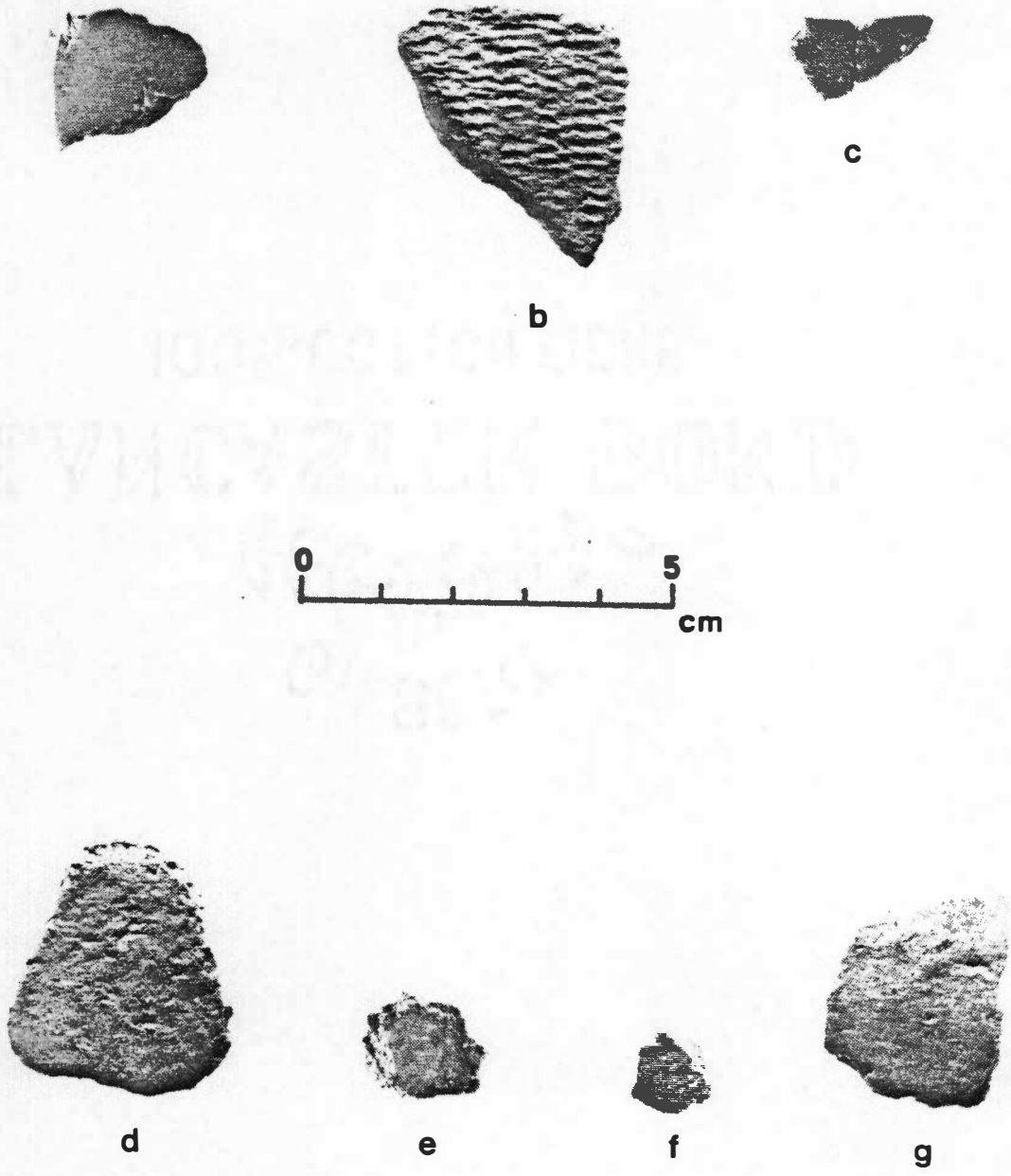


Figure 4.5 Ceramic Artifacts from McCollum Rockshelter by Category. a: 1b. b: 1c. c-d: 2b. e: 2c. f: 3d. g: 4b.

Creek Plain (Haag 1939:9; Heimlich 1952:15-16). Exterior and interior surfaces of the sherds are tan buff in color. The paste varies from gray buff to tan buff. The single rim sherd has a flattened lip and slightly flared profile. Sherd thickness varies from 6.4 mm to 7.5 mm (Mean=6.8 mm, N=3).

Temper: The sherds contain 15-20% crushed limestone-temper. Average temper size is 1.5 mm. Occasional aplastics were limited to manganese oxide grains 100% (N=6).

Surface Treatment: Sherds of Mulberry Creek Plain exhibit smoothed undecorated exterior surfaces.

Comments: Mulberry Creek Plain ceramics occur in greatest frequency during the Middle and Late Woodland periods in Middle Tennessee (Faulkner 1973) but continue to occur to a much lesser extent in Mississippian period ceramic assemblages (Kleinhans 1978). Kline (1979:136) has suggested that this ware/surface combination not be granted type status based on its occurrence in several time periods. Faulkner and McCollough (1973:335-336), however, have maintained that this type was dominant during the McFarland and Owl Hollow phases of the Middle Woodland period. Available radiocarbon dates range from 2040+95 B.P. (UGa 648) (Cobb 1978:320) to 1227+120 B.P. (UGa 723) (Cobb 1978:266).

1c Limestone-Tempered Fabric Marked (N=2) (Figure 4.5).

Two fabric marked body sherds are assignable to the type Long Branch Fabric Marked (Haag 1939:9; Heimlich 1952:15-16). Long Branch Fabric Marked ceramics constitute 13% of the limestone-tempered ceramics and 4.4% of the total ceramic collection. The paste and interior surfaces of the sherds are gray buff in color. The exterior surface of both specimens is reddish-orange. Thickness varies from 5.3 mm - 6.9 mm (Mean=6.8 mm, N=2).

Temper: Both sherds contain 15-20% crushed limestone-temper. Average temper size is 1.5 mm. Occasional aplastics noted within the paste were limited to manganese oxide grains 100%.

Surface Treatment: Exterior surfaces of both sherds exhibit distinct fabric impressions. Space between warp impressions is 3.25 mm. Weft impressions vary from 5.5 to 5 impressions per centimeter (Mean=5.2).

Comments: Long Branch Fabric Marked ceramics are the first of the limestone-tempered ceramics to appear in the Middle South (Faulkner and McCollough 1973:92-93 Haag 1939:10; Heimlich 1952:36-37; Lewis and Kneberg 1957:7). Although Long Branch Fabric Marked ceramics reach their zenith during the Early Woodland period they continue to a lesser degree into the Middle Woodland period being

gradually replaced by Mulberry Creek Plain (Davis 1978:407-409; Faulkner and McCollough 1974:140-146). Available radiocarbon dates place this type between 2290+150 B.P. (Gx 0547) (Faulkner 1977:17) and 2040+95 B.P. (UGa 648) (Cobb 1978:320). An Early to Middle Woodland association for this ceramic type at 40MU390 is indicated.

Clay and Grit-Tempered Ware (N=15)

Clay and grit-tempered ceramics constitute 33.3% of the total ceramic collection. Eight of the sherds are body sherds, one is a rim sherd, and the remaining seven are residual sherds. Two named types are represented: (1) McKelvey Plain (Haag 1939; Heimlich 1952:2) and (2) Mulberry Creek Cord Marked (Haag 1939; Heimlich 1952:21).

2a Clay and Grit-Tempered Residual (N=7).

Within the clay and grit-tempered ware the seven residual sherds constitute 38.9% of the total clay and grit-tempered ceramics and 15.6% of the total ceramic collection. Clay and grit-tempered residual ceramics are followed in frequency by McKelvey Plain (N=5) and Mulberry Creek Cord Marked (N=2). Undoubtedly the seven residual sherds would have been assignable to one of the previously named types if they had been recovered in a more complete condition.

2b Clay and Grit-Tempered Plain (N=6) (Figure 4.5).

Five plain surfaced body sherds and one rim sherd recovered from 40MU390 constitute 40% of the clay and grit-tempered ware and 13.3% of the total ceramic collection are attributable to the type McKelvey Plain (Haag 1939:9; Heimlich 1952:15-17). Exterior surfaces of the sherds vary in color from pale yellow to yellowish-pink. Interior surfaces are yellow to brown in color. The paste is yellowish-red to gray-brown in color. The single rim sherd has a rounded lip and indeterminate rim profile. Sherd thickness varies from 5.7 mm to 7.8mm. (Mean=7.38 mm, N=5). The single McKelvey Plain rim sherd in the collection is 7.8 mm in thickness.

Temper: Temper consists of varying quantities and combinations of (1) burnt clay, (2) limestone, (3) chert, and (4) manganese oxide grains. Temper size ranges from burnt clay fragments 3 mm in diameter to small angular particles of limestone and chert.

Surface Treatment: Sherds of McKelvey Plain exhibit smoothed undecorated exterior surfaces. Secondary surface treatment was not evident.

Comments: McKelvey Plain ceramics were recovered in a pre-Mississippian context at Stanfield-Worly Bluff Shelter, Colbert County, Alabama (DeJarnette et al. 1962). At Stanfield-Worly bluff shelter the McKelvey

series occurs with the limestone-tempered ware. DeJarnette (1962:42) suggests a Late Woodland association for McKelvey Plain ceramics at Stanfield-Worley Bluff Shelter. McKelvey series ceramics recovered at Tom's Rockshelter (40MU430), a small rockshelter located on the Duck River in Maury County, Tennessee, were recovered stratigraphically above the limestone-tempered ware and below and coincidental to the chert-tempered ware (Hall 1983:86). A Late Woodland association for the McKelvey Plain ceramics recovered from 40MU390 is suggested.

2c Clay and Grit-Tempered Cord Marked (N=2) (Figure 4.5).

The two clay and grit-tempered cord marked sherds recovered constitute 13.3% of the clay and grit-tempered ware and 4.4% of the total ceramic collection. These sherds conform to the type Mulberry Creek Cord Marked (Haag 1939; Heimlich 1952:21). Both surfaces of the sherds, as well as, the paste are dark gray-black in color. Thickness ranges from 5.8 mm to 7.8 mm (Mean=6.8 mm, N=2).

Temper: The sherds contain 10 to 20% clay and grit-temper. Temper consists of varying quantities and combinations of (1) burnt clay, (2) limestone, (3) chert, and (4) manganese oxide grains. Temper size varies from burnt clay and chert fragments 2 mm in diameter to small particles of limestone.

Surface Treatment: Exterior surfaces of both sherds exhibit cord wrapped paddle markings. The cords are closely spaced and the impressions are distinct. Secondary surface treatment in the form of smoothing was not evident.

Comments: Mulberry Creek Cord Marked ceramics were recovered in association with McKelvey Pain ceramics at Stanfield-Worley Bluff Shelter (DeJarnette et al. 1962). At Tom's Rockshelter (40MU430) Mulberry Creek Cord Marked sherds were recovered above the limestone-tempered ware and below and coincidental with the chert-tempered ware (Hall 1983:86). A Late Woodland association for Mulberry Creek Cord Marked ceramics recovered at 40MU390 is suggested.

Chert-Tempered Ware (N=3)

Chert-tempered ceramics constitute 6.6% of the total ceramic collection. Two are body sherds and the other is a residual sherd.

3a Chert-Tempered Residual (N=1).

Within the chert-tempered ware the single residual sherd represents 33.3% of the ware and 2.2% of the total ceramic collection. This sherd would have been assignable to one of the types described below if it had been more complete.

3b Chert-Tempered Plain (N=1) (Figure 4.5, page 59).

One plain smoothed surface sherd constituting 33.3% of the chert-tempered ware and 2.2% of the total ceramic collection conforms to the type Elk River Plain (Faulkner 1968:63-65). The paste and both surfaces of the sherd are brown in color. Thickness of the sherd is 5.3 mm.

Temper: The paste contains 10% crushed chert and lesser quantities of crushed quartz and limestone. Faulkner (1968) defines this ware as having chert only; however, others have allowed for a mixture of temper in this ware. Kleinhans (1978:430) uses the designation "cryptocrystaline tempered" rather than chert tempered to allow for inclusion of quartz. Temper size ranges from 0.5 mm to 2 mm. Average temper size is 1.25 mm.

Surface Treatment: The single sherd of Elk River Plain has a smoothed undecorated surface.

Comments: Elk River Plain ceramics have been attributed to the Late Woodland Mason phase of the upper Duck and Elk River Valleys of Middle Tennessee (Faulkner 1968:161-165; Faulkner and McCollough 1973:353; Kleinhans 1978:430). A Late Woodland association for this sherd is suggested.

3d Chert-Tempered Cord Marked (N=1) (Figure 4.5, page 59).

The single chert-tempered cord marked body sherd represents 33.3% of the chert-tempered ware and 2.2% of the total ceramic collection. The specimen conforms to the type Elk River Cord Marked described by Faulkner (1968:61-63). The paste and both surfaces of the sherd are black in color. Sherd thickness is 5.0 mm.

Temper: The paste contains 10% crushed chert-temper and lesser quantities of quartz and limestone. Temper size ranges from 0.5 mm to 2 mm. Average temper size is 1.25 mm.

Surface Treatment: The single sherd exhibits cord wrapped paddle impressions on the exterior surface. Cord markings are deep and distinct.

Comments: Elk River Cord Marked ceramics are a marker for the Late Woodland Mason phase of the upper Duck and Elk River valleys of Middle Tennessee (Faulkner and McCollough 1977:166; Kleinhans 1978:436). A Late Woodland association for the Elk River Cord Marked sherd recovered from 40MU390 is indicated.

Shell-Tempered Ware (N=4)

Shell-tempered ceramics are represented by 4 sherds which constitute 8.9% of the total ceramic assemblage. Three of the specimens are body sherds while

the fourth is a residual sherd. One previously named type is represented, Plain Shell (Heimlich 1952:22-24) or Mississippian Plain (Phillips 1970:130-135).

4a Shell-Tempered Residual (N=1).

The single shell-tempered residual sherd represents 25% of the shell-tempered ware and 2.2% of the total ceramic collection. Undoubtedly this sherd would have been assignable to the type Mississippian Plain if it had been more complete.

4b Shell-Tempered Plain (N=3) (Figure 4.5, page 59).

The three plain surfaced sherds conform to the type Plain Shell (Heimlich 1952:24-24) or Mississippian Plain (Phillips 1970:130-135). Mississippian Plain sherds represent 75% of the shell-tempered sherds and 6.6% of the total ceramic collection recovered from 40MU390. A red oxidized zone 2 mm thick is present at one or both surfaces of the sherds. The core is a gray buff color. Thickness varies from 8.3 mm to 9.9 mm (Mean=8.9 mm, N=3).

Temper: Sherds of this type contain 25-50% crushed shell temper. Temper size ranges from platy fragments 2 mm in length to particles only visible microscopically. Average temper size is 1.50 mm.

Surface Treatment: Sherds of Mississippian Plain exhibit smooth exterior surfaces. Secondary surface treatment was not evident.

Comments: Shell-tempered ceramics are a diagnostic artifact attributable to the Mississippian period in the Eastern United States (Phillips 1970). The occurrence of shell-tempered ceramics indicates a Mississippian period utilization of the rockshelter.

7a Miscellaneous Residual (N=8).

This category is a catchall for those sherds which were too fragmentary to define by either surface treatment or temper. The eight sherds in this category represent 17.8% of the total ceramic collection and reflect the generally poor preservation of the ceramics recovered at McCollum Rockshelter.

6. Lithic Artifacts

A total of 155 flaked, utilized, and ground stone artifacts was recovered from McCollough Rockshelter. The entire lithic assemblage was examined with the exception of the 1.59 mm fine screen material recovered from units 114N, 98E, 114N, 97E and 118N, 100E from which a 25% sample was examined. One hundred percent of the fine screen material was examined from excavation unit 114N, 99E. Preliminary sorting was conducted which separated

the lithics into the following categories: tested cobbles, cores, bifacially worked implements, unifacially worked implements, utilized flakes, ground stone artifacts, and six discrete debitage categories.

In this discussion a descriptive typology based on recurring techno-morphological attributes is presented. Although traditional terminology has been utilized in this analysis, the use of functional typologies (i.e. projectile point) is to be regarded as tentative and in need of further research (i.e. micro-wear analysis). It is recognized that any given artifact may have functioned differently in a variety of tasks during its use life (c.f. Sackett 1973). When an artifact conformed to the description of a previously named "type" this information was noted and its relative temporal placement given. When practical, metric attributes are provided. When metric estimations are given for incomplete specimens they appear in parenthesis.

Worked Implements

A total of 127 worked implements was recovered at 40MU390 which constitute 81.94% of the total worked, utilized, and ground stone lithics recovered. Twenty-two discrete categories were identified. These 22 categories are divided into a bifacial series and a unifacial series. The bifacial series is represented by 11

categories which constitute 0.36% (N=37) of the total lithic assemblage and 29.13% of the worked implements. The unifacial series is represented by 7 categories which constitute 0.81% (N=84) of the total lithic assemblage and 66.14% of the worked implements. The worked stone implements recovered from 40MU390 are described and discussed below. They are summarized by cultural period in Table 4.2.

Projectile Points

Three projectile points was recovered from McCollum Rockshelter. The three projectile points conform to two previously named types and one unnamed category. In addition, 16 pp/k blade fragments, five pp/k bases, and seven pp/k tips were recovered. These specimens are described and discussed below.

Category 1 Short, Broad Blade, Tapered, Short Broad Stem (N=1) (Figure 4.6).

Description: The lateral blade margins are straight and the distal juncture is acute. The shoulders are weakly developed and slightly tapered. The stem is contracting and the basal margin is unground. The specimen is biconvex in cross section. Primary flaking of the blade and haft element are obscure. Secondary flaking along the lateral blade margins is bifacial-

Table 4.2 Bifacial Lithic Implements from McCollum Rockshelter by Cultural Period.

Cultural Period	Implement Category											
	1	6	10	16	17	18	21	24	25	26	35	Total
Mississippian/ Woodland			1		1	1	1			1		5
Late Archaic		1			2	3			1		1	8
Middle Archaic	1			3	13	3			1			21
Indeterminate				2				1				3
Total	1	1	1	5	16	7	1	1	2	1	1	37
%Total	2.7	2.7	2.7	13.51	43.24	18.92	2.7	2.7	5.41	2.7	2.7	99.98

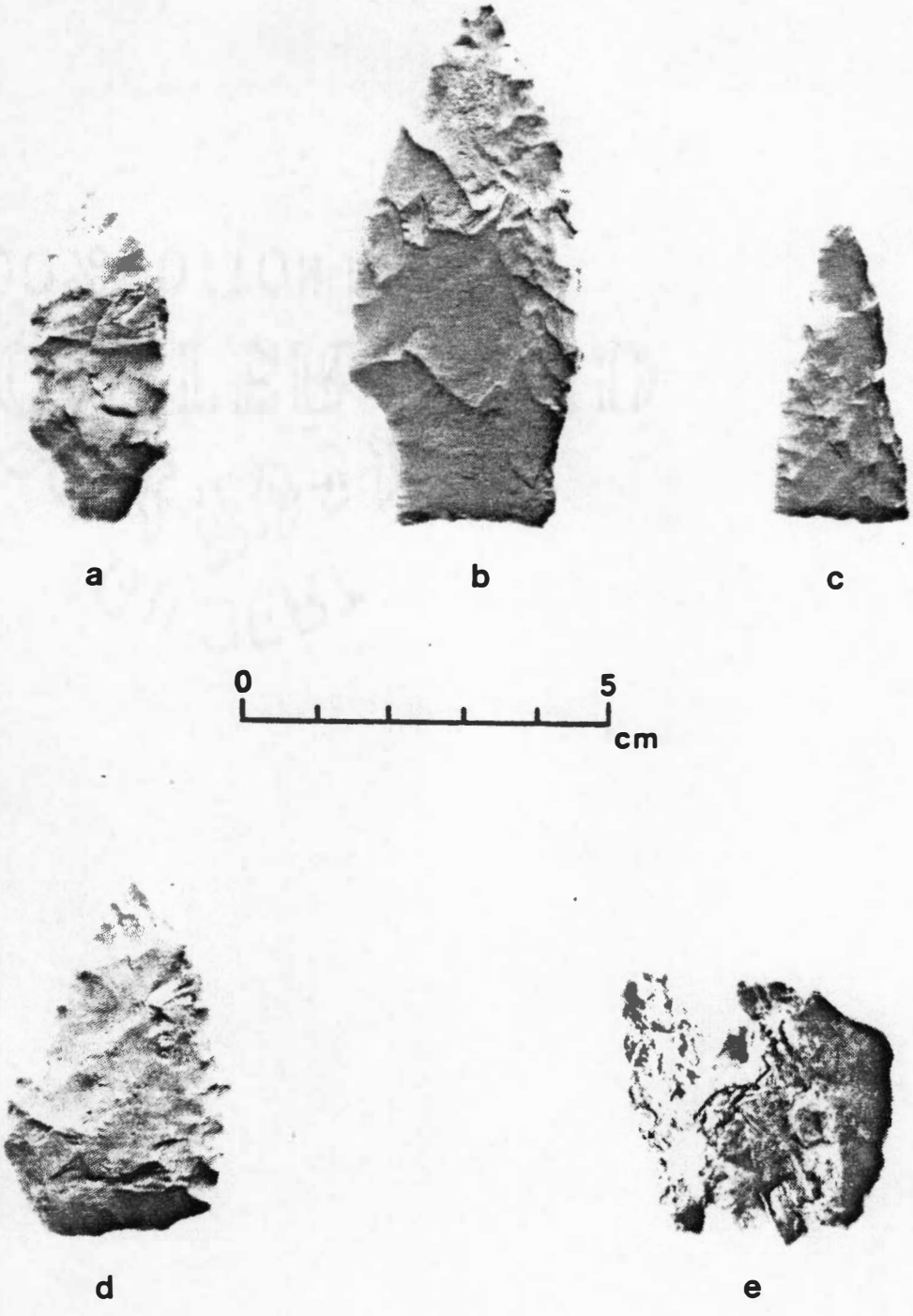


Figure 4.6 Bifacial Artifacts from McCollum Rockshelter by Implement Category. a: 1. b: 6. c: 10. d: 21. e: 24.

bilateral and varies from continuous to random. Flake scars are expanding to lamellar. The lateral margins of the stem exhibit bifacial-bilateral secondary flaking. Flake scars are angular to expanding. The basal margin is thick and unthinned. The specimen is of Fort Payne chert and appears to have been thermally altered.

Measurements: Blade Length: 37.5 mm, Blade Width: 21.1 mm, Thickness: 9.2 mm, Stem Length: 9.8 mm, Stem Width: 1.31 mm, Weight: 8.6 g.

Comments: The specimen conforms to the Morrow Mountain type described by Coe (1964). Coe suggests an approximate date of 4500 B.C. for this type. Faulkner and McCollough (1973:153) suggest a temporal range of 3000 B.C. to 6000 B.C. for the Morrow Mountain/Eva cluster in the upper Duck River Valley of Middle Tennessee. Morrow Mountain pp/k's have been radiocarbon dated from the Cave Spring site (40MU141), Maury County, Tennessee at 6540+110 B.P. (UGa 3753) (Hofman 1982). A Middle Archaic association for this pp/k at 40MU390 is indicated.

Category 6 Large, Broad Blade, Long, Broad Straight Stem (N=1) (Figure 4.6).

Description: The lateral blade margins are symmetrical and excurvate. The distal juncture is acute. The single pronounced shoulder is tapered.

Lateral stem margins are straight to incurvate and the basal edge is incurvate. The specimen is biconvex in cross section. The specimen was formed by broad, expanding bifacial-bilateral primary flaking. Secondary flaking is alternating faces-bilateral and continuous along the lateral blade margins. Flake scars are lamellar to expanding. Secondary flaking of the haft element is bifacial-bilateral and discontinuous. Flake scars vary from lamellar to expanding. The basal margin is unground. The specimen is of Fort Payne chert and appears to have been thermally altered.

Measurements: Blade Length: 73.3 mm, Blade Width: 32.8 mm, Blade Thickness: 12.0 mm, Stem Length: 13.1 mm, Stem Width: 23.0 mm, Weight: 22.3 g.

Comments: This specimen is not referable to any previously named type. It is similar to types 102 and 103 of the Normandy Typology (Faulkner and McCollough 1973). Both types belong to the Late Archaic Ledbetter cluster. The occurrence of this specimen in Stratum V, Level 7, 160-170 cm below surface, suggests a Late Archaic date for this strata at 40MU390.

Category 10 Medium, Isosceles Triangular, Narrow Blade (N=1) (Figure 4.6).

Description: The specimen is isosceles triangular in form and rhomboid in cross section. One lateral blade

margin is excurvate, the other is recurvate. The distal juncture exhibits an impact fracture. Primary flaking is expanding to lamellar. Secondary flaking is bifacial-bilateral and discontinuous. Flake scars vary from expanding to lamellar. Resharpening flakes are alternating faces-unifacial and discontinuous. The basal margin is thinned and lightly ground. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: (47.2 mm), Width: 19.5 mm, Thickness: 5.7 mm, Weight: (4.22 g).

Comments: This specimen conforms to the McFarland Triangular type described by Faulkner and McCollough (1973). Faulkner and McCollough (1973) suggest a Middle Woodland association for this projectile point form in the Normandy Reservoir. The occurrence of this specimen in the uppermost portion of Stratum VII compares favorably with this temporal placement.

Category 16 Miscellaneous Projectile Point Bases (N=5).

Description: All five specimens represent portions of the hafting element of unidentifiable pp/k´s. Two specimens are portions of stemmed points, two are portions of notched points, and one is a portion of a rounded base point. All five specimens are of Fort Payne

chert. Three of the specimens appear to have been thermally altered.

Comments: One of the specimens is similar in basal form to the Morrow Mountain pp/k cluster described previously. It's occurrence in Stratum I, Level 6, 250-260 cm below surface, also strongly suggests a Morrow Mountain (Middle Archaic) association (see also Stratigraphy Stratum I). The specimen was judged as being too fragmentary to be confidently placed into the Middle Archaic Morrow Mountain pp/k cluster.

Category 17 Miscellaneous Projectile Point Blade Fragments (N=16).

Description: All 16 specimens in this category represent fragments of the blade of unidentifiable pp/k's. Specimens included in this category exhibit resharpening flake scars along their extant lateral margins. Bifacially flaked blade fragments which did not exhibit resharpening flake scars were placed into Category 26 (Miscellaneous Biface Blade Fragments). The 16 specimens in this category are of Fort Payne chert. Twelve of the specimens exhibit thermal fractures indicating they have been thermally altered.

Category 18 Miscellaneous Projectile Point Tips (N=7).

Description: All seven specimens represent the distal juncture of unidentifiable pp/k's. Five of the specimens are biconvex in cross section and two are median ridged. The lateral blade margins are asymmetrically incurvate-excurvate on one specimen, excurvate on two specimens, and straight on four specimens. Six of the specimens exhibit acute distal junctures and one exhibits a broad distal juncture. Inclusion in this category was dependent on the presence of resharpening flake scars on the extant lateral blade margins. Distal biface fragments which did not exhibit resharpening flake scars were placed into category 26 (Miscellaneous Biface Fragments). All seven specimens in this category are of Fort Payne chert. Two of the specimens have been thermally altered.

Category 21 Ovate, Asymmetrical, Preform/Knife (N=1) (Figure 4.6).

Description: The specimen is irregularly ovate in form and biconvex in cross section. The lateral blade margins are asymmetrically excurvate. The distal juncture is acute. Both lateral blade margins exhibit micro-wear in the form of edge crushing and short step fracture scaring. There is no provision for hafting. The specimen was shaped by broad, expanding, random to

regular bifacial-bilateral flaking. One face exhibits a "humped" area which resulted from flake removals terminating in hinge and step fractures near the blade margins. The lateral blade margins exhibit discontinuous bifacial-bilateral secondary retouch. The base is thinned and unground. The single specimen is of Fort Payne chert which does not appear to have been thermally altered.

Measurements: Length: 90.0 mm, Width: 32.3 mm, Thickness: 9.7 mm, Weight: 11.1 g.

Comments: The extensive edge wear on this specimen suggests it may have functioned as a cutting tool. It is not possible to determine if this artifact was hand held or hafted.

Category 24 Stage II Biface Bases (N=1) (Figure 4.6, page 73).

Description: The single specimen in this category represents the basal portion of a late stage bifacial preform. Stage II preforms are defined as having < 10% surface cortex, and a high width:thickness ratio (Johnson 1981, Amick 1983, 1984). The specimen is rectangular in form and lenticular in cross section. The blade exhibits a transverse lateral snap fracture. Blade margins are slightly contracting and the base is excurvate. The specimen was formed by broad, lamellar to expanding,

bifacial-bilateral flaking. Secondary flaking along the extant margins is minimal. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Category 25 Miscellaneous Biface Blade Fragments (N=2).

Description: Both specimens represent medial blade fragments of bifaces. The cross section of both specimens is biconvex. The specimens were shaped by broad, random bifacial-bilateral flaking. One of the specimens is of Fort Payne chert the other of fossiliferous Fort Payne chert. The specimens do not appear to have been thermally altered.

Category 26 Miscellaneous Biface Fragments (N=1).

Description: This is a catchall category for small biface fragments which could not be assigned to any of the previously described categories. The single specimen is of Fort Payne Chert which does not appear to been thermally altered.

Category 35 Digging Implement (Hoe) (N=1) (Figure 4.7).

Description: The specimen is rectangular in outline and concavo-convex in cross section. The transverse working edge (bit) is excurvate and there is no provision for hafting. Primary flaking is bifacial-



Figure 4.7 Bifacial Artifact from McCollum Rockshelter by Implement Category. a: 35.

bilateral and discontinuous along the working edge. The specimen is of limestone.

Measurements: Length: 175 mm, Width: 128.5 mm, Thickness: 38 mm, Weight: 1092 g.

Unifacial Artifacts

A total of 28 complete or fragmentary unifacially flaked artifacts was recovered from McCollum Rockshelter. These 28 artifacts constitute 54.19% of the total flaked, utilized, and ground stone implements recovered and 0.81% of the total lithic collection. The unifacial artifacts recovered from 40MU390 are described and discussed below and are summarized by cultural period in Table 4.3.

Category 36 End Scraper (N=4).

Description: All four specimens are triangular to semitriangular in form and thick. The distal transverse working edge on all four specimens is excurvate and unifacially flaked. One specimen was manufactured on a secondary decortication flake, the other three on interior flakes. The specimens exhibit random to regular steep (> 45^{o}) unifacial flaking on the distal transverse working edge. Flake scars vary from angular to angular expanding. Three of the specimens exhibit discontinuous unifacial flaking along one or both lateral margins. This lateral unifacial flaking may have facilitated

Table 4.3 Unifacial Lithic Implements from McCollum Rockshelter by Cultural Period.

Cultural Period	Implement Category												
	36	37	38	39	40	42	43	44	46	48	49	50	Total
Mississippian/ Woodland		1	1			1	3				1	16	23
Late Archaic	1	2		3	2		1	2			11	5	27
Middle Archaic	2								1	2	9	8	22
Indeterminate	1						1	1			2	7	12
Total	4	3	1	3	2	1	5	3	1	2	23	36	84
%Total	4.76	3.57	1.19	3.57	2.38	1.19	5.95	3.57	1.19	2.38	27.4	42.9	100

hafting. All four specimens are of Fort Payne chert. One specimen has been thermally altered.

Measurements: Range in Length: 29 mm - 33.8 mm, (Mean=31.4 mm, N=2), Range in Width: 15.1 mm - 29.1 mm, (Mean=21.37 mm, N=4), Range in Thickness: 7 mm - 13.4 mm, (Mean=9.43 mm, N=2), Range in Weight: 4.4 g - 5.1 g, (Mean=4.75 g, N=2).

Comments: One specimen exhibits scalar and stepped scarring on the working face suggesting it was used to work medium to hard materials such as dry hide, antler or bone. The three other specimens exhibit minimal edge attrition and may have been used less frequently or used to scrape soft materials such as hides (c.f. Hayden 1979).

Category 37 Side Scraper (N=3).

Description: All three specimens exhibit unifacial retouch along one or both lateral margins. The specimens vary in form from triangular to semirectangular. All three specimens are planoconvex in cross section. Two of the specimens were produced on secondary decortication flakes and one was produced on a tertiary flake. Flake scars are angular to expanding. Two of the specimens are of Fort Payne chert the other of Carters chert. The specimens have not been thermally altered.

Measurements: Range in Length: 39.3 mm - 56.9 mm, (Mean=48.4 mm), Range in Width: 24.6 mm - 31.2 mm, (Mean=28 mm), Range in Thickness: 8.4 mm - 22 mm, (Mean=13.5 mm), Range in Weight: 8.2 g - 30.7 g, (Mean=16.4 g, N=3).

Category 38 Side Scraper/Graver (N=1).

Description: The specimen is ovoid in form and plano-convex in cross section. One lateral margin exhibits steep unifacial flaking. Flake scars are expanding to lamellar and continuous. The distal margin is unifacially flaked so as to form a short projection or spur. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 33.4 mm, Width: 40.5 mm, Thickness: 12.3 mm, Weight: 15 g.

Comments: This specimen is a multifunction tool which functioned as both a side scraper and a graver.

Category 39 Core Scraper (N=3).

Description: All three specimen in this category exhibit a significant series of unifacial flake removals along one margin which cannot be attributed to platform preparation. The specimens are ovoid to blocky in form and thick. Flaking is unifacial and steep (> 45^{o}). Flake scars are expanding to angular. The three specimens are

of Fort Payne chert and do not appear to have been thermally altered.

Measurements: Range in Length: 31.4 mm - 58 mm, (Mean=40.8 mm), Range in Width: 22.6 mm - 47.9 mm (Mean=32.73 mm), Range in Thickness: 14.4 mm - 29.5 mm, (Mean=22.2 mm), Range in Weight: 8.9 g - 76.9 g, (Mean=33.5 g, N=3).

Category 40 Backed Side Scrapers (N=2).

Description: Both specimens exhibit continuous unifacial flaking along one lateral margin. The opposite lateral margin is cortex covered and thick. One specimen is rectangular in outline; the other is oblong. Both are trapezoidal in cross section. Flaking is unifacial and continuous along the lateral margin. Flake scars are angular to expanding. Both specimens are of Fort Payne chert. One specimen has been thermally altered.

Measurements: Range in Length: 38.9 mm - 66.7 mm, (Mean=52.8 mm), Range in Width: 15 mm - 17.9 mm, (Mean=16.4 mm), Range in Thickness: 7.2 mm - 17.7 mm, (Mean=12.4mm), Range in Weight: 2.8 g - 5 g, (Mean=13.6 g, N=3)).

Category 42 Pebble Tool (N=1).

Description: The single specimen in this category is a small pebble that exhibits steep (> 45^{o}) unifacial

flaking along the length of one lateral margin. Flake scars are expanding to conchoidal. The exterior surfaces of the pebble are covered by water worn cortex. The pebble is rectangular in outline and square in cross section. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 31.5 cm, Width: 26.8 cm, Thickness 11.9 cm, Weight: 11.2 g.

Comments: This specimen may have functioned as a scraping tool.

Category 43 Gravers (N=5).

Description: All five specimens are flakes or small pebbles which exhibit robust triangular unifacially flaked projections or spurs. Flake types represented in the collection include secondary decortication flakes, (N=1); tertiary flakes, (N=2); broken flakes, (N=1); and small pebbles, (N=1). Flake scars are angular to angular expanding. All five specimens are of Fort Payne chert. Three of the specimens have been thermally altered.

Measurements: Range in Length: 20.1 mm - 45.8 mm, (Mean=28.27 mm, N=4), Range in Width: 13.0 mm - 25 mm, (Mean=18.7 mm, N=4), Range in Thickness: 6.4 mm - 12.4 mm, (Mean=8.8 mm, N=4), Range in Weight: 1.5 g - 11 g, (Mean=4.5 g, N=4).

Category 44 Perforator (N=3).

Description: The specimens exhibit continuous unifacial flaking along two converging margins which form a long, slender, pointed projection. One specimen is a perforator on a secondary flake, one is a perforator on a tertiary flake, and one specimen is a perforator on a broken flake. Flake scars are expanding to angular expanding. All three specimens are of Fort Payne chert. One specimen has been thermally altered.

Measurements: Range in Length: 21.1 mm - 30 mm, (Mean=24.2 mm), Range in Width: 5.8 mm - 23.6 mm, (Mean=17.2 mm), Range in Thickness: 4 mm - 10.1 mm, (Mean=6.9 mm), Range in Weight: 1.1 g - 4.9 g, (Mean=2.6 g, N=3)).

Category 46 Notched Flake (N=1).

Description: The single specimen is an interior flake which exhibits a unifacially flaked notch on one lateral margin. The notch was formed by the removal of broad expanding to conchoidal unifacial flakes. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 37.7 mm, Width: 36.5 mm, Thickness: 9.5 mm, Width of Notch: 15.1 mm, Depth of Notch: 2.9 mm, Weight: 9.1 g.

Comments: Notched flakes are commonly referred to as spokeshaves. It has been suggested that spokeshaves functioned as shaft scraping implements (House 1975).

Category 48 Miscellaneous Unifacial Fragments (N=2).

Description: This is a catchall category for those unifacially flaked implement fragments which do not conform to any of the previously described categories. Both specimens exhibit steep (>45°) unifacial flaking. The specimens most likely are scraper fragments. Both of the specimens are of Fort Payne chert and have not been thermally altered.

Category 49 Cores (N=23).

Description: Cores include all chert river cobbles and residual chert masses which exhibit at least four flake removals. Termination of the core reduction process represented ranges from cores with four flake removals to completely exhausted cores, and core fragments. Raw material represented in the collection includes Fort Payne chert (N=11), Carters chert (N=10), Ridley chert (N=1), and Bigby-Cannon chert (N=1). Three of the specimens have been thermally altered.

Category 50 Tested Cobbles (N=36).

Description: Tested cobbles include all river cobbles, limestone, and residual chert masses which

exhibit one to three random flake removals. This category may represent chert masses from which several flakes were removed in order to "test" the flaking suitability of the material. However, these specimens may actually represent discarded cores. Raw material types represented include Fort Payne chert, (N=25), Carters chert (N=10), and Limestone (N=1). Five of the specimens have been thermally altered.

Utilized Flakes

A total of 28 utilized flakes was recovered from McCollum rockshelter. The 28 specimens are divided into five categories based on the type of micro-wear present (i.e. alternate-facies unifacial), the location of the micro-wear (i.e. lateral margin, spur), and the spline angle. The spline angle is defined as the angle formed between the flat ventral surface and the dorsal ridge (similar to Wilmsen's (1980) edge angle) of the flake. It has been demonstrated (Hall 1985) that there is a significant bimodal relationship in spline angles with 45^{o} being the approximate midpoint. Therefore a distinction has been made between utilized flakes with spline angles $\leq 45^{o}$ and those with spline angles $>45^{o}$. Utilized flakes with spline angles $\leq 45^{o}$ may have functioned as cutting tools and utilized flakes with spine angles $>45^{o}$ may have functioned as scraping tools

(cf. Hofman 1984). It should be stressed that suggested functional interpretations of these artifacts are tentative and in need of further analysis. Utilized flakes represent 0.27% of the total lithic assemblage and are described and discussed below. They are summarized by cultural period in Table 4.4.

Category 51 Utilized Flakes, Robust Projections (Gravers) (N=6).

Description: All six specimens are flakes or core fragments which exhibit a robust fortuitous rounded projection or spur exhibiting unifacial-bilateral micro-wear attrition. The working edges do not exhibit intentional retouch. Three of the specimens are core fragments, one is a fire cracked rock fragment, and two are tertiary flake fragments. Two of the specimens are of Fort Payne chert, one of fossiliferous Fort Payne chert, one of Carters chert, and two are of limestone. Two of the specimens have been thermally altered.

Measurements: Range in Length: 1.6 mm - 46.3 mm, (Mean=31.15 mm), Range in Width: 18.7 mm - 39.7 mm, (Mean=28.15 mm), Range in Thickness: 4.8 mm - 15.7 mm, (Mean=8.37 mm), Range in Weight: .67 g - 22.18 g, (Mean=4.2 g, N=6).

Comments: These specimens may have functioned as expedient gravers.

Table 4.4 Utilized Flake Implements from McCollum Rockshelter by Cultural Period.

Cultural Period	Implement Categories					
	51	52	53	57	62	Total
Mississippian/ Woodland	4	3	2	5	3	17
Late Archaic	1		1	3	1	6
Middle Archaic	1			1	1	2
Indeterminate			2			2
Total	6	3	5	9	5	28
%Total	21.43	10.71	17.85	32.14	17.85	100

Category 52 Utilized Flakes, Thin, Slender Projections (Perforators) (N=3).

Description: All three specimens exhibit alternate faces-unifacial micro-wear attrition along thin slender fortuitous projections. Two of the specimens exhibit lateral snap fractures of the distal juncture. One of the specimens was produced on a secondary decortication flake the other two were produced on bifacial thinning flakes. All three specimens are plano-convex in cross section. All examples are of Fort Payne chert and do not appear to been thermally altered.

Measurements: Length: 25.5 mm (N=1), Width: 12.5 mm, Thickness: 5 mm, Weight: 9 g.

Comments: The presences of alternate edge micro-wear and snapped distal junctures suggest that these specimens may have functioned as light duty boring or perforating tools.

Category 53 Utilized Distal Margin (N=5).

Description: All five specimens are flakes or flake fragments which exhibit a continuous line of unifacial micro-wear along the dorsal surface of the distal margin. The spline angle is $\leq 45^{\circ}$ on all five specimens. Three of the specimens have excurvate distal margins and two have slightly incurvate margins. Two of

the specimens were produced on tertiary flakes and three on bifacial thinning flakes. Two of the specimens are plano-concave in cross section and three are plano-median ridged. Four of the specimens are of Fort Payne chert and one is of Carters chert. One of the specimens has been thermally altered.

Measurements: Range in Length: 15.0 - 20.8 mm (Mean=21.47 mm, N=3), Range in Thickness: 17.00 mm - 35.1 mm (Mean=26.47 mm), Range in Weight: 0.91 g - 4.48 g (Mean=9.79 g, N=3).

Category 57 Utilized Lateral Edge, Spline Angle $<45^{o}$ (N=9).

Description: All nine specimens are flakes or flake fragments which exhibit continuous unifacial micro-wear along one lateral margin. The spline angle is $\leq 45^{o}$ on all nine specimens. Two of the specimens are plano-median ridged in cross section, seven are plano-convex and one is plano-concave. All nine specimens are of Fort Payne chert. Two of the specimens are thermally altered.

Measurements: Range in Length: 35.9 mm - (55.9 mm) (Mean=42.55 mm, N=4), Range in Width: 15.5 mm - (39.7 mm) (Mean=26.25 mm, N=6), Range in Thickness: 1.3 mm - 8.1 mm (Mean=5.23 mm, N=6), Range in Weight: (0.30 g) - (20.22 g), (Mean=6 g, N=9).

Category 62 Utilized Flake Fragments (N=5).

Description: The five specimens in this category represent fragments of primary flakes, secondary flakes, interior flakes, or bifacial thinning flakes that exhibit micro-wear along one or more margin. The specimens were too fragmentary to be placed in one of the previously described categories. All five specimens are of Fort Payne chert. Three specimens have been thermally altered.

7. Ground Stone

A total of six fragmentary ground stone artifacts was recovered from McCollum Rockshelter. The six specimens were divided into three categories based on the type of micro-wear present and techno-morphological attributes (i.e. pecked/ground, ground, ground/polished). The six ground stone implements represent 0.06% of the total lithic assemblage. The ground stone artifacts recovered from McCollum Rockshelter are described and discussed below and are summarized by cultural period in Table 4.5.

Category 66 Digging Implement (N=1).

Description: The single specimen in this category represents a portion of the bit of a limestone hoe. The

Table 4.5 Ground Stone Implements from McCollum Rockshelter by Cultural Period.

Cultural Period	Implement Categories			
	66	68	72	Total
Mississippian/ Woodland	1	3		4
Middle Archaic			1	15
Indeterminate			1	1
Total	1	3	2	6
%Total	16.67	50	33.33	100

cross section is biconvex. Both faces have been shaped by pecking and grinding. The working edge is rounded. The specimen appears to have been thermally altered.

Category 68 Celt Fragments (N=3).

Description: All three specimens represent portions of the bit of celts. The extant faces of the specimens exhibit a fine polish. The three specimens appear to be of greenstone. All three celt fragments have been thermally altered.

Category 72 Hammerstones (N=2).

Description: Both specimens in this category exhibit battering on one end. One of the hammerstones is a Fort Payne chert core the other is of limestone.

8. Lithic Debris

A total of 10166 pieces of lithic debris, excluding cores and tested cobbles, was recovered from McCollum Rockshelter. The lithic debris was divided into seven categories. Five categories represent flaked debris and one represents nonflake debris. Fire cracked rock is not considered in this discussion. The lithic debris recovered from McCollum Rockshelter is described below.

Category 73 Primary Decortication Flakes.

Description: Flakes which exhibit cortex, water worn rind or weathered rind over the entire dorsal surface. Cortex may or may not be present on the platform. These flakes represent the initial stage of core and biface reduction.

Category 74 Secondary Decortication Flakes.

Description: Flakes which, except for retaining only partial cortex, are indistinguishable from primary decortication flakes. They usually have broad and relatively flat platforms. The angle between the flake platform and the dorsal surface is steep. Included here with secondary flakes are broken flakes which exhibit dorsal cortex and lack the striking platform. Secondary decortication flakes represent early to intermediate core and biface reduction activities.

Category 75 Tertiary or Interior Flakes (Used Interchangeably).

Description: Tertiary flakes are late stage core and biface reduction flakes that do not exhibit dorsal cortex. Striking platforms are generally wide and flat. The platforms may be thinned and lipped.

Category 76 Biface Thinning Flakes.

Description: Biface thinning flakes are typically thin and expanded in form. In addition, the platforms are faceted and lipped on the ventral margin. The dorsal surface typically exhibits a series of previous flake removal scars.

Category 77 Core Rejuvination Flakes.

Description: These flakes are generally thick flakes which exhibit wide flat platforms. Core rejuvination flakes are the result of the knapper trying to remove overhanging platforms or deep hinge or steep flake scars from the core. These flakes represent intermediate to late stage core reduction activities (cf. Hofman 1984).

Category 78 Broken Flakes.

Description: Flakes which lack the striking platform. The broken flake category includes both tertiary and biface thinning flake fragments. Late stage bifacial thinning and tool maintenance is represented by these flake fragments.

Category 79 Blocky Debris.

Description: Blocky debris consists of blocky or tabular pieces of chert that lack any of the characteristics of flakes. It generally is the result of

knapping chert cobbles which contain incipient fracture planes.

In order to assess the stages of tool manufacture and maintenance represented by these flakes they have been collapsed into a three-way classification. Early stage manufacturing flakes include primary and secondary decortication flakes. Intermediate stage manufacturing/ maintenance include tertiary and broken flakes. Late stage manufacturing/maintenance flakes are represented by bifacial thinning flakes. Table 4.6 is a cross tabulation of the three-way flake classification by temporal period and Table 4.7 is a cross tabulation of nonflake debris by cultural period.

9. Bone And Shell Artifacts

A total of 16 fragmentary bone artifacts was recovered from McCollum Rockshelter. Bone artifacts are defined as any osseous artifact that exhibits intentional modification by human activity (i.e. abrading, drilling, smoothing). In addition, one drilled shell bead was recovered. The 16 bone and shell artifacts were placed into six categories based on techno-morphological attributes rather than inferred function. The categories represented are: (1) bone awls (N=6) which constitute 37.5% of the worked bone and shell, (2) antler tine

Table 4.6 Three-way Flake Classification by Cultural Period, 40MU390.

Cultural Period	Flake Type			
	Early	Intermediate	Late	Total
Mississippian/ Woodland	221	3053	410	3684
Late Archaic	295	3235	242	3772
Middle Archaic	224	1572	239	2035
Total	740	7860	891	9491

Table 4.7 Nonflake Debris by Cultural Period, 40MU390.

	Nonflake Debris Type			
	Blocky Debris	Tested Cobble	Core	Total
Mississippian/ Woodland	229	10	1	240
Late Archaic	277	3	11	291
Middle Archaic	169	3	4	176
Total	675	16	16	707

flakers (N=4) which represents 25% of the worked bone and shell, (3) Proximal bone fish hook fragments (N=1) which constitute 6.25% of the worked bone and shell, (4) bone fish hook shaft fragments (N=2) which constitute 12.5% of the worked bone and shell, (5) modified turtle carapace (N=2) which represents 12.5% of the worked bone and shell, and (6) drilled shell (N=1) which constitutes 6.25% of the worked bone and shell. The worked bone and shell artifacts recovered from McCollum Rockshelter are described and discussed below and are summarized by cultural period in Table 4.8.

Category 1 Bone Awls (N=6) (Figure 4.8).

Description: The specimens are slender and elongate in form and are approximately twice as wide as they are thick. Cross sections vary from biplano to biconvex. Three of the specimens represent portions of the proximal ends of bone tools while the three other specimens represent the distal ends. Exterior surfaces exhibit a glossy polish and striations which parallel the long axis of the tool. Two of the specimens are charred.

Measurements: Range in Length: N.A., Range in Width 9.3 mm - 15 mm, (Mean=11.43 mm, N=3), Range in Thickness: 5 mm - 6.3 mm, (Mean=5.6 mm, N=3), Range in Weight: 1.5 g - 7.5 g, (Mean=3.85 g, N=3).

Table 4.8 Bone Artifacts from McCollum Rockshelter by Cultural Period.

Cultural Period	Artifact Categories						
	1	2	3	4	5	6	Total
Mississippian/ Woodland	3	4			2	1	10
Late Archaic	3						3
Middle Archaic			1	2			3
Total	6	4	1	2	2	1	16
%Total	37.5	25	6.25	12.5	12.5	6.25	100

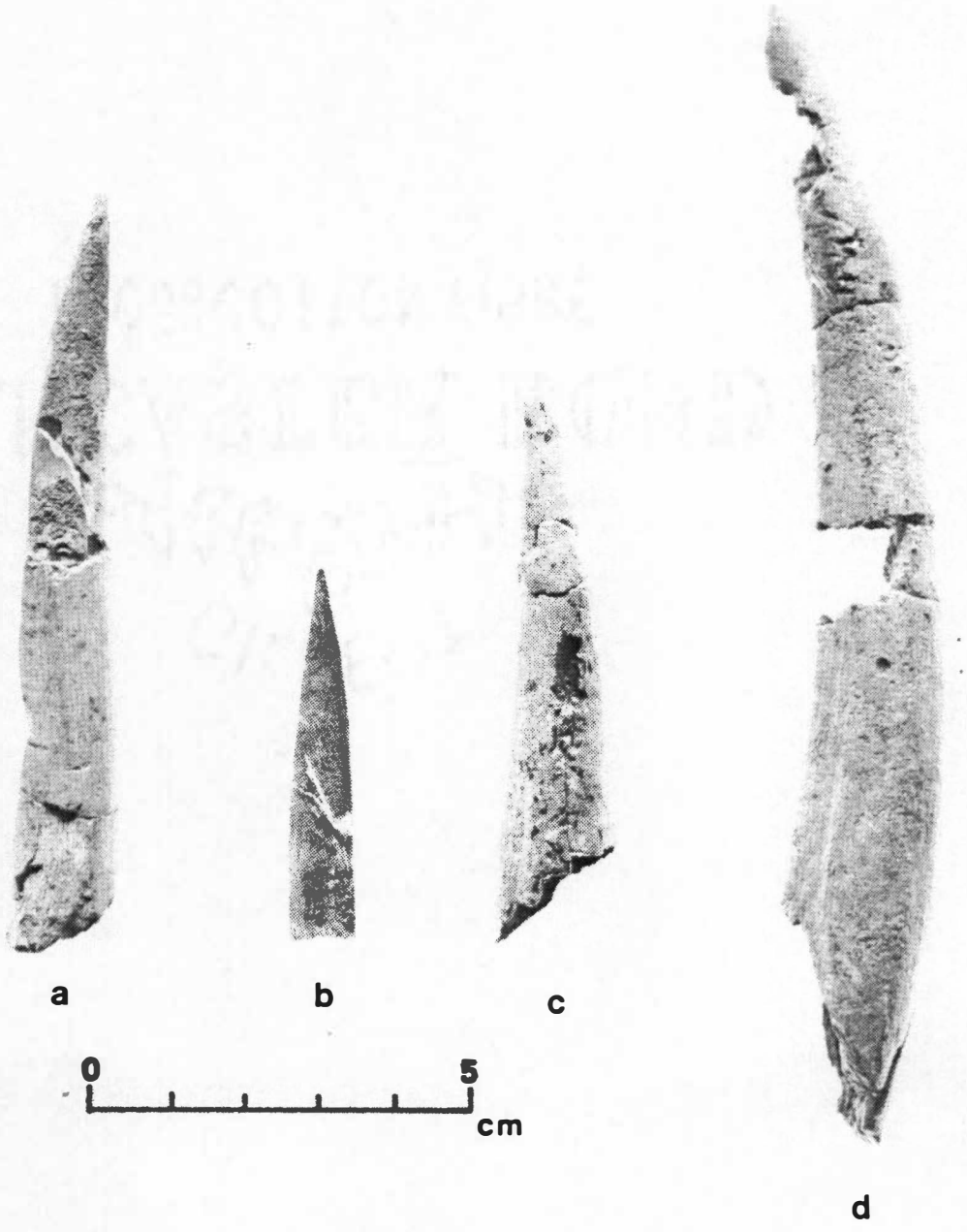


Figure 4.8 Bone Artifacts from McCollum Rockshelter by Implement Category. a-b: 1. c-d: 2.

Comments: The six specimens in this category represent portions of bone awls (c.f. Lewis and Kneberg 1946; Webb 1943).

Category 2 Antler Tine Flakers (N=4) (Figure 4.8).

Description: The four specimens represent distal ends of antler tine. The specimens are curved, cylindrical and tapered to a blunted point. All four specimens exhibit flat facets on the tip. One specimen exhibits a shallow pit on the ventral surface of the tip. No other modification is evident. One of the specimens is charred.

Measurements: Range in Length: N.A., Range in Width: 16 mm - 23.4 mm, (Mean=19.7 mm), Range in Thickness: 13.9 mm - 21.2 mm, (Mean=17.5 mm), Range in Weight: 5.8 g - 20.7 g, (Mean=13.25 g, N=4)).

Comments: The six specimens represent portions of antler flakers.

Category 3 Bone Fish Hook Proximal Fragments (N=1) (Figure 4.9).

Description: The single specimen is elongate in outline and circular in cross section. The proximal end exhibits a cut and snap break. The artifact is circumscribed by a groove 2 mm below the proximal end. The surface around the groove exhibits deep cut marks.

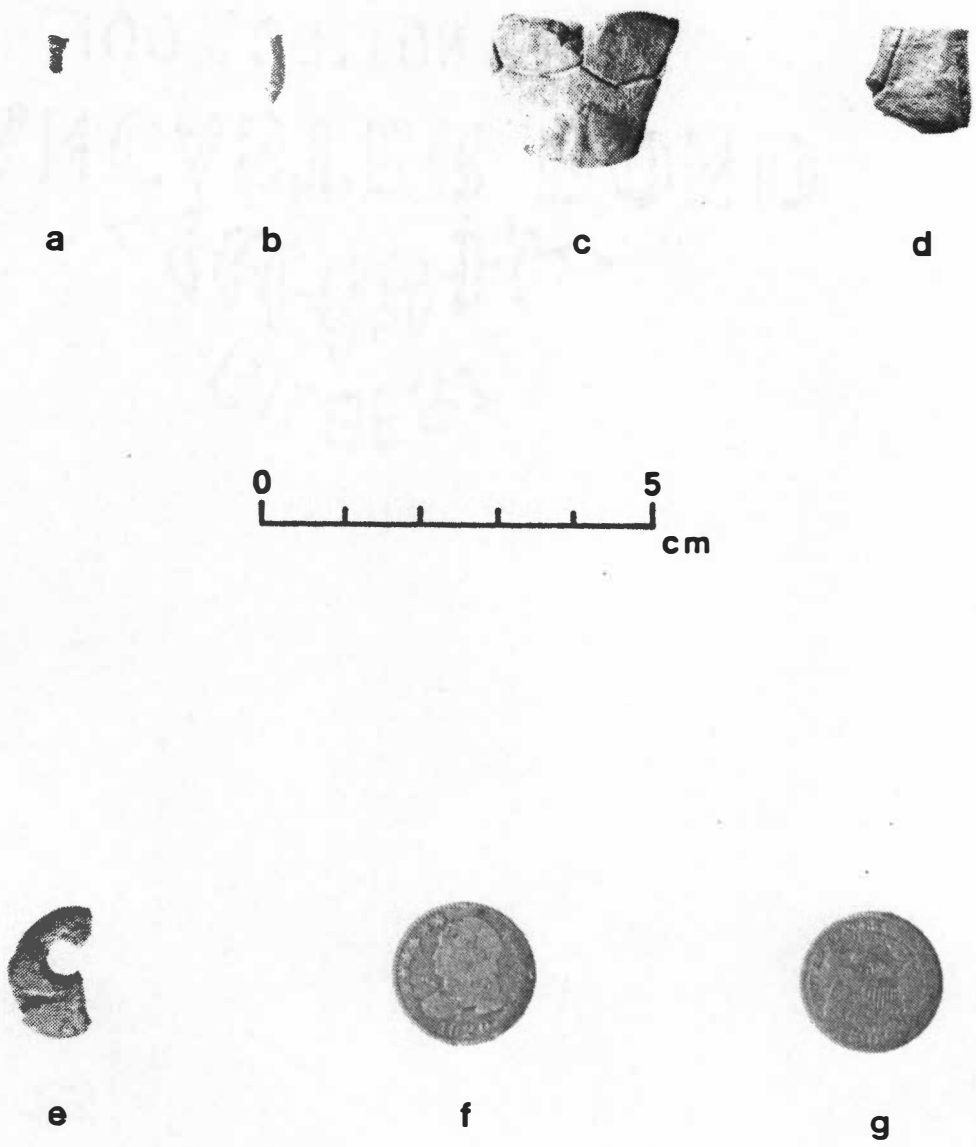


Figure 4.9 Bone, Shell and Historic artifacts from McCollum Rockshelter by Category. a: 3. b: 4. c-d: 5. e: 6. f-g: 1.

The shaft has been abraded and polished. The specimen exhibits a snap fracture.

Comments: This artifact is the proximal (upper) end of a bone fish hook.

Category 4 Bone Fish Hook Shaft Fragments (N=2) (Figure 4.9).

Description: Both specimens are elongated, curved in outline, and ovate in cross section. Both specimens exhibit evidence of being cut, abraded, and polished. The proximal ends of both specimens exhibit snap fractures. The specimens exhibit snap fractures at or near the apex of the curvature of the shafts.

Comments: Both specimens represent midshafts of bone fish hooks.

Category 5 Modified Turtle Carapace (N=2) (Figure 4.9).

Description: One specimen is square in outline; the other is triangular. Cross section is tabular to semicurvate. Both specimens represent lateral margins of turtle carapaces. The interior surfaces of both specimens have been abraded.

Comments: Both specimens in this category may represent portions of turtle carapace bowls or cups (cf. Webb, 1943).

Category 6 Drilled Shell (N=1) (Figure 4.9).

Description: The specimen is circular in outline and flatted in cross section. The perforation is located along the midline two-thirds of the way up from the bottom. The specimen has been charred.

Measurements: Length: 17.7 mm, Width: (N.A.), Thickness: 2.3 mm, Diameter of Perforation: 3.7 mm, Weight (N.A.).

Comments: The single specimen in this category is a shell bead.

10. Historic Artifacts

Two Historic Period artifacts were recovered from McCollum Rockshelter. The specimens are described and discussed below. Category 1 is illustrated in Figure 4.9 but Category 2 is not illustrated.

Category 1 Coins (N=1) (Figure 4.9).

Description: The single specimen in this category is an 1820 dime. Both obverse and reverse sides of the specimen show evidence of wear.

Comments: This specimen was probably accidentally lost in front of the shelter and does not suggest direct Historical period use of the shelter.

Category 2 Sunglasses (N=1).

Description: The specimen is a pair of womens sunglasses. The frame is of plastic and the lenses are of dark gray glass. Each side of the specimen is accentuated by an arched row of rinestones.

Comments: The occurence of this specimen in Stratum XIII (uppermost) suggests that it was either lost on the bank in front of the shelter and subsequently buried or that it was washed onto the bank in front of the shelter and subsequently buried during overbank flooding. The specimen does not suggest direct utilization of the rockshelter during the Historic period.

11. Internal Correlations

A total of 13 strata was recognized during excavations at McCollum Rockshelter. The artifactual material recovered from the excavations suggest repeated use of the shelter from the Middle Archaic through the Historic period. In general, the artifact collection is sparse, especially in terms of time sensitive `diagnostic´ lithic (N=3) and ceramic (N=21) artifacts. During excavation event specific artifact assemblages or `floors´ could not be distinguished and subsequently separated. In addition, the stratigraphic sequence

encountered in Test Pit 1 could not be clearly, or confidently, linked to those strata encountered in Test Trench 1, therefore, the artifacts recovered from Test Pit 1 are not considered in the analysis (Chapter X).

In order to correlate the temporal sequence of events to the stratigraphy at the rockshelter it was necessary to compare diagnostic pp/k´s and ceramics, as well as overall lithic debitage distribution curves, to the master trench profiles. The results of this comparison indicated that there was not a strict one-to-one relationship between temporal periods and depositional episodes at the rockshelter. In all cases a single temporal period was represented in more than one stratum. The Middle Archaic period is represented in the upper one-half of Stratum I and all of Stratum II, the Late Archaic period is represented in Strata IV and V, and the Woodland and Mississippian period artifacts, which could not be separated, were recovered from Stratum VI through Stratum IX. Because the Mississippian and Woodland artifactual material could not be separated, they are considered together and are refered to as a collection (cf. Phillips 1970) rather than as an assemblage. An analysis of the assemblages, as well as, intrasite and intersite comparisons of the assemblages is undertaken in Chapter X.

CHAPTER V

GOATCLIFF ROCKSHELTER

1. General Setting

Goatcliff Rockshelter (40MU436) is a multi-component site located on the left (West) bank of Fountain Creek 11.26 kilometers (7 mi.) southeast of Columbia, in Maury County, Tennessee (Figure 3.3, page 19). The exact location is 35° 31′ 05" North Latitude, 86° 56′ 48" West Longitude, (U.S.G.S. Glendale 7.5′ Quadrangle), UTM Reference: 16/393015/504810. The rockshelter presently, on T.V.A. property, was previously owned by the Sievey Height family.

Goatcliff Rockshelter has a northern exposure, and is presently 7.7 m long with 3.6 m from back wall (Figure 5.1). The roof measures 4 m at the dripline and slopes gently downwards at the rear of the shelter. The total protected area within the shelter is 13.5 m^2. The present surface of the shelter deposit is approximately 209.97 m AMSL.

2. Excavation Methodology

A permanent datum, designated A_1, was established midway between Goatcliff Rockshelter (40MU436) and Height Rockshelter (40MU437). Datum A_1 was given the arbitrary

coordinates 100N, 100E. From Datum A_1 a baseline was established which paralleled the dripline of both shelters. Utilizing this baseline the surface of 40MU436 was grided into 1 m^2 units by triangulation. All unit designations refer to the southwest corner of the excavation unit and reflect its position north and east of Datum A_1. All horizontal coordinates were determined from this grid system. Two additional datum points, designated A_2 and A_3, were affixed to a tree in front of the shelter and to the back wall of the shelter respectively. Datum A_2 and A_3 reflect "0" elevation or absolute ground surface which was originally defined as the natural ground surface at the southwest corner of excavation unit 85N, 100E. All vertical measurements were determined in reference to Datum A_2, A_3 or both. The plan map (Figure 5.1) of the shelter was made with the use of a standard alidade and plane table.

After establishing the grid system, testing was initiated by excavating a 1 x 2 m test trench perpendicular to the dripline of the shelter. This trench was subsequently enlarged to its ultimate configuration (Figure 5.1). Excavation techniques, unit sampling and field processing procedures were carried out as described in Chapter IV (Excavation Methodology).

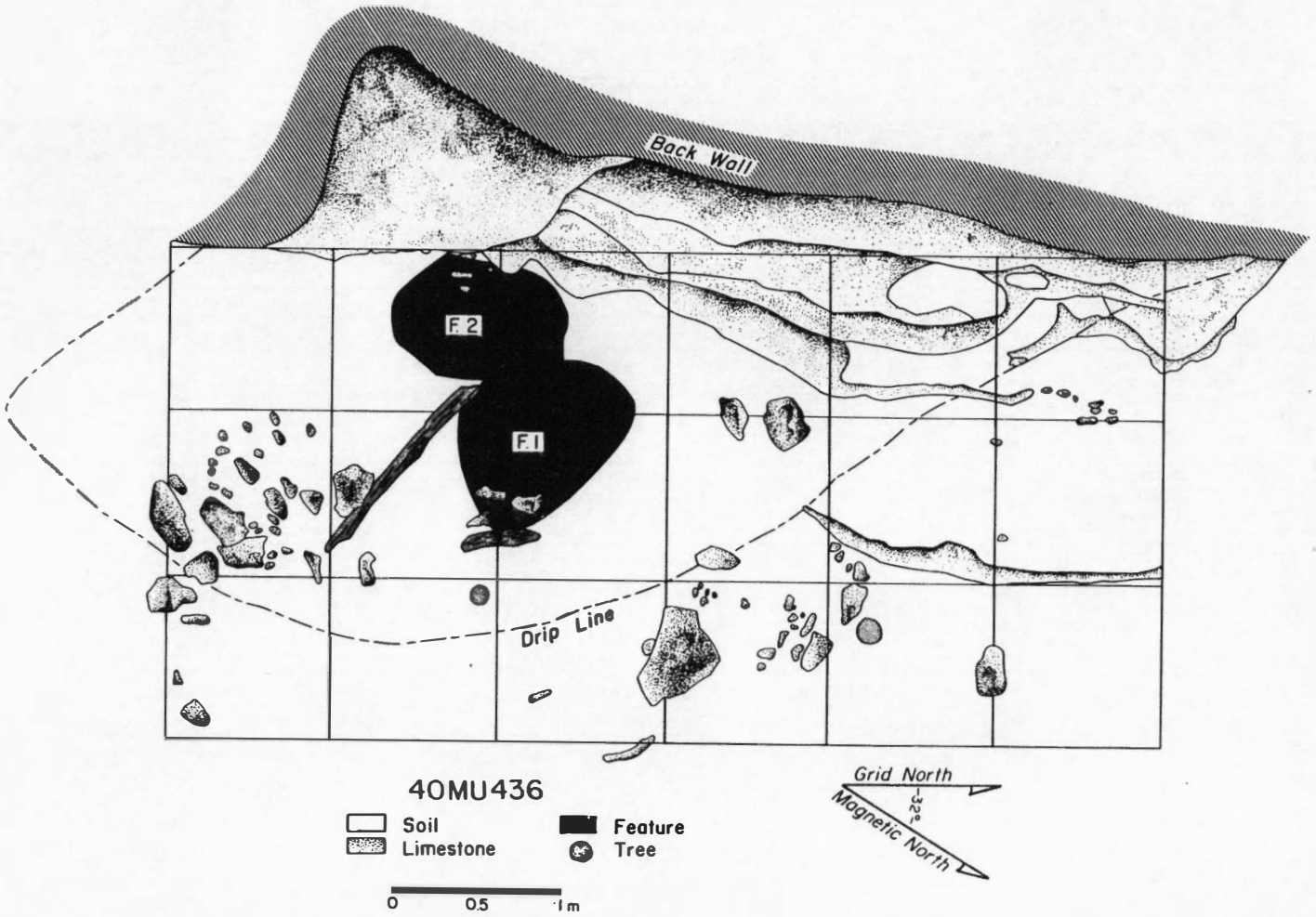


Figure 5.1 Plan Map of Goatcliff Rockshelter, 40MU436.

3. Stratigraphy

Sediment Sources

The fill at Goatcliff Rockshelter is derived from sediment sources one through five which are discussed in Chaper IV (Stratigraphy). Fluvial deposits were not present within the rockshelter fill.

Analytical Methods

Two strata were recognized at Goatcliff Rockshelter based on color, gross composition, and texture. The strata vary substantially in thickness, and slope toward Fountain Creek. The strata are labeled in ascending order from the oldest to the youngest. Munsell color determinations were taken from moist soil samples and read in indirect sunlight. A profile of the sediments at Goatcliff Rockshelter are presented in Figure 5.2. A brief description of the strata at Goatcliff Rockshelter is presented below.

Stratum I.

Extent: Stratum I was the basal unit at Goatcliff Rockshelter. Horizontally, it was continuous in all excavated squares. Vertically, the top of Stratum I occurred at a depth of 0.5 cm below surface at the back (South) wall of the shelter and dipped to a maximum depth of approximately 97 cm below surface at the front of the

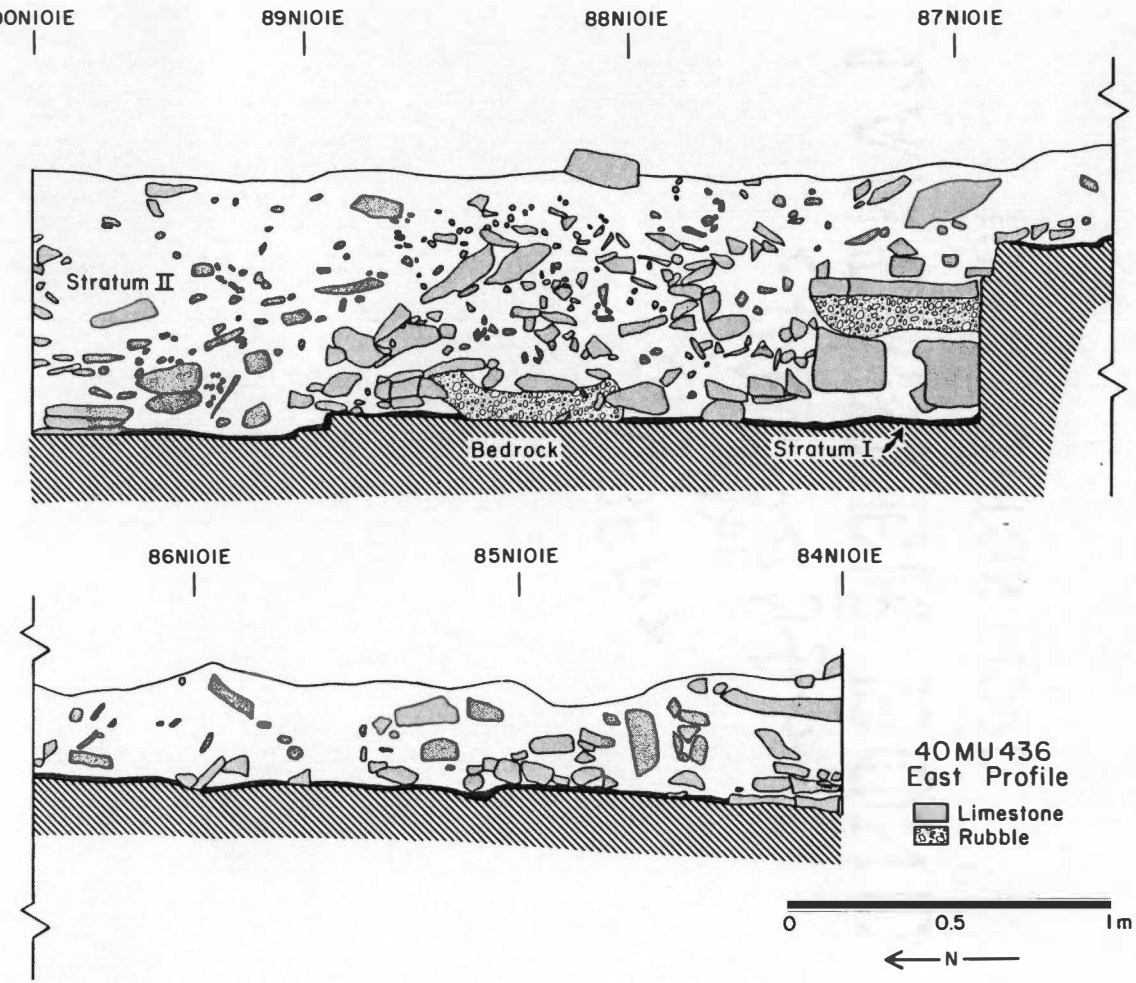


Figure 5.2 East Profile of Goatcliff Rockshelter, 40MU436.

shelter. Thickness varied from 3 cm to 5 cm across the excavated units.

Description: Stratum I consisted of a dark yellowish-brown to brown (10YR4/4 to 7.5YR4/5) loose to compact agglomerate of limestone rubble and clay. Floral and faunal turbation was minimal.

Cultural Affiliation: Cultural artifacts were not encountered within Stratum I.

Stratum II (Uppermost).

Extent: Horizontally, Stratum II was continuous across the excavated squares. Vertically, the surface of Stratum II was 32 cm above datum A_2 ("0" elevation) at the southeastern margin of the shelter and sloped to 72 cm below datum A_2 at the northeast margin of the excavations. Thickness graded from a thin veneer across the bedrock floor at the back of the shelter to a maximum of 95 cm at the front of the shelter. The contact between Stratum II and Stratum I was abrupt.

Description: Stratum II consisted of a dark brown to yellowish-brown (7.5YR3/2 to 10YR4/4) clay loam. Bioturbation was evident throughout Stratum II.

Cultural Affiliation: All cultural material recovered from Goatcliff Rockshelter was recovered from Stratum II. The Late Archaic through Historic periods are represented.

4. Cultural Features

Two cultural features were encountered during the excavations at Goatcliff Rockshelter. Both features were unlined fire hearths and are attributable to the Historic period. Profiles of these features are not available.

Feature I: Fire Hearth.

Description: Feature I was irregularly circular in outline and lenticular in cross section. Feature I fill was dispersed across the surface of four excavation units and consisted primairly of gray ash and wood charcoal. Two sections of charred tree limb were recovered near the margin of this hearth (Figure 5.1).

Measurements: Length: 105 cm, Width: 102 cm, Depth: 3 cm.

Comments: Feature I was wholly contained at the surface of Stratum II (Figure 5.1). Feature I overlied the northeastern margin of Feature II.

Feature II: Fire Hearth.

Description: Feature II was circular in outline and lenticular in cross section. The fill was consolidated and consisted of gray ash and wood charcoal.

Measurements: Length: 52 cm, Width: 37 cm, Depth: 4 cm.

Comments: Feature II was wholly contained within the upper 5 cm of Stratum II and was overlain on its northeast margin by Feature I. Although temporally earlier than Feature I, it is also attributable to the Historic period.

5. Ceramic Artifacts

A total of 127 ceramic sherds was recovered from Stratum II during excavations at Goatcliff Rockshelter. The 127 sherds are referable to five wares and eight previously named types. The collection includes Early Woodland through Mississippian period ceramics. Overall, ceramic preservation was fair; however, when small unidentifiable sherds were included in the residual sherd counts for the five ceramic wares, with the exception of the single sand-tempered sherd, these sherds represent nearly 50% or more of the total collection: limestone-tempered residual 52.3% (N=34), clay-tempered residual 50% (N=1), chert-tempered residual 49% (N=23) and shell-tempered residual 50% (N=6). The ceramic artifacts are summarized by cultural period in Table 5.1.

Table 5.1 Ceramic Artifacts from Goatcliff Rockshelter by Cultural Period.

Cultural Period	Ceramic Artifacts														
	1a	1b	1c	1d	3a	3b	3c	3d	3e	4a	4b	5a	6a	6b	Total
Mississippian/ Late Woodland					23	9	11	2	2	6	6	1	1	1	62
Middle Woodland	34	9	20	2											65
Total	34	9	20	2	23	9	11	2	2	6	6	1	1	1	127
%Total	26.8	7.1	15.8	1.6	18.1	7.1	8.7	1.6	1.6	4.7	4.7	.79	.79	.79	100

Limestone-Tempered Ware (N=65)

Limestone-tempered pottery is represented by 65 sherds which constitute 51.9% of the total ceramic collection. Twenty-nine are body sherds, two are rim sherds and the remaining 34 are residual sherds. Three previously named types are represented in the collection: (1) Mulberry Creek Plain (Haag 1939:9; Heimlich 1952:15-17), (2) Long Branch Fabric Marked (Haag 1939:9; Sears and Griffin 1950; Heimlich 1952:17), and (3) Sauty Incised (Heimlich 1952:19).

1a Limestone-Tempered Residual (N=34).

Within the limestone-tempered ware, the 34 residual sherds represent 52.3% of the total limestone-tempered ceramics and 26.8% of the total ceramic collection. Limestone-tempered residual sherds are followed in frequency by Long Branch Fabric Marked 30.8% (N=20), Mulberry Creek Plain 13.9% (N=9), and Sauty Incised 3.1% (N=2).

1b Limestone-Tempered Plain (N=9) (Figure 5.3).

Nine plain surfaced sherds constituting 13.9% of the limestone-tempered ware and 7.1% of the total ceramic collection, are attributable to the type Mulberry Creek Plain (Haag 1939:9; Heimlich 1952:15-17). Exterior surfaces of the sherds range in color from gray to light

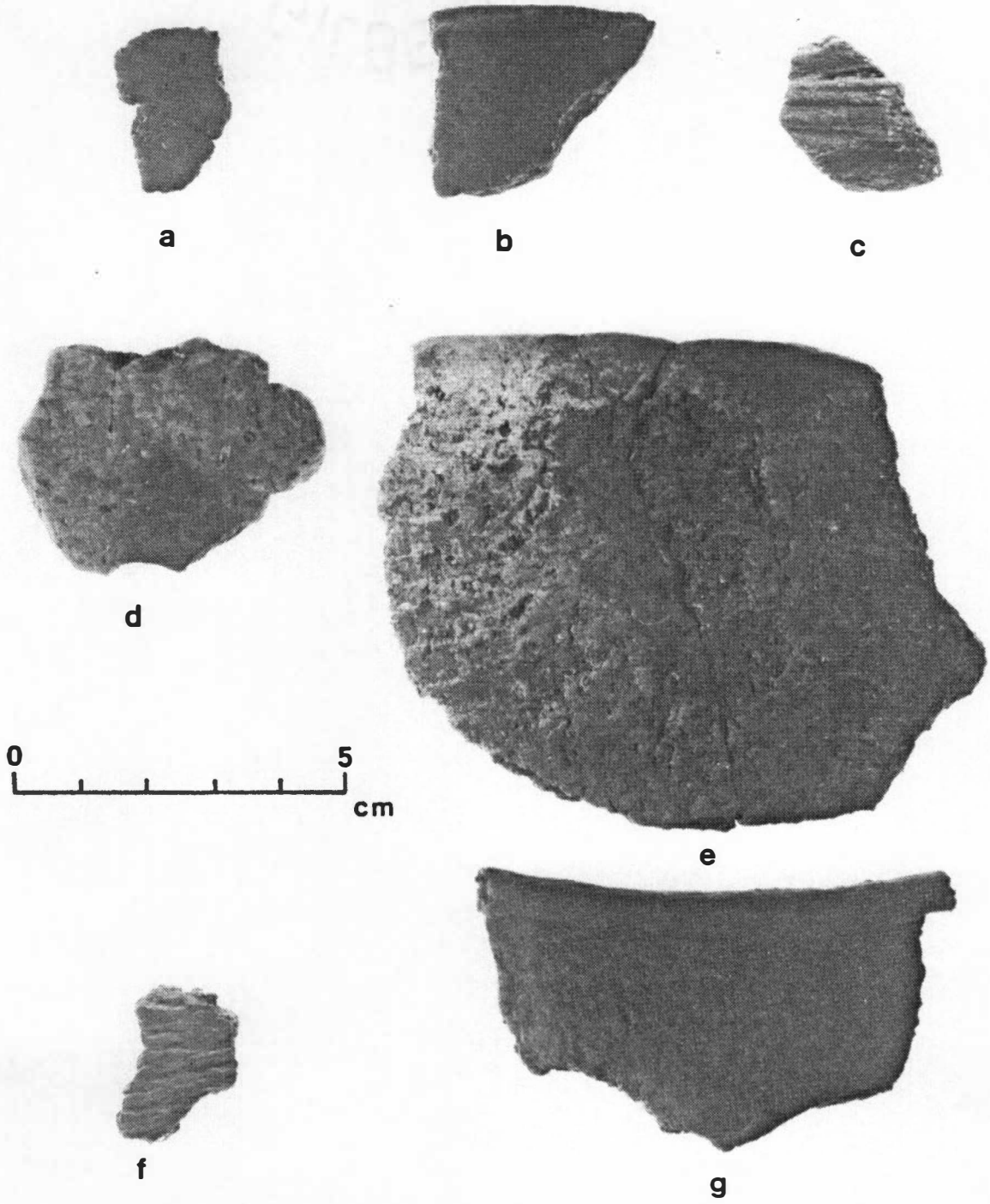


Figure 5.3 Ceramic Artifacts from Goatcliff Rockshelter by Category. a: 1b. b: 1c. c: 1d. d:3b. e: 3c. f: 3d. g: 3e.

brown. Interior surfaces are carbon infused black. The paste varies from gray buff to orange. The single rim sherd has a rounded lip and indeterminate profile. Sherd thickness ranges from 4.5 mm to 8.5 mm (Mean=6.5 mm, N=9).

Temper: The sherds contain 15-20% crushed limestone- temper. Average temper size is 1.5 mm. Occasional aplastics noted within the paste were limited to manganese oxide grains 22.22% (N=2).

Surface Treatment: Sherds of Mulberry Creek Plain exhibit smoothed undecorated exterior surfaces.

Comments: A Middle to Late Woodland association for these ceramics is suggested.

1c Limestone-Tempered Fabric Marked (N=20) (Figure 5.3).

Nineteen fabric marked body sherds and one rim sherd are assignable to the type Long Branch Fabric Marked (Haag 1939:9; Heimlich 1952:15-16). Long Branch Fabric marked sherds constitute 30.8% of the limestone-tempered ceramics and 15.8% of the total ceramic collection. The single rim sherd has a flattened lip which is extended to the exterior of the vessel. The warp of the fabric runs parallel to the lip. The paste and both surfaces of the sherds are gray buff in color. Thickness of the sherds varies from 5.0 mm to 9.0 mm (Mean=6.12 mm, N=20).

Temper: Sherds of this ware contain 15-20% crushed limestone-temper. Average temper size is 1.5 mm. Occasional aplastics noted within the paste include: (1) manganese oxide grains 55% (N=11), and (2) chert 20% (N=4).

Surface Treatment: Exterior surfaces of the sherds exhibit fabric wrapped paddle markings. Secondary surface treatment in the form of smoothing is common. Exterior surfaces are smoothed over lightly or smoothed to the extent that the fabric impressions are nearly obliterated.

Comments: An Early to Middle Woodland association for this ceramic type at 40MU390 is suggested.

1d Limestone-Tempered Incised (N=2) (Figure 5.3).

Two body sherds, constituting 3.1% of the limestone-tempered ceramics and 1.6% of the total ceramic collection, are similar to the type Sauty Incised described by Heimlich (1952:19). Exterior surfaces vary in color from tan to dark brown. Interior surfaces are a light tan or carbon infused black. Thickness ranges from 6.5 mm to 7.0 mm (Mean=6.7 mm, N=2).

Temper: Both sherds contain 15% crushed limestone-temper. Average temper size is 1.5 mm.

Surface Treatment: One specimen exhibits narrow parallel incised lines on the exterior surface. The

other specimen exhibits a broad 8.0 mm, deep 1.3 mm incised "channel" bordered on one side by two parallel incised lines.

Comments: Limestone-tempered incised ceramics have been recovered from a Middle Woodland context in the Normandy Reservoir (Faulkner 1978:66).

Chert-Tempered Ware (N=47)

Chert-tempered sherds constitute 37% (N=47) of the total ceramic collection. Sixteen of the sherds are body sherds, eight are rim sherds and the remaining 23 are residual sherds. Three named types and one untyped category are represented: (1) Elk River Plain (Faulkner 1968:63-65), (2) Elk River Knot Roughened and Net Impressed (Faulkner 1968:65-68), (3) Elk River Cord Marked, and (4) undesignated fabric impressed.

3a Chert-Tempered Residual (N=23).

Residual sherds constitute 49% of the chert-temperd ware and 18.1% of the total ceramic collection. These sherds would probably have been assignable to one of the types described below if they had exterior surfaces.

3b Chert-Tempered Plain (N=9) (Figure 5.3).

Nine plain undecorated body sherds constituting 19.1% of the chert-tempered ware and 7.1% of the total

ceramic collection are attributed to the type Elk River Plain (Faulkner 1968:63-65). The paste varies in color from gray to black. Exterior surfaces range in color from brown to black. Interior surfaces vary in color from gray to carbon infused black. Thickness ranges from 5.5 mm to 9.0 mm (Mean=7.25 mm, N=4).

Temper: The paste contains 15% crushed chert-temper. Average temper size is 1.75 mm.

Surface Treatment: The sherds exhibit smoothed undecorated surfaces.

Comments: A Late Woodland association for these ceramics is suggested.

3c Chert-Tempered Knot Roughened and Net Impressed (N=11) (Figure 5.3).

Eleven sherds exhibiting a knot roughened exterior, constituting 23.4% of the chert-tempered ceramics and 8.7% of the total ceramic collection, are referable to the type Elk River Knot Roughened and Net Impressed (Faulkner 1968:65-68). Four body sherds and seven rim sherds are represented in the collection. The paste varies in color from gray black to brown. Exterior and interior surface color varies from orange to brown and nearly all the sherds exhibit areas of black carbon residue. The seven rim sherds recovered from 40MU436 account for 87.5% of the rim sherds within the

chert-tempered ware and 70% of the total rim sherds recovered from the shelter. All seven rims are incurvate in profile. The lip is rounded on all specimens. Rim diameter was calculated for two vessels. They are approximately 24 cm and 26 cm in diameter (Mean=6.77 mm, N=11).

Temper: The sherds contain 15-20% crushed chert-temper. Average temper size is 2 mm. Occasional aplastics noted within the paste were limited to manganese oxide grains 100% (N=11).

Surface Treatment: Sherds of Elk River Knot Roughened and Net Impressed ceramics exhibit smoothed over knot roughened impressions. Net impressions were not represented in the collection. Light scraping and brush marks were evident on the interior and exterior surfaces of most sherds.

Comments: Chert-tempered Elk River Knot Roughened and Net Impressed ceramics are a "marker type on Late Woodland sites in the Eastern Highland Rim and Nashville Basin" (Faulkner and McCollough 1982:233). A Late Woodland association for the Elk River Knot Roughened and Net Impressed ceramics recovered at 40MU436 is suggested.

3d Chert-Tempered Cord Marked (N=2) (Figure 5.3, page 122).

Two chert-tempered, cord marked, body sherds, constituting 4.3% of the chert-tempered ware and 1.6% of the total ceramic collection, conform to the type Elk River Cord Marked (Faulkner 1968:61-63). The paste varies from dark black to tan. Interior and exterior surfaces of each specimen are identical in color to that of their paste. Thickness of the two sherds ranges from 5.5 to 6.0 mm (Mean=5.7 mm).

Temper: Both sherds contain less than 15% crushed chert-temper. Average temper size is 1 mm.

Surface Treatment: Both sherds exhibit cord wrapped paddle impressions on their exterior surfaces. One specimen exhibits impressions of a single strand cord while the other specimen exhibits impressions of a twisted double strand cord. Cord widths are 2.4 mm and 3.4 mm respectively. Cord markings on both specimens are deep and distinct. Secondary surface treatment was not evident.

Comments: A Late Woodland association for the Elk River Cord Marked ceramics is suggested.

3e Chert-Tempered Fabric Impressed (N=2) (Figure 5.3, page 122).

Two chert-tempered fabric impressed sherds, constituting 4.3% of the chert-tempered fabric impressed ware and 1.6% of the total ceramic collection, were recovered. The two sherds, one a rim sherd the other a body sherd, do not conform to any previously named type. The paste of both specimens is dark black. Exterior surface color varies from tan to gray black. The single rim sherd has an everted rim profile and rounded lip. Overall, vessel shape is indeterminate; however, a `salt pan´ form may be represented. The interior surfaces are carbon infused black. Thickness is 7.5 mm (N=2).

Temper: Both specimens contain 15-25% crushed chert-temper. Temper size varies from 0.5 to 1.0 mm. Average temper size is 1.0 mm. Occasional aplastics noted within the paste include: (1) manganese oxide grains 100% (N=2), (2) limestone 50% (N=1).

Surface Treatment: Exterior surfaces of both specimens exhibit fabric wrapped paddle impressions. The fabric is distinct in that it is of simple twining or twilled construction. This twilled fabric marking is similar to that found on Mississippian salt pans. The fabric impressions are deep and distinct. Secondary surface treatment was not evident.

Comments: Chert-tempered twilled fabric marked ceramics have not previously been reported from either the Columbia or Normandy Reservoir areas. Recent investigations at the Fayetteville By-Pass site (40LN86) Lincoln County, Tennessee, have produced "twilled" fabric marked ceramics in association with shell-tempered ceramics (Dickey 1981). At 40LN86 twilled fabric marked sherds comprise the majority of the chert-tempered ceramics recovered, and occurred in direct association with shell-tempered ceramics in 20 of the 25 ceramic producing features. Duvall (1977:218-219) has suggested there was an overlap of the Late Woodland Mason phase and emergent Mississippian cultures in the Normandy Reservoir area. This proposition appears to be supported by the ceramic assemblage recovered at the Fayettville By-Pass site.

Unfortunately, the stratigraphic integrity at Goatcliff Rockshelter is suspect. Both sherds were recovered at depths greater than would be expected if they were attributable to a Late Woodland or emergent Mississippian utilization of the shelter. In light of the extensive amount of bioturbation within the shelter deposit, this apparent mixing of the ceramics does not diminish the proposition forwarded by Duvall (1977:218-219) and Dickey (1981). A Late Woodland or

emergent Mississippian period association for these two sherds recovered at 40MU390 is suggested.

Shell-Tempered Ware (N=12)

Shell-tempered pottery is represented by 12 sherds which constitute 9.4% of the total ceramic collection. Five of the specimens are body sherds, one is a strap handle/body fragment and the remaining six are residual sherds. One previously named type is represented, Plain Shell (Heimlich 1952:22-24) or Mississippian Plain (Phillips 1970:130-135).

4a Shell-Tempered Residual (N=6).

Within the shell-tempered ware, residual sherds represent 50% of the total and 4.7% of the total ceramic collection.

4b Shell-Tempered Plain (N=6) (Figure 5.4).

The five body sherds exhibiting smoothed exterior surfaces are referable to the type Mississippian Plain (Phillips 1970:130-135). The single strap handle/body fragment, which may have come from either a plain or decorated vessel (this handle form is common to both) undoubtedly is associated with the Mississippian Plain sherds recovered at the shelter. Mississippian Plain sherds constitute 50% of the shell-tempered ware and 4.7% of the total ceramic collection. The paste varies in

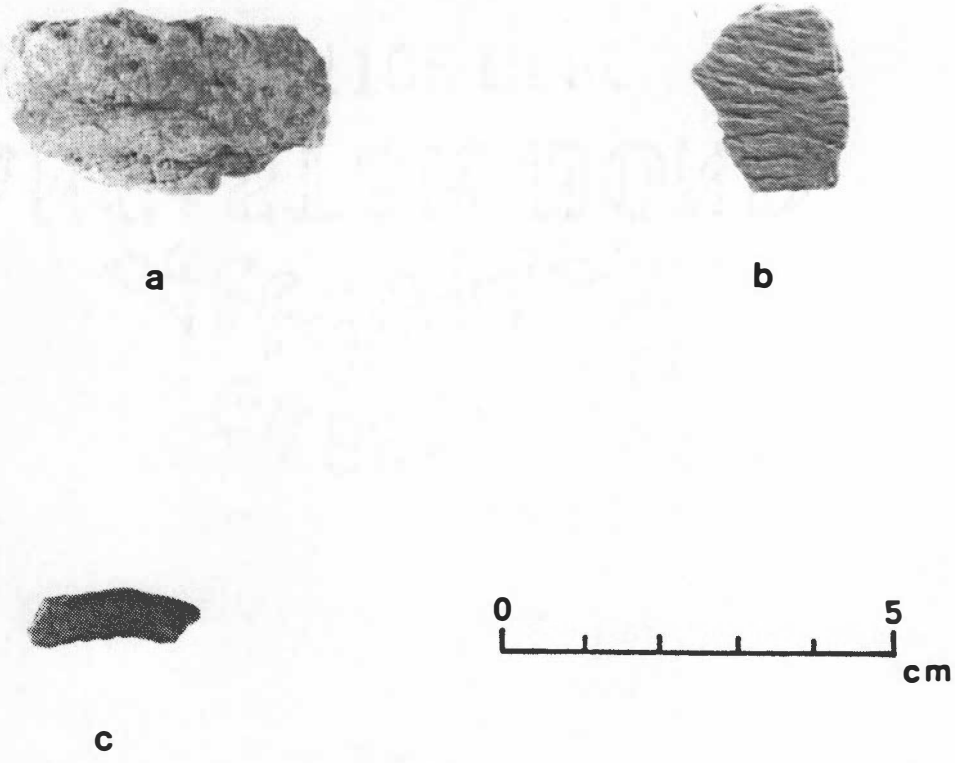


Figure 5.4 Ceramic Artifacts from 40MU436 by Category. a: 4b. b: 6b. c: 5a.

color from off white to light brown. Exterior and interior surfaces vary in color from off white to a tan buff. Thickness ranges from 4.0 mm to 5.5 mm (Mean=4.92 mm, N=6).

Temper: The six sherds contain 25-30% crushed shell-temper. Temper size ranges from particles only visible microscopically to platey fragments 5 mm in length. Average temper size is 1.5 mm.

Surface Treatment: Sherds of Mississippian Plain exhibit smooth exterior surfaces. Secondary surface treatment was not evident.

Comments: Shell-tempered ceramics are a diagnostic artifact attributable to the Mississippian period in the Eastern United States (Phillips 1970). The occurrence of shell-tempered ceramics suggests a Mississippian period utilization of the rockshelter.

5a Sand Tempered Ware (N=1) (Figure 5.4).

The single sand-tempered rim sherd recovered constitutes 0.79% of the total ceramic collection. The paste and both surfaces of the sherd are light tan in color. The rim sherd has a rounded lip and indeterminate rim profile. Overall vessel form is indeterminate; however, the irregular shape of the rim suggests a miniture vessel form. Thickness of the sherd is 4.0 mm.

Temper: The single sherd contains 10% sand-temper.

Surface Treatment: The single sand-tempered rim sherd exhibits a plain smoothed surface. The sherd may have come from a vessel with either a plain or decorated body.

Comments: Sand-tempered ceramics occur in very low frequencies on a number of Middle and Late Woodland sites in Tennessee and northern Alabama (Duvall 1977:515; Heimlich 1952:35-36; Kline 1979:143; Kleinhans 1978:439). The sand-tempered sherd recovered from 40MU436 probably represents a trade vessel that dates to the Middle or Late Woodland period.

Clay-Tempered Ware (N=2)

Clay-tempered ceramics are represented by two sherds which constitute 1.6% of the total ceramic collection. One of the specimens is a cord marked body sherd, the other is a residual sherd. The cord marked sherd is similar to the type Harmons Creek Cord Marked (Lewis and Kneberg 1947).

6a Clay-tempered Residual (N=1).

One residual clay-tempered sherd representing 50% of the clay-tempered ware and 0.79% of the total ceramic collection was recovered.

6b Clay-Tempered Cord-Marked (N=1) (Figure 5.4).

The single clay-tempered cord-marked body sherd is similar in appearence to the type Harmons Creek Cord Marked described by Lewis and Kneberg (1947). The paste and both surfaces are brown in color. Thickness of the sherd is 3.2 mm.

Temper: The single sherd contains 5% crushed clay-temper. Temper size varies from small particales to pieces 2 mm in diameter. Occasional aplastics observed within the paste were limited to a single manganese oxide grain.

Surface Treatment: The exterior surface exhibits cord marking. Cord impressions are deep, narrow (1.5 mm), and distinct. Secondary smoothing of the surface was not evident.

Comments: Clay-tempered Harmons Creek Cord Marked ceramics are a Late Woodland type in western Tennessee (Lewis and Kneberg 1947). A Late Woodland period association for this sherd at 40MU436 is suggested.

6. Lithic Artifacts

A total of 116 flaked, utilized, and ground stone artifacts was recovered from Goatcliff Rockshelter. In addition, a total of 3914 pieces of lithic debitage was recovered. The entire lithic assemblage was examined

with the exception of the 1.59 mm fine screen material from which a 25% sample was examined. Preliminary sorting was conducted as outlined in Chapter IV (Lithic Artifacts).

Worked Implements

A total of 90 flaked stone implements was recovered from 40MU436 which constitutes 55.2% of the total flaked, ground, and utilized lithics recovered. Thirty-one discrete categories were identified which have been divided into a bifacial and a unifacial series. The bifacial series is represented by 24 categories which constitute 1.2% (N=48) of the total lithic assemblage (N=4030) and 53.3% of the flaked stone implements. The unifacial series is represented by nine categories constituting 1% (N=42) of the total lithic assemblage and 46.7% of the flaked, utilized, and ground stone implements. The bifacially flaked stone implements are described and discussed below and are summarized by cultural period in Table 5.2.

Projectile Point/Knives

Nine complete or fragmentary pp/k´s were recovered from Goatcliff Rockshelter. The nine pp/k´s conform to five previously named types and two unnamed categories.

Table 5.2 Bifalcial Lithic Implements from Goatcliff Rockshelter by Cultural Period.

Cultural Period	Implement Category																									
	8	9	11	12	13	14	15	16	17	18	19	20	23	24	25	26	27	28	29	30	31	32	33	34	Total
Mississippian/ Late Woodland			4	1	1	1	1	3	1	3	1		1	2	2	5	2	3	1	1	1	1		3	38
Middle Woodland	1	1							2	1		1	1										2	1	10
Total	1	1	4	1	1	1	1	3	3	4	1	1	2	2	2	5	2	3	1	1	1	1	2	4	48
%Total	2.1	2.1	8.3	2.1	2.1	2.1	2.1	6.3	6.3	8.3	2.1	2.1	4.2	4.2	4.2	10.4	4.2	6.3	2.1	2.1	2.1	2.1	4.2	8.3	100

In addition, three pp/k blade fragments, three bases, and four tips were recovered.

Category 8 Short Broad Blade, Corner Notched, Short Expanding Stem (N=1) (Figure 5.5).

Description: The blade is short, broad, and triangular. The cross section is biconvex. The haft element is formed by deep diagonal corner notching. The single undamaged shoulder is weakly barbed. The lateral haft element edges are straight and the basal margin is excurvate. Primary flaking of the blade and haft element are obscure. Secondary flaking is bifacial-bilateral and random to regularly placed along the lateral blade margins. Flake scars are conchoidal to angular expanding. The lateral margins of the stem exhibit bifacial-bilateral secondary flaking. Flake scars are expanding to angular. The basal edge is thinned and unground. The specimen is of St. Louis chert which does not appear to have been thermally altered.

Measurements: Blade Length: 41.2 mm, Blade Width: N.A., Thickness: 7.1 mm, Stem Length: 12.0 mm, Stem Width: 16.8 mm, Weight: (6.01 g).

Comments: This specimen does not conform to any previously named type, however, it is similar to pp/k's included in the Wade Cluster defined for the upper Duck River Valley in Middle Tennessee. Faulkner and McCollough

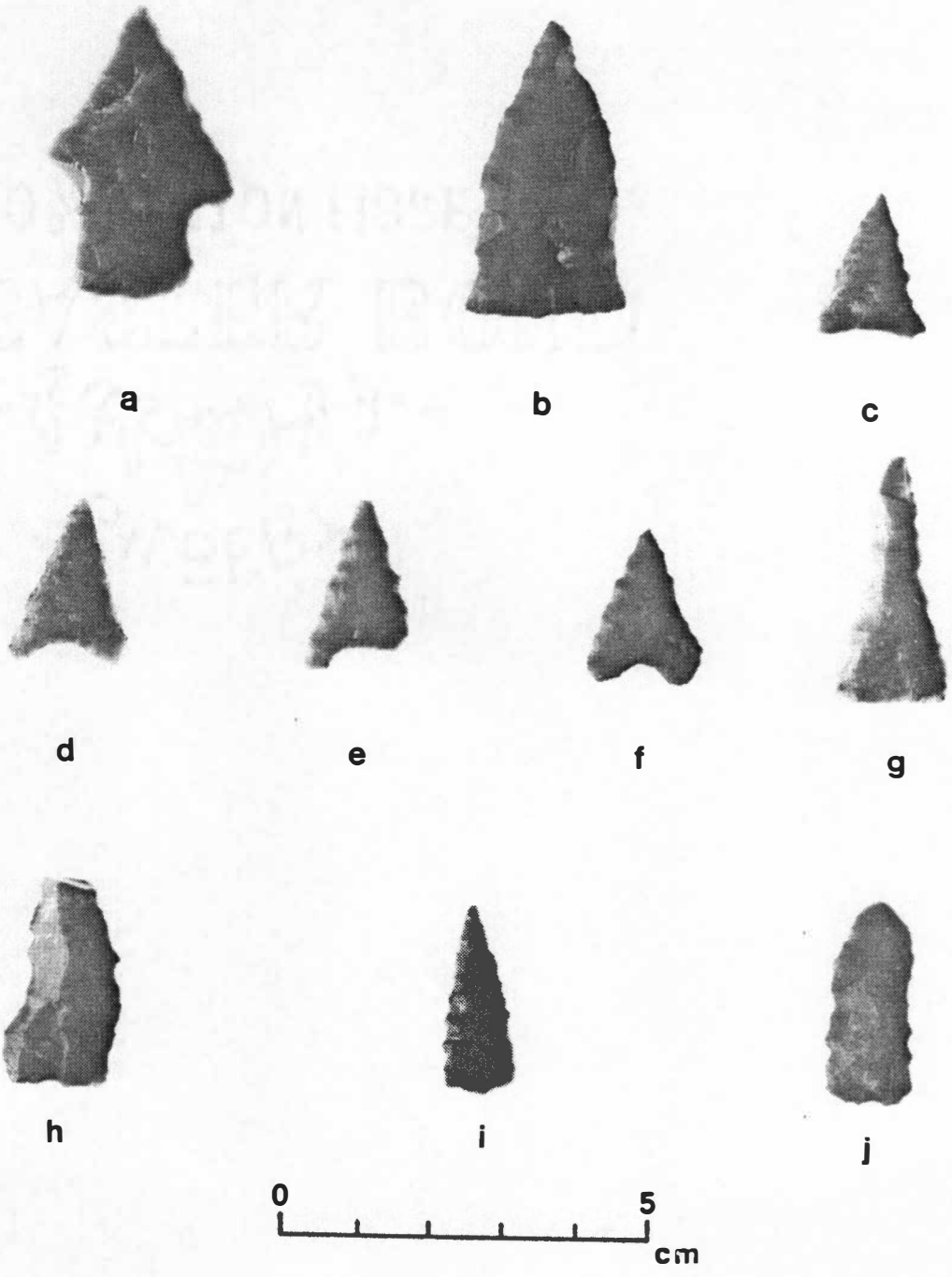


Figure 5.5 Projectile Point/Knives from Goatcliff Rockshelter by Category. a: 8. b: 9. c-f: 11. g: 12. h: 13. i: 14. j: 15.

(1977:123) suggest the Wade cluster is diagnostic of the Terminal Archaic Wade phase in the upper Duck River Valley. Currently available dates for the Wade cluster are 1075+75 B.C. and 970+215 B.C. for the Nowlin II site (Keel 1978), 1010+135 B.C. for the Banks III site (Faulkner and McCollough 1974), and 840+80 B.C. at the Ewell III site (Duvall 1977). This projectile point most likely represents a scavenged tool used by later people as no other Late or Terminal Archaic artifactual material was identified at the rockshelter.

Category 9 Short Broad Trianguloid Blade, Expanded Excurvate Base (N=1) (Figure 5.5).

Description: The specimen is short, broad and trianguloid in form. The haft element is defined by constriction of the proximal blade margins. The blade is recurvate and the base is expanding. The cross section is biconvex and the distal juncture is blunt. Primary flaking is obscure. Secondary flaking is bifacial-bilateral and continuous along the lateral blade margins. Flake scars are angular expanding to lamellar. The haft element is bifacial-bilaterally flaked and unground. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 40.9 mm, Blade Width: 19.6 mm, Stem Width: 19.3 mm, Thickness: 8.4 mm, Weight: 5.85 g.

Comments: The specimen conforms to the type Copena Triangular (Cambron and Hulse 1975:32). This projectile point type is diagnostic of the Middle Woodland McFarland phase in the upper Duck River Valley in Middle Tennessee (Faulkner and McCollough 1977:118). A Middle Woodland affiliation for this projectile point type at 40MU436 is suggested.

Category 11 Small, Triangular, Broad Blade (N=4) (Figure 5.5).

Description: The specimens are triangular in form with straight to incurvate edges. Two of the specimens exhibit snapped proximal junctures and one specimen exhibits a distal fracture. Three of the specimens are flattened in cross section and one is plano-convex. Three of the specimens are of Fort Payne chert and one is of fossiliferous Fort Payne chert. One specimen of Fort Payne chert appears to have been thermally altered. Primary flaking is obscured on all specimens. Secondary flaking is bifacial-bilateral and continuous along the blade and basal margins. Flake scars vary from ovate to angular expanding. The bases are unground.

Measurements: Range in Length: 21.1 mm - 24.1 mm, (Mean=22.6 mm), Width: 15.6 mm (N=1), Range in Thickness: 3.3 mm - 4.0 mm, (Mean=3.73 mm) (N=4), Weight: 0.9 g (N=2).

Comments: The specimens conform to one of two named types: Hamilton Incurvate (Lewis 1955) or Madison (Scully 1951). The earliest of these is the Late Woodland Hamilton Incurvate which is characterized by incurvate edges. This projectile point type is characteristic of the Late Woodland Hamilton Culture in the eastern Tennessee Valley (Lewis and Kneberg 1946). In Middle Tennessee this point is characteristic of the Late Woodland Mason phase (Faulkner 1968:83). A temporal range of A.D. 500 to A.D. 1000 has been suggested for this point type (Kneberg 1956). The Hamilton type is followed temporally by the Madison type defined by Scully (1951). This point has been recovered in association with Mississippian period artifacts in Alabama. Madison projectile points are characterized by straight edges. Faulkner and McCollough (1973:91) suggest these points may be a Late Woodland Hamilton variant in Middle Tennessee. Boyd (1982) has compared Hamilton and Madison projectile points from the Martin Farm site (40MR20), located in the Little Tennessee River Valley of eastern Tennessee, and found no statistically significant

morphological or temporal variation between the two forms. A Late Woodland to Mississippian temporal association for these two types at 40MU436 is suggested.

Category 12 Medium Large, Triangular, Narrow Blade (N=1) (Figure 5.5).

Description: The single specimen is elongate isosceles triangular in form and plano-median ridged in cross section. The lateral blade margins are slightly incurvate and the basal edge is straight. Primary flaking is obscure. Secondary flaking is bifacial-bilateral and continuous. The proximal margin is thinned and unground. Flake scars are expanding to angular expanding. The specimen exhibits a distal impact fracture. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: (34.9 mm), Width: 16.2 mm, Thickness: 7.0 mm, Weight (2.49 g).

Comments: The specimen does not conform to any previously named type. It most likely represents a thick variation of the Late Woodland Madison type. A Late Woodland to Mississippian temporal association for this specimen is suggested.

Category 13 Medium Large, Thick, Triangular, Asymmetrical Blade (N=1) (Figure 5.5).

Description: The specimen is triangular in form and biconvex in cross section. The blade is asymmetrically recurvate and the basal edge is straight. The blade exhibits a distal transverse snap fracture. Primary flaking is obscure. Secondary flaking is bifacial-bilateral and fortuitously placed along the blade edges. Flake scars are expanding to angular expanding. The basal margin is thinned and unground. The specimen is made of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: N.A., Width: 15.4 mm, Thickness: 8.4 mm, Weight: (N.A.).

Comments: This specimen does not conform to any previously named type; however, it may represent a crude Hamilton or Madison point. The specimen was recovered in Stratum II Level 1, 0-10 cm below surface, which would support it's contemporanety with either of these two types. A Late Woodland or Early Mississippian period association for this projectile point at 40MU436 is suggested.

Category 14 Small, Lanceolate, Narrow Blade (N=1) (Figure 5.5, page 139).

Description: The single specimen in this category is lanceolate in form and flattened in cross section. The lateral blade margins are straight and the basal margin is excurvate. The distal juncture is acute. Primary flaking is obscured. Secondary retouch is bifacial-bilateral and fortuitously placed along the blade edges. Flake scars are expanding to angular expanding. The base is thinned and unground. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 26.8 mm, Width: 10.5 mm, Thickness: 3.7 mm, Weight: 0.85 g.

Comments: This specimen is similar to the Dallas Triangular projectile point type found in east Tennessee (Lewis and Kneberg 1946) and the Guntersville type found in the Guntersville Basin of northern Alabama (Cambron and Hulse 1975). A Mississippian association for this point at 40MU436 is suggested.

Category 15 Small, Rectangular, Projectile Point/Knife Preform (N=1) (Figure 5.5, page 139).

Description: The specimen is rectangular in form and biconvex in cross section. The blade and proximal edges are bifacial-bilaterally flaked. The distal

juncture is unmodified. Flake scars are lamellar to angular expanding. The dorsal face exhibits a humped area near the proximal end of the specimen. This hump is the result of flake removals terminating in hinge and step fractures near the margins of the specimen. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 28.9 mm, Width 12.5 mm, Thickness 8.1 mm, Weight 2.4 g.

Comments: This specimen may have been manufactured and discarded at the rockshelter due to the inability of the knapper to remove the humped area at the base of the preform which would be necessary to facilitate hafting of the completed projectile point. It may, however, represent what Munson and Munson (1972:31-36) have termed a "humped back knife." In view of the overall size of the specimen and the absence of micro-wear along the lateral blade margins the first interpretation given would seem the most plausible.

Category 16 Miscellaneous Projectile Point Bases (N=3).

Description: All three specimens represent portions of the hafting element of unidentifiable projectile points. Two specimens are portions of straight stemmed points, and one is a portion of a corner notched point. Two specimens are of Fort Payne chert and

one is of St. Louis chert. One of the Fort Payne specimens has been thermally altered.

Category 17 Miscellaneous Projectile Point Blade Fragments (N=3).

Description: The three specimens in this category represent fragments of the blade of unidentifiable projectile points. All three specimens are of Fort Payne chert. The specimens exhibit extensive surface potlidding and thermal fracturing.

Category 18 Miscellaneous Projectile Point Tips (N=4).

Description: All four specimens represent the distal juncture of unidentifiable projectile points. The four specimens are biconvex in cross section. Two of the specimens exhibit acute distal junctures and two exhibit impact fractures. Three of the specimens are of Fort Payne chert and one is of Carters chert. One specimen appears to have been thermally altered while the other three do not.

Category 19 Thick, lanceolate, Biface/Knife (N=1) (Figure 5.6).

Description: The single specimen in this category is thick, narrow, and lanceolate in shape. The cross section is median-ridged. The specimen exhibits a distal transverse snap fracture. There is no provision for

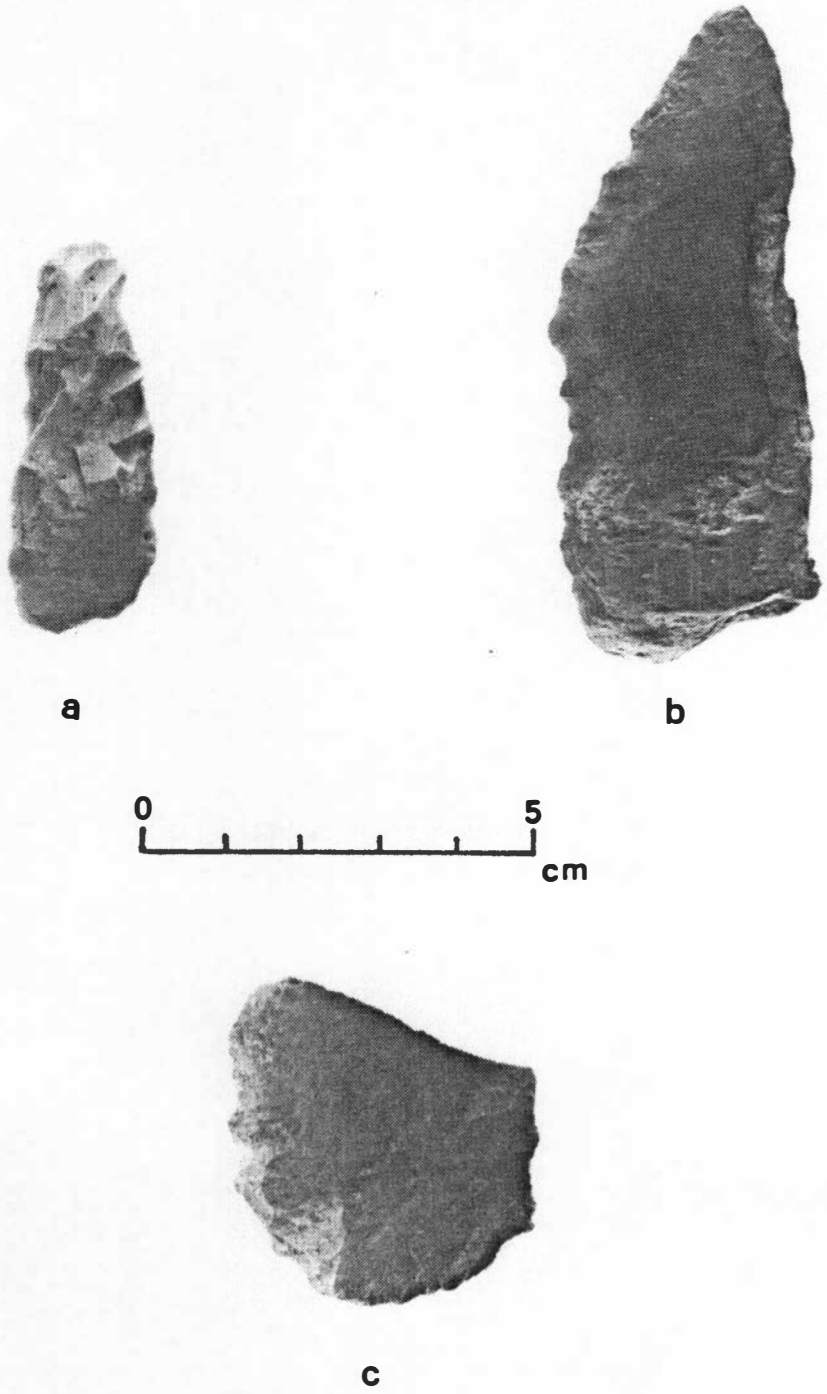


Figure 5.6 Knives and Preforms from Goatcliff Rockshelter. a: 19. b: 20. c: 24.

hafting. Primary flaking is bifacial-bilateral and fortuitously placed along the margins. Flake scars are expanding and massive. The specimen is of Fort Payne chert and does not appear to have been thermally altered. Measurements: Length: N.A., Width: 19.5 mm, Thickness: 13.8 mm, Weight (11.25 g).

Comments: This specimen may have functioned as a heavy duty cutting implement, however, micro-wear is minimal along the lateral edges. The specimen was recovered from Stratum II, Level 1, 0-10 cm below surface, which suggests a Late Woodland or Early Mississippian period association for this artifact at Goatcliff Rockshelter.

Category 20 Large Asymmetrical Blade, Bifacial Knife (N=1) (Figure 5.6).

Description: The single specimen in this category was made on an elongate, thin, chert river cobble. The proximal end of the specimen is thick. The lateral blade margins are asymmetrical and the distal juncture exhibits a transverse snap fracture. The blade is plano-convex in cross section. Primary flaking is bifacial-bilateral. Flake scars are expanding. Secondary flaking is bifacial-bilateral and continuous. Flake scars are conchoidal to angular expanding. Micro-wear along the blade margins is minimal. The proximal end of the

specimen is unmodified. Cortex covers 85% of the exterior surface of this specimen. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Blade Length: (62.8 mm), Blade Width: 30.9 mm, Blade Thickness: 16.5 mm, Base Length: 19.5 mm, Base Width: 33.1 mm, Base Thickness: 25.0 mm, Weight (43.3 g).

Category 23 Stage I Preform Bases (N=2).

Description: Both specimens in this category are thick and indeterminate in outline. One specimen is plano-convex in cross section the other is rhomboid. Stage I bifaces exhibit cortex on one or both surfaces of the specimens. Primary flaking is bifacial-bilateral and fortuitous. Flake scars are expanding to angular expanding. Stage I bifaces do not exhibit secondary flaking. Both specimens exhibit transverse blade fractures. The specimens are of Fort Payne chert and do not appear to have been thermally altered.

Category 24 Stage II Preform Bases (N=2) (Figure 5.6).

Description: Both specimens are thin ovoid preform bases. Cortex is present on the surface of one specimen. Both specimens are biconvex in cross section. Primary flaking is bifacial-bilateral and occurs random

to regularly along the edges. Flake scars are expanding to angular expanding. Secondary flaking is minimal. The specimens are of Fort Payne chert and do not appear to have been thermally altered.

Category 25 Miscellaneous Biface Blade Fragments (N=2).

Description: Both specimens represent medial blade fragments of elongate rectangular and ovoid bifaces. The cross section of one specimen is median-ridged, the other is biconvex. The specimens were shaped by broad, random bifacial-bilateral flaking. Flake scars are lamellar to expanding. Both specimens exhibit random bifacial-bilateral secondary flaking. Secondary flaking and minimal cortex distinguishes Stage II preforms from Stage I preforms. Both specimens exhibit proximal and distal transverse blade fractures. One of the specimens is of thermally altered Brassfield chert, the other is of Fort Payne chert which does not appear to have been thermally altered.

Category 26 Miscellaneous Biface Fragments (N=5).

Description: This is a catchall category for small biface fragments which could not be assigned to any of the previously described categories. All five specimens are of Fort Payne chert. Three of the specimens have been thermally altered.

Category 27 Expanding Incurvate Base Drill (N=2) (Figure 5.7).

Description: Both specimens appear to be drills flaked from recycled Hamilton projectile points. One specimen is complete, the other exhibits a midshaft snap fracture. Both specimens exhibit thick diamond shaped rod-like bits and expanding incurvate bases. Primary flaking is obscure. Secondary retouch of the bit is bifacial-bilateral and continuous. Flake scars are lamellar to expanding and terminate at the midline of each face. Both specimens are of Fort Payne chert and do not appear to have been thermally altered.

Measurements: Length: 34.5 mm (N=1), Range in Base Width: 16.4 mm - 19.9 mm, (Mean=18.15 mm), Range in Shaft Width 9.7 mm - 12.5 mm, (Mean=11.1 mm), Range in Thickness 7.0 mm - 7.6 mm, (Mean=7.3 mm), Weight (1.75 g), (N=1).

Category 28 Expanding Straight Base Drill (N=3) (Figure 5.7).

Description: All three specimens are drills flaked on what appear to be recycled Madison projectile points. Two of the specimens exhibit midshaft snap fractures. The other specimen is represented by the base and a portion of the bit which was recovered from excavation

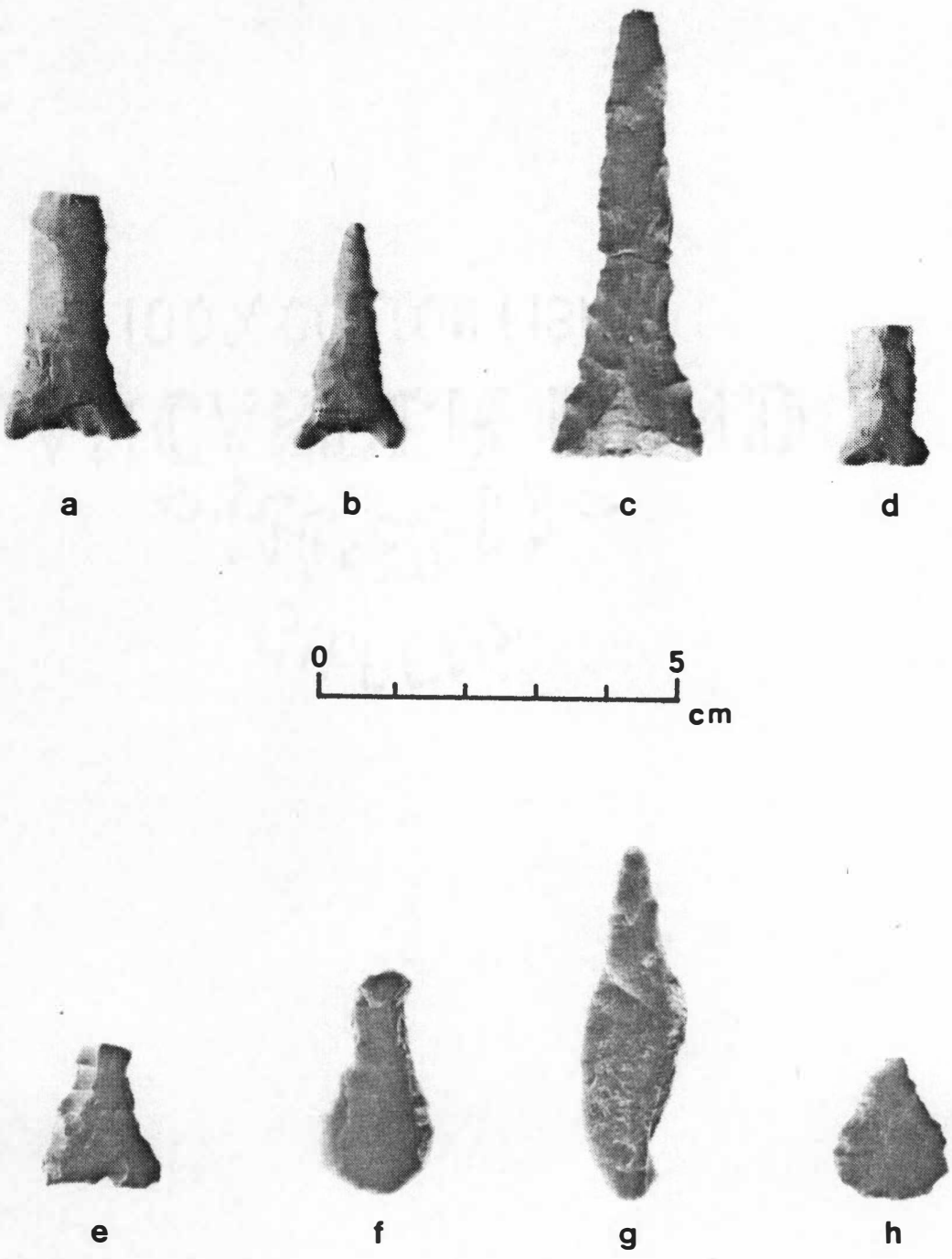


Figure 5.7 Drills and Perforators from Goatcliff Rockshelter. a-b: 27. c-e: 28. f: 29. g: 30. h: 32.

unit 88N, 100E Level 1, 0-10 cm below surface, and the distal portion of the shaft which was recovered from excavation unit 88N, 101E Level 4, 30-40 cm below surface. All three specimens exhibit thick diamond shaped rod-like bits and expanding straight bases. Primary flaking is obscure. Secondary reworking of the shaft is bifacial-bilateral and continuous. Flake scars are expanding to lamellar and carry to the midline of each face. All three specimens are of Fort Payne chert and do not appear to have been thermally altered.

Measurements: Length: 63.2 mm (N=1), Range in Base Width 16.4 mm - 21.8 mm, (Mean=18.73 mm), Range in Shaft Width: 8.2 mm - 12.0 mm, (Mean=10.3 mm), Range in Thickness: 6.2mm - 9.9 mm, (Mean=8.17 mm), Weight 7.6 g (N=1).

Category 29 Expanding Convex Base Drill (N=1) (Figure 5.7).

Description: The single specimen in this category is a drill flaked on a thick straight interior flake. The base is biconvex in cross section; while the bit is diamond shaped. Primary flaking is obscure. Secondary retouch of the bit is bifacial-bilateral. Flake scars are expanding to angular expanding and carry to the midline of each face. The bit exhibits a lateral snap fracture at its midpoint. The base exhibits

bifacial-bilateral flaking fortuitously placed to meet thinning needs. Flake scars are expanding. The specimen is of Fort Payne chert and appears to have been been thermally altered.

Measurements: Length: N.A., Width of Base: 17.6 mm, Width of shaft: 9.9 mm, Thickness: 7.2 mm, Weight: (N.A.).

Category 30 Contracting Round Base Drill (N=1) (Figure 5.7).

Description: The single specimen in this category is a thick contracting base drill. The specimen is biconvex in cross section. Primary flaking is obscure. Secondary retouch of the bit is bifacial-bilateral and continuous. Flake scars are expanding and carry to the midline of both faces. The proximal half of the specimen exhibits massive crushing and battering along one lateral margin. The opposite lateral margin exhibits continuous bifacial-bilateral flaking. Flake scars are expanding to angular expanding. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 52.0 mm, Basal Width: 14.9 mm, Shaft Width: 8.5 mm, Thickness: 9.6 mm, Weight: (6.30 g).

Category 31 Drill Shaft Fragments (N=1).

Description: The single specimen in this category is a distal drill bit fragment. The specimen is diamond shaped in cross section. The specimen is of Carters chert and does not appear to have been thermally altered.

Category 32 Perforator (N=1) (Figure 5.7).

Description: The single specimen in this category exhibits continuous bifacial-bilateral retouch along two converging margins which formed a long slender projection. The projection exhibits a distal transverse snap fracture. The cross section is plano-convex. The specimen is made of fossiliferous Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: N.A., Width: 12.5 mm, Thickness: 3.7 mm, Weight: (1.17 g).

Category 33 Elongate Biface Chisel (N=2) (Figure 5.8.

Description: Both specimens are thick elongate bifaces. One of the specimens exhibits a steep unifacially flaked working edge at one end of the long axis. The working edge exhibits extensive micro-wear in the form of scalar to angular flake removals. The lateral margins of this specimen are bifacial-bilaterally flaked. Flake scars are massive expanding. The other

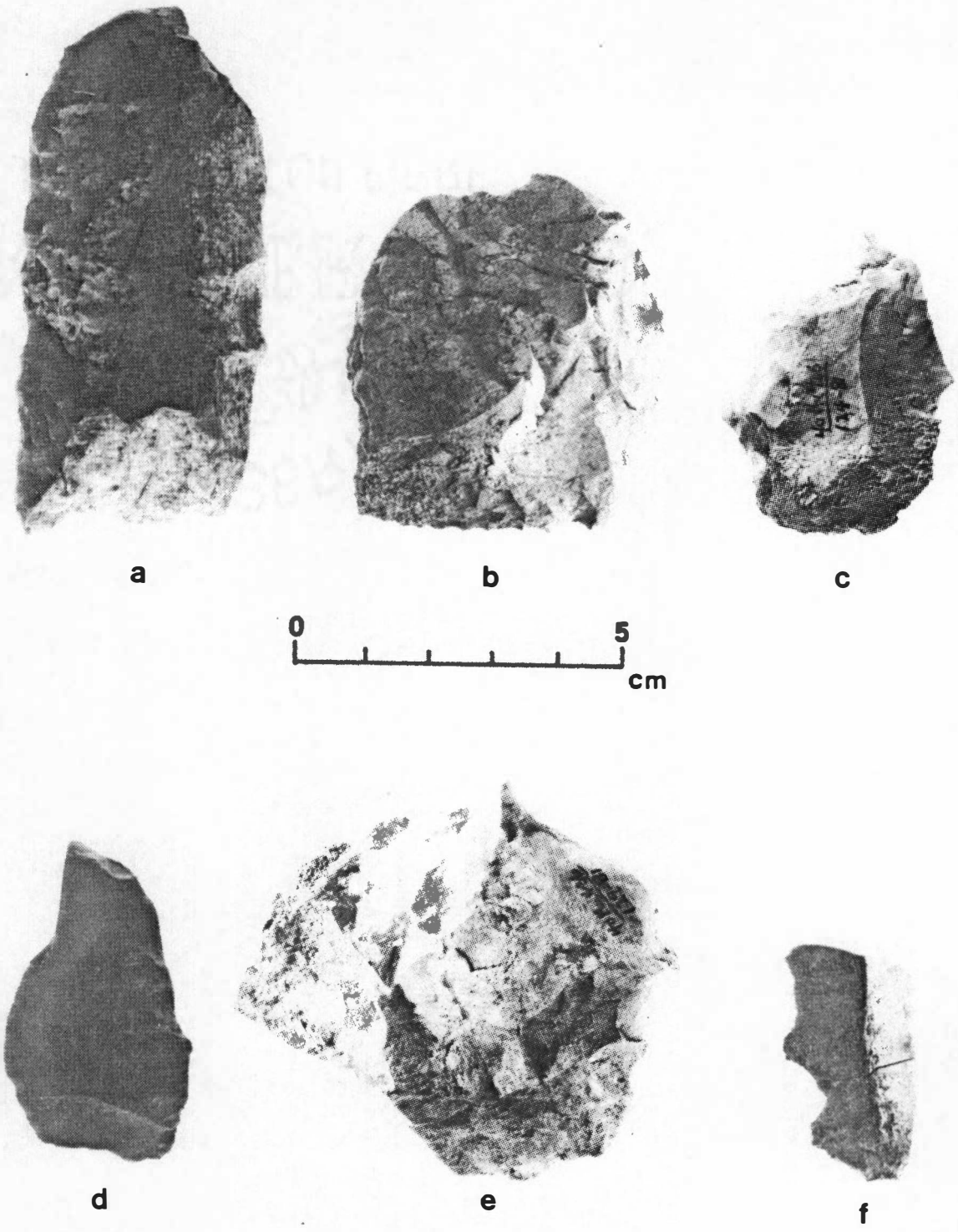


Figure 5.8 Bifacial and Unifacial Artifacts from Goatcliff Rockshelter by Implement Category. a: 33. b: 34. c: 43. d: 37. e: 43. f: 45.

specimen exhibits random bifacial flaking of the lateral margins. The working edge of this specimen is missing. The specimens do not exhibit a provision for hafting, but were probably hafted for use as chisels, celts, adzes, or picks (c.f. Faulkner and McCollough 1973:85). One of the specimens is of fossiliferous Fort Payne chert the other is of limestone. Neither specimen appears to have been thermally altered.

Measurements: Length: 78.2 mm, (N=1), Range in Width: 38.3 mm - 53.6 mm, (Mean=45.95 mm), Range in Thickness: 21.4 mm - 33.9 mm, (Mean=27.65 mm), Weight: 69.3 g (N=1).

Category 34 Core Choppers (N=4) (Figure 5.8).

Description: All four specimens are cores or core fragments which exhibit continuous bifacial flaking along one or more edges. The working edges exhibit extensive micro-wear in the form of scalar flake scaring and battering. Two of the specimens are of Fort Payne chert and two are of Carters chert. The specimens do not appear to have been thermally altered.

Measurements: Range in Length: 48.6 mm - 63.8 mm, (Mean=55.33 mm), Range in Width: 39.6 mm - 55.8 mm, (Mean=46.85 mm), Range in Thickness: 18.0 mm - 23.7 mm, (Mean=20.43 mm), Range in Weight: 46.2 g - 64.3 g, (Mean=52.27 g).

Unifacial Artifacts

A total of 16 complete or fragmentary unifacially flaked artifacts was recovered from Goatcliff Rockshelter. They constitute 17.8% of the total flaked, worked, and utilized implements recovered and .40% of the total lithic collection. In addition, 16 cores and 10 tested cobbles are included here. Cores and tested cobbles represent 22.4% of the flaked, worked, and utilized stone and .65% of the total lithics recovered. The unifacial artifacts recovered from 40MU436 are discussed below and are summarized by cultural period in Table 5.3.

Category 37 Side Scraper (N=1) (Figure 5.8).

Description: The single specimen in this category exhibits steep unifacial flaking along a significant segment of one lateral blade margin. The specimen is ovate in outline and thick. Flake scars are angular expanding. Micro-wear in the form of nibbling is evident along the distal margin. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 51.4 mm, Width: 31.4 mm, Thickness: 10.7 mm, Weight: 13.83 g.

Table 5.3 Unifacial Implements from Goatcliff Rockshelter by Cultural Period.

Cultural Period	Implement Category									
	37	39	41	43	45	47	48	49	50	Total
Mississippian/ Late Woodland		1		4		1		9	8	23
Middle Woodland	1	5	1	1	1		1	7	2	19
Total	1	6	1	5	1	1	1	16	10	42
%Total	2.38	14.28	2.38	11.9	2.38	2.38	2.38	38.1	23.8	100

Category 39 Core Scraper (N=6).

Description: All six specimens are cores or core fragments which exhibit a continuous segment of steep unifacial retouch along a significant portion of one or more margins which cannot be attributed to platform preparation. The edge angles varies but in most cases are > 45^{o}. Three of the specimens are of Fort Payne chert, one is of fossiliferous Fort Payne chert, and two are of Carters chert. None of the specimens appear to have been thermally altered.

Measurements: Range in Length: 48.7 mm - 77.5 mm, (Mean=61.2 mm), Range in Width: 36.7 mm - 72.0 mm, (Mean=48.82 mm), Range in Thickness: 14.5 mm - 37.4 mm, (Mean=26.76 mm), Range in Weight: 26.7 g - 148.6 g (Mean=77.42 g).

Category 41 Miscellaneous Scraper Fragments (N=1).

Description: This is a catchall category for steep unifacially flaked implements which are too fragmentary to be placed into a previously described scraper category. The single specimen in the collection exhibits steep unifacial retouch along two margins and crushing along one. Flake scars are angular expanding to conchoidal. This specimen may represent a fragment of a side or end scraper. It is made of Fort Payne chert and does not appear to have been thermally altered.

Category 43 Gravers (N=5) (Figure 5.8).

Description: All five specimens in this category exhibit projections formed by converging lines of unifacial retouch or fortuitous projections which exhibit retouch. All five specimens are gravers on core fragments. Three of the specimens exhibit flaked projections and two exhibit retouched fortuitous projections. Flake scars are angular expanding to lamellar. One specimen is of Fort Payne chert, and four are of Carters chert. The specimens do not appear to have been thermally altered.

Measurements: Range in Length: 4.82 cm - 7.25 cm, (Mean=6.03 cm), Range in Width: 3.85 cm - 6.0 cm, (Mean=4.38 cm), Range in thickness: 1.62 cm - 2.74 cm, (Mean=1.28 cm), Range in Weight: 16.06 g - 85.70 g, (Mean=57.15 g).

Category 45 Denticulate (N=1) (Figure 5.8).

Description: Two conjoinable specimens in this category represent a portion of a denticulate formed on a blade-like decortication flake. Both specimens exhibit a continuous series of shallow notches produced by unifacial- unilateral flaking along a significant portion of the extant blade edge. The working edge is straight or nearly so. The specimen is plano-convex in cross section. Flake scars are expanding to lamellar. The

specimens are of Carters chert and both appear to have been thermally altered. Both fragments were recovered from excavation unit 89N, 101E Level 8, 70-80 cm below surface.

Measurements: Length: (N.A.), Width: 2.12 cm, Thickness: 0.64 cm, Weight: (N.A.).

Category 47 Splinter Wedge (N=1).

Description: The single specimen in this category is a thick rectangular secondary decortication flake fragment which exhibits unifacial micro-wear along one lateral margin and battering along the opposite edge. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 30.1 mm, Width: 19.7 mm, Thickness: 7.5 mm, Weight: 4.07 g.

Category 48 Miscellaneous Unifacial Fragments (N=1).

Description: This is a catchall category for those unifacially flaked implement fragments which do not conform to any of the previously described categories. The single specimen in this category exhibits multiple zones of unifacial retouch in addition to extensive battering along one edge. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Category 49 Cores (N=16).

Description: All 16 specimens in this category represent cores or core fragments. Six of the specimens are of Fort Payne chert, nine are of Carters chert, and one is of Ridley chert. The specimens do not appear to have been thermally altered.

Category 50 Tested Cobbles (N=10).

Description: The 10 specimens in this category may represent `tested´ lithic masses. Four of the specimens are of Fort Payne chert and six are of Carters chert.

Utilized Artifacts

A total of eight complete or fragmentary utilized artifacts was recovered from Goatcliff Rockshelter. These eight artifacts constitute 6.9% of the total flaked, ground, and utilized implements recovered and .20% of the total lithic assemblage. These artifacts were divided into categories based on morphological features which exhibit micro-wear (i.e. projections, notches, edges) and location of utilized features (i.e. lateral edge, distal edge, multiple edges ect.). The eight utilized artifacts are described below and are summarized by cultural period in Table 5.4.

Table 5.4 Utilized Flake Implements from Goatcliff Rockshelter by Cultural Period.

Cultural Period	Implement Category						
	53	56	57	58	59	60	Total
Mississippian/ Late Woodland	2	1	1	1	1	1	7
Middle Woodland			1				1
Total	2	1	2	1	1	1	8
%Total	25	12.5	25	12.5	12.5	12.5	100

Category 53 Utilized Distal Margin (N=2).

Description: The two specimens in this category are flake fragments which exhibit a continuous line of unifacial-unilateral micro-wear along the dorsal surface of the distal edge. Both specimens exhibit excurvate working edges. The specimens are plano-convex in cross section. One of the specimens is a secondary decortication flake, the other is an interior flake. Both specimens exhibit transverse snap fractures at a point approximately one-half the distance from the distal edge to the longitudinal midpoint of the specimen. The specimens are of Fort Payne chert and do not appear to have been thermally altered.

Measurements: Length: (N.A.), Range in Width: 14.6 mm - 16.3 mm, (Mean=15.45mm), Range in Thickness: 1.5 mm - 2.7 mm, (Mean=2.1 mm), Weight: (N.A.).

Category 56 Utilized Oblique Distal Edge (N=1).

Description: The single specimen in this category exhibits steep ($>45^{o}$) unifacial micro-wear scaring along the transverse distal margin. The specimen is blade-like in form and plano-median ridged in cross section. The specimen is of Fort Payne chert and appears to have been thermally altered.

Measurements: Length: 52.4 mm, Width: 21.2 mm, Thickness: 18.7 mm, Weight: 6.58 g.

Category 57 Utilized Lateral Edge, Spline Angle <45° (N=2).

Description: Both specimens in this category are flakes which exhibit unifacial micro-wear along one lateral margin. The spline angle is less than 45° on both specimens. One of the specimens exhibits a slightly incurvate blade margin, the other exhibits an excurvate working edge. Both specimens are of Fort Payne chert and do not appear to have been thermally altered.

Measurements: Range in Length: (24 mm) - 32.1 mm, (Mean=28.05 mm), Width: 13.7 mm (N=1), Range in Thickness: 3.5 mm - 25.0 mm, (Mean=14.25 mm), Weight: (N.A.).

Category 58 Utilized Lateral Edge, Spline Angle >45° (N=1).

Description: The single specimen in this category exhibits steep (>45°) unifacial micro-wear along one lateral margin. The specimen is plano-median ridged in cross section. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 47.2 mm, Width: 22.4 mm, Thickness: 11.0 mm, Weight: 7.37 g.

Category 59 Utilized Multiple Edges (N=1).

Description: The single specimen in this category exhibits steep unifacial micro-wear along approximately one half the length of both lateral margins. The cross section is plano-convex. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 35.8 mm, width: 25.4 mm, Thickness: 5.1 mm, Weight: 4.86 g.

Category 60 Utilized Notch (N=1).

Description: The single specimen in this category is a bifacial thinning flake which exhibits a distally orientated notch. The notch is narrow and shallow and the micro-wear is unifacial and steep. The cross section is plano-convex. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 33.3 mm, Width: 24.4 mm, Thickness: 3.4 mm, Width of Notch: 6 mm, Depth of Notch: 1 mm, Weight: 2.39 g.

7. Ground Stone Artifacts

A total of 18 complete and fragmentary ground stone artifacts was recovered from Goatcliff Rockshelter. The 18 specimens were divided into nine categories based on the type and placement of use-wear present and

technological attributes (i.e. pecked/ground, ground, ground/polished, abraded). Ground stone artifacts represent 15.5% of the total flaked, worked, and utilized lithics recovered and 0.45% of the total lithic collection. The ground stone artifacts recovered from Goatcliff Rockshelter are discussed below and are summarized by cultural period in Table 5.5.

Category 63 Metate (N=1).

Description: The single specimen in this category is a large rectangular limestone slab which exhibits a shallow depression on both surfaces. A pecked groove runs the length of two margins of the metate and may have facilitated trimming or forming the final shape of the specimen.

Measurements: Length: 40 cm, Width: 33 cm, Thickness: 10.4 cm, Weight: 15.75 Kg. Side A Depression: Length: 35.5 cm, Width: 24.5 cm, Depth: 17.8 mm, Side B Depression: Length: 29.5 cm, Width: 19.2 cm, Depth: 6.4 cm.

Category 64 Pitted Cobble (N=1) (Figure 5.9).

Description: The single specimen in this category is a thick rectangular fossiliferous Fort Payne chert river cobble which exhibits a single pecked depression on two surfaces. In addition, one edge of the specimen

Table 5.5 Ground Stone Artifacts from Goatcliff Rockshelter by Cultural Period.

Cultural Period	Implement Category									
	63	64	65	66	67	69	70	71	72	Total
Mississippian/ Late Woodland	1	1	1	1	1	1	4	2	1	13
Middle Woodland				1			1	3		5
Total	1	1	1	2	1	1	5	5	1	18
%Total	5.56	5.56	5.56	11.11	5.56	5.56	27.78	27.78	5.56	100

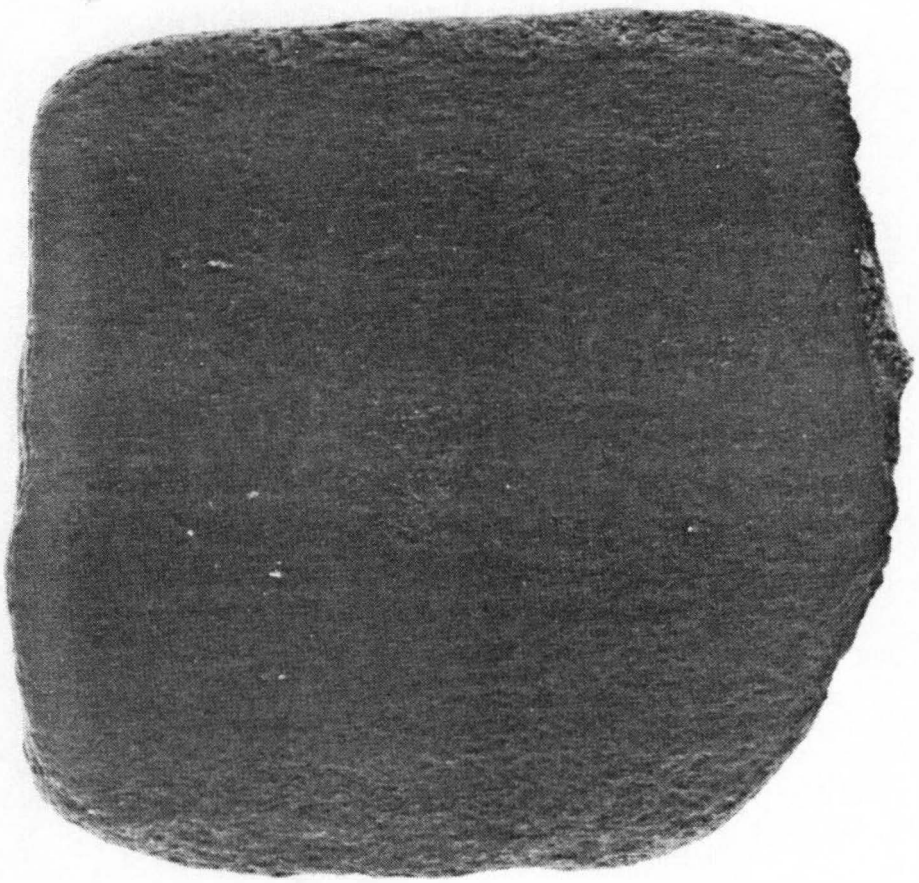


Figure 5.9 Ground Stone Artifact from Goatcliff Rockshelter. a: 64.

exhibits evidence of battering which would suggest use as a hammerstone, as well as a nutting stone.

Measurements: Length: 11.18 cm, Width 10.32 cm, Thickness: 6.8 cm, Range in Diameter of Pits: 2 cm - 2.1 cm, (Mean=2.5 cm), Range in Depth of Pits: 2 cm - 3.2 cm, (Mean=2.6 cm), Weight 944.9 g.

Category 65 Siltstone Palette (N=1) (Figure 5.10).

Description: The single specimen in this category is a fragment of a small rectangular siltstone grinding stone. One surface exhibits a shallow depression with faint striations running the length of the specimen. A segment of one lateral margin has been shaped by grinding.

Measurements: Length: (N.A.), Width: 6.5 cm, Thickness: 1.35 cm, Depth of Depression: 0.80 mm, Weight (N.A.).

Category 66 Digging Implement (Hoe) (N=2) (Figure 5.10).

Description: One specimen represents the blade of a limestone hoe. Both faces of the working edge are worn smooth. The blade margins are straight and were shaped by a combination of fortuitous flaking, pecking, and abrading. The specimen exhibits a transverse fracture at the approximate midpoint of the longitudinal axis. The second specimen represents the midsection of a limestone

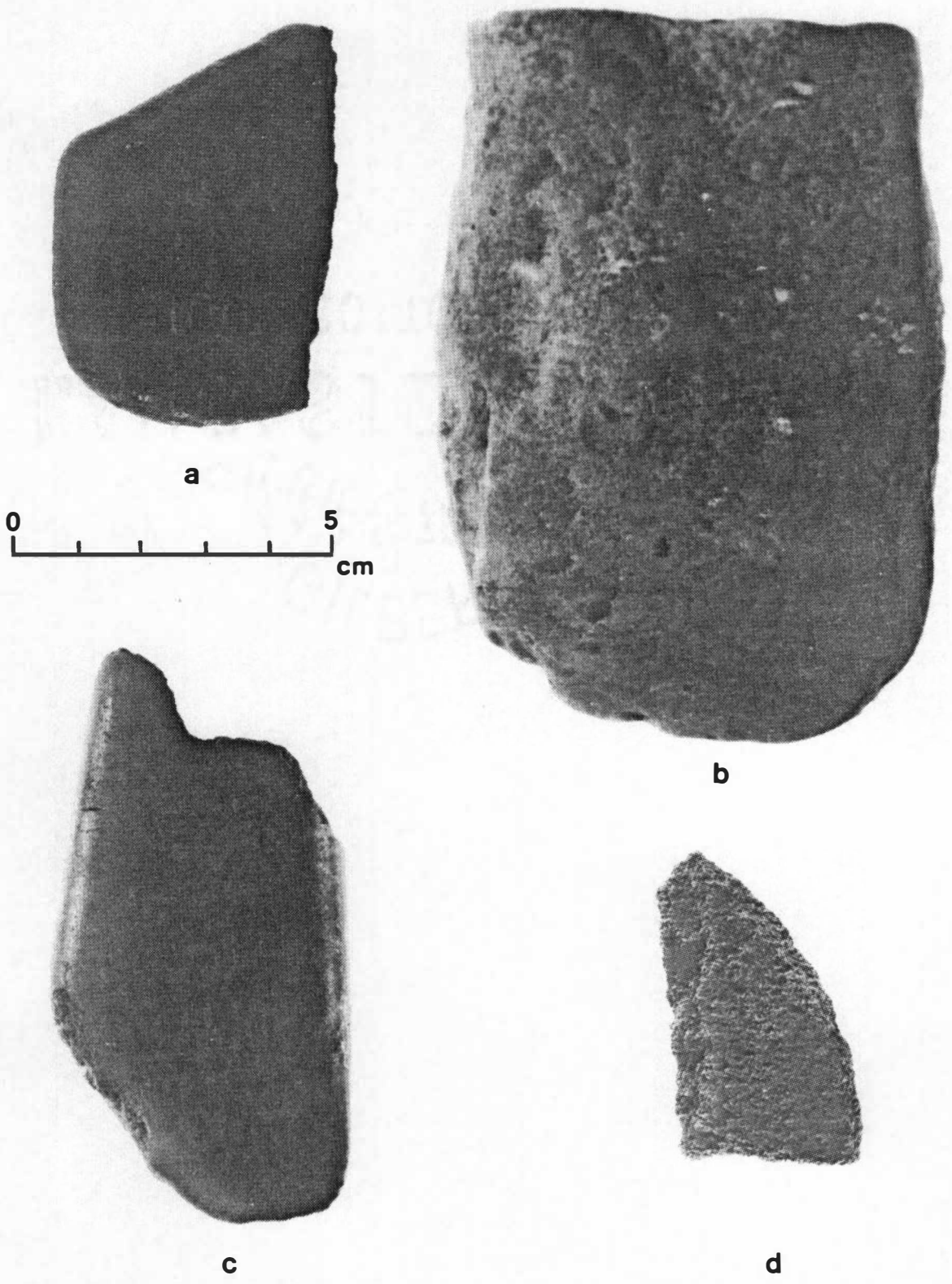


Figure 5.10 Ground Stone Artifacts from Goatcliff Rockshelter by Category. a: 65. b: 66. c: 67. d: 69.

hoe. Both the blade (working edge) and the poll are missing. The specimen exhibits pecking and grinding along the extant lateral margins. Neither specimen exhibits modification that would facilitate hafting.

Measurements: Length: (N.A.), Range in Width: 8.18 cm - 10.48 cm, (Mean=9.33 cm), Range in Thickness: 2.44 cm - 2.98 cm, (Mean=2.71 cm), Weight (N.A.).

Category 67 Celt (N=1) (Figure 5.10).

Description: The single specimen in this category represents the blade of a ground and polished greenstone celt. The working edge exhibits extensive edge damage. The lateral blade margins exhibit extensive pitting suggesting use as a hammerstone.

Category 69 Chert Abrader (N=1) (Figure 5.10).

Description: The single specimen in this category is a portion of a flat, round fossiliferous Fort Payne chert abrader. The abrading is limited to the extant edge of the specimen.

Measurements: Length: (N.A.), Width: (N.A.), Thickness: 21.2 mm, Weight: (N.A.).

Category 70 Siltstone Abrader (N=5) (Figure 5.11).

Description: All five specimens are irregularly shaped pieces of siltstone which exhibit parallel grooves

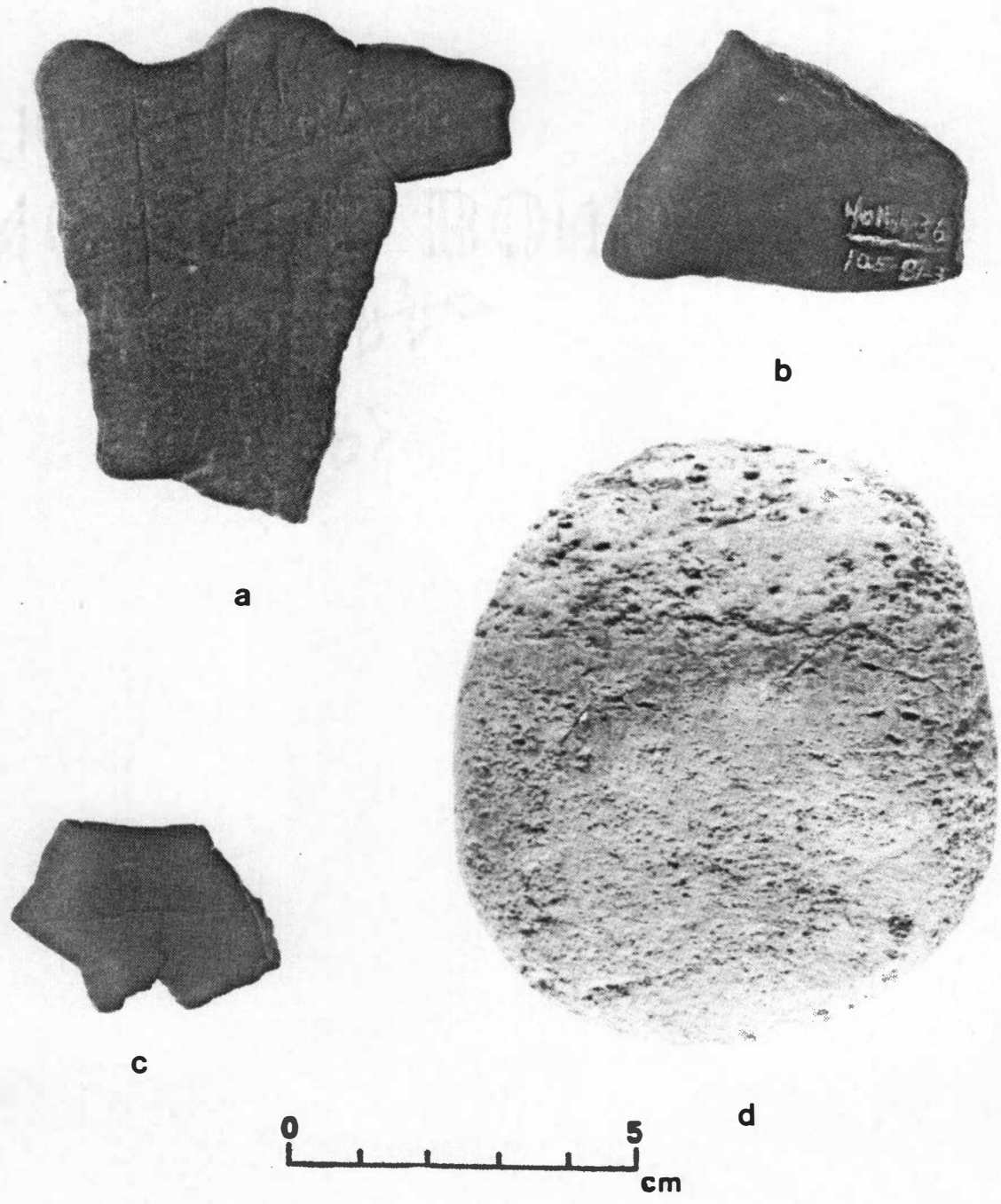


Figure 5.11 Ground Stone Implements from Goatcliff Rockshelter by Category. a-b: 70. c: 71. d: 72.

or areas which exhibit abrading. Two of the specimens are complete and four are fragmentary.

Category 71 Worked Shale (N=5) (Figure 5.11).

Description: All five specimens are fragments of black and tan shale. Two of the specimens exhibit ground beveled edges. The three other specimens do not exhibit modification but are included in this category because shale is not commonly found along Fountain Creek. These specimens were undoudtedly discared at the shelter by aboriginal occupants. Three of the specimens are of black Chattanooga shale and two are of an unidentified tan shale.

Category 72 Hammerstones (N=1) (Figure 5.11).

Description: The single specimen in this category is a spherical Fort Payne chert cobble which exhibits extensive battering along one margin.

Measurements: Length: 84.5 mm, Width: 77.0 mm, Thickness: 54.1 mm, Weight: 302 g.

8. Lithic Debitage

Lithic debitage comprises the single largest category of lithic artifacts recovered at Goatcliff Rockshelter. The 3914 pieces of lithic debitage, represent 97.2% of the total lithic collection. Seven

discrete categories were identified and are described in Chapter IV, Lithic Debris. In order to assess the stages of tool manufacture/maintenance represented by these flakes they have been collapsed into a three-way flake classification and a nonflake classification (see Chapter IV, Lithic Debris). Table 5.6 is a cross tabulation of the three-way flake classification by temporal period and Table 5.7 is a cross tabulation of nonflake debris by cultural period.

9. Historic Artifacts

Two Historic period artifacts were recovered from the ground surface at Goatcliff Rockshelter. The specimens are described and discussed below.

Category 1 Lead Bullet (N=1).

Description: The specimen is a .43 caliber round lead bullet. The specimen is partially misshapen from impact.

Measurements: Diameter: (14 mm), Weight: 6.58 g.

Category 2 Clay Marble (N=1).

Description: The specimen is an off white clay marble. The specimen could not be relocated in the collection; therefore, a more complete description is not possible.

Table 5.6 Three-way Flake Classification by Cultural Period, 40MU436.

	Flake Type			
	Early	Intermediate	Late	Total
Mississippian/ Late Woodland	87	847	81	1015
Middle Woodland	206	1808	236	2250
Total	293	2655	317	3265

Table 5.7 Nonflake Debris by Cultural Period, 40MU436.

Cultural Period	Nonflake Debris Type			
	Blocky Debris	Tested Cobbles	Core	Total
Mississippian/ Late Woodland	362	8	9	379
Middle Woodland	287	2	7	296
Total	649	10	16	675

10. Internal Correlations

A careful examination of the artifact distributions at Goatcliff Rockshelter tends to suggest that a significant amount of prehistoric and historic disturbance has occured within the deposit. This is especially apparent if one considers the seemingly vertical displacement of the ceramic artifacts recovered. In reality, however, the vertical distributions of the artifacts are conditioned by the grossly uneven ´stepped´ limestone bedrock formation upon which the deposit lies. It is evident from an examination of unit profiles, master profiles, excavation records, field photos, and field notes that a given 10 cm level of Stratum II from the rear or middle of the shelter does not necessarily correspond to the same 10 cm level of Stratum II from the front of the shelter.

The consequences of this is that a simple vertical plotting of artifactual material by 10 cm levels within Stratum II is not by itself an absolute indicator of the relative age of the items so plotted.

The situation is further complicated by the fact that all artifactual material was recovered from one strata, Stratum II, and event-specific artifact layers or ´floors´ could not be distinguished or separated during excavation. This results in artifact collections which

are viewed as being coarse-grained and the resolution between the archaeological record and behavioral events is relatively low (Binford 1980:17).

In order to define the temporal sequence of events at this site it was first necessary to compare diagnostic "time sensitive" pp/k´s and ceramic distributions against overall lithic debitage frequency curves for each of the 18 units excavated. This procedure identified a Middle Woodland period use of the shelter and a Late Woodland/Mississippian period usage of the shelter. The Late Woodland and Mississippian period artifacts could not be further divided and so are considered in the analysis together (Chapter X).

CHAPTER VI

HEIGHT ROCKSHELTER

1. General Setting

Height Rockshelter (40MU437) is a multicomponent site located on the left (West) bank of Fountain Creek approimately 11.26 kilometers (7 mi.) southeast of Columbia, in Maury County, Tennessee (Figure 3.3, Page 19). The exact location is 30° 31′ 07" North Latitude 86° 56′ 50" West Longitude, (U.S.G.S. Glendale 7.5′ Quadrangle), UTM Reference: 16/3930315/504810. Height Rockshelter is located 15 m northwest of Goatcliff Rockshelter. The site is situated on T.V.A. property which was previously owned by the Sievey Height family for whom the rockshelter was named.

Height Rockshelter has a northern exposure. The rockshelter presently measures 7.2 m in length and 2.50 m from the extant dripline to the back wall (Figure 6.1). The roof measures 4.0 m at the dripline and slopes downward to 3.5 m at the rear of the overhang. The total protected area at the rockshelter is approximately 12.84 m^2. The present ground surface of the shelter deposit is approximately 210 m above mean sea level.

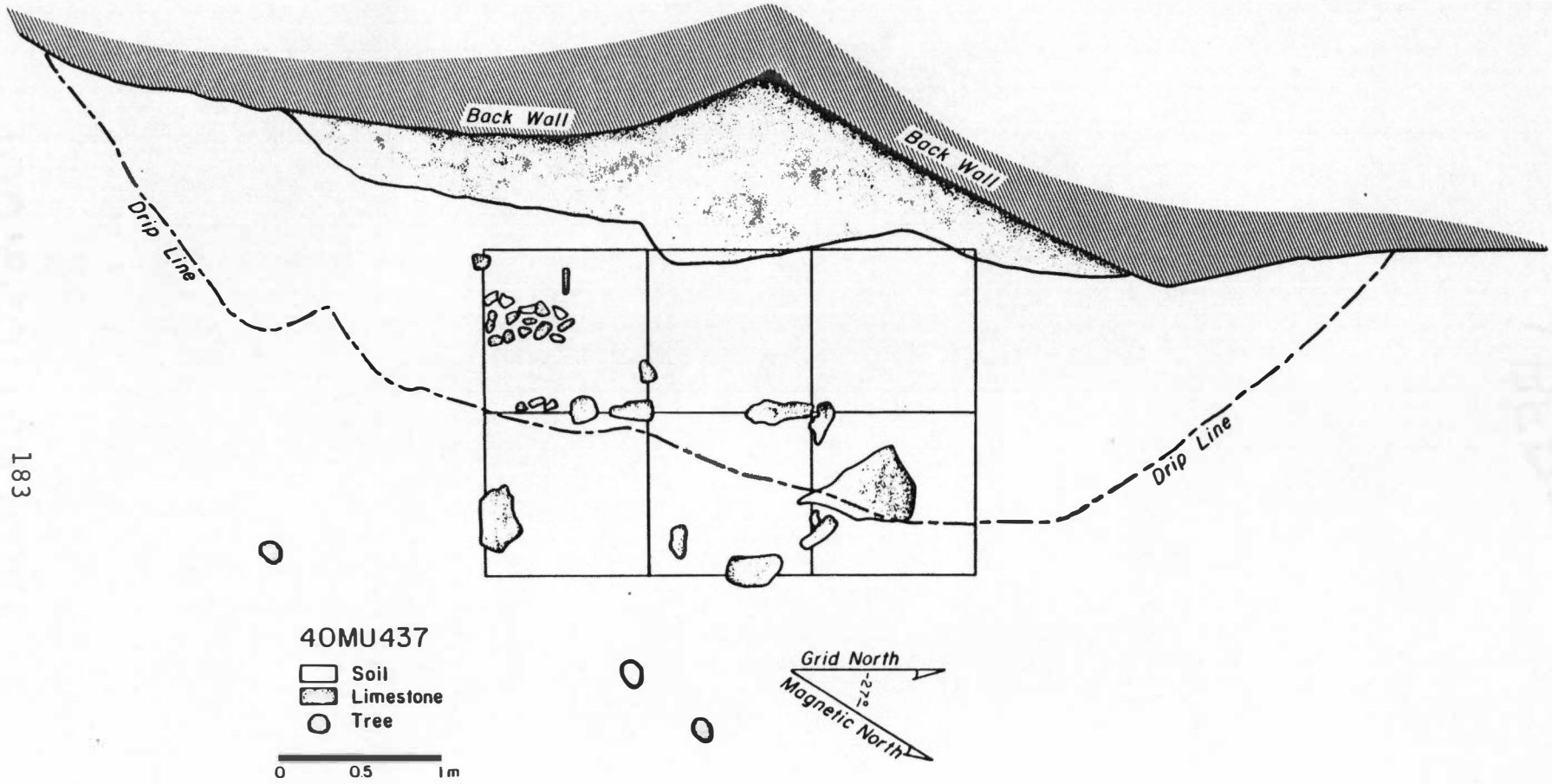


Figure 6.1 Plan Map of Height Rockshelter, 40MU437.

2. Excavation Methodology

As discussed in Chapter V, (Excavation Methodology), a permenant datum, designated A_1, was established midway between Height Rockshelter (40MU437) and Goatcliff Rockshelter (40MU436). This datum was given the arbitrary coordinates 100N, 100E. From Datum A_1 a baseline was established in front of the dripline and parallel to the back wall of the shelter. From this baseline a grid was established across the surface of the shelter deposit. A second datum, designated A_2, was afixed to the rear wall of the shelter and served as the horizontal reference point during the excavation. Datum A_2 reflected "0" elevation or absolute ground surface which was originally defined as the southwest corner of excavation unit 105N, 99E. All vertical measurements were determined in reference to Datum A_2. This combination of a fixed elevation point and grid system provided the framework for establishing absolute Cartesian coordinates for all features and artifacts encountered in situ during excavation. The plan map (Figure 6.1) of the shelter was made with the use of a standard alidade and plane table.

After establishing the grid system, excavations were initiated by excavating a 1X2 m test trench perpendicular to the dripline near the center of the shelter. This trench was subsequently enlarged to its

ultimate configuration (Figure 6.1). Excavation techniques and field processing were conducted as described in Chapter IV (Excavation Techniques).

3. Stratigraphy

Sediment Sources

The fill at Height Rockshelter is derived from sediment sources one through five which are discussed in Chapter IV (Stratigraphy). Alluvial deposits were not present within the rockshelter fill.

Analytical Methods

Two distinct strata were recognized at Height Rockshelter based on color, gross composition, and texture. The strata vary in thickness and slope in the direction of Fountain Creek. Cultural features were not encountered during excavation. The strata are labeled in ascending order from the oldest to the youngest. Munsell color determinations were taken from moist soil samples and read in subdued sunlight. A profile of the sediments at Height rockshelter are presented in Figure 6.2. A description of the strata at Height rockshelter is presented below.

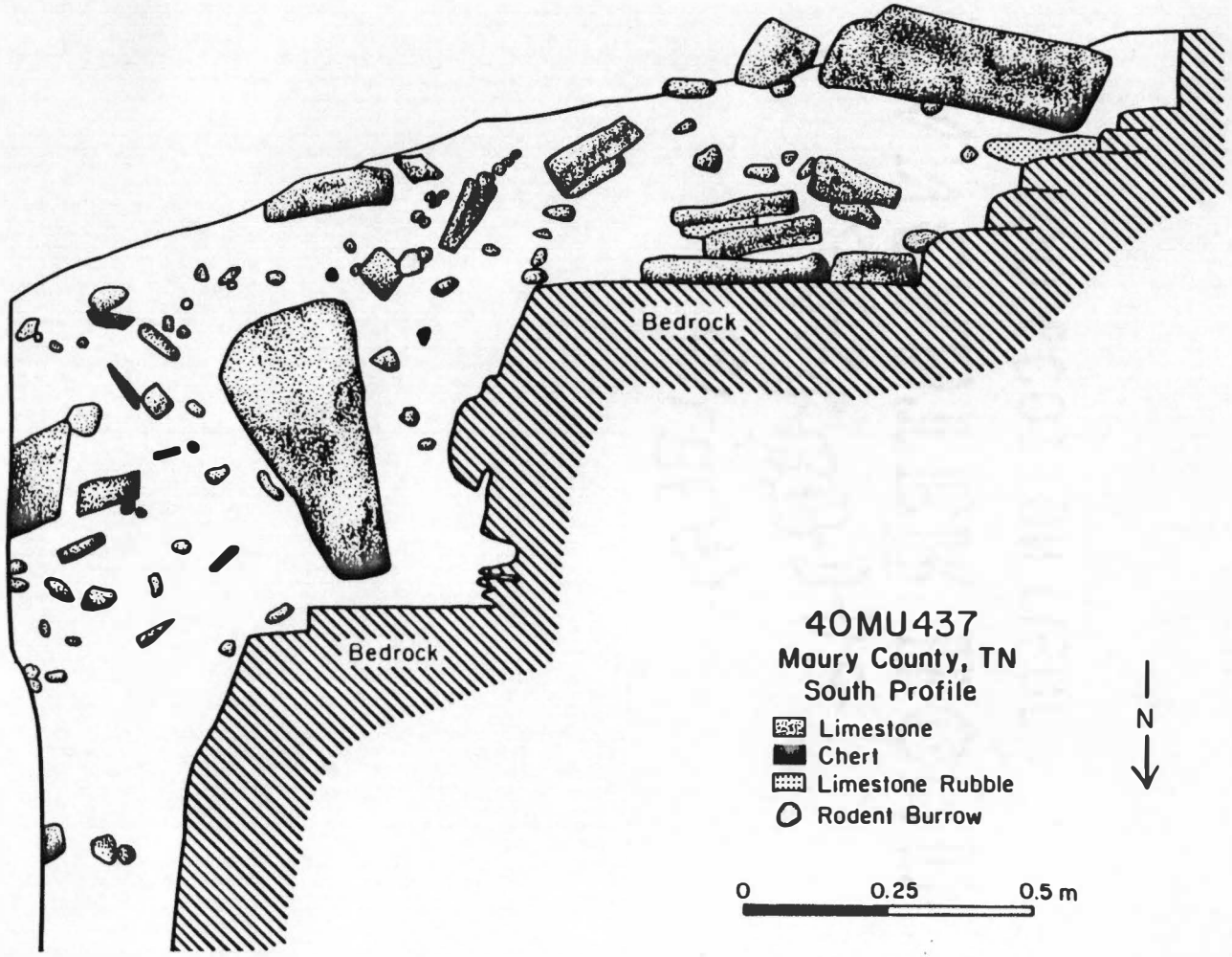


Figure 6.2 South Profile of Height Rockshelter, 40MU437.

Stratum I (Lowermost).

Extent: Stratum I was the basal unit at Height Rockshelter. Horizontally, Stratum I was continuous in all excavated squares. Vertically, the top of Stratum I lies 0.5 cm below the surface at the rear of the shelter and dipped to a maximum depth of 130 cm at the front of the shelter (Figure 6.2). Thickness varies from 0.5 cm to 5 cm.

Description: Stratum I consisted of a yellowish-brown (10YR4/4 to 7.5YR4/5) loose to compact agglomerate of limestone rubble and clay. Floral and faunal turbation was minimal.

Cultural Affiliation: Stratum I was void of cultural material.

Stratum II (Uppermost).

Extent: Horizontally, Stratum II was continuous across the excavated squares. Vertically, the surface of Stratum II dipped 46 cm from the rear of the shelter to the front as measured along the south profile of the excavations (Figure 6.2). Thickness graded from a thin veneer at the back wall to 121 cm at the front of the shelter (Figure 6.2). The contact between Stratum I and Stratum II was abrupt.

Description: Stratum II consisted of a dark brown to dark yellowish-brown (7.5YR3/2 to 10YR4/4) clay loam. Bioturbation was evident throughout the zone being more extensive near the front of the shelter.

Cultural Affiliation: Diagnostic artifacts recovered from Stratum II suggest a temporal sequence commencing during the Late Archaic period (Ledbetter Cluster pp/k) and continuing into the Middle Woodland period (Mulberry Creek Plain Ceramics).

4. Ceramics

A total of 14 ceramic sherds was recovered from Height Rockshelter. The 14 sherds are referable to one ware and one previously named type. All ceramic artifacts were recovered from Stratum II. The ceramic artifacts are described and discussed below.

Limestone-Tempered Ware (N=14).

Description: The ceramic assemblage recovered is composed exclusively of limestone tempered sherds. Twelve of the sherds are body sherds, one is a rim sherd, and one is a residual sherd. One previously named type is represented in the collection: Mulberry Creek Plain (Haag 1939:9; Heimlich 1952:15-17).

1a Limestone-Tempered Residual (N=1).

The single limestone-tempered residual sherd recovered represents 7.14 % of the total ceramic collection. The paste is black in color. Temper varies from .5 mm to 2 mm in diameter.

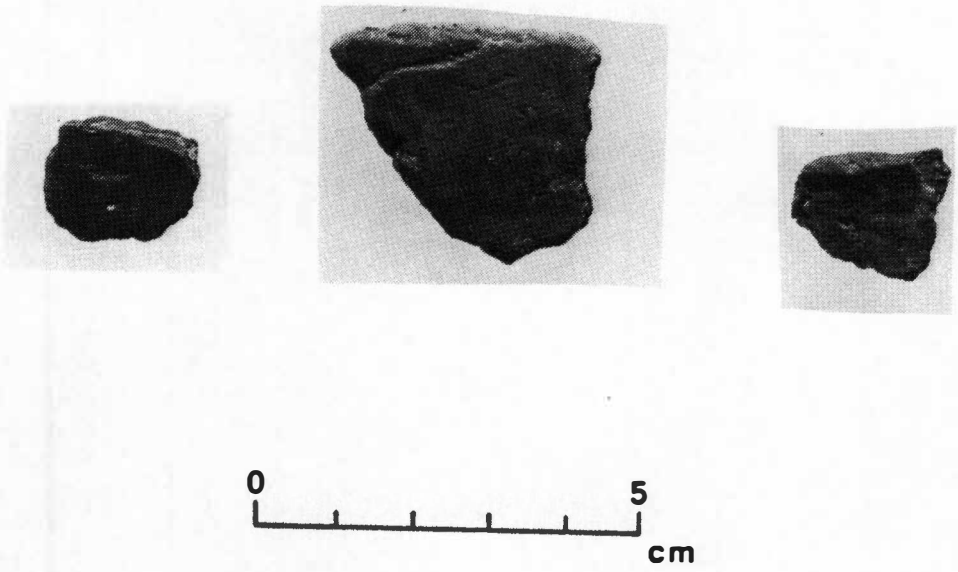
1b Mulberry Creek Plain (N=13) (Figure 6.3).

Description: Thirteen plain surfaced sherds constituting 92.89% of the limestone-tempered ware are attributable to the type Mulberry Creek Plain (Haag 1939:9; Heimlich 1952:15-17). Exterior surfaces vary in color from dark brown to orange. Interior surfaces are dark brown to black in color. The single rim sherd has a flattened lip and indeterminate rim profile. Thickness of the sherds varies from 6.0 mm to 8.0 mm. (Mean=6.65 mm, N=13).

Temper: The sherds contain 15-20% crushed limestone-temper. Average temper size is 1.5 mm. Occasional aplastics noted within the paste were limited to small manganese oxide grains 100% (N=13).

Surface Treatment: Sherds of Mulberry Creek Plain exhibit smoothed undecorated exterior surfaces. Three of the sherds have been lightly burnished in addition to smoothing.

Comments: Mulberry Creek Plain ceramics occur in a variety of temporal contexts, from the early Middle



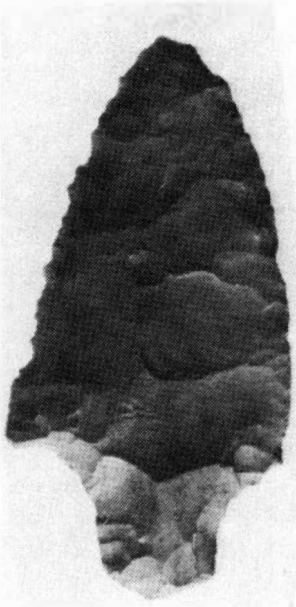


Figure 6.3 Ceramic and Lithic Artifacts from Height Rockshelter by Category. a: 1a. b: 1b. c: 1c. d: 6.

Woodland McFarland phase (Faulkner 1978) through the early Mississippian period (Klienhans 1978:426). Faulkner and McCollough (1978), however, have maintained that this type reached its climax in Middle Tennessee during the McFarland phase and becomes rare by the Owl Hollow phase. Available radiocarbon dates range from 2040-95 B.P. (UGa 648) (Cobb 1978:320) to 1227-160 B.P. (UGa 723) (Cobb 1978:266).

5. Lithic Artifacts

A total of 24 flaked and utilized lithic artifacts was recovered from Height Rockshelter. In addition, 687 pieces of lithic debitage was recovered. The entire lithic assemblage was examined with the exception of the 1.59 mm fine screen material from which a 25% sample was examined. Preliminary sorting and analytical procedures were conducted as discussed in Chapter IV Lithic Artifacts.

Worked Implements

A total of ten worked implements were recovered which constitute 1.4% of the total lithic assemblage (N=711) and 66.7% of the flaked and utilized implements (excluding cores and tested cobbles). Six discrete categories were identified. These six categories are divided into a bifacial series and a unifacial series.

The bifacial series is represented by four categories which constitute 1% (N=7) of the total lithic assemblage and 29.2% of the worked and utilized implements recovered. The unifacial series is represented by two categories constituting 0.42% (N=3) of the total lithic assemblage and 12.5% of the worked stone implements. The worked stone implements recovered from 40MU437 are described and discussed below and are summarized by cultural period in Table 6.1.

Projectile Point/Knives

One complete projectile point/knife was recovered from Height Rockshelter. The single specimen does not conform to any previously defined type. In addition, four projectile point/knife blade fragments and one pp/k tip were recovered. These artifacts are described and discussed below.

Category 6 Large Broad Blade, Long, Broad Straight Stem (N=1) (Figure 6.3).

Description: The haft element is broad, long, and straight. Lateral stem margins are straight and the basal margin is excurvate. The blade is broad and the lateral margins are excurvate. The distal blade juncture exhibits a transverse impact fracture. The shoulders are slightly tapered. The specimen is biconvex in cross

Table 6.1 Lithic Implements from Height Rockshelter by Cultural Period.

Cultural Period	Implement Category												
	6	17	18	23	37	39	49	50	51	55	57	59	Total
Middle Woodland		2		1	1	2	4		1		2		13
Late Archaic	1	2	1				1	4		1		1	11
Total	1	4	1	1	1	2	5	4	1	1	2	1	24
%Total	4.17	16.67	4.17	4.17	4.17	8.33	20.8	16.7	4.17	4.17	8.33	4.17	100

section and the haft element is thick. Primary flaking of the blade and haft element are obscure. Secondary flaking is bifacial-bilateral and continuous. Flake scars are expanding to lamellar. The lateral stem margins are bifacial-bilaterally flaked and exhibit short, steep, expanding to angular flake scars. The basal haft margin is unfinished and thick. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: (75.0 mm), Width: 35.5 mm, Thickness: 10.3 mm, Stem Length: 12.9 mm, Stem Width: 18.2 mm, Weight: (22.58 g).

Comments: This specimen is similar to the type Ledbetter Stemmed (Kneberg 1956). Ledbetter Stemmed projectile points/Knives have been temporally placed in the Late Archaic period in the southeastern United States (Cambron and Hulse 1975; Faulkner and McCollough 1973; Kneberg 1956).

Category 17 Miscellaneous Projectile Point Blade Fragments (N=4)

Description: All four specimens represent fragments of the blade of unidentifiable projectile points. The cross section of one specimen is lenticular, one is biconvex, and two are indeterminate. The distal juncture of one specimen exhibits a transverse fracture.

The lateral margins of two specimens exhibit micro-wear in the form of scalar and stepped flake scares. Three specimens are of Fort Payne chert, and one is of fossiliferous Fort Payne chert. Three of the specimens have been thermally altered.

Category 18 Miscellaneous Projectile Point Tips (N=1).

Description: The single specimen represents the distal juncture of an unidentifiable projectile point. The specimen is biconvex in cross section and the distal juncture is acute. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Category 23 Stage I Preform Bases (N=1).

Description: The single specimen in this category represents the basal portion of a Stage I preform. The basal margin is excurvate and thinned. The cross section is biconvex. The specimen is of Fort Payne chert and appears to have been thermally altered.

Unifacial Artifacts

A total of three complete or fragmentary unifacially flaked artifacts was recovered from Height Rockshelter. These three artifacts constitute .42% of the total lithic collection and 12.5% of the worked and utilized lithic implements. In addition, five cores and four tested cobbles were recovered. Cores and tested

cobbles represent 37.5% of the flaked and utilized implements and 1.3% of the total lithic collection. The unifacial implements, cores and tested cobbles recovered from 40MU437 are described and discussed below and are summarized by temporal period in Table 6.1.

Category 37 Side Scraper (N=1).

Description: The single specimen in this category is a subtriangular interior flake which exhibits continuous unifacial retouch across the dorsal face of one lateral margin. The specimen is planoconvex in cross section. Flake scars are angular to expanding. The specimen is of Brassfield chert and appears to have been thermally altered.

Measurements: Length: N.A., Width: 35.9 mm, Thickness: 10.4 mm, Weight: (22 g).

Category 39 Core Scraper (N=2).

Description: Both specimens are core fragments which exhibit a continuous segment of steep unifacial retouch along a significant portion of one or more margins which cannot be directly attributed to platform preperation. The edge angle varies but is $>45^{o}$ on both specimens. One of the specimens is of Fort Payne chert the other of Carters chert. The specimens do not appear to have been thermally altered.

Measurements: Range in length: 58.5 mm - 60.0 mm, (Mean=59.25 mm), Range in Width: 53.8 mm- 57.8 mm, (Mean=55.8 mm), Range in Thickness: 24.0 mm - 34.0 mm, (Mean=29.0 mm), Range in Weight: 72.4 g - 126.75 g, (Mean=99.57 g).

Category 49 Cores (N=5).

Description: All five specimens are cores or core fragments. Two of the specimens are of Fort Payne Chert, and three are of Carters Chert. The specimens do not appear to have been thermally altered.

Category 50 Tested Cobbles (N=4).

Description: The four specimens in this category represent "tested" cobbles. One of the specimens is of Fort Payne Chert and three are of Carters chert. The specimens do not appear to have been thermally altered.

Utilized Flakes

A total of five complete or fragmentary utilized flake implements was recovered from Height Rockshelter. These five implements constitute 20.8% of the total flaked and utilized implements recovered and .70% of the total lithic collection. These artifacts were divided into categories based on morphological attributes which exhibited micro-wear (i.e. projections, notches) and the type of micro-wear present (i.e. alternate-facies

unifacial). In addition, the spline angle was measured for each specimen (see Chapter IV, Utilized Flakes, for a short discussion of spline angles). The five utilized flake implements are described and discussed below and are summarized by cultural period in Table 6.1.

Category 51 Utilized Short Projection (Graver) (N=1).

Description: The single specimen exhibits unifacial micro-wear along a short fortuitous projection. The specimen is plano-convex in cross section. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: length: 21.5 mm, Width: 18.6 mm, Thickness: 4.2 mm, Weight: 1.35 g.

Comments: This specimen may have functioned as a light duty expedient graver.

Category 55 Utilized Oblique Distal Edge (N=1).

Description: The single specimen in this category exhibits unifacial micro-wear along the oblique distal margin. The spline angle is $\leq 45^0$. The example is plano-convex in cross section. The specimen is of Fort Payne Chert and does not appear to have been thermally altered.

Measurements: Length: 28.4 mm, Width: 12.2 mm, Thickness: 6.0 mm, Weight 1.62 g.

Category 57 Utilized Lateral Edge, Spline Angle <45° (N=2).

Description: Both specimens exhibit micro-wear along a significant segment of one lateral margin. One specimen exhibits micro-wear along a straight lateral margin the other along an excurvate margin. One specimen is plano-convex in cross section the other is trapezoidal. One of the specimens is of Fort Payne chert, one is of Carters chert. The specimens do not appear to have been thermally altered.

Measurements: length: 24.1 mm - 24.3 mm (Mean=24.2mm), Width: 14.7 mm - 20.7 mm (Mean=17.7), Thickness: 5.6 mm - 6.2 mm (Mean=5.9 mm), Weight: 2.47 g - 1.29 g (Mean=2.03 g).

Category 59 Utilized Multiple edges, Spline Angle <45° (N=1).

Description: The single specimen exhibits unifacial micro-wear along both lateral margins as well as the distal margin. The example is plano-convex in cross section. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 31.6 mm, Width: 29.0 mm, Thickness: 4.0 mm, Weight 3.44 g.

6. Lithic Debitage

Lithic debitage comprises the single largest category of lithic artifacts recovered from Height Rockshelter. The 987 pieces of lithic debitage represent 96.68% of the total lithic collection. Six lithic debitage categories were identified. These categories are defined in Chapter IV, Lithic Debitage. In order to assess the stages of tool manufacture/maintanence represented by these flakes they have been collapsed into a three-way flake classification and a nonflake debris classification (see Chapter IV, Lithic Debris). Table 6.2 is a cross tabulation of the three-way flake classification by cultural period and Table 6.3 is a cross tabulation of nonflake debris by cultural period.

7. Internal Correlations

In order to define the sequence of events at this site it was first necessary to compare diagnostic "time sensitive" pp/k´s and ceramic distributions against overall lithic debitage frequency curves for each of the units excavated. This procedure identified a Middle Woodland period use of the shelter and a Late Archaic period usage of the shelter. The assemblages are analyzed and compared diachronically and synchronically in Chapter X.

Table 6.2 Three-way Flake Classification by Cultural Period, 40MU437.

Cultural Period	Flake Type			
	Early	Intermediate	Late	Total
Middle Woodland	90	256	59	405
Late Archaic	36	90	7	133
Total	126	346	66	538

Table 6.3 Nonflake Debris by Cultural Period, 40MU437.

Cultural Period	Debris Type			
	Blocky Debris	Tested Cobbles	Core	Total
Middle Woodland	97	0	4	101
Late Archaic	52	4	1	57
Total	149	4	5	158

CHAPTER VII

HARDISON ROCKSHELTER

1. General Setting

Hardison Rockshelter (40MU428) is a multi-component site located on the left (North) bank of Fountain Creek 13.6 kilometers (8.5 mi.) southeast of Columbia, in Maury County, Tennessee (Figure 3.3, page 19). The exact location is 35° 31′ 40" North Latitude, 86° 57′ 18" West Longitude, (U.S.G.S. Glendale 7.5′ Quadrangle). UTM Reference: 16/3931330/504120. The rockshelter, presently on T.V.A. property, was formerly owned by the Hardison family for whom the rockshelter was named.

Hardison Rockshelter has a northern exposure and is located along a 243 m long limestone ledge (Figure 7.1). The average distance between the present day ground surface and the limestone overhang varies from approximately 30 cm to 50 cm. Elevation of the rockshelter is approximately 190 m AMSL.

2. Excavation Methodology

A permanent datum, designated A_1, was established near the midpoint of the ledge: a portion of which forms Hardison Rockshelter. This datum was given the arbitrary

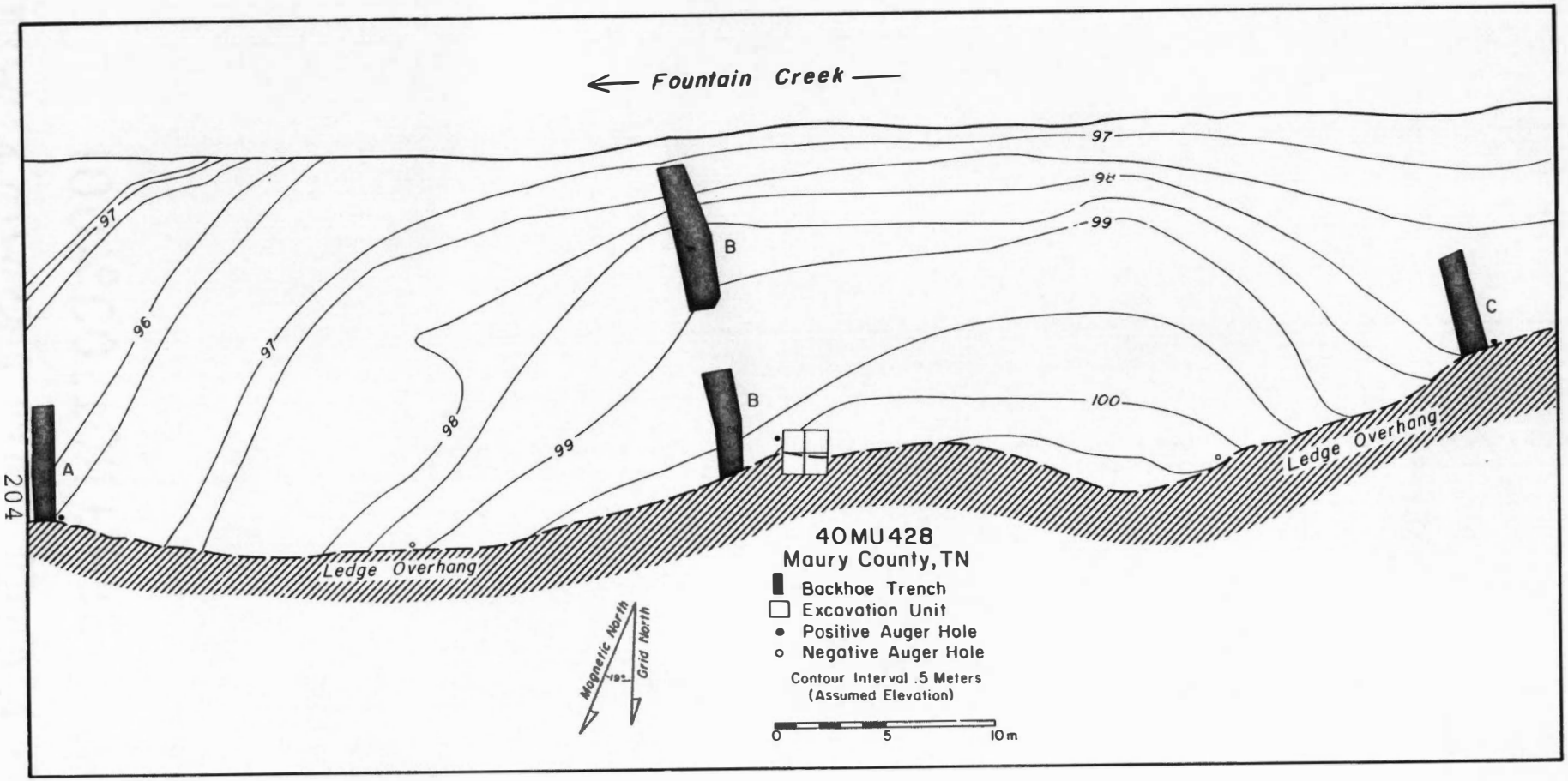


Figure 7.1 Topographic Map of Hardison Rockshelter, 40MU428.

coordinates 100N, 100E. From Datum A_1 a baseline was established which paralleled the entire 243 m length of the ledge. Utilizing this baseline the surface of 40MU436 was grided into 1 m^2 units by triangulation. All unit designations refer to the southwest corner of the excavation unit. All horizontal coordinates were determined from this grid system. A second datum, designated A_2, was afixed to a tree in front of the shelter and reflects "0" elevation or absolute ground surface which was originally defined as the southwest corner of excavation unit 104N, 99E. All vertical measurements were calculated in reference to Datum A_2. In addition, three backhoe trenches designated Test Trench A through Test Trench C were excavated perpendicular to the overhang (Figure 7.1). The topographic map of Hardison Rockshelter was made with the use of a standard plane table and alidade.

Excavations were initiated by excavating a 1 X 2 m^2 test trench perpendicular to the dripline of the shelter. This trench was subsequently enlarged to its ultimate configuration. Excavation techniques, unit sampling and field processing procedures were carried out as described in Chapter IV, Excavation Methodology.

3. Stratigraphy

Sediment Sources

The fill at Hardison Rockshelter was derived from sediment sources one through six which are outlined in Chapter IV, Stratigraphy.

Analytical Methods

Three strata were recognized at Hardison Rockshelter based on color, gross composition, and texture. The strata vary substantially in thickness and slope toward Fountain Creek. The strata are labled in ascending order from the oldest to the youngest. Munsell color determinations were taken from moist soil samples and read in direct sunlight. Profiles of the sediments are presented in Figures 7.2 and 7.3.

Stratum I.

Extent: Stratum I was the basal unit at Hardison Rockshelter. Horizontally, it was discontinuous across the excavated squares. Vertically, the top of Stratum I occurred at a depth of 100 cm below ground surface near the dripline and dipped to a maximum depth of 230 cm at the front of the rockshelter (Figure 7.2). Thickness varied from 5 cm to 65 cm across the excavated units.

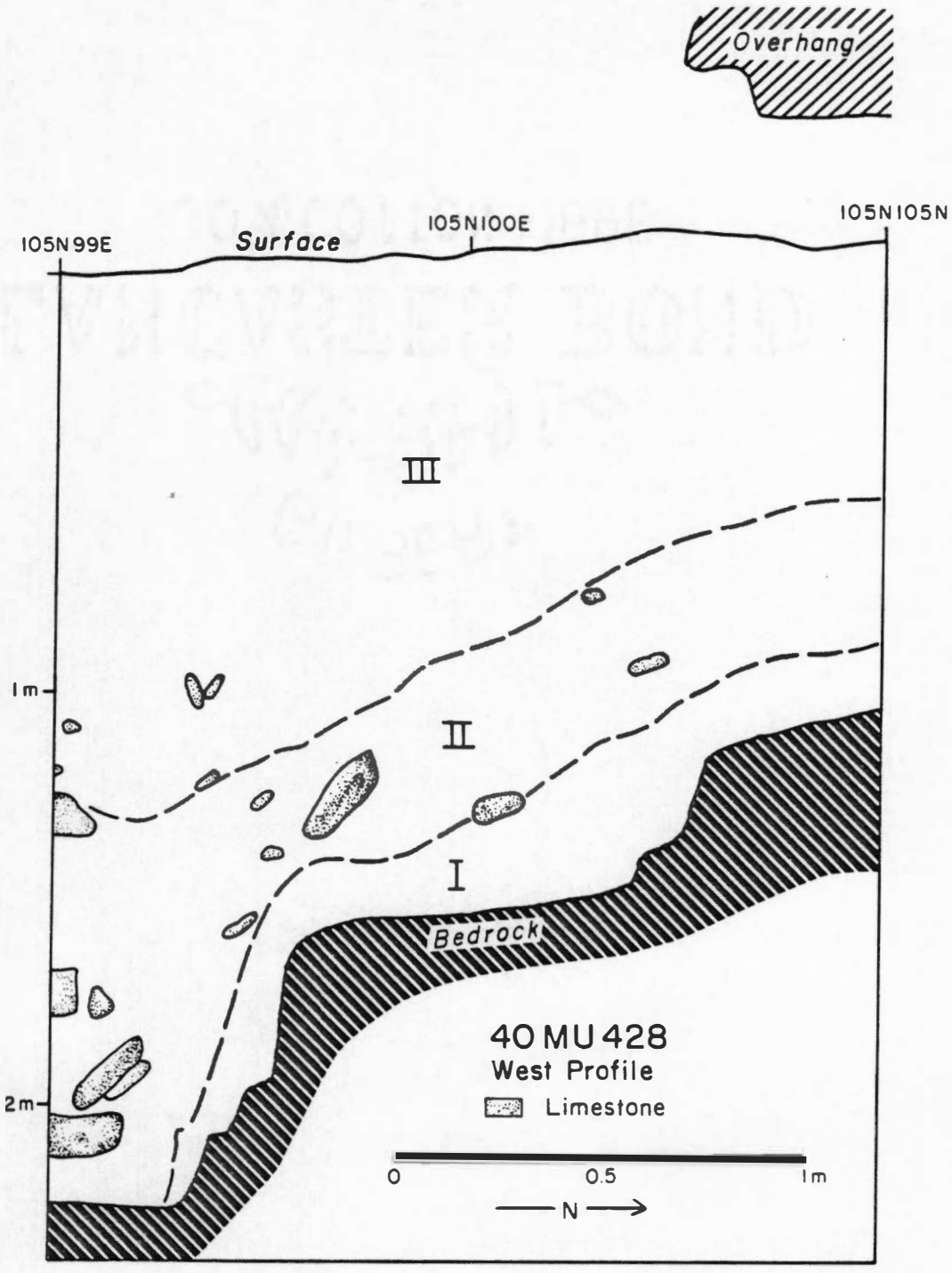


Figure 7.2 West Profile of Excavations, 40MU428.

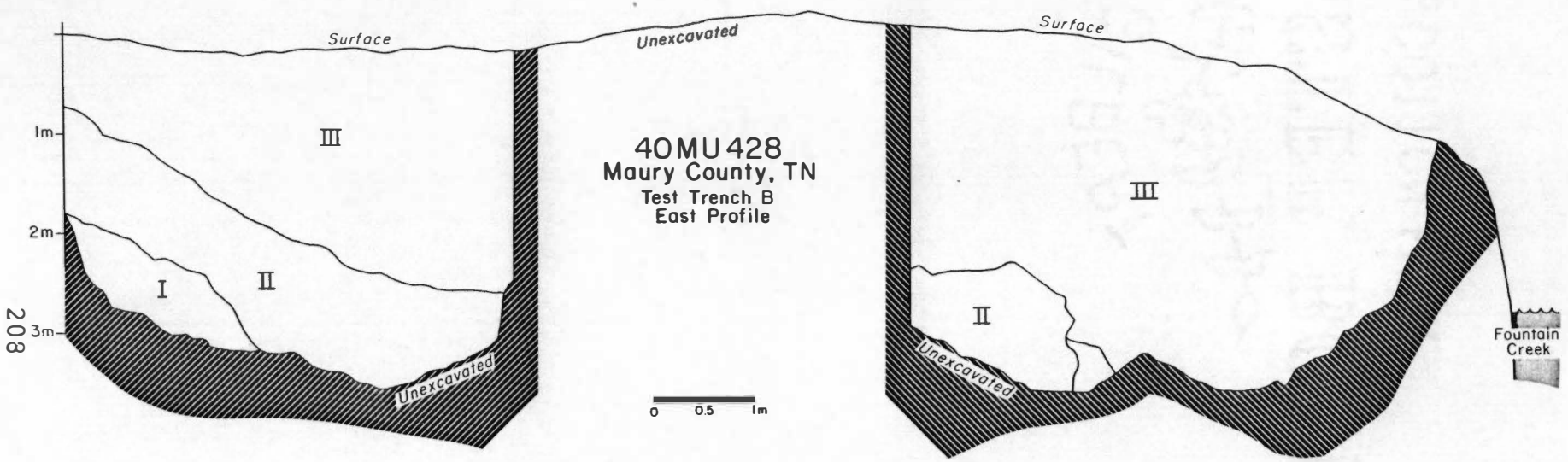


Figure 7.3 East Profile of Test Trench B, 40MU428.

Description: Stratum I consisted of a yellowish-brown to dark brown (10YR3/6 to 10YR2/2) compact clay loam. Floral and faunal turbation was minimal.

Cultural Affiliation: A Terminal Archaic/Early Woodland period association for the artifactual material recovered from Stratum I is suggested.

Stratum II.

Extent: Horizontally, Stratum II was continuous across the excavated squares. Vertically, the surface of Stratum II occurred at a depth of 65 cm below surface near the rear of the shelter and dipped to a maximum depth of 165 cm below surface at the front of the shelter. Thickness varied from 33 cm to 95 cm across the excavated squares. The contact between Stratum II and Stratum I was abrupt.

Description: Stratum II consisted of a dark brown to yellowish-tan (10YR3/3.5 to 10YR5.5/4) compact agglomerate of limestone rubble and clay. Floral and faunal turbation was minimal.

Cultural Affiliation: A Terminal Archaic/Early Woodland period association for Stratum II is indicated.

Stratum III.

Extent: Horizontally, Stratum III was continuous across the excavated units. Vertically, the top of

Stratum III represented the modern day land surface at the shelter. The surface sloped in the direction of Fountain Creek. Thickness varied from 60 cm to 165 cm in the excavated units. The contact between Stratum III and Stratum II was abrupt.

Description: Stratum III consisted of a yellowish-tan (10YR5.5/4) loose laminated, silty, sandy matrix. Bioturbation was evident throughout the strata.

Cultural Affiliation: The Historic period is indicated.

4. Ceramic Artifacts

A total of 295 ceramic sherds was recovered from Stratum I and Stratum II at Hardison Rockshelter. The 295 sherds are referable to two wares and two previously named types. The collection includes Early Woodland to Middle Woodland period ceramics (Table 7.1). Overall, ceramic preservation was excellent.

Limestone-Tempered Ware (N=295)

Limestone-tempered pottery is represented by 294 sherds which constitute 99.7% of the total ceramic assemblage. One hundred and seventy six are body sherds, two are rim sherds, two are conical basal sherds, and 115 are residual sherds. Two previously named types and one untyped category are represented. Previously named types

Table 7.1 Ceramic Artifacts from Hardison Rockshelter by Cultural Period.

Cultural Period	Ceramic Category					
	1a	1b	1c	1e	6a	Total
Early Woodland/ Terminal Archaic	115	14	161	4	1	295
Total	115	14	161	4	1	295
%Total	38.98	4.74	54.56	2.05	.34	100

represented in the collection include: (1) Mulberry Creek Plain (Haag 1939:9; Heimlich 1952:15-17), (2) Long Branch Fabric Marked (Haag 1939:9; Sears and Griffin 1950; Heimlich 1952:17).

1a Limestone-Tempered Residual (N=115).

Within the limestone-tempered ware, the 115 residual sherds represent 39.1% of the limestone tempered ceramics and 39.5% of the total ceramic assemblage.

1b Limestone-Tempered Plain (N=14) (Figure 7.4).

Fourteen plain surfaced sherds constituting 4.7% of the total ceramic assemblage and 4.8% of the limestone-tempered ware are of the type Mulberry Creek Plain (Haag 1939:9; Heimlich 1952:15-16). Exterior and interior surfaces vary from brown to tan buff. The paste varies in color from gray buff to tan buff. Sherd thickness varies from 4.5 mm to 8.0 mm (N=10) (Mean=7.1 mm).

Temper: The sherds contain 15-20% crushed limestone-temper. Average temper size is 1.5 mm. Occasional aplastics noted in the paste were limited to manganese oxide grains 100% (N=14).

Surface Treatment: Sherds of Mulberry Creek Plain exhibit smoothed undecorated exterior surfaces.

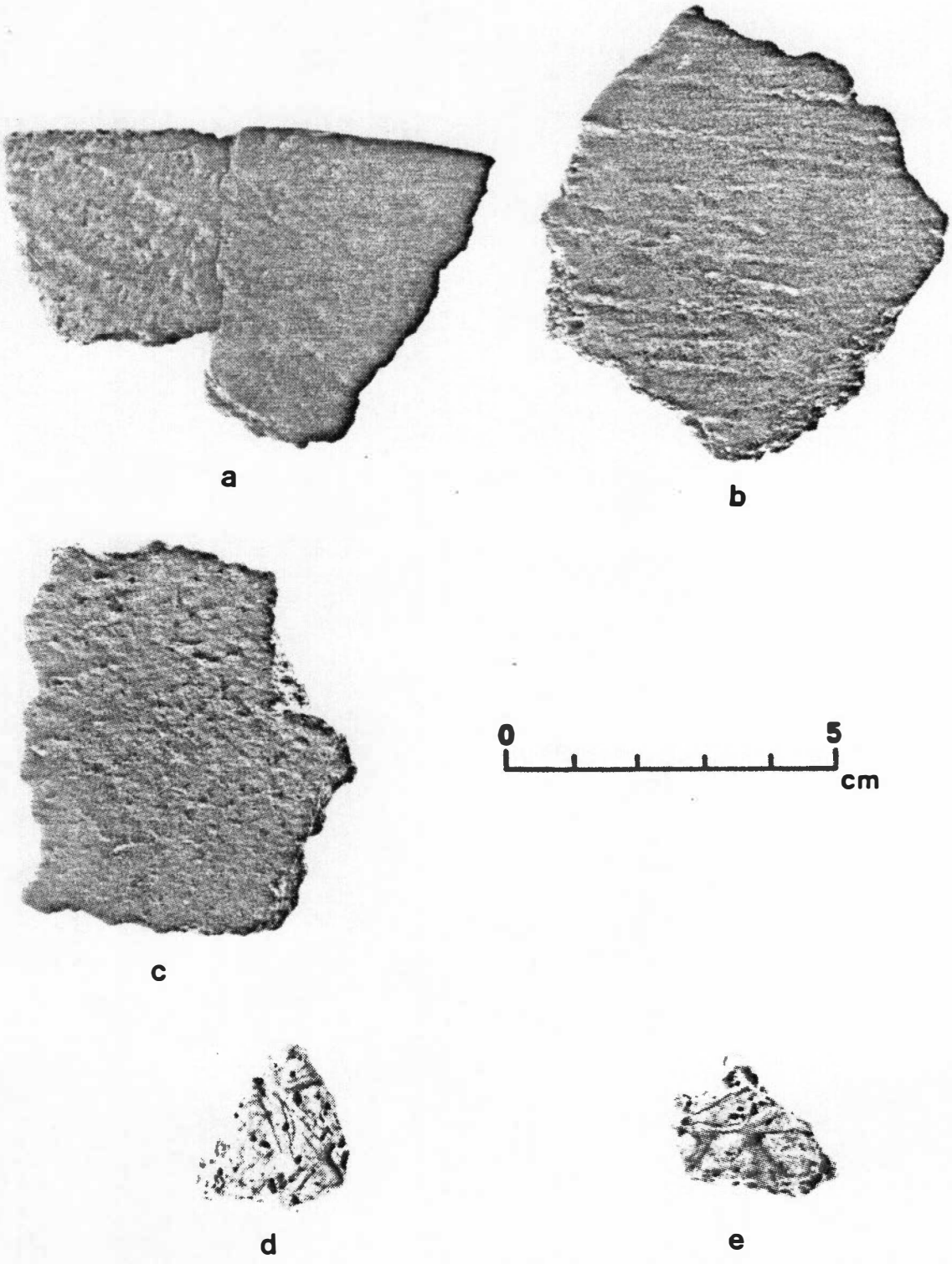


Figure 7.4 Ceramic Artifacts from Hardison Rockshelter. a-b: 1c. c: 1b. d-e: 1e.

Comments: Mulberry Creek Plain ceramics occur in greatest frequency during the Middle and Late Woodland periods in Middle Tennessee (Faulkner 1978) (see also Mulberry Creek Plain Chapter IV).

1c Limestone-Tempered Fabric Marked (N=161) (Figure 7.4).

One hundred and fifty seven fabric marked body sherds, two conical basal sherds, and two rim sherds are of the type Long Branch Fabric Marked (Haag 1939:9; Heimlich 1952:15-16). Long Branch Fabric Marked sherds constitute 54.7% of the limestone-tempered pottery and 54.6% of the total ceramic assemblage. Exterior surfaces are brown to gray buff in color. Interior surfaces vary in color from orange to a carbon infused black. The paste is a gray buff color. Thickness of the body and rim sherds varies from 5.5 mm to 10 mm (N=159) (Mean=7.76 mm). The two basal sherds measure 10 mm to 12 mm at their thickest point.

Temper: The sherds contain 15% to 25% crushed limestone-temper. Temper size ranges from fragments 2 mm in diameter to particles 0.05 mm in diameter. Average temper size is approximately 1.25 mm. Occasional nonplastics noted within the paste are limited to manganese oxide grains 48.6% (N=68).

Surface Treatment: Exterior surfaces of the sherds exhibit fabric wrapped paddle impressions which are

lightly smoothed over or smoothed to the extent that the fabric markings are nearly obliterated.

Comments: An Early to Middle Woodland association for this ceramic type at 40MU422 is indicated.

le Limestone-Tempered Grass Impressed (N=4) (Figure 7.4).

The four grass impressed sherds in this category do not conform to any previously named type. The sherds represent 2.05% of the total ceramic assemblage and 1.4% of the limestone-tempered ceramics. Exterior and interior surfaces of the sherds as well as the paste are a light gray color. Thickness of the sherds varies from 6.5 mm to 8.0 mm (Mean=7.5 mm, N=4).

Temper: The four sherds contain 15% crushed limestone-temper. Occasional aplastics were not noted within the paste.

Surface Treatment: All four sherds exhibit distinct random grass impressions on their exterior surfaces. Secondary smoothing was not observed.

Clay-Tempered Ware (N=1)

Clay-tempered ceramics are represented by a single residual sherd. The sherd represents .34% of the total ceramic assemblage.

6a Clay-Tempered Residual (N=1).

The single specimen in this category is a small residual clay-tempered sherd. The specimen was too fragmentary to be attributable to any previously named type.

5. Lithic Artifacts

A total of five flaked and ground stone artifacts was recovered from Hardison Rockshelter. In addition, 106 pieces of lithic debitage were recovered. The entire lithic assemblage was examined with the exception of the 1.59 mm fine screen material from which a 25% sample was examined. Preliminary sorting was conducted as outlined in Chapter IV, Lithic Artifacts.

Worked Implements

A total of four flaked stone implements was recovered from 40MU428 which constitute 80% of the flaked and worked implements and 3.6% of the total lithic assemblage. Four discrete bifacial implement classes are represented. The flaked stone implements are described and discussed below and are summarized by cultural period in Table 7.2.

Table 7.2 Lithic Implements from Hardison Rockshelter by Cultural Period.

Cultural Period	Implement Category					
	8	17	24	35	72	Total
Early Woodland/ Terminal Archaic	1	1	1	1	1	5
Total	1	1	1	1	1	5
%Total	20	20	20	20	20	100

Projectile Point/Knives

One complete projectile point/knife was recovered from Hardison Rockshelter. This pp/k is similar to the Terminal Archaic Wade cluster defined from Middle Tennessee (Faulkner and McCollough 1974). In addition one pp/k blade was recovered.

Category 8 Short Broad Blade, Short Straight Stem (N=1).

The blade is short, broad, and triangular. The specimen is biconvex in cross section. The lateral blade margins are excurvate and the distal juncture exhibits an impact fracture. Primary flaking is obscure. Secondary flaking of the blade and stem is bifacial-bilateral and continuous. Flake scars are expanding to angular expanding. The basal margin is unground. The specimen is of Ft. Payne chert and does not appear to have been thermally altered.

Measurements: Blade Length: (46.0 mm), Blade Width: 32.5 mm, Thickness: 7.1 mm, Stem Length: 9.0 mm, Stem Width: 11.0 mm, Weight: (9.6 g).

Comments: This specimen does not conform to any previously named type, however, it is similar to pp/k´s included in the Wade Cluster defined for the upper Duck River Valley in Middle Tennessee. Faulkner and McCollough (1977:123) suggest the Wade cluster is diagnostic of the Terminal Archaic Wade phase of the upper Duck River

Valley. Currently available dates for the Wade cluster are 1075+75 B.C. and 970+215 B.C. for the Nowlin II site (Keel 1978), 1010+135 B.C. for the Banks III site (Faulkner and McCollough 1974), and 840+80 B.C. at the Ewell III site (Duvall 1977). A Terminal Archaic to Early Woodland association for this pp/k is suggested.

Category 17 Miscellaneous Projectile Point Blades (N=1).

The single specimen in this category represents the blade of an unidentifiable projectile point. The blade margins are excurvate and the distal juncture is acute. The specimen is biconvex in cross section. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Category 24 Stage II Preform Bases (N=1).

Description: The single specimen is a thin rectangular preform base. The specimen is flattened in cross section. The blade exhibits a lateral snap fracture. Primary flaking is bifacial-bilateral and continuous. Flake scars are expanding to conchoidal. Secondary flaking is minimal. The specimen is of Carters chert and appears to have been thermally altered.

Category 35 Digging Implement (N=1).

Description: The specimen is the poll end of a limestone hoe. It is rectangular in outline and

plano-biconvex in cross section. The specimen exhibits a lateral snap fracture at the midpoint of the specimen. Flaking is bifacial-bilateral and fortuitously placed to meet shaping needs. The proximal margin is not flaked. The specimen is made of limestone.

Measurements: Length: (N.A.), Width: 100.7 mm, Thickness: 32.3 mm, Weight: (N.A.).

6. Ground Stone

One ground stone artifact was recovered from Hardison Rockshelter. The single specimen represents 20% of the flaked and ground stone implements and .90% of the total lithic assemblage.

Category 72 Hammerstones (N=1).

Description: The single specimen in this category exhibits battering along one margin. The specimen is split along an incipient fracture plane and laterally snapped at its approximate midpoint. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

7. Lithic Debris

Lithic debitage comprises the single largest category of lithic artifacts recovered at Hardison rockshelter. The 106 pieces of lithic debitage represent

95.50 % of the total lithic collection. Six discrete categories were identified and are described in Chapter IV, Lithic Debris. In order to assess the the stages of maintenance/manufacture represented by these flakes they have been collapsed into a three-way flake classification and a nonflake classification. Table 7.3 is a cross tabulation of the three-way flake classification by cultural period and Table 7.4 is a cross tabulation of nonflake debris by cultural period.

8. Internal Correlations

Three strata were recognized at Hardison Rockshelter. The artifactual material recovered from the excavations suggest utilization of the shelter during the Terminal Archaic/Early Woodland Period. All artifactual material was recovered from Stratum I and the surface of Stratum II. No artifactual material was analyzed from the backhoe test trenches. The Terminal Archaic/Early Woodland assemblage is analyzed in Chapter X.

Table 7.3 Three-way Flake Classification by Cultural Period, 40MU428.

Cultural Period	Flake Type			
	Early	Intermediate	Late	Total
Early Woodland/ Terminal Archaic	29	52	8	89

Table 7.4 Nonflake Debris by Cultural Period, 40MU428.

Cultural Period	Debris Type			
	Blocky Debris	Tested Cobble	Core	Total
Early Woodland/ Terminal Archaic	17	0	0	17

CHAPTER VIII

BAKER ROCKSHELTER

1. General Setting

Baker Rockshelter (40MU435) is a multicomponent site located on the left (West) bank of Fountain Creek approximately 14 kilometers (8.75 mi.) southeast of Columbia, in Maury County, Tennessee (Figure 3.3 page 19). The exact location is 35° 29′ 09" North Latitude, 86° 57′ 0" West Longitude (U.S.G.S Campbells Station 7.5′ Quadrangle), UTM Reference: 16/3926725/504520. The rockshelter is located on the property of Carlton Baker for whom the rockshelter was named.

Baker Rockshelter has a eastern exposure, and is 7.5 m long with dripline 2.1 m from back wall (Figure 8.1). The roof measures 1.25 m at the dripline and slopes steeply downwards at the rear of the shelter. The total protected area within the rockshelter is approximately 11 m^2. The present surface of the shelter deposit is 210 m AMSL.

2. Excavation Methodology

A permanent datum, designated A_1, was established at the southern margin of the rockshelter. This datum was given the arbitrary coordinates 100N, 100E. From

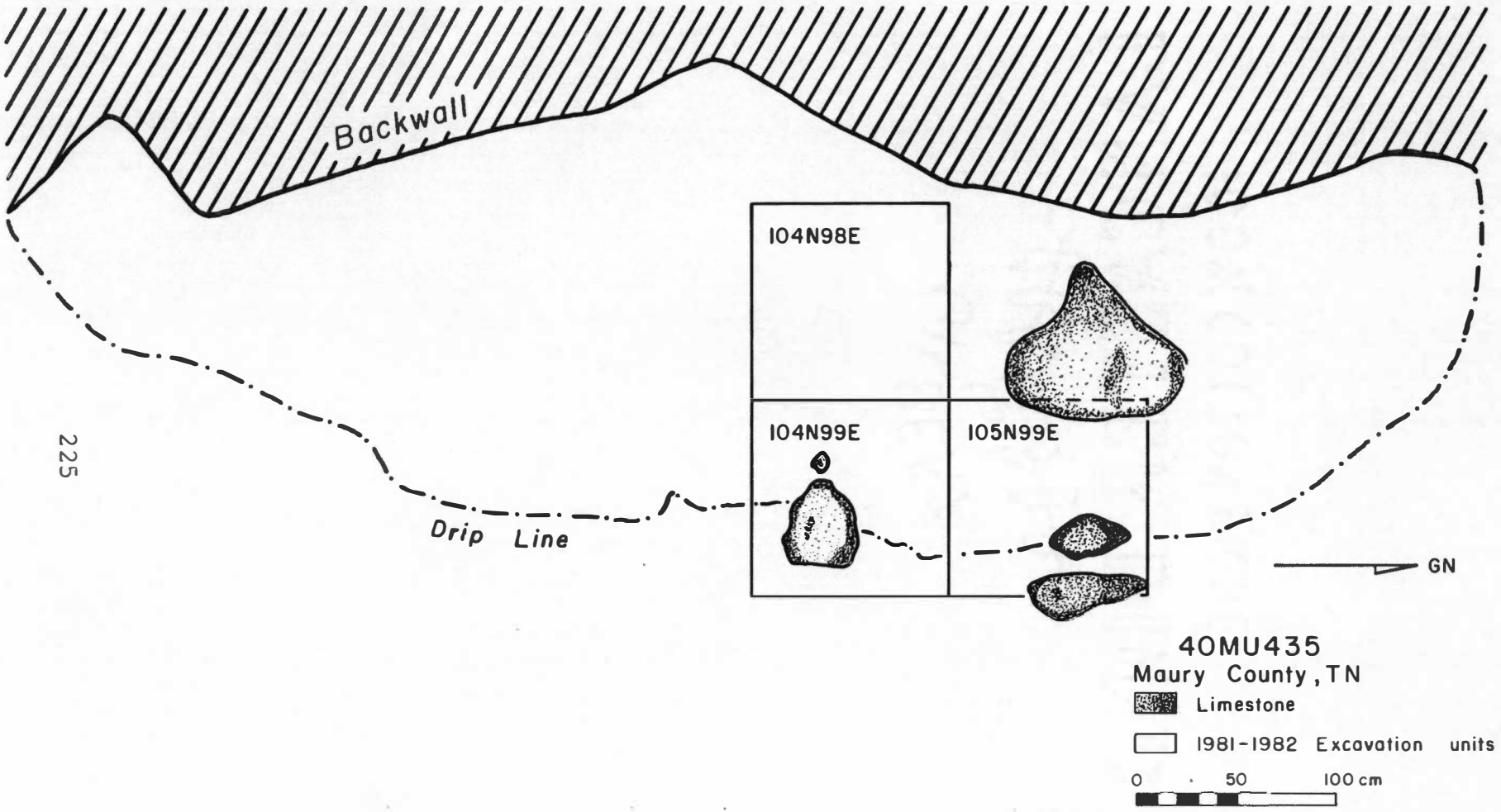


Figure 8.1 Plan Map of Baker Rockshelter, 40MU435.

Datum A_1 a baseline was established in front of the dripline parallel to the back wall of the shelter. Utilizing this baseline, the surface of the shelter was partially gridded into 1 m^2 units by triangulating from the baseline. All unit designations refer to the southwest corner of the excavation unit. One additional datum, designated A_2, was afixed to the back wall of the shelter and reflects "0" elevation or absolute ground surface which was originally defined as the natural ground surface of excavation unit 104N, 99E. All vertical measurements were calculated from Datum A_2. The plan map (Figure 8.1) of the shelter was made by triangulating distances from the baseline as it was not possible to use an alidade and plane table for this task.

After establishing the grid system, testing was initiated by excavating a 1 X 2 m test trench perpendicular to the dripline. This trench was subsequently enlarged to its ultimate configuration (Figure 8.1). Excavation techniques, unit sampling and field processing procedures were carried out as described in Chapter IV (Excavation Methodology).

3. Stratigraphy

Sediment Sources

The fill at Baker Rockshelter is derived from sediment sources one through five which are discussed in Chapter IV (Stratigraphy). Fluvial deposits were not present within the rockshelter fill.

Analytical Methods

Three strata were recognized at Baker Rockshelter based on color, gross composition and texture. The strata vary substantially in thickness, and slope toward Fountain Creek. The strata are labled in ascending order from the oldest to the youngest. Munsell color determinations were taken from moist soil samples and read in indirect sunlight. A profile of the sediments at Baker Rockshelter is presented in Figure 8.2.

Stratum I.

Extent: Stratum I was the basal unit at Baker Rockshelter. Horizontally, it was continuous across the excavated squares. Vertically, the top of Stratum I occurred at a depth of 55 cm below surface at the back wall of the shelter and sloped to a maximum depth of approximately 96 cm below surface at the front of the shelter (Figure 8.2). Thickness varied from 5 cm to 15 cm across the excavated squares.

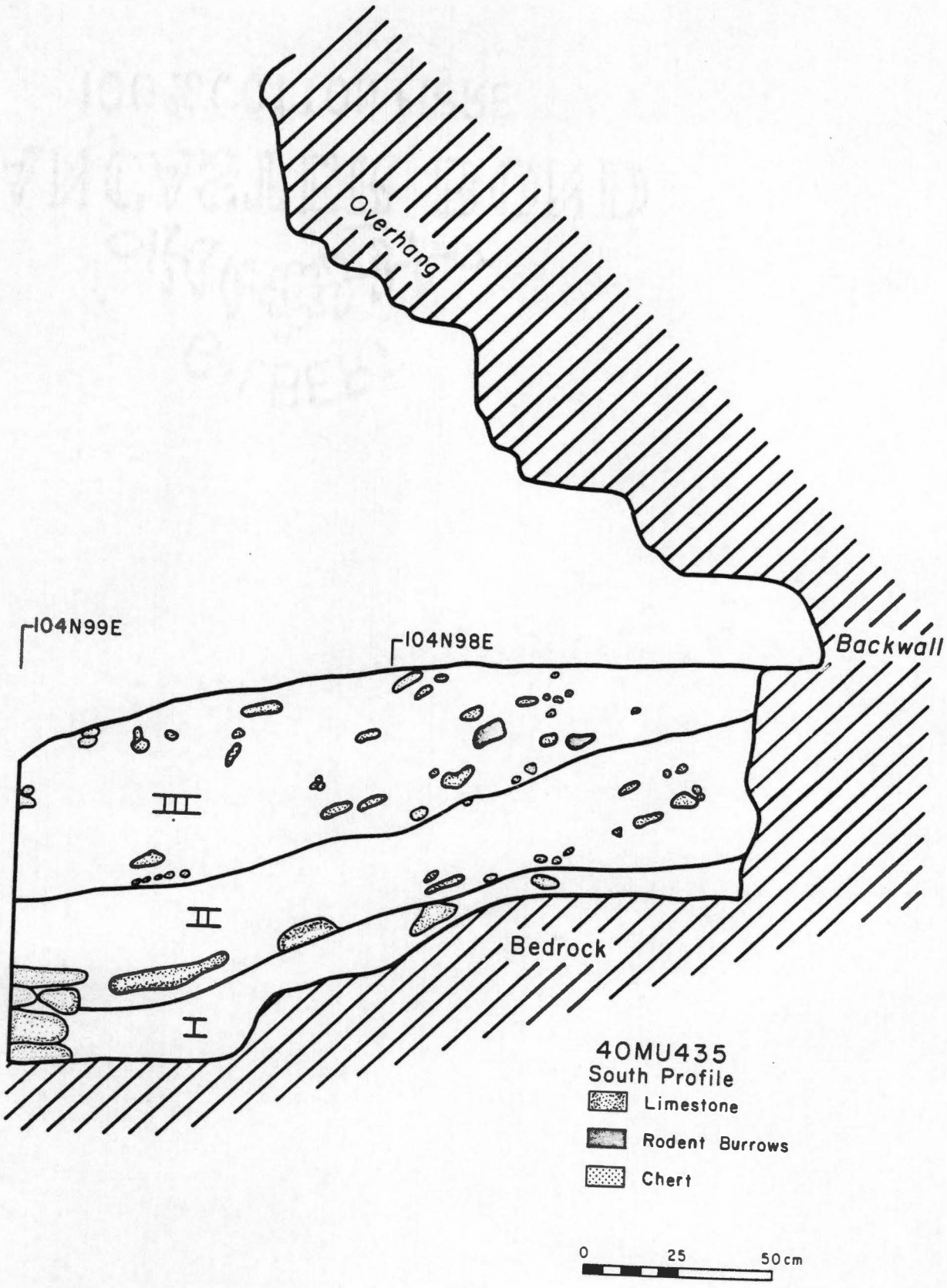


Figure 8.2 South Profile of Baker Rockshelter, 40MU435.

Description: Stratum I consisted of a yellowish-brown (10YR3/2 to 10YR3/3) compact agglomerate of limestone rubble and clay. Floral and faunal turbation was minimal.

Cultural Affiliation: Cultural artifacts were sparse throughout the strata and most likely were vertically displaced from Stratum II. A Middle Archaic period association for the artifactual material recovered from Stratum I is suggested.

Stratum II.

Extent: Horizontally, Stratum II was continuous across the excavated squares. Vertically, the surface of Stratum II occurred 16 cm below surface at the rear of the shelter and sloped to a depth of approximately 60 cm below ground surface at the front of the shelter. Thickness varied from 22 cm to a maximum of 38 cm (Figure 8.2). The contact between Stratum I and Stratum II was abrupt.

Description: Stratum II consisted of a brown (10YR4/4) clay loam. Bioturbation was minimal.

Cultural Affiliation: Diagnostic artifacts (Morrow Mountain PP/K) recovered from Stratum II suggest a Middle Archaic period association for the lithic and worked bone assemblages recovered.

Stratum III (Uppermost).

Extent: Horizontally, Stratum III was continuous across the excavated squares. Vertically, the surface of Stratum III sloped 36 cm from the back of the shelter to the front. The top of Stratum III formed the present day ground surface at the rockshelter. Thickness varied from 12 cm to a maximum of approximately 50 cm. The lower contact was abrupt.

Description: Stratum III consisted of a reddish-brown (10YR2/2) clay loam. Limestone rubble occurred throughout the strata. Floral and faunal material was minimal.

Cultural Affiliation: Diagnostic artifacts (Hamilton/Madison Cluster PP/K) suggests a Late Woodland/Early Mississippian period association for the artifactual material recovered from Stratum III.

4. Cultural Features

One cultural feature was encountered during excavations at Baker Rockshelter. The single feature was a diffuse rock lined/ringed fire hearth.

Feature I: Probable Rock Lined/Ringed Fire Hearth.

Description: Feature I consisted of a scatter of burnt limestone and charred nut hulls. The exact form of the feature could not be determined during excavation.

Comments: Feature I was contained wholly within Stratum II and was associated with the Middle Archaic use of the shelter.

5. Lithic Artifacts

A total of 26 flaked and utilized lithic artifacts were recovered from Baker Rockshelter. In addition, a total of 976 pieces of lithic debitage was recovered. The entire lithic assemblage was examined with the exception of the 1.59 mm fine screen material from units 104N, 99E and 104N, 98E of which a 25% sample was examined. No 1.59 mm fine screen material was examined from excavation unit 105N, 99E. Preliminary sorting was conducted as outlined in Chapter IV (Lithic Artifacts).

Worked Implements

Six flaked stone implements were recovered from 40MU435 which constitute 23% of the flaked and utilized lithics recovered and .60% of the total lithic assemblage. Eight discrete categories were identified which have been divided into a bifacial series and a unifacial series. The bifacial series is represented by five categories which constitute .50% (N=5) of the total lithic assemblage and 62.5% of the flaked stone implements (excluding cores and tested cobbles). The unifacial series is represented by one category

constituting .10% of the total lithic assemblage and 12.5% of the flaked and utilized stone implements. The flaked stone implements are described and discussed below and are summarized by cultural period in Table 8.1.

Projectile Point/Knives

Five complete or fragmentary pp/k's were recovered from Baker Rockshelter. The five pp/k's are similar to two previously described types but three pp/k's do not.

Category 2 Broad Blade, Rounded, Short, Broad Stem (N=1) (Figure 8.3).

Description: The specimen exhibits a broad blade, with straight blade margins and a short broad rounded stem. The blade exhibits a distal lateral snap fracture. The specimen is biconvex in cross section. Primary flaking of the blade and haft element is bifacial-bilateral and fortuitously placed to meet shaping needs. Flake scars are conchoidal to expanding. Secondary flaking of the blade and haft is bifacial-bilateral and varies from random to regular. Flake scars are expanding to angular expanding. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Table 8.1 Lithic Implements from Baker Rockshelter by Cultural Period.

Cultural Period	Implement Category										
	2	3	4	5	11	45	49	50	55	56	Total
Mississippian/ Late Woodland					1		1				2
Early/Middle Archaic	1	1	1	1		1	8	9	1	1	24
Total	1	1	1	1	1	1	9	9	1	1	26
%Total	3.85	3.85	3.85	3.85	3.85	3.85	34.6	34.6	3.85	3.85	100

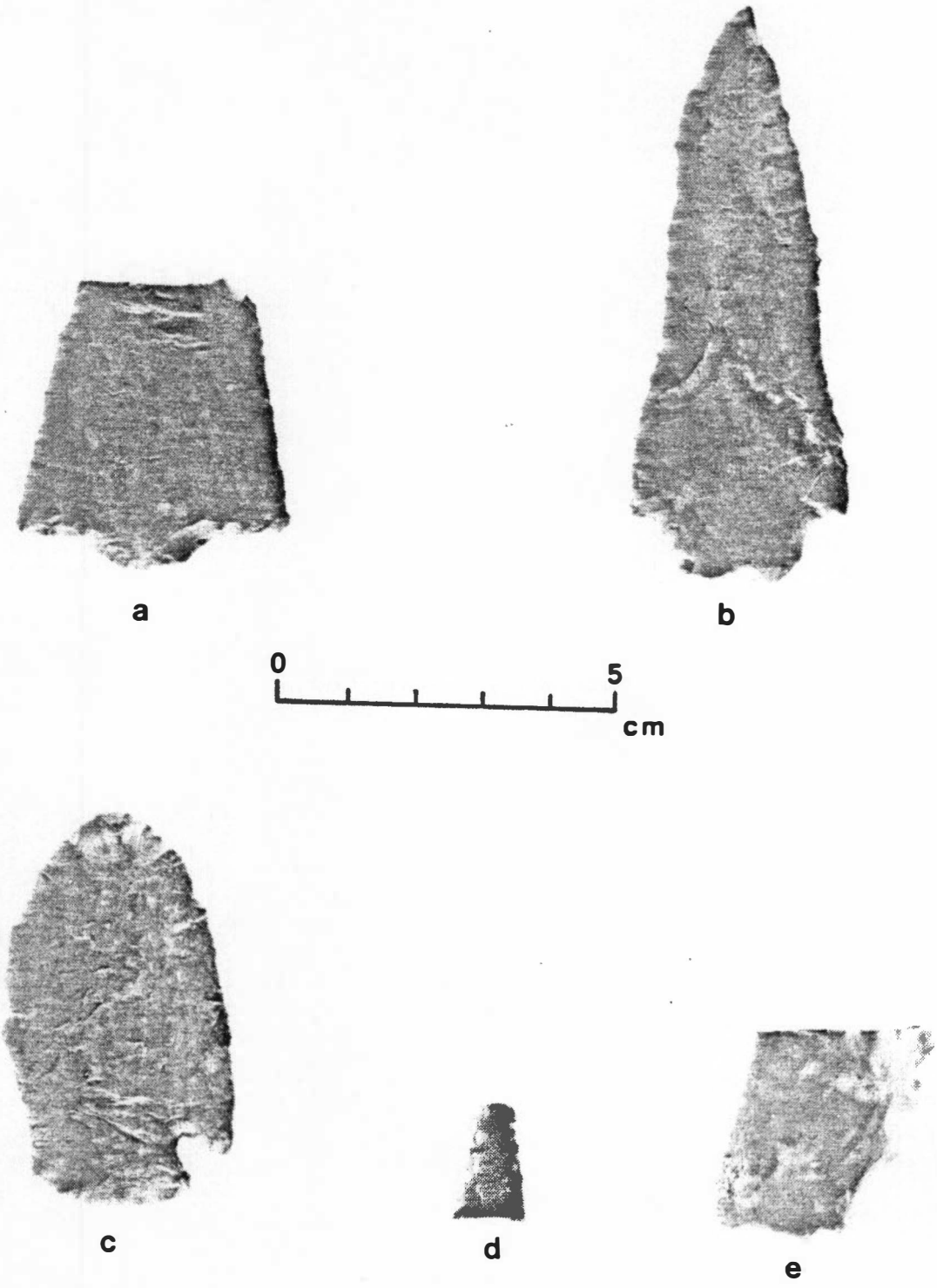


Figure 8.3 Lithic Artifacts from Baker Rockshelter by Implement Category. a: 2. b: 3. c: 4. e: 11. f: 45.

Measurements: Blade Length: N.A., Blade Width: 40.9 mm, Thickness: 7.5 mm, Stem Length: 5.2 mm, Stem Width: 19.8 mm, Weight (13.49 g).

Comments: The specimen conforms to the type Morrow Mountain (Coe 1964). A Middle Archaic association for this pp/k at Baker Rockshelter is indicated (see also Chapter IV Category 2).

Category 3 Large, Narrow Blade, Short, Straight Stem (N=1) (Figure 8.3).

Description: The specimen is long and narrow in form and biconvex in cross section. The blade margins are straight to recurvate and partially serrated. The haft element is straight and the basal margin is burinated. Primary flaking of the blade and haft element is fortuitous. Flake scares are expanding to lamellar. Secondary flaking of the blade is regular and alternate faces-bifacial which forms a partial serration of the blade margins. Flake scars are conchoidal to expanding. Secondary flaking of the haft element is random. Flake scars are angular. The distal juncture is acute. The specimen is of Fort Payne Chert and does not appear to have been thermally altered.

Measurements: Blade Length: 85.2 mm, Blade Width: 32.4 mm, Thickness: 9.1 mm, Stem Length: 9.0 mm, Stem Width: 22.1 mm, Weight: 22.64.

Comments: This specimen does not conform to any previously defined type; however, it is similar to the type Kirk Serrated. This pp/k was recovered from an Early to Middle Archaic context at Stanfield-Worly Bluff Shelter (DeJarnette et al. 1962) and also in an Early to Middle Archaic context at Flint River Mound (Webb and DeJarnette 1948). At Baker Rockshelter this pp/k was recovered in stratigraphic association with a Morrow Mountain pp/k. An Early to Middle Archaic association for this pp/k at Baker Rockshelter is suggested.

Category 4 Broad, Ovate Blade, Corner Notched (N=1) (Figure 8.3).

Description: The single specimen in this category is a broad, ovate, corner notched pp/k. The specimen is plano-convex in cross section. Primary flaking is bifacial-bilateral and fortuitous. Flake scars are conchoidal to expanding. Secondary flaking of the blade and haft element is bifacial-bilateral and varies from random to regular. Flake scars are expanding to angular expanding. The haft element is defined by deep corner notching. One corner, including the notch, is broken. The base of the haft is excurvate, thinned, and ground. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Blade Length: 50.3 mm, Blade Width: (8.5 mm), Thickness: 7.8 mm, Stem Length: 10.4 mm, Stem Width: (N.A.).

Comments: This specimen does not conform to any previously described type. It was recovered in stratigraphic association with a Morrow Mountain pp/k. An Early to Middle Archaic association for this pp/k at 40MU435 is suggested.

Category 5 Medium Large, Narrow Blade, Contracting Stem (N=1).

Description: The specimen is medium large with narrow blade and contracting stem. The lateral blade margins are straight and the distal juncture is acute. The specimen is biconvex in cross section. Primary flaking is obsure. Secondary flaking is bifacial-bilateral and random to regular. Flake scars vary from lamellar to expanding. The haft element is thick and unground. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Blade Length: 48.1 mm, Blade Width: 23.9 mm, Thickness: 9.3 mm, Stem Length: 10.2 mm, Stem Width: 17.5 mm, Weight: 9.95 g.

Comments: The specimen does not conform to any previously described type. It was recovered 20 cm below

a Morrow Mountian pp/k. An Early to Middle Archaic association for this pp/k at 40MU435 is suggested.

Category 11 Small, Triangular, Narrow Blade (N=1) (Figure 8.3).

Description: The specimen is triangular in form and biconvex in cross section. The extant blade margins are straight and the basal margin is slightly incurvate. Primary flaking is obscure. Secondary flaking is bifacial-bilateral and continuous along the extant margins. Flake scars vary from angular to angular expanding. The base is unground. The distal end of the specimen exhibits a transverse snap fracture. The specimen is of Fort Payne chert and appears to have been thermally altered.

Measurements: Length: N.A., Width: 12.3 mm, Weight (0.83 g).

Comments: This specimen conforms to the Madison/ Hamilton cluster described in Chapter IV. A Late Woodland to Mississippian temporal association for this pp/k at 40MU435 is suggested.

Unifacial Artifacts

One fragmentary unifacially flaked stone implement was recovered from Baker Rockshelter. The single unifacial implement constitutes .09% of the total lithic

assemblage and 12.5% of the flaked and utilized stone implements. In addition, nine cores and nine tested cobbles, representing 69.29% of the flaked and utilized lithics and 1.8% of the total lithic assemblage, were recovered. The unifacial implement recovered from 40MU435 is described below and is summarized by cultural period in Table 8.1 (page 225).

Category 45 Denticulate (N=1) (Figure 8.3, page 234).

Description: The specimen is a core fragment which exhibits a continuous series of deep notches along the margins. The notches were formed by deep unifacial retouch. Flake scars are angular to angular expanding. The specimen is plano-convex in cross section. It is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: N.A., Width: N.A., Thickness: (15.9 mm), Weight: (N.A.).

Category 49 Cores (N=9).

Description: All nine specimens are cores or core fragments. Six are of Fort Payne chert and three are of Carters chert. The specimens do not appear to have been thermally altered.

Category 50 Tested Cobbles (N=9).

Description: The nine specimens in this category represent "tested" cobbles. Four of the specimens are of Fort Payne chert and five are of Carters chert. The specimens do not appear to have been thermally altered.

Utilized Artifacts

Two complete utilized flake implements were recovered from Baker Rockshelter. The utilized flake implements constitute 7.1% of the flaked and utilized artifacts and .20% of the total lithic assemblage. The utilized flake implements recovered from 40MU435 are discussed and described below and are summarized by cultural period in Figure 8.1 (page 225).

Category 55 Utilized Oblique Distal Edge, Spline Angle < 45^{o} (N=1).

Description: The single specimen in this category exhibits unifacial micro-wear scaring along the oblique distal margin of the flake. The spline angle is $\leq 45^{o}$. The specimen is plano-convex in cross section. It is of Carters chert and does not appear to have been thermally altered.

Measurements: Length: 26.0 mm, Width: 21.1 mm, Thickness: 7.9 mm, Weight: 2.6 g.

Category 56 Utilized Oblique Distal Edge, Spline Angle > 45^{o} (N=1).

Description: The single specimen in this category exhibits steep unifacial micro-wear along the oblique distal margin. The spline angle is > 45^{o}. The specimen is plano-convex in cross section. It is of Carters chert and does not appear to have been thermally altered.

6. Lithic Debitage

Lithic debitage comprises the single largest category of lithic artifacts recovered at Baker Rockshelter. The 976 pieces of lithic debitage represent 97.4% of the total lithic assemblage. Seven discrete categories were identified and are described in Chapter IV, Lithic Debris. In order to assess the stages of implement manufacture/maintenance represented by these flakes they have been collapsed into a three-way flake classification and a nonflake debris classification (see Chapter IV, Lithic Debris). Table 8.2 is a cross tabulation of the three-way flake classification by cultural period and Table 8.3 is a cross tabulation of nonflaked debris by cultural period.

Table 8.2 Three-way Flake Classification by Cultural Period, 40MU435.

Cultural Period	Flake Type			
	Early	Intermediate	Late	Total
Mississippian/ Late Woodland	13	2	44	59
Early/Middle Archaic	124	25	421	570
Total	137	27	465	629

7. Bone Artifacts

A total of 31 worked bone artifacts was recovered from Baker Rockshelter. All 31 specimens are fragments of turtle carapace.

Category 1 Modified Turtle Carapace (N=31).

Description: Thirty one worked turtle carapace fragments were recovered. All 31 specimens exhibit striations, grinding or both on the interior surface. The specimens vary in color from black to shades of turquois which suggests they have been thermally altered.

Comments: The 31 specimens in this category probably represent one turtle carapace bowl or cup. All 31 specimens were recovered from Stratum II. An Early to Middle Archaic association for these artifacts at Baker rockshelter is suggested.

8. Internal Correlations

Three strata were recognized during excavations at Baker Rockshelter. The artifactual material recovered from the excavations suggest use of the shelter during during the Early/Middle Archaic and Mississippian/Late Woodland temporal periods. In general, the artifact

Table 8.3 Nonflake Debris by Cultural Period, 40MU435.

Cultural Period	Debris Type			
	Blocky Debris	Tested Cobbles	Core	Total
Mississippian/ Late Woodland	40	0	1	41
Early/Late Archaic	307	9	8	324
Total	347	9	9	365

collection is sparse, especially in terms of time sensitive `diagnostic´ lithic (N=2) artifacts.

In order to define the sequence of events at this site it was first necessary to compare diagnostic "time sensitive" pp/k distributions against overall lithic debitage frequency curves for each of the units excavated. This procedure identified a Mississippian/Late Woodland period use of the shelter and an Early/Middle Archaic period usage of the shelter. An analysis of the assemblages from Baker Rockshelter, as well as an intrasite and intersite comparison of the assemblages appears in Chapter X.

Chapter IX

PILKINTON ROCKSHELTER

1. General Setting

Pilkinton Rockshelter (40MU422) is a multi-component site located on the right (North) bank of Fountain Creek 14.2 kilometers (8.9 mi.) southeast of Columbia, in Maury County, Tennessee (Figure 3.3, page 19). The exact location is 35° 29′ 05" North Latitude, 86° 56′ 50" West Longitude, (U.S.G.S. Campbells Station 7.5′ Quadrangle), UTM Reference: 16/3926560/504810. The rockshelter, presently on T.V.A. property, was formerly owned by the James Pilkinton family for whom the shelter was named.

Pilkinton rockshelter has a southern exposure. The rockshelter is completely filled, and partially buried by alluvium; therefore, the exact extent of the shelter boundaries is not known (see Figure 3.2, page 17). The present ground surface at the shelter is approximately 191 m AMSL.

2. Excavation Methodology

A permanent datum designated A_1, was established at the eastern margin of the shelter. Datum A_1 was given the arbitrary coordinates 100N, 100E. From Datum A_1 a

grid system was established which intersected the exposed juncture of the rockshelter roof and the floodplain on the eastern margin of the site. All unit designations refer to the southwest corner of the excavation unit. One additional datum, designated A_2, was affixed to a tree on the eastern margin of the shelter. Datum A_2 reflects "0" elevation or absolute ground surface which was originally defined as the natural ground surface at the northeastern corner of excavation unit 99N, 94E.

After establishing the grid system, testing was initiated by excavating a 1 x 2 m^2 test trench into and under the overhang. Excavation techniques, unit sampling and field processing procedures were carried out as described in Chapter IV (Excavation Methodology).

3. Stratigraphy

Sediment Sources

The fill at Pilkinton Rockshelter is derived from sediment sources one through six which are discussed in Chapter IV (Stratigraphy).

Analytical Methods

Three strata were recognized at Pilkinton Rockshelter based on color, gross composition, and where discernable, texture. The strata vary in thickness, and slope gently in the direction of Fountain Creek. The

strata are labeled in ascending order from the oldest to the youngest. Munsell color determinations were made in direct sunlight. A profile of the sediments at Pilkinton Rockshelter are presented in Figure 9.1.

Stratum I.

Extent: Stratum I was the basal unit at Pilkinton Rockshelter. Horizontally, it was continuous across the excavated squares. Vertically, the top of Stratum I occurred at a depth of approximately 360 cm below ground surface (Figure 9.1). Thickness varied from 2 cm to 5 cm across the excavated squares.

Description: Stratum I consisted of a yellowish-brown (10YR5/6) compact agglomerate of decayed limestone bedrock and clay. Floral and faunal turbation was minimal.

Cultural Affiliation: Cultural artifacts were not encountered within Stratum I.

Stratum II.

Extent: Horizontally, Stratum II was continuous across the excavated squares. Vertically, the surface of stratum II occurred at a depth of approximately 70 cm below ground surface. Thickness of the strata is approximately 70 cm (Figure 9.1). The contact between Stratum II and Stratum I was abrupt.

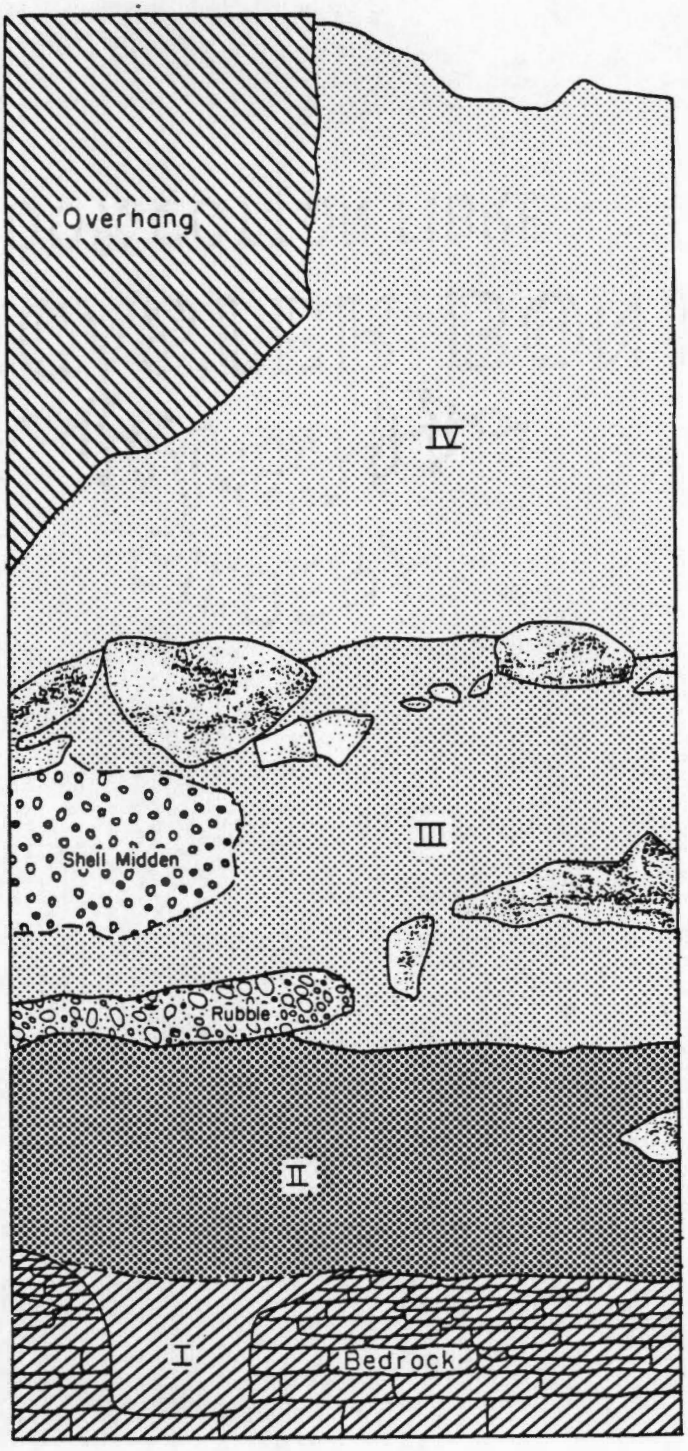


Figure 9.1 North Profile of Pilkinton Rockshelter, 40MU422.

Description: Stratum II consisted of a dark brown (Munsell value not available) clay loam. Bioturbation is minimal.

Cultural Affiliation: Although lithic debitage was recovered from Stratum II its cultural affiliation is not known.

Stratum III.

Extent: Horizontally, Stratum III was continuous across the excavated squares. Vertically, the top of Stratum III occurs at a depth of approximately 180 cm below ground surface. Thickness varied from 95 cm to 105 cm (Figure 9.1). The boundary between Stratum III and Stratum II was abrupt.

Description: Stratum III consisted of a dark brown to dark yellowish-brown (10YR4/3 to 10YR3/4) clay loam. A limestone rubble concentration occurred at the western edge of Stratum III, and a 50 cm thick shell midden occurred approximately at the middle of the strata (Figure 9.1). A major roof fall appears to have truncated both the shell midden and the rubble zone. Bioturbation was minimal.

Cultural Affiliation: Limestone-tempered ceramics suggest Stratum III, as well as the shell midden is associated with the Middle Woodland period.

Stratum IV.

Extent: Horizontally, Stratum IV was continuous across the excavated squares. Vertically, the irregular surface of Stratum IV represented the modern day ground surface at the shelter. The surface of Stratum IV sloped steeply towards Fountain Creek. The contact between Stratum IV and Stratum III was abrupt, being partially demarcated by limestone roof fall.

Description: Stratum IV consisted of a dark brown to yellowish-brown (10YR3/3 to 10YR5/6) loose to compact laminated, silty, loam matrix. Bioturbation was minimal.

Cultural Affiliation: The Historic period is suggested.

4. Ceramic Artifacts

Seven ceramic sherds were recovered from Stratum III. All seven sherds are small limestone-tempered residual sherds.

Limestone-Tempered Ware (N=7)

Limestone-tempered pottery is represented by seven residual sherds which constitute 100% of the total ceramic assemblage.

Limestone-Tempered Residual (N=7).

The seven limestone-tempered residual sherds represent 100% of the total ceramic collection.

Comments: A Middle Woodland association for these seven residual sherds at 40MU422 is suggested.

5. Lithic Artifacts

A total of 11 flaked and utilized stone implements was recovered from Pilkinton Rockshelter (excluding cores and tested cobbles). In addition, a total of 172 pieces of lithic debitage were recovered. The entire lithic assemblage was examined. No 1.59 mm fine screen material was recovered. Preliminary sorting was conducted as outlined in Chapter IV, Lithic Artifacts.

Worked Implements

Three flaked stone implements were recovered from 40MU422 which constitute 27.3% of the total flaked and utilized stone implements and 1.5% of the total lithic assemblage. Three discrete categories were identified which have been divided into a bifacial series and a unifacial series. The bifacial series is represented by two categories which constitute 1.02% of the total lithic assemblage (N=195) and 18.2% of the worked and utilized stone implements. The unifacial series is represented by one category which constitutes .51% of the total lithic

assemblage and 9.1% of the total flaked and utilized stone implements. The flaked stone implements are described and discussed below and are summarized by cultural period in Table 9.1.

Projectile Points/Knives

One fragmentary bifacial knife base was recovered from Pilkinton Rockshelter.

Category 22 Thin, Rectangular, Bifacial Knife Base (N=1).

Description: The single specimen in this category is a thin, rectangular bifacial knife base. The extant blade exhibits a distal snap fracture. The specimen is biconvex in cross section. Primary flaking is bifacial-bilateral and fortuitously placed to meet shaping needs. Flake scars are expanding to angular. Secondary flaking is unifacial along the extant margins. Flake scars are angular to angular expanding. The lateral blade margins exhibit micro-wear and grinding. The proximal margin is unifacially thinned and unground. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: N.A., Width: 26.9 mm, Thickness: 9.1 mm, Weight (N.A.).

Table 9.1 Lithic Implements from Pilkinton Rockshelter by Cultural Period.

Cultural Period	Implement Category									
	22	25	37	49	50	51	57	58	59	Total
Middle Woodland	1	1	1	5	5	2	1	1	1	18
Indeterminate					2	2	1			5
Total	1	1	1	5	7	4	2	1	1	23
%Total	4.35	4.35	4.35	21.74	30.43	17.39	8.7	4.35	4.35	100

Category 25 Miscellaneous Biface Blade Fragments (N=1).

Description: The single specimen in this category represents a medial biface blade fragment. Flaking is obscure. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Unifacial Artifacts

One fragmentary unifacially flaked lithic artifact was recovered from Baker Rockshelter. This artifact constitutes 9.1% of the flaked and utilized stone implements and .51% of the total lithic assemblage (N=195). In addition, five cores and seven tested cobbles are included here. Cores and tested cobbles represent 6.2% of the total lithic assemblage. The single unifacial artifact recovered from 40MU422 is discussed below and is summarized by cultural period in Table 9.1.

Category 37 Side Scraper (N=1).

Description: The single specimen in this category exhibits steep (> 45^{o}) unifacial-unilateral retouch. Flake scars are angular to angular expanding. The specimen exhibits a longitudinally orientated snap fracture. The specimen is triangular in form and biconvex in cross section. The specimen is of Fort Payne chert and appears to have been thermally altered.

Measurements: Length: 31.6 mm, Width: N.A., Thickness: 7.0 mm, Weight: (N.A.).

Category 49 Cores (N=5).

Description: All five specimens are cores or core fragments. The six specimens are of Fort Payne chert and do not appear to have been thermally altered.

Category 50 Tested Cobbles (N=7).

Description: The seven specimens in this category may represent `tested´ lithic masses. Five of the specimens are of Fort Payne chert, one is of Carters chert, and one is of limestone.

Utilized Flakes

A total of eight complete or fragmentary utilized flake artifacts was recovered from Pilkinton Rockshelter. These eight artifacts constitute 54.5% of the total flaked and utilized stone implements recovered and 5.6% of the total lithic assemblage. The artifacts were divided into four discrete categories based on morphological features which exhibit micro-wear (i.e. projections, notches) and location of micro-wear (lateral edge, distal edge, multiple edges). The eight utilized flake artifacts are described below and are summarized by cultural period in Table 9.1.

Category 51 Utilized Flakes, Robust Projections (Gravers) (N=4).

Description: All four specimens are complete or fragmentary flakes which exhibit a robust fortuitous projection exhibiting unifacial-bilateral micro-wear. All four specimens are of Fort Payne chert. Only one of the specimens appears to have been thermally altered.

Measurements: Range in Length: 15.7 mm - 44.6 mm (Mean=32.73 mm, N=3), Range in Width: 13.6 mm - 41.7 mm (Mean=30.8 mm, N=4), Range in Thickness: 5.5 mm - 24.1 mm (Mean=13.48, N=4), Range in Weight: 1.19 g - 33.97 g (mean=15.45 g) (N=3).

Category 57 Utilized Lateral Edge, Spline Angle $< 45^{o}$ (N=2).

Description: Both specimens are flakes which exhibit unifacial-unilateral micro-wear. The spline angle is $\leq 45^{o}$. One specimen exhibits a slightly incurvate utilized edge the other exhibits an excurvate utilized edge. Both specimens are of Fort Payne chert and do not appear to have been thermally altered.

Measurements: Range in Length: 18.2 mm - 28.7 mm (Mean=23.45 mm), Range in Width: 11 mm - 25.8 mm (Mean=18.4 mm), Range in Thickness: 5 mm - 11.9 mm (mean=8.45 mm), Range in Weight: 0.73 g - 7.21 g (Mean=3.97).

Category 58 Utilized Lateral Edge, Spline Angle > 45° (N=1).

Description: The single specimen in this category exhibits steep (> 45°) unifacial-unilateral micro-wear. The specimen is of Fort Payne chert and does not appear to have been thermally altered.

Measurements: Length: 17.9 mm, Width: 15.4 mm, Thickness: 14.1 mm, Weight: 7.50 g.

Category 59 Utilized Multiple Edges (N=1).

Description: the single specimen in this category exhibits unifacial micro-wear along the entire circumference of the specimen. The specimen is rectangular in form and plano-convex in cross section. The specimen is of Ridley chert and does not appear to have been thermally altered.

Measurements: Length: 46.6 mm, Width: 24.9 mm, Thickness: 7.3 mm, Weight: 7.83 g.

6. Lithic Debitage

Lithic debitage comprises the single largest category of lithic artifacts recovered from Pilkinton Rockshelter. The 172 pieces of lithic debitage 88.2% of the total lithic assemblage. Six discrete categories were identified and are described in Chapter IV, Lithic Debris. In order to assess the stages of manufacture/

maintenance represented by the flakes they have been collapsed into a three-way flake classification by and a nonflake classification (see Chapter IV, Lithic Debris). Table 9.2 is a cross tabulation of the three-way flake classification by cultural period and Table 9.3 is a cross tabulation of nonflake debris by cultural period.

7. Internal Correlations

Four strata were recognized at Pilkinton Rockshelter. The artifactual material recovered from Stratum III suggestes a Middle Woodland use of the shelter. In addition, a limited amount of debitage and two gravers were recovered from Stratum II. The cultural affiliation of this material is not known. The Middle Woodland assemblage is analyzed and compared synchronically in Chapter X.

Table 9.2 Three-way Flake Classification by Cultural Period, 40MU422.

Cultural Period	Flake Type			
	Early	Intermediate	Late	Total
Middle Woodland	19	6	42	67
Indeterminate	34	30	0	64
Total	53	36	42	131

Table 9.3 Nonflake Debris by Cultural Period, 40MU422.

Cultural Period	Debris Type			
	Blocky Debris	Tested Cobbles	Cores	Total
Middle Woodland	19	5	5	29
Indeterminate	22	2	0	24
Total	41	7	5	53

CHAPTER X

INTRASITE/INTERSITE ASSEMBLAGE COMPARISONS

1. Intrasite Analytical Methods

All classes of artifactual material previously described in Chapter IV through IX were employed in the assemblage/collection comparisons with the exception of ceramics and the artifactual material recovered from Test Pit 1 at McCollum Rockshelter. As previously stated in Chapter IV the artifactual material recovered from Test Pit 1 was excluded from the analysis because of the difficulties in clearly and confidently linking the strata between this unit and the main test trench. In addition, ceramics are not considered in the statistical analysis because they occur only in the Mississippian and/or Woodland assemblages. The analysis of each class has three components. First the randomness of the distribution is assessed by calculating the chi-square (X^2) statistic. The null hypothesis for this test is that the distribution is random. The calculation of a significantly large chi-square allows for the rejection of the null hypothesis that the distribution is random, and supports the alternative that the distribution is nonrandom. The confidence level for all chi-square tests has been set to 95% ($p=<0.05$).

Second, an assessment of the relative diversity of the assemblages/collection was undertaken. The Shannon Index (Pielou 1975:7-17, Zar 1984:32-36) which is based on mathematical models for assessing the diversity or content of an information code has been applied here. The diversity-index H´ is related to the diversity of the assemblage/collection in a positive relationship. As the diversity of the assemblage/collection increases the computed value of H´ increases. The concept of diversity is dependent on class richness (number of classes) as well as class equitability (number of items per class). Equitability (J´) is calculated as the ratio of H´ to the maximum possible H´ (Hmax) for the assemblage/collection under consideration. J´ reflects the evenness or equitability of the distribution of items across classes. Equitability values range from 0 to 1, and in a completely homogeneous assemblage J´equal 1, and indicates maximum diversity. Jones et al. (1983) have demonstrated that class richness (H´) is often a direct result of sample size: the larger the sample size the greater the sample diversity. This relationship should be considered when the diversity and equitability statistics are interpreted.

The previous statistical tests were employed to (1) assess the randomness of the artifact distributions

and (2) assess the diversity of the assemblages. The third component of the analysis is the calculation of a set of function-specific indices which are used to link behavioral implications to the archaeological record at each rockshelter.

A series of standardized indices developed by Faulkner and McCollough (1973:67-71), which were adapted from Sonneville-Bordes and Perrot (1953, 1954, 1955, 1956a, 1956b), have been calculated for use in describing and comparing the lithic artifacts from each site. These indices have been slightly modified but remain essentially the same. It is realized that there are potential problems involved in the use of function-specific tool types in the absence of micro-wear analysis; however, these indices are appropriate for bridging the gap between behavioral implications and the archaeological record. This analysis borrows the concept, most probable interpreation, from Thomas (1983b:440) who applied the concept effectively in interpreting the archaeological record of Gatecliff Rockshelter. The most probable interpretation, in effect, provides a bridge across "the gap between method and substance" (Thomas 1983b:440). "Interpretations stand merely as what . . . .[is] consider[ed] to be the best

bet, when all the presently available evidence is taken into account" (Thomas 1983b:440).

The formulas for the indices which have been computed are given in Chapter III. It should be noted that tool type numbers used here do not correspond to Faulkner and McCollough's (1973) numbering scheme or to the Columbia Archaeological Coding Format (Hofman and Turner 1979). The tool type numbering sequence used in this analysis follows the lithic indices formulas (Chapter III).

2. McCollum Rockshelter Assemblage Comparisons

Chi-Square Statistic

Table 10.1 is a contingency table of the three-way flake classification by temporal period. The chi-square statistic of 117.76 (df=4) is highly significant, indicating that the distribution is nonrandom. The greatest contribution to the chi-square statistic is made by the Mississippian/Woodland artifact collection and the Middle Archaic assemblage. Early stage flakes occur less frequently than expected in the Mississippian/Woodland collection while late stage flakes occur in greater frequencies than expected. This suggests little emphasis on initial tool manufacture and greater emphasis on late stage tool manufacture and maintenance. This pattern is

Table 10.1 Chi-square Statistic for Three-way Flake Classification by Cultural Period, 40MU390.

Cultural Period		Flake Type			
		Early	Intermediate	Late	Total
Mississippain/ Woodland	o	221	3053	410	3684
	e	287.24	3050.91	345.85	
	X*2	19.85	0	11.9	
Late Archaic	o	295	3235	242	3772
	e	294.1	3123.79	354.11	
	X*2	0	3.96	35.49	
Middle Archaic	o	224	1572	239	2035
	e	158.67	1685.29	191.04	
	X*2	26.9	7.62	12.04	
Total		740	7860	891	9491
Chi Square = 117.76		df = 4			

also evident in the Middle Archaic assemblage with greater than expected frequencies of late stage flakes and fewer than expected early stage flakes.

Table 10.2 is a contingency table of nonflake debris by temporal period. The chi-square statistic of 12.62 (df=4) is significant, however, low cell values for cores and tested cobbles cause concern for interpretation of this contingency table. The chi-square statistic is very sensitive to low cell frequencies. Therefore, the nonflake debris contingency table is presented but no interpretations are drawn from it.

The chi-square statistic was not calculated for the implement classes because implements were not equally represented in each of the temporal periods. In addition, most implement classes were represented by only a few specimens and the chi-square statistic is very sensitive to zero or low cell values which commonly result in inflated chi-square values.

Diversity Statistic

The diversity statistics for implement classes by temporal period are presented in Table 10.3. The diversity statistic H´ increases from the Middle Archaic through Mississippian/Woodland temporal periods. Class richness also increases: Middle Archaic = 9 classes; Late Archaic = 12 classes; Mississippian/Woodland = 14

Table 10.2 Chi-Square Statistic for Nonflake Debris by Cultural Period, 40MU390.

Cultural Period		Debris Type			
		Blocky Debris	Tested Cobble	Core	Total
Mississippian/ Woodland	o	229	10	1	240
	e	229.14	5.43	5.43	
	X*2	0	3.85	3.61	
Late Archaic	o	277	3	11	291
	e	277.83	6.58	6.58	
	X*2	0	1.95	2.97	
Middle Archaic	o	169	3	4	176
	e	168.03	398	3.98	
	X*2	0	.24	0	
Total		675	16	16	707
Chi-Square = 12.62			df = 4		

Table 10.3 Diversity Statistics for Implement Classes by Cultural Period, 40MU390.

Cultural Period	Diversity Statistic			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
Mississippian/ Woodland	14	2.6390	2.5451	.9644
Late Archaic	12	2.4849	2.2789	.9171
Middle Archaic	9	1.3176	1.3176	.5996

classes. Class equitability or evenness also increases from the Middle Archaic through Mississippian/Woodland temporal period. The large J´ statistic for the Late Archaic and Mississippian/Woodland temporal periods indicates a high correspondence between H´ and class richness. The relatively low J´ statistic for the Middle Archaic assemblage is the result of a high frequency of biface fragments. Table 10.4 is a calculation of the diversity statistic with implement fragments omitted. Again the H´ statistic indicates greater diversity from the Middle Archaic through Mississippian/Woodland temporal periods. The recalculated J´ statistic for the Middle Archaic assemblage is quite high indicating the implement classes are relatively even when fragments are omitted.

The H´ statistic and the complementary J´ statistic indicate that increasing diversity through time at McCollum Rockshelter is closely correlated to class richness. Class richness is also correlated to sample size. This relationship is evident here as the Middle Archaic assemblage contains 27 implements, the Late Archaic assemblage contains 26 implements, and the Mississippian/Woodland collection contains 37 implements.

Table 10.4 Diversity Statistics for Selected Implement Classes by Cultural Period, 40MU390.

Cultural Period	Diversity Statistics[1]			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
Mississippian/ Woodland	12	2.4849	2.3745	.9556
Late Archaic	10	2.3026	2.1252	.9229
Middle Archaic	6	1.7918	1.7479	.9755

[1] Fragments not Included in Computations.

Middle Archaic Assemblage Activity Analysis, 40MU390.

The Middle Archaic assemblage is a fine-grained assemblage resulting from a limited variety of activities. The computed activities indices (Table 10.5) suggest hide working and limited butchering, wood working, bone working and plant food processing activities were conducted at the shelter (although they may not have been contemporaneous). These activity indices are in line with the high scraping and low piercing, cutting, perforating and hammering/pounding indices computed for the assemblage (Table 10.6). Core reduction and initial tool fabrication appear to have been limited activities at the shelter (Table 10.7).

Late Archaic Assemblage Activity Analysis, 40MU390.

The Late Archaic artifact assemblage is an intermediate-grained assemblage resulting from a variety of activities. The computed activities indices (Table 10.5) indicate hide working, butchering and limited bone and wood working were conducted at the shelter (although they may not have been contemporaneous). The computed lithic function indices (Table 10.6) indicate scraping, cutting and limited perforating and piercing were prominent tool functions. Domestic equipment is not well represented and may indicate the ephemeral nature of the activities at the shelter. The lithic debitage suggests

Table 10.5 Computed Activities Indices by Cultural Period, 40MU390.

Cultural Period	Lithic Activities Indices						
	HI	BI	WWI	HWI	BWI	PPI	PFW
Mississippian/ Late Woodland	.03	.02	.08	.25	.08	.03	99.34
Late Archaic	.02	.17	.07	.26	.05	0	99.48
Middle Archaic	.04	.04	.04	.13	.04	.04	98.86

Table 10.6 Computed Functional Lithic Indices by Cultural Period, 40MU390.

Cultural Period	Functional Lithic Indices							
	PI	CI	SI	PERI	DI	SSI	HPI	GSI
Mississippian/ Late Woodland	.05	.25	.04	.15	.00	.00	.00	.00
Late Archaic	.02	.12	.19	.07	.00	.00	.00	.00
Middle Archaic	.04	.04	.09	.04	.00	.00	.04	.00

Table 10.7 Computed Lithic Indices by Cultural Period, 40MU390.

Cultural Period	Lithic Indices						
	PL	FI	UI	BI	UTIL.	PP/K	GS
Mississippian/ Late Woodland	99.34	.48	.01	.05	.28	.05	.08
Late Archaic	99.48	.40	.21	.05	.12	.02	0
Middle Archaic	98.86	.31	.13	.04	.09	.04	0

late stage tool fabrication and maintenance activities. Core reduction activities appear to have occurred elsewhere (Table 10.7).

Late Woodland/Mississippian Assemblage Activity Analysis, 40MU390.

The combined Late Woodland/Mississippian artifact collection is an intermediate-grained collection resulting from a variety activities. The computed activities indices (Table 10.5) suggest hide working, bone working, wood working and limited plant food processing and butchering were activities conducted at the shelter. The computed lithic function indices (Table 10.6) indicate cutting, perforating, piercing, and limited scraping were prominent tool functions at the shelter. The collection may be characterized as being primarily directed toward the maintenance of lithic tools, hide working, wood working and the fabrication and maintenance of bone tools. Domestic equipment is limited and when considered with the ceramics suggests cooking and food processing activities or storage may have been important activities. Core reduction and initial tool fabrication does not appear to have been a primary activity (Table 10.7).

3. Goatcliff Rockshelter Assemblage Comparisons

Chi-Square Statistic

Table 10.8 is a contingency table of the three-way flake classification by temporal period. The chi-square statistic of 5.63 (df=2) indicates that the distribution is random.

Table 10.9 is a contingency table of nonflake debris by temporal period. The chi-square statistic of 2.37 (df=2) indicates that the distribution is random.

The chi-square statistic was not calculated for the implement classes because implements were not equally represented in each of the temporal periods.

Diversity Statistic

The diversity statistics for implement classes by temporal period are presented in Table 10.10. The diversity statistic H´ increases from the Middle Woodland through the Mississippian/Late Woodland temporal periods. Class richness also increases: Middle Woodland = 13 classes; Mississippian/Late Woodland = 22 classes. Class equitability decreases from the Middle Woodland through the Mississippian/Late Woodland temporal period. The large J´ statistic for the Middle Woodland temporal period indicates a high correspondence between H´ and class richness. The relatively low J´ statistic for the

Table 10.8 Chi-square Statistic for Flake Debris by Cultural Period, 40MU436.

Cultural Period		Flake Type			
		Early	Intermediate	Late	Total
Mississippian/ Late Woodland	o	87	847	81	1015
	e	91.09	825.37	98.55	
	X*2	.18	.57	3.13	
Middle Woodland	o	206	1808	236	2250
	e	201.91	1829.63	218.45	
	X*2	.08	.26	1.41	
Total		293	2655	317	3265
Chi Square = 5.63		df = 2			

Table 10.9 Chi-square Statistic for Nonflake Debris by Cultural Period, 40MU436.

Cultural Period		Nonflake Debris Classes			
		Blocky Debris	Tested Cobbles	Core	Total
Mississippian/ Late Woodland	o	362	8	9	379
	e	364.38	5.61	8.98	
	X*2	.02	1.02	.02	
Middle Woodland	o	287	2	7	296
	e	284.61	4.38	7.02	
	X*2	.02	1.29	0	
Total		649	10	16	675
Chi-Square = 2.37	df = 2				

Table 10.10 Diversity Statistics for Implement Classes by Cultural Period, 40MU436.

Cultural Period	Diversity Statistic			
	Number of Classes (s)	Maximum Diversity (H max.)	Diversity (H')	Evenness (J')
Mississippian/ Late Woodland	22	3.0910	2.5748	.8330
Middle Woodland	13	2.5649	2.3770	.9267

Mississippian/Late Woodland assemblage is the result of a high frequency of biface fragments. Table 10.11 is a calculation of the diversity statistic with implement fragments omitted. Again the H´ statistic indicates greater diversity from the Middle Woodland through Mississippian/Late Woodland temporal periods. The recalculated J´ statistic for the Mississippian/Late Woodland assemblage increases indicating the implement classes are relatively even when fragments are omitted.

The H´ statistic and the complementary J´ statistic indicate that increasing diversity through time at Goatcliff Rockshelter is closely correlated to sample size. This is evident here as the Middle Woodland assemblage contains 64 implements, and the Mississippian/Woodland collection contains 25 implements.

Middle Woodland Assemblage Activity Analysis, 40MU436.

The Middle Woodland assemblage is an intermediate-grained manifestation resulting from a variety activities. The computed activities indices (Table 10.12) suggest wood working, hide working, and limited butchering activities were conducted at the shelter. These activity indices are in line with the high scraping and cutting function indices (Table 10.13) computed for the collection. The presences of a limited amount of

Table 10.11 Diversity Statistics for Selected Implement Classes by Cultural Period, 40MU436.

Cultural Period	Diversity Statistic[1]			
	Number of Classes (s)	Maximum Diversity (H max.)	Diversity (H')	Evenness (J')
Mississippian/ Late Woodland	21	3.044	2.7179	.8927
Middle Woodland	11	2.5650	2.2015	.8583

[1] Fragments Not Included in Computations.

Table 10.12 Computed Activities Lithic Indices by Cultural Period, 40MU436.

Cultural Period	Activities Lithic Indices						
	HI	BI	WWI	HWI	BWI	PPI	PFW
Mississippian/ Late Woodland	.26	.29	.33	.37	.37	.33	97.35
Middle Woodland	.15	.29	.88	.59	.22	.22	96.82

Table 10.13 Computed Functional Lithic Indices by Cultural Period, 40MU436.

Cultural Period	Function Lithic Indices							
	PI	CI	SI	PERI	DI	SSI	HPI	GSI
Mississippian/ Late Woodland	.33	.26	.18	.48	.29	.0	.07	.22
Middle Woodland	.22	.29	.44	.07	.0	.07	.0	.07

Middle Woodland pottery at the shelter suggests cooking or perhaps storage activities. The debitage suggests tool fabrication and maintenance activities. Core reduction and bifacial blank production appears to have occurred elsewhere (Table 10.14).

Mississippian/Late Woodland Activity Analysis, 40MU436.

The Mississippian/Late Woodland artifact collection is an intermediate-grained assemblage resulting from a variety of activities. The activities indices (Table 10.12) suggest bone working, hide working, wood working, plant food processing and limited butchering activities were conducted at the shelter. This represents a broader range of activities than that of the Middle Woodland materials. The computed lithic function indices (Table 10.13) indicate perforating, piercing, drilling, cutting, grinding and sharpening, and scraping were prominent tool functions. Domestic equipment is well represented in the collection and when considered with the ceramics and plant food processing artifacts it suggests cooking, and perhaps bulk plant food processing activities may have been important activities at the shelter. Core reduction and initial tool fabrication does not appear to have been a primary activity (Table 10.14).

Table 10.14 Computed Lithic Indices by Cultural Period, 40MU436.

	Lithic Indices						
	PL	FI	UI	BI	UTIL	PP/K	GS
Mississippian/ Middle Woodland	97.35	1.29	.22	.88	.26	.33	.44
Middle Woodland	96.82	1.40	.74	.52	.07	.22	.37

Historic Activity Analysis, 40MU436.

The surface of the shelter yielded a fine-grained Historic artifact collection resulting from limited short term activities. The hearths suggest cooking or warming activities and the clay marble probably represents boredom reducing activities. The lead bullet is damaged and probably was shot into the shelter. Therefore, it is not necessarily associated with the other cultural artifact and features.

4. Height Rockshelter Assemblage Comparisons

Chi-Square Statistic

Table 10.15 is a contingency table of the three-way flake classification by cultural period. The chi-square statistic of 8.41 (df=2) is significant, indicating that the distribution is nonrandom. The greatest contribution to the chi-square statistic is made by the Late Archaic artifact assemblage. Early stage flakes and late stage flakes occur less frequently than expected. This suggests little emphasis on initial tool manufacture and greater emphasis on tool maintenance.

Table 10.16 is a contingency table of nonflake debris by temporal period. The chi-square statistic of 7.76 (df=2) is significant; however, low and zero cell values for cores and tested cobbles cause concern for

Table 10.15 Chi-square Statistic for Three-way Flake Classification by Cultural Period, 40MU437.

Cultural Period		Flake Type			
		Early	Intermediate	Late	Total
Middle Woodland	o	90	256	59	405
	e	94.85	260.46	49.68	
	X*2	.25	.07	1.75	
Late Archaic	o	36	90	7	133
	e	31.15	85.53	16.32	
	X*2	.75	.23	5.32	
Total		126	346	66	538
Chi-Square = 8.41		df = 2			

Table 10.16 Chi-square Statistic for Nonflake Debris by Cultural Period, 40MU437.

Cultural Period		Debris Classes			
		Blocky	Tested Cobbles	Cores	Total
Middle Woodland	o	97	0	4	101
	e	95.25	2.56	3.02	
	X*2	.03	2.56	2.02	
Late Archaic	o	52	4	1	57
	e	53.75	1.44	1.8	
	X*2	.06	4.55	.36	
Total		149	4	5	158
Chi-Square = 7.76		df = 2			

interpretation of this contingency table. Therefore, the nonflake debris contingency table is presented but no interpretations are drawn from it.

The chi-square statistic was not calculated for the implement classes because implements were not equally represented in each of the temporal periods.

Diversity Statistic

The diversity statistics for implement classes by temporal period are presented in Table 10.17. The diversity statistic H´ increases from the Late Archaic to Middle Woodland temporal periods. Class richness also increases: Late Archaic = 5 classes; Middle Woodland = 6 classes. Class equitability also increases from the Late Archaic through Middle Woodland period. The large J´ statistic for the Late Archaic and Middle Woodland assemblages indicates that the implements are evenly distributed across the classes present.

The H´ statistic and the complementary J´ statistic indicate that increasing diversity through time at Height Rockshelter is closely correlated to class richness. This relationship is evident as the Late Archaic assemblage contains 5 implements, and the Middle Woodland collection contains 6 implements.

Table 10.17 Diversity Statistics for Implement Classes by Cultural Period, 40MU437.

Cultural Period	Diversity Statistic			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
Middle Woodland	6	1.7917	1.7351	.9683
Late Archaic	5	1.6094	1.5607	.9697

Late Archaic Activities Analysis, 40MU437.

The Late Archaic assemblage is a fine-grained collection resulting from limited activities at the shelter. The computed activities indices (Table 10.18) suggest hunting and butchering activities. This is in line with the high cutting and piercing indices (Table 10.19) computed for the collection. The lithic debris suggests limited tool maintenance activities with little emphasis on core reduction or initial tool manufacturing activities (Table 10.20).

Middle Woodland Activity Analysis, 40MU437

The Middle Woodland assemblage is a fine-grained collection resulting from a limited variety of activities. The computed activities indices (Table 10.18) suggest hide working, butchering, wood working and limited bone working activities were conducted at the shelter. The activity indices are in line with the high scraping, cutting and perforating function indices computed for the assemblage (Table 10.19). The limited amount of ceramics suggests domestic activities such as cooking or storage. The debitage suggests limited tool maintenance activities. Core reduction and tool manufacture appears to have occurred elsewhere (Table 10.20).

Table 10.18 Computed Activities Lithic Indices by Cultural Period, 40MU437.

Cultural Period	Activities Lithic Indices						
	HI	BI	WWI	HWI	BWI	PPI	PFW
Middle Woodland	.00	.39	.39	.58	.19	.00	98.06
Late Archaic	.51	.51	.00	.00	.00	.00	95.41

Table 10.19 Computed Functional Lithic Indices by Cultural Period, 40MU437.

Cultural Period	Functional Lithic Indices							
	PI	CI	SI	PERI	DI	SSI	HPI	GSI
Middle Woodland	.00	.39	.58	.19	.00	.00	.00	.00
Late Archaic	.51	1.02	.00	.00	.00	.00	.00	.00

Table 10.20 Computed Lithic Indices by Cultural Period, 40MU437.

Cultural Period	Lithic Indices						
	PL	FI	UI	BI	UTIL	PP/K	GS
Middle Woodland	98.06	.58	.58	.00	.58	.00	.00
Late Archaic	95.41	.51	.00	.51	1.02	.51	.00

5. Hardison Rockshelter Assemblage Comparisons

Diversity Statistic

The diversity statistics for implement classes by temporal period are presented in Table 10.21. The diversity statistic H´ for the Terminal Archaic/Early Woodland assemblage is 1.6094 and the complementary J´ statistic is 1 indicating a maximally diverse assemblage.

Terminal Archaic/Early Woodland Activity Analysis, 40MU428.

The Terminal Archaic/Early Woodland assemblage is a fine-grained collection resulting from limited activities. The computed activities indices (Table 10.22) suggest hunting activities were conducted from the shelter. This is in line with the high piercing index (Table 10.23) computed for the assemblage. The ceramic assemblage suggests cooking or storage at the shelter. Core reduction activities appear to have occurred elsewhere (Table 10.24).

6. Baker Rockshelter Assemblage Comparisons

Chi-Square Statistic

Table 10.25 is a contingency table of the three-way flake classification by cultural period. The

Table 10.21 Diversity Statistics for Implement Classes by Cultural Period, 40MU428.

Cultural Period	Diversity Statistic			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
Terminal Archaic/ Early Woodland	5	1.6094	1.6094	1

Table 10.22 Computed Activities Lithic Indices by Cultural Period, 40MU428.

Cultural Period	Activities Lithic Indices						
	HI	BI	WWI	HWI	BWI	PPI	PFW
Terminal Archaic/ Woodland	.90	.00	.00	.00	.00	.00	95.50

Table 10.23 Computed Functional Lithic Indices by Cultural Period, 40MU428.

Cultural Period	Functional Lithic Indices							
	PI	CI	SI	PERI	DI	SSI	HPI	GSI
Terminal Archaic/ Woodland	.90	.00	.00	.00	.00	.00	.90	.00

Table 10.24 Computed Lithic Indices by Cultural Period, 40MU428.

Cultural Period	Lithic Indices						
	PL	FI	UI	BI	UTIL	PP/K	GS
Terminal Archaic/ Woodland	95.50	.90	.00	.90	.00	.90	.00

Table 10.25 Chi-square Statistic for Flaked Debris by Cultural Period, 40MU435.

Cultural Period		Flake Type			
		Early	Intermediate	Late	Total
Mississippian/ Late Woodland	o	13	2	44	59
	e	12.85	2.53	43.62	
	X*2	0	.11	0	
Early/Late Archaic	o	124	25	421	570
	e	124.5	22.67	421.38	
	X*2	0	.24	0	
Total		137	27	465	629
Chi-Square = 0.35		df = 2			

chi-square statistic of 0.35 (df=2) indicates that the distribution is random.

Table 10.26 is a contingency table of nonflake debris by temporal period. The chi-square statistic of 1.63 (df=2) indicates that the distribution is random.

The chi-square statistic was not calculated for the implement classes because implements were not equally represented in each of the temporal periods.

Diversity Statistic

The diversity statistics for implement classes by temporal period are presented in Table 10.27. The diversity statistic H´ decreases from the Early/Middle Archaic period to Mississippian/Late Woodland period. Class richness also decreases: Early/Middle Archaic = 4 classes; Mississippian/Late Woodland = 1 class. Class equitability also decreases from the Early/Middle Archaic period to Mississippian/Late Woodland period.

The H´ statistic and the complementary J´ statistic indicate that decreasing diversity through time at Baker Rockshelter is closely correlated to class richness. The Early/Middle Archaic assemblage contains 4 implements, and the Mississippian/Late Woodland assemblage contains 1 implement.

Table 10.26 Chi-square Statistic for Nonflake Debris by Cultural Period, 40MU435.

Cultural Period		Debris Type			
		Blocky Debris	Tested Cobble	Core	Total
Mississippian/ Late Woodland	o	40	0	1	41
	e	38.98	1.01	1.01	
	X*2	.03	1.01	0	
Early/Middle Archaic	o	307	9	8	324
	e	308	7.99	7.99	
	X*2	0	.11	0	
Total		347	9	9	365
Chi-square = 1.63		df = 2			

Table 10.27 Diversity Statistics for Implement Classes by Cultural Period, 40MU435.

Cultural Period	Diversity Statistic			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
Mississippian/ Late Woodland	1	0	0	0
Early/Middle Archaic	4	1.9460	1.1537	.5929

Early/Middle Archaic Assemblage Activity Analysis, 40MU435.

The Early/Middle Archaic assemblage is a fine-grained collection resulting from limited activities at the shelter. The computed activities indices (Table 10.28) indicate hunting was the primary activity conducted from the shelter. This is supported by the high piercing indice (Table 10.29) computed for the assemblage. The lithic debris suggests limited tool maintenance and core reduction activities were conducted at the shelter (Table 10.30).

Mississippian/Late Woodland Assemblage Activity Analysis, 40MU435.

The Mississippian/Late Woodland assemblage is an extremely fine-grained assemblage. The computed activities indices (Table 10.28) indicate hunting was the primary activity conducted at the shelter. The activity indice is in line with the high piercing function indice (Table 10.29) computed for the assemblage. Lithic manufacture/maintenance activities do not appear to have been a major activity at the shelter during this temporal period (Table 10.30).

Table 10.28 Computed Activities Lithic Indices by Cultural Period, 40MU435.

Cultural Period	Activities Lithic Indices						
	HI	BI	WWI	HWI	BWI	PPI	PFW
Mississippiagn/ Late Woodland	.99	.0	.0	.0	.0	.0	99
Early/Middle Archaic	.44	.11	.22	.11	.11	.11	99.22

Table 10.29 Computed Functional Lithic Indices by Cultural Period, 40MU435.

Cultural Period	Functional Lithic Indices							
	PI	CI	SI	PERI	DI	SSI	HPI	GSI
Mississippian/ Late Woodland	.99	.0	.0	.0	.0	.0	.0	.0
Early/Middle Archaic	.44	.11	.11	.0	.0	.11	.0	.0

Table 10.30 Computed Lithic Indices by Cultural Period, 40MU435.

Cultural Period	Lithic Indices						
	PL	FI	UI	BI	UTIL	PP/K	GS
Mississippian/ Late Woodland	99	.99	.0	.0	.0	.99	.0
Early/Middle Archaic	99.22	.78	.11	.44	.22	.44	.0

7. Pilkinton Rockshelter Assemblage Comparisons

Diversity Statistic

The diversity statistics for the implement classes by cultural period are presented in Table 10.31. The diversity statistic H´ for the Middle Woodland assemblage is 1.9061 and the complementary J´ statistic is .9167 indicating that the assemblage is diverse, and the implements are evenly distributed across the classes represented.

Middle Woodland Activity Analysis, 40MU422.

The Middle Woodland assemblage is an intermediate-grained assemblage resulting from a variety of activities. The computed activities indices (Table 10.32) suggest hide working, and bone working were important activities at the shelter. In addition, limited hunting, butchering and plant food processing activities are indicated. This is in line with the high cutting, scraping, and perforating indices (Table 10.33) computed for the assemblage. The ceramic assemblage suggests cooking or storage activities. Tool manufacture/maintenance activities appear to have been limited (Table 10.34).

Table 10.31 Diversity Statistics for Implement Classes by Cultural Period, 40MU422.

Cultural Period	Diversity Statistic			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
Middle Woodland	8	2.0794	1.9061	.9167
Indeterminate	1	.6931	0	0

Table 10.32 Computed Activities Lithic Indices by Cultural Period, 40MU422.

Cultural Period	Activities Lithic Indices						
	HI	BI	WWI	HWI	BWI	PPI	PFW
Middle Woodland	.96	.96	.0	3.85	2.88	.96	98.07
Indeterminate	.0	.0	.0	2.22	2.22	0	100

Table 10.33 Computed Functional Lithic Indices by Cultural Period, 40MU422.

Cultural Period	Functional Lithic Indices							
	PI	CI	SI	PERI	DI	SSI	HPI	GSI
Middle Woodland	0	1.92	1.92	1.92	.0	.0	.0	.0
Indeterminate	2.22	.0	.0	.0	.0	.0	.0	.0

Table 10.34 Computed Lithic Indices by Cultural Period, 40MU422.

Cultural Period	Lithic Indices						
	PL	FI	UI	BI	UTIL	PP/K	GS
Middle Woodland	98.07	1.92	.96	.96	4.81	.0	.0
Indeterminate	.0	.0	.0	.0	2.22	.0	.0

8. Intersite Comparisons

The following analysis consists of an intersite comparison of broad temporally contemporaneous artifact assemblages. The primary concern is to assess the extent of assemblage diversity or similarity between shelters during contemporaneous cultural periods. In addition, the activities represented in the assemblages are compared.

Intersite Analytical Methods

The comparison of each assemblage has two components. First, an assessment of the relative diversity of the implements represented within the assemblages was undertaken. The Shannon Index (Pielou 1975:7-17, Zar 1984:32-360) has been applied here. Plots of diversity and evenness are provided for each of the cultural periods discussed. The graphs illustrate the relative distance between assemblages along these dimensions. Second, the previously computed activities indices for each assemblage are compared. This comparison is facilitated by the use of sun ray plots. The sun ray plot is used to graph multivariate data so that different assemblages may be visually compared. The plot consists of six rays drawn from a central point, with each ray representing one activity indice. The form

of the polygons formed by this technique illustrates the nature and extent of variability among the assemblages.

Mississippian/Late Woodland Assemblage Comparisons.

Mississippian/Late Woodland assemblages were recovered from McCollum (40MU390), Goatcliff (40MU436), and Baker (40MU435) rockshelters. The diversity statistics for these assemblages are presented in Table 10.35 and are plotted along these dimensions in Figure 10.1. The diversity-index computed for McCollum Rockshelter (H´ = 2.5451) and Goatcliff Rockshelter (H´ = 2.5748) is quite large indicating the assemblages are relatively diverse and probably represent a variety of activities. The computed J´ statistic indicates that both assemblages are fairly evenly distributed across the classes present which indicates high diversity. The Mississippian/Late Woodland assemblage recovered from Baker Rockshelter reflects little diversity. Indeed, only one projectile point was recovered, consequently the computed H´ and J´ statistics have a value of zero. This indicates that there is little diversity represented in the assemblage and suggests that a single or very limited activity was conducted at the shelter during the Mississippian/Late Woodland period at this shelter.

An evaluation of the assemblage sun ray plots (Figure 10.2) for the three combined Mississippian/Late

Table 10.35 Diversity Statistics for Mississippian/Late Woodland Implement Classes by Rockshelter.

Rockshelter	Diversity Statistics			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
McCollum Rockshelter (40MU390)	14	2.6390	2.5451	.9644
Goatcliff Rockshelter (40MU436)	22	3.0910	2.5748	.8330
Baker Rockshelter (40MU435)	1	0	0	0

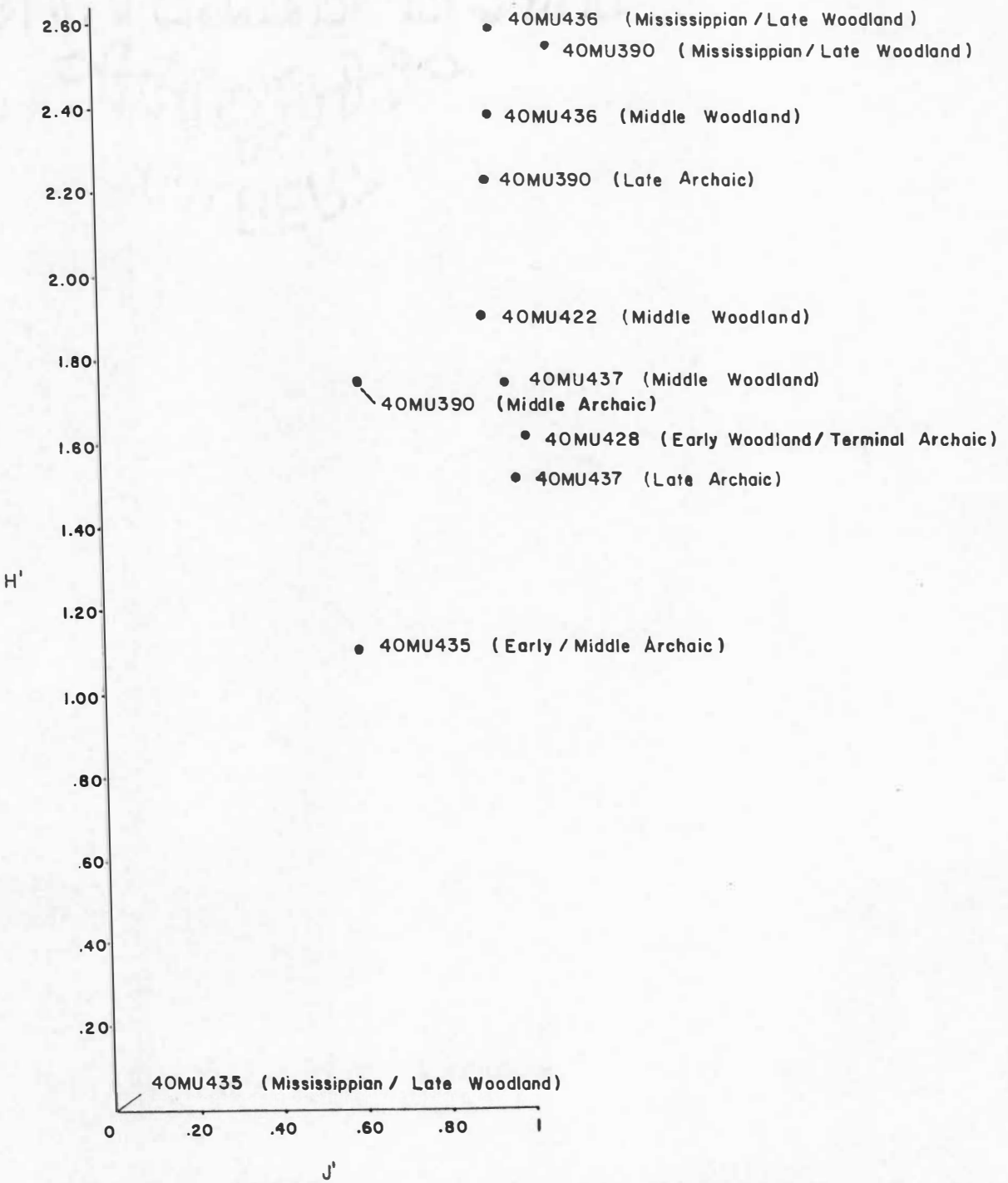


Figure 10.1 Plot of Evenness (J´) and Diversity (H´) for Assemblage Variability.

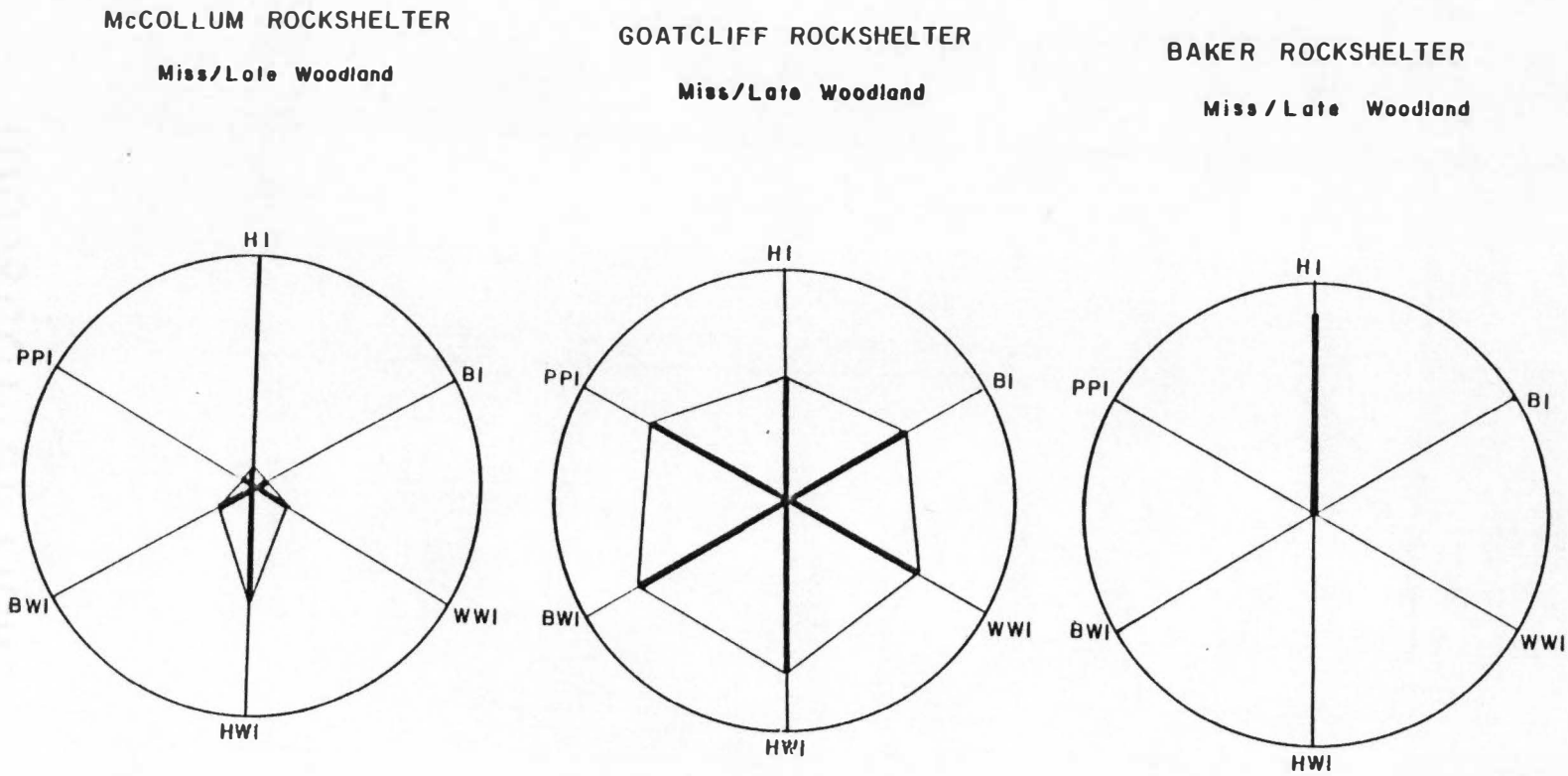


Figure 10.2 Mississippian/Late Woodland Assemblage Sun Ray Plots.

Woodland assemblages indicate that a variety of activities were conducted at both McCollum Rockshelter and Goatcliff Rockshelter. Baker Rockshelter appears to have functioned as a limited activity location during this period. The activities conducted at Goatcliff Rockshelter are the more diverse of the three assemblages considered here. The activities conducted at McCollum Rockshelter appear more limited than those represented at Goatcliff Rockshelter.

Middle Woodland Assemblage Comparisons.

Middle Woodland assemblages were recovered from Goatcliff (40MU436), Height (40MU437), and Pilkinton (40MU422) rockshelters. The diversity statistics for these assemblages is presented in Table 10.36 and are plotted along these dimensions in Figure 10.1, page 311. The computed H´ statistic for all three assemblages is relatively large: Goatcliff Rockshelter (H´ = 2.3770), Pilkinton Rockshelter (H´ = 2.0794), and Height Rockshelter (H´ = 1.7917) indicating that the assemblages are diverse. The computed J´ statistic (Table 10.36) indicates that all three assemblages are evenly distributed across their respective classes.

An evaluation of the assemblage sun ray plots (Figure 10.3) indicate that a variety of activities were

Table 10.36 Diversity Statistics for Middle Woodland Implement Classes by Rockshelter.

Rockshelter	Diversity Statistics			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
Goatcliff Rockshelter (40MU436)	13	2.5649	2.3770	.9267
Height Rockshelter (40MU437)	6	1.7917	1.7351	.9683
Pilkinton Rockshelter (40MU422)	8	2.0794	1.9061	.9167

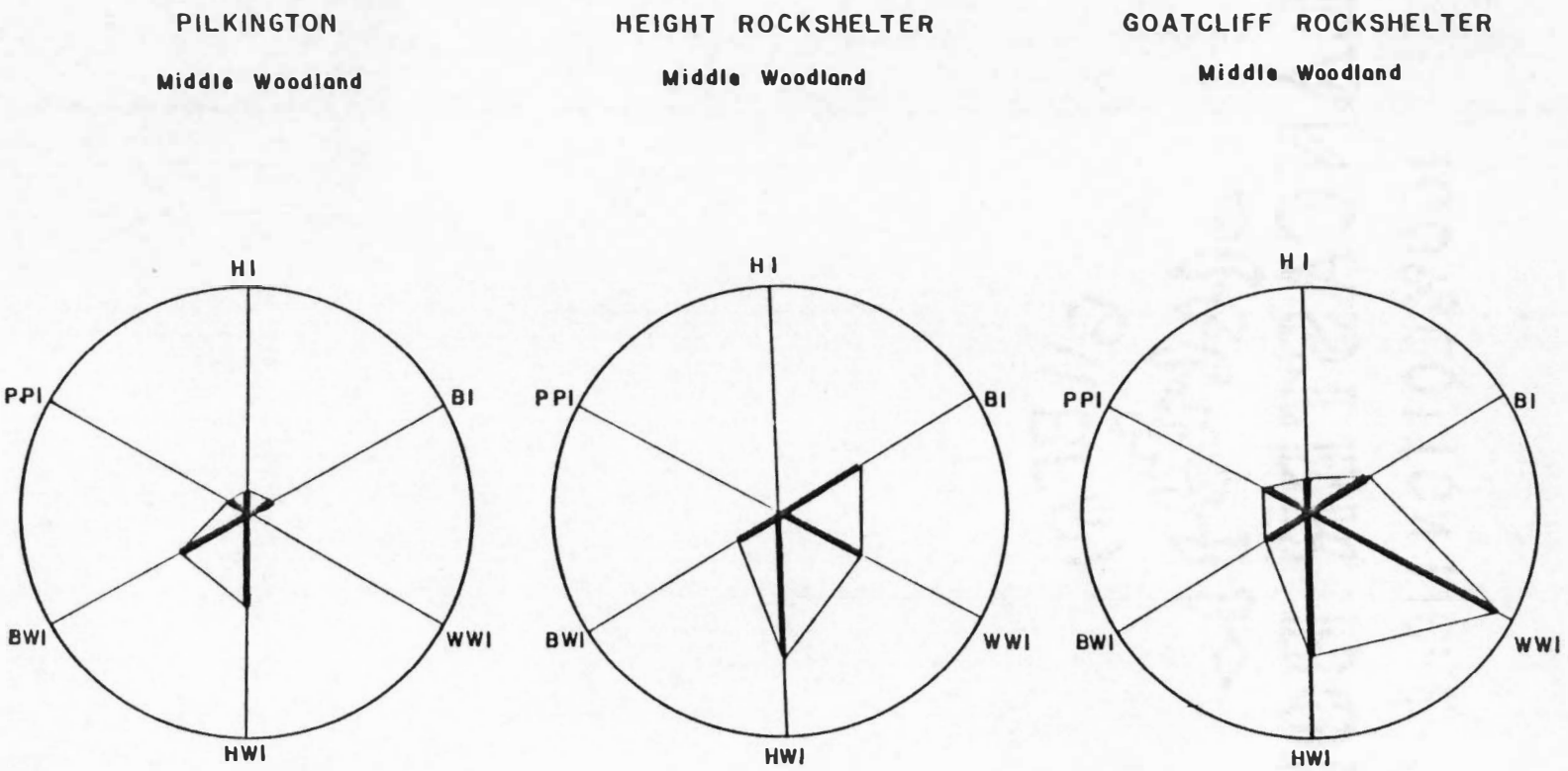


Figure 10.3 Middle Woodland Assemblage Sun Ray Plots.

conducted at all three rockshelters during the Middle Woodland period.

Early Woodland/Terminal Archaic Assemblage Comparisons.

An Early Woodland/Terminal Archaic assemblage was recovered from Hardison Rockshelter (40MU428). This is the only Early Woodland/Terminal Archaic material recovered from the Fountain Creek rockshelters. The diversity statistics computed for this assemblage are presented in Table 10.37 and are plotted along these dimensions in Figure 10.1, page 311. The diversity statistic computed for the assemblage from Hardison rockshelter (H´ = 1.6094) is small which indicates that the assemblage is not very diverse. The J´ statistic of one indicates that the assemblage is evenly distributed across the classes represented.

An evaluation of the assemblage sun ray plot (Figure 10.4) suggests that hunting activities may have been conducted from the shelter.

Late Archaic Assemblage Comparisons.

Late Archaic assemblages were recovered from McCollum (40MU390) and Height (40MU437) rockshelters. The diversity statistics for these assemblages are presented in Table 10.38 and are plotted along these dimensions in Figure 10.1, page 311. The diversity-index

Table 10.37 Diversity Statistics for Early Woodland/Terminal Archaic Implement Classes by Rockshelter.

Rockshelter	Diversity Statistics			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
Hardison Rockshelter (40MU428)	5	1.6094	1.6094	1

HARDISON ROCKSHELTER

Early Woodland / Late Archaic

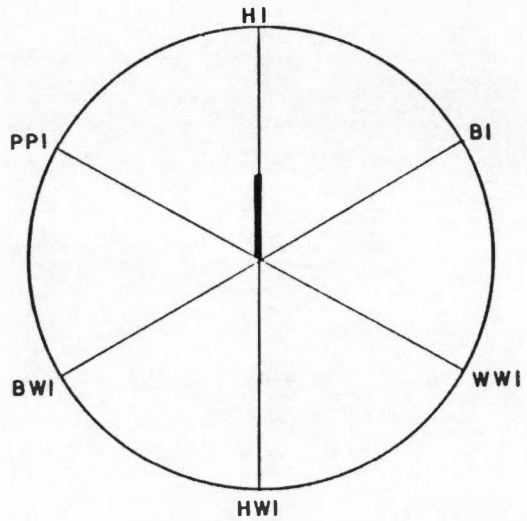


Figure 10.4 Early Woodland/Late Archaic Assemblage Sun Ray Plots.

Table 10.38 Diversity Statistics for Late Archaic Implement Classes by Rockshelter.

Rockshelter	Diversity Statistics			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
McCollum Rockshelter (40MU390)	12	2.4849	2.2789	.9171
Height Rockshelter (40MU437)	5	1.6094	1.5607	.9697

computed for the Late Archaic assemblage recovered from McCollum Rockshelter (H´ = 2.2789) is relatively large indicating that the assemblage is diverse and probably represents a variety of activities. The computed diversity statistic for the Late Archaic assemblage recovered from Height Rockshelter (H´ = 1.5607) is small indicating little diversity in the assemblage. The J´ statistic indicates that both assemblages are fairly evenly distributed across the classes represented.

An evaluation of the assemblage sun ray plots for the two Late Archaic assemblages (Figure 10.5) indicate that the activities conducted at McCollum Rockshelter are the more diverse.

Early/Middle Archaic-Middle Archaic Assemblage Comparisons

An apparently combined or transitional Early/Middle Archaic assemblage was recovered from Baker Rockshelter (40MU435) and a Middle Archaic assemblage was recovered from McCollum Rockshelter (40MU390). The diversity statistics for the assemblages are presented in Table 10.39 and are plotted along these dimensions in Figure 10.1, page 311. The computed diversity statistic for the Middle Archaic assemblage from McCollum Rockshelter (H" = 1.3176) and Baker Rockshelter (H´ = 1.1537) is relatively small indicating little diversity

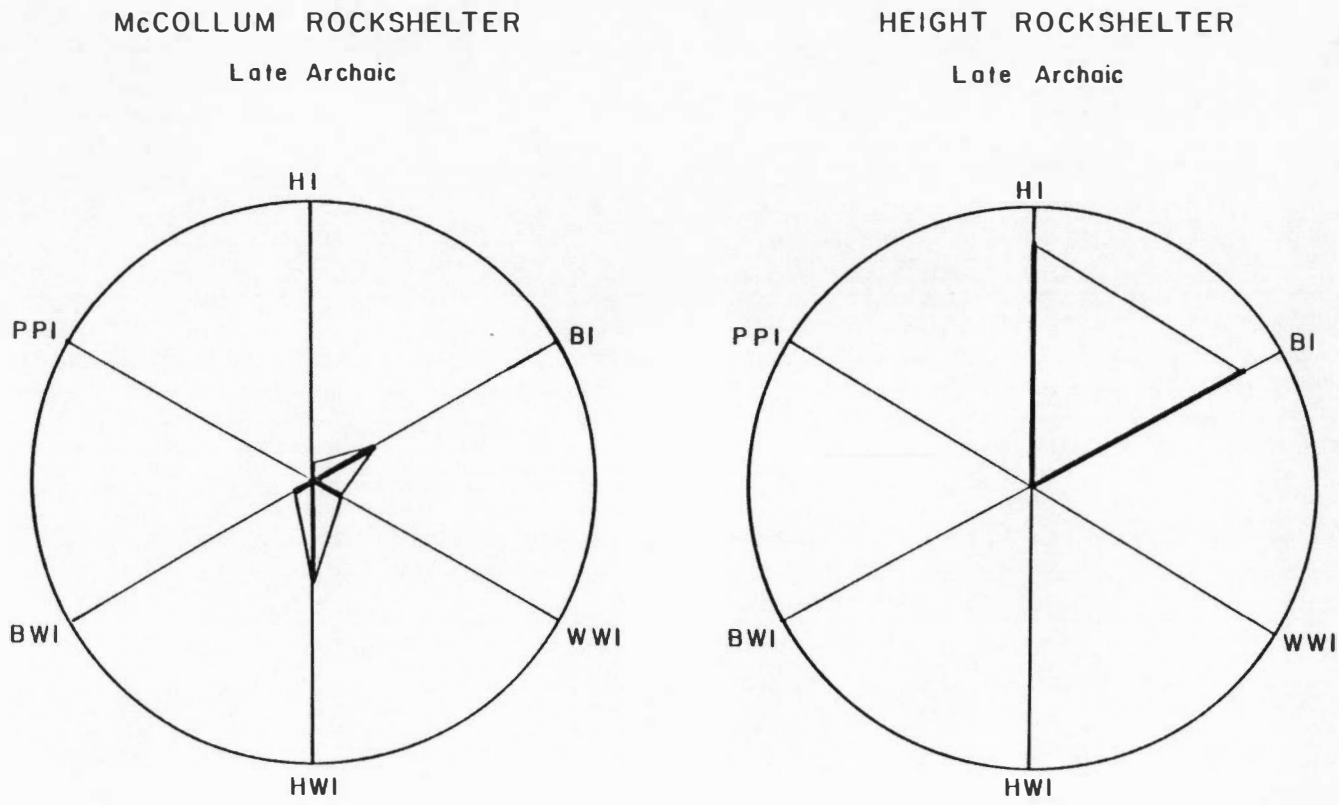


Figure 10.5 Late Archaic Assemblage Sun Ray Plots.

Table 10.39 Diversity Statistics for Early/Middle Archaic Implement Classes by Rockshelter.

Rockshelter	Diversity Statistics			
	Number of Classes (s)	Maximum Diversity (H max)	Diversity (H')	Evenness (J')
McCollum Rockshelter (40MU390)	9	2.1972	1.3176	.5996
Baker Rockshelter (40MU435)	4	1.9460	1.1537	.5929

in the assemblages. The computed J´ statistic indicates that the assemblages are unevenly distributed across the classes represented.

An evaluation of the assemblage sun ray plots (Figure 10.6) indicates that various activities were conducted at both shelters during this temporal period.

Summary

The forgoing discussion demonstrates that there is considerable variation, both in diversity and activities represented, between the Fountain Creek rockshelter assemblages. A general trend that becomes evident from the assemblage comparisons is that assemblage diversity and breadth of activities represented increases from the Early/Middle Archaic to Mississippian/Late Woodland period. Although there are exceptions to this general trend, such as the Mississippian/Late Woodland assemblage from Baker Rockshelter, it is suggested here that the observed trend of increasing assemblage diversity through time, when considered as a group, has culturally meaningful interpretive value. Binford (1978a) has pointed out that "we can expect greater ranges of intersite variability as a function of increases in the logistical components of the subsistence-settlement system".

BAKER ROCKSHELTER
Early & Middle Archaic

McCOLLUM ROCKSHELTER
Early & Middle Archaic

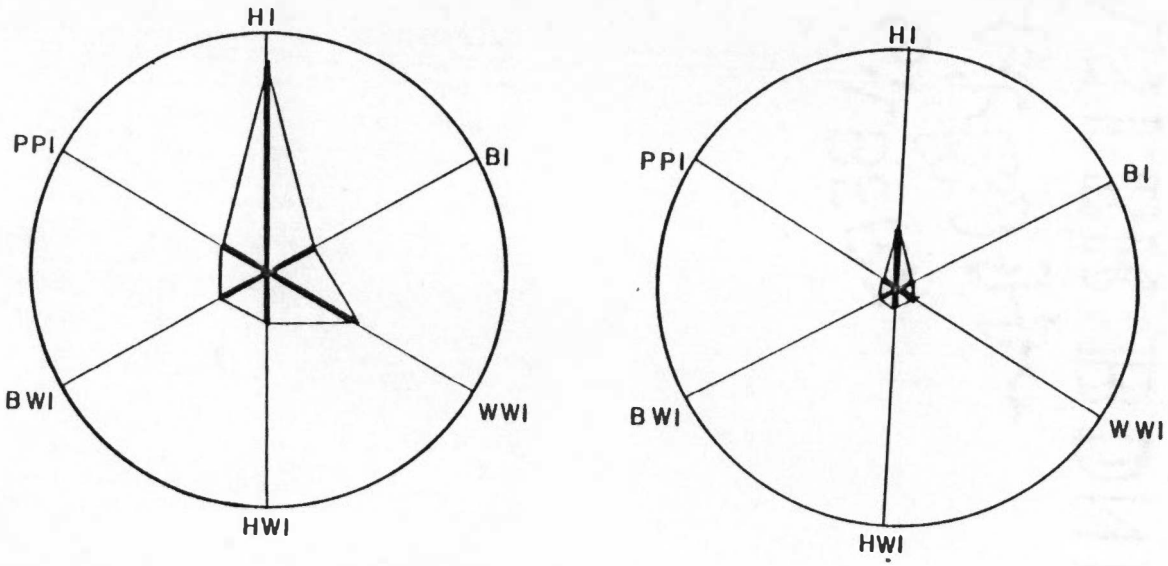


Figure 10.6 Early/Middle Archaic Assemblage Sun Ray Plots.

Problems surface, however, when one attempts to place each assemblage into a classificatory framework such as that offered by Binford (1978a, 1980) (see Chapter II). The first consideration pertains to sample size differences between rockshelters. This is illustrated by the fact that 18 units were excavated at Goatcliff Rockshelter and two units were excavated at Pilkinton Rockshelter. It is the position taken in this study that if the sample size were equal between shelters; the changes in assemblage composition would be primarily quantitative (number of items) and not qualitative (number of classes). Therefore, there would be a reduction in overall assemblage size and perhaps content, but the underlying relationships among assemblage variability diachronically, as well as synchronically, would remain essentially the same.

The second consideration, which underlies nearly all archaeological research, is the linkage problem "the necessity to determine the archaeologically visible correlates for behaviorally significant events" (Thomas 1981). Although Binford (1978a, 1978b, 1980, 1981a, 1981b) has had considerable success in ethnographically identifying locations, field camps, and base camps, this has rarely been accomplished archaeologically. Archaeologists have typically considered diverse high

density sites to be base camps (c.f. Stevensen 1985:65-79) and less diverse low density sites to be field camps or locations (c.f. Futato 1975:51). These "adhoc" assessments cause confusion within the discipline and are often misleading, if not incorrect.

It has been the focus of this study to describe and compare 11 prehistoric assemblages recovered from six rockshelters along Fountain Creek. This offered an initial departure from the typical single-site, single-analysis (typically descriptive), single- interpretation syndrome. A set of statistical tools were utilized to assess the distribution of specific artifact classes and to measure the diversity and equitability of the assemblages under consideration. It was determined that classification of the assemblages in the traditional manner (ie. high diversity high density equals base camp) was unsatisfactory. Instead a set of function-specific indices were calculated for each assemblage in an attempt to elicit and `link´, in a replicable manner, the archaeologically visible correlates of behaviorly significant activities conducted at the shelters. The analysis and comparative procedures indicated that there were significant differences in the content of temporally contemporaneous assemblages. These differences may have been conditioned by shelter size, location, duration and

intensity of use, group size and composition, seasonality of use, and in some instances the nature of the target resources. Second, it was found that there was a significant increase in assemblage variably and breadth of activities represented at the rockshelters through time. This trend may reflect a gradual change in subsistance-settlement organization from more residentially mobile foraging systems to a more logistically orientated hunter-gatherer organization in the study area.

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