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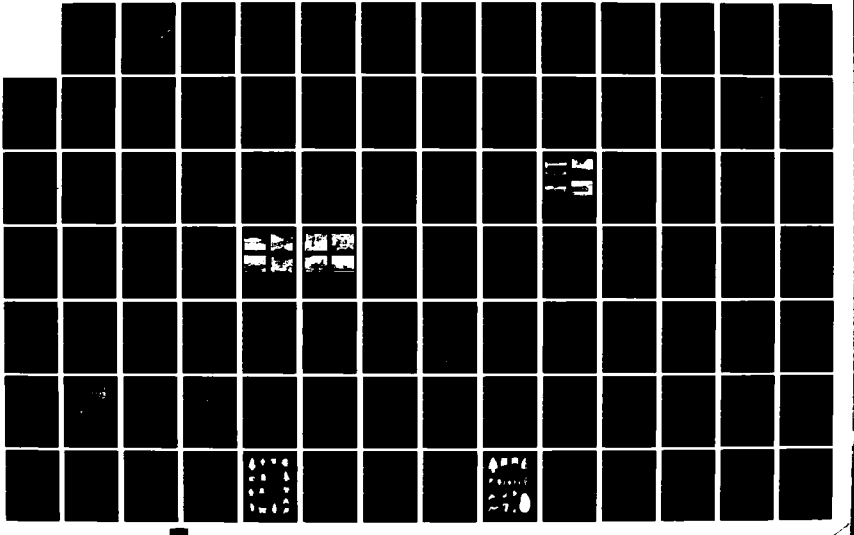

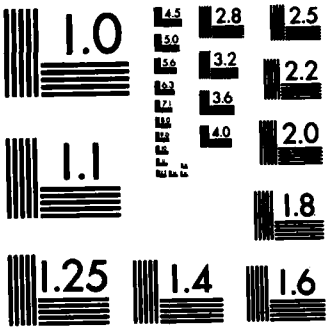

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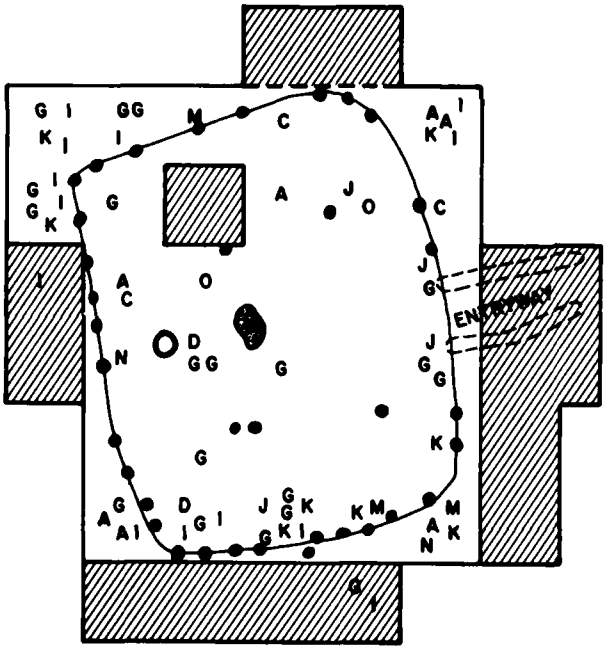
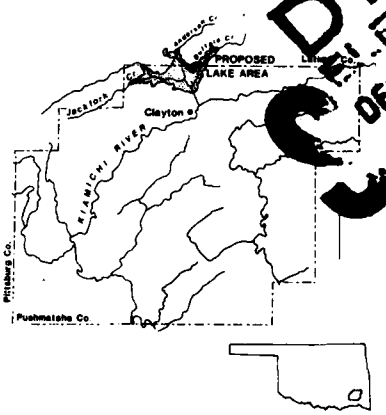
1982

PHASE II ARCHAEOLOGICAL INVESTIGATIONS AT CLAYTON LAKE, SOUTHEAST OKLAHOMA

Edited by

Rain Vehik





With contributions by:

Sheila J. Bobalik

Christopher Lintz

Prepared for the Tulsa District Corps of Engineers

Contract No. DACW56-78-C-0212

PHASE II ARCHAEOLOGICAL INVESTIGATIONS AT CLAYTON LAKE, SOUTHEAST OKLAHOMA

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Several people and institutions in Clayton, Oklahoma also made our stay enjoyable and assisted in various ways. The Corps of Engineers made available a house for our field headquarters and the help of Gary Cannon of the Clayton office is acknowledged. Mr. and Mrs. Mutt Standefer assisted us overall. The Clayton State Bank provided special arrangements allowing crew members to be paid as well as other banking amenities. Jean Goode of Tuskahoma, Oklahoma served ably as the cook and opened her house to us for meals. Cecil Baker of Wilburton, Oklahoma assisted with electrical problems which made our stay throughout the summer and fall more pleasant.

As with any archaeological field program its success depends mainly on the quality of the field crew, and with very few exceptions we had a good crew. Over the summer, we employed over 100 people and to these individuals our deepest thanks are extended. A special word of acknowledgement is extended to C.A. "Nub" Terry for a job well done.

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Foster, Jeff Homburg, Stan Gough, Marilee Irvine, J.J. Chou, Michael B. Mayo, Fern Swenson, Archie Hood, Nancy Scurlock, Peggy Flynn, and Margaret Newman. Thanks are extended to all these individuals. Peggy Flynn was also involved in typing, proofreading, and plate preparation. Kathy Caves and Debbie Farris typed the majority of the report.

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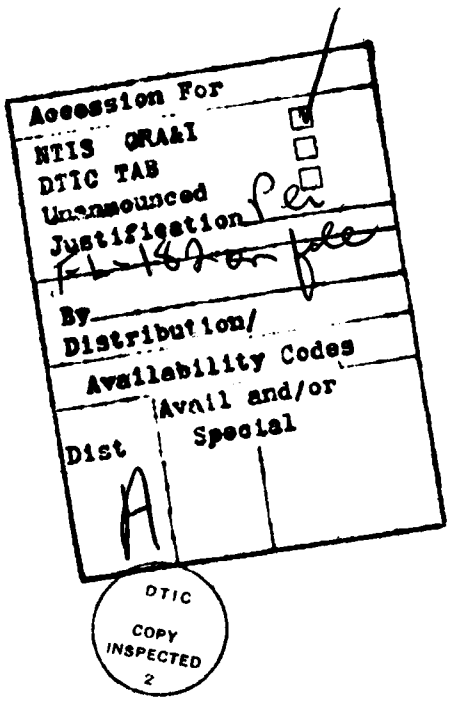

PHASE II ARCHAEOLOGICAL INVESTIGATIONS AT CLAYTON LAKE, SOUTHEAST OKLAHOMA

Edited by Rain Vehik

ABSTRACT

The results of excavations and analyses at five prehistoric sites in Pushmataha County, Oklahoma are described in this report. The fieldwork was conducted between July and October 1979 for the Tulsa District, U.S. Army Corps of Engineers under Contract Number DACW56-78-C-0212.

These sites (34Pu-74, 34Pu-100, 34Pu-102, 34Pu-105, and 34Pu-111) will be directly impacted by the completion of Clayton Lake in the Jackfork Creek Valley. A sixth site, 34Pu-116, was also excavated, but the results are presented in a separate report. Excavations at 34Pu-100 and 34Pu-102 were based on a random sample design which was formulated to provide intra- and intersite comparability and broad horizontal coverage at each site. The other three sites (34Pu-74, 34Pu-105, and 34Pu-111) were initially investigated in 1978. The Phase II excavations at these sites were designed to answer site-specific questions. The basic questions addressed by the research design involve the interpretation of chronological information, nature and significance of site occupations, and site functions.

Analyses of cultural remains suggest that site occupations range from Late Archaic through early Caddo and in some cases into the Historic period. This is corroborated by a series of radiometric determinations from several sites excavated during Phase I and each site investigated during Phase II. Radiocarbon dates from the Wheeler Lee (34Pu-102) and Bug Hill sites (34Pu-116) place the Late Archaic (Wister Phase) period between 1727 B.C. or 1605 B.C. to 298 B.C., with the project area being fairly intensively used during this period. The same situation seems to hold for Woodland components which are placed into the Fourche Maline phase. In the project area, these components range from A.D. 243 to A.D. 683. One site, 34Pu-111, has evidence of a tentatively defined structure, perhaps a lean-to or arbor-like building. Subsequent occupations are characterized by early Caddoan components, and a series of radiometric determinations from 34Pu-74 suggest a range of A.D. 1070-A.D. 1221 and from 34Pu-105 a range of A.D. 1013-A.D. 1126. Both sites have structure-like features, and at 34Pu-74 two subrectangular houses are defined. These sites may represent small Caddoan hamlets. A later component which may be associated with a late Caddoan or protohistoric occupation is also posited for 34Pu-74. Radiocarbon dates of A.D. 1405 or A.D. 1640 make it difficult to determine the actual placement of this component. A light scattering of historic material over the surface of most sites is believed to reflect 19th and 20th century Choctaw and Euro-American land practices.

Each cultural period is related to base camps and special purpose sites. The generalized nature of artifact assemblages indicate similar activities being conducted through time even though activity emphases varied from site to site. The overall similarity of artifacts through time reflects an additive process, and there is very little evidence to suggest major cultural or environmental change in this portion of the Ouachita Mountains.

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Rain Vehik

PURPOSE OF THE INVESTIGATIONS

The proposed Clayton Lake (named changed to Sardis Lake) will inundate portions of Pushmataha, Latimer, and Pittsburg counties in southeast Oklahoma. The present work constitutes the final phase of a two phase program designed to mitigate adverse impacts of known archaeological resources in the project area. Presently about 45 prehistoric sites are known, and Phase I and II investigations have concentrated on 11 of these resources. With the exception of two sites, the remaining nine sites were recommended for mitigation on the basis of an one month testing program (Bobalik 1977). Phase I investigations concentrated on eight sites (Vehik and Galm 1979). Excavation of three of these sites was continued during Phase II and three other sites were added. This report details the results of Phase II investigations conducted between July and November 1979. The analysis of one site, Bug Hill (34Pu-116), will be presented in detail in a separate report.

CONTRACT SPECIFICATIONS

The Phase II contract (DACW56-78-C-0212) agreed upon between the University of Oklahoma and the U.S. Army Corps of Engineers, Tulsa District required: 1) Excavation to the point of diminishing return at six sites, 2) laboratory analyses necessary to prepare a complete and accurate report, and 3) the proper curation of site materials and records. This work will be conducted by the Archaeological Research and Management Center (ARMC) at the University of Oklahoma.

The specific sites were 34Lt-32, 34Pu-72, 34Pu-100, 34Pu-102, 34Pu-105, and 34Pu-111. One site, 34Lt-32, could not be excavated because access to the property was denied by the landowner, and 34Pu-116 was substituted through a contract modification. Except for 34Pu-116, which will be presented in a separate report, the results of these investigations are presented in Chapters 4-8.

The basic research design was oriented toward interpreting and/or developing models regarding settlement-subsistence patterns in the project area and attempting to correlate these with adjacent areas. Essentially, this involved the development of a chronological framework of site occupations and determination of the nature, significance, and function of site occupations.

The final disposition of recovered materials and records will be in the State Depository at the Stovall Museum, University of Oklahoma. Selected records and the master copy of the final report will be maintained by the Archaeological Research and Management Center in Norman.

LIMITATIONS

Many of the limitations reported during Phase I investigations also apply to Phase II. These involved difficulties in developing an adequate mitigation program based on minimal archaeological testing, scheduling of Phase II investigations as a result of the contract not being approved until July, and the acquisition of properties on which sites to be mitigated were located. Site 34Lt-32 had not been acquired by the Corps of Engineers prior to the initiation of Phase I, and it was not totally acquired prior to Phase II work. This involved selecting another site several weeks after field work had started.

A minor constraint involves personnel changes among the Archaeological Research and Management Center and the Corps of Engineers staffs. The original principal investigator left the project shortly after beginning Phase II fieldwork. This resulted in transferring these duties to the project director. A more serious constraint involves the change of archaeologists in the Tulsa District Office. Since the inception of the mitigation program at Clayton Lake in 1978, three different archaeologists have overseen the scopes of work and field programs.

RESULTS

This report details the results of excavations at five sites which will be impacted by completion of Clayton Lake. One site, 34Pu-111, is in the primary construction area and probably will be used as borrow. The same situation may be true for 34Pu-74. Two sites have already been destroyed as a result of construction activities, and three sites are in scheduled borrow areas. This means that approximately 10% of the known cultural resources may be destroyed by construction activities.

The five sites reported here represent Late Archaic through Caddoan occupations. There is evidence for a later occupation (possibly Fort Coffee/McCurtain foci) at 34Pu-74 and for historic Choctaw use of 34Pu-102. At the remainder of the sites, historic materials were encountered in the upper deposits, but these are believed to reflect usage of the Jackfork Valley during the later part of the 19th and early part of the 20th centuries. These sites reflect approximately 3700 years of human occupation in the Jackfork Valley, and may be characterized as special purpose camps, base camps, and small hamlets. Evidence of relatively permanent structures were found at 34Pu-74, 34Pu-105, and 34Pu-111.

SIGNIFICANCE OF PHASE II INVESTIGATIONS

These investigations represent the final, major archaeological work to be conducted in the project area prior to the completion of the lake. Each site has been determined eligible for nomination to the National Register of Historic Places. However, upon completion of the lake these sites will be inundated. Approximately, 45 prehistoric sites will either be directly or indirectly affected by the lake, and there will be few opportunities to conduct additional work. It is also anticipated that drawdowns, mechanical wave action, and unwarrented digging may destroy a number of sites after the lake is completed.

All of the sites investigated have provided much needed information about human adaptation in the interior of the Ouachita Mountains. In addition, with future work in other portions of the Ouachita Mountains, it will be possible to better correlate these areas with well known archaeological regions such as the Red and Arkansas River basins.

RECOMMENDATIONS

The primary recommendation at this stage of the investigations is the protection and preservation of as many sites as possible. Protection of these sites may be approached in a manner similar to that utilized at Wister Lake. This involved the placement of metal signs along access roads indicating that it is illegal to collect and excavate archaeological sites. It would also be advantageous to patrol all of the sites periodically, and especially those along shore lines or exposed during drawdown periods. This would assist in protecting sites and provide information about site erosion.

Preservation of several sites is also recommended. Upon consultation with members of the National Inundation Study it was learned that the utility of many currently used preservation techniques is unknown. Therefore, it was suggested that most of the sites in the Clayton Lake area be seeded with grasses or other types of vegetation capable of underwater survival. It was also suggested that three sites (34Lt-23, 34Pu-105, and 34Pu-116) be preserved through different preservation techniques. These sites are in various areas of the reservoir and each will be affected by different types of activity. The preservation of these sites would be experimental, but they would be useful in learning which techniques are the best. These sites should be inspected periodically by the project manager who could maintain a log about the effectiveness of the preservation techniques.

Finally, based on the amount of public interest and involvement during these investigations, the development of exhibits related to the prehistory of the project area and a popular synthesis of the archaeological investigations would be informative to the public. Increasing public awareness about cultural resources could also increase the protection of these resources.

CHAPTER 1

BACKGROUND TO THE CLAYTON LAKE ARCHAEOLOGICAL PROJECT: PHASE II

Rain Vehik

INTRODUCTION

In July 1978, the United States Army Corps of Engineers contracted with the Archaeological Research and Management Center (ARMC) at the University of Oklahoma to conduct a two phase cultural resource mitigation program (No. DACW56-78-C-0212) at the proposed Clayton Lake in southeast Oklahoma. The archaeological project is designed to mitigate adverse impact on at least eleven of 45 prehistoric sites that will be inundated upon completion of the lake (Figure 1.1).

This report details the results of Phase II investigations on five of these prehistoric resources. Three sites, Blessingame (34Pu-74), Arrowhead Hill (34Pu-105), and Buffalo Bend (34Pu-111), were partially excavated during Phase I and a report was prepared on these results (Vehik and Galm 1979). Their inclusion in the Phase II program indicates their potential significance in understanding the prehistory of the project area. Two sites, Turtle Luck (34Pu-100) and Wheeler Lee (34Pu-102), represent additions to the mitigation program. An additional site, Bug Hill (34Pu-116), was also excavated during Phase II, but those results will be presented in a separate report because of the size of the site, amount and variety of recovered cultural remains, and its potential significance for eastern Oklahoma's prehistory (Vehik 1982).

Much of the background information regarding geology, environmental data, a resume of major historical developments, archaeological background, and methodological considerations have been discussed in detail previously, and the interested reader is referred to Vehik and Galm (1979). Therefore, the following sections represent brief summaries of various aspects related to the Clayton Lake Archaeological Project.

CLAYTON LAKE: PHYSICAL SETTING

Clayton Lake is being constructed in a broad, east-west valley in the foothills of the Jackfork Mountains. Approximately 15,320 ha (6200 a) of this area are improved pastures and meadows, 23,475 ha (9500 a) are open pasture, and 22,857 ha (9250 a) are woodlands. The lake will inundate 7179 ha (17,740 a) at the flood control pool level, 185 m (607 ft) m.s.l. in parts of northern Pushmataha, southern Latimer, and western Pittsburg counties (Figure 1.2). The elevation of the maximum pool is 190 m (624 ft)

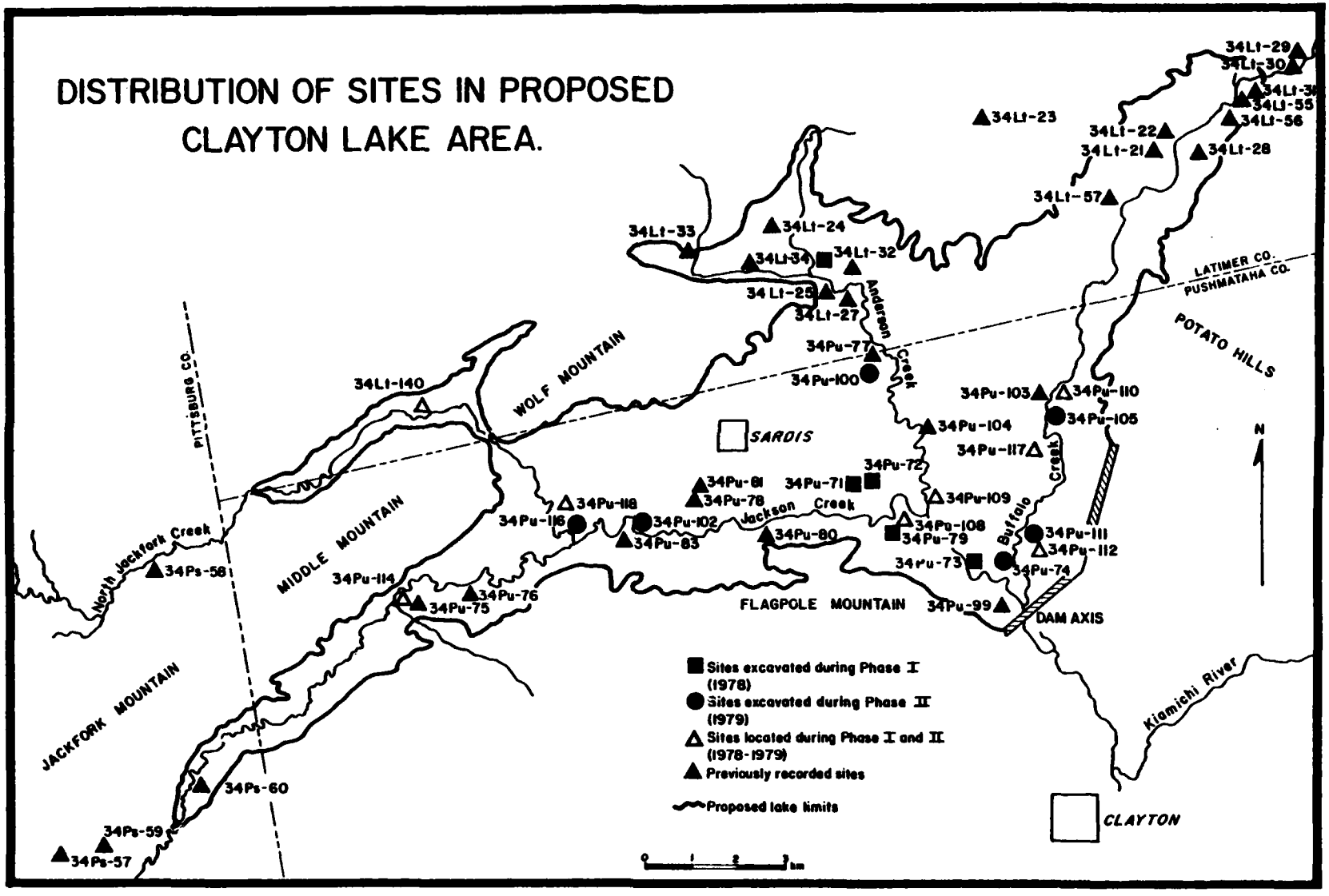


Figure 1.1. Distribution of sites in the proposed Clayton Lake project area: Phase II.

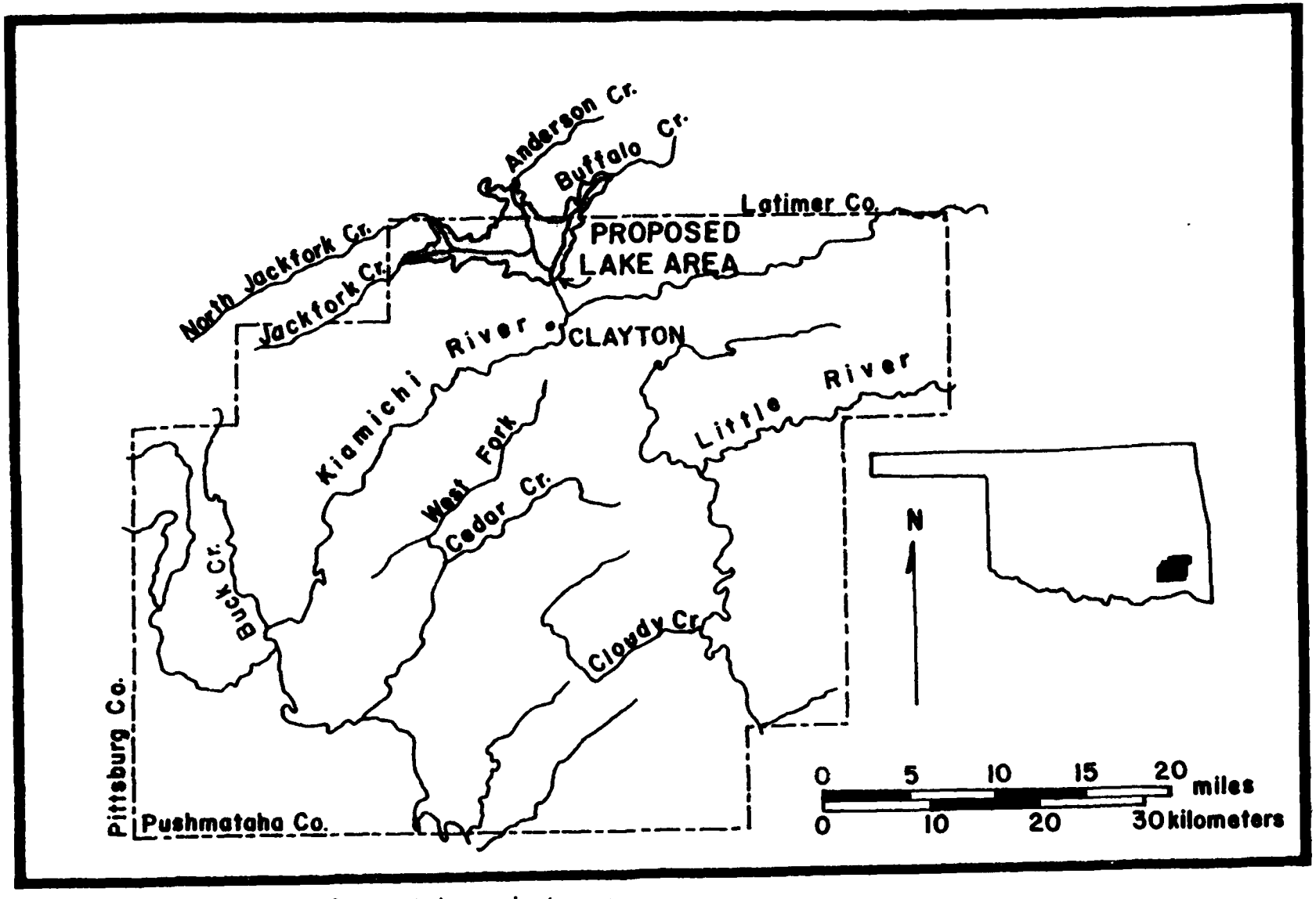


Figure 1.2. Location of Clayton Lake project area.

and will cover 9992 ha (24,690 a). The conservation pool elevation will be 187 m (599 ft) and will cover 5811 ha (14,360 a). At this level the lake will have an irregular shoreline of approximately 188 km (117 miles). The dam axis will be on Jackfork Creek approximately 5 km (2.8 miles) north of Clayton, Oklahoma (Corps of Engineers 1973). Jackfork Creek is the major drainage to be affected, but portions of Buffalo and Anderson creeks will also be inundated.

GEOLOGY OF THE PROJECT AREA

The Clayton Lake area is in the west central portion of the Ouachita Mountains. This area is characterized by rolling hills, mountains, and narrow valleys. The mountains are extremely folded and faulted, and their stratigraphy includes formations of Cambrian, Ordovician, Silurian, Devonian, Mississippian, and Pennsylvanian age (Oklahoma Water Resources Board 1969: 27). Sandstone and cherty shales make up the majority of these formations. Creeks such as the Jackfork, Buffalo, and Anderson flow through the mountainous terrain and exhibit trellis drainage patterns before entering the Kiamichi River. Valley bottoms include fine silts and clays and channel deposits include pebbles and cobbles, many of which are composed of chert or other usable lithic resources.

In a recent geological study of the project area, Nials (1979: 522-526) identified a terrace sequence which appears to be affected by erosional episodes. The 6-9 m terrace is of importance to this study since the majority of the prehistoric sites are located here. This terrace is believed to be Late Pleistocene in age, and the upper edge of the terrace escarpment is approximately 5-7 m above the present floodplain. Sites are most abundant near the terrace escarpment, especially near the confluence of the master stream and a tributary. It is argued that the location of these sites would remove them from dangers of flooding and allow maximum utilization of riparian resources available on both sides (Nials 1979: 525). A few sites also occur on the modern floodplain. They appear to be temporary occupations, and are quite commonly eroded (Nials 1979: 525).

SOILS

Soils in this region belong to the order Ultisols and the great group Hapludults (Gray and Roozitalab 1976: 28-30). The primary soil groups are developed from acid shales common to the Ouachita Mountains (Gray and Galloway 1969: 19). The most common map units in the project area are: 1) Dela-Guyton-Pushmataha: These deep soils occur on floodplains and stream terraces. They are nearly level to gently sloping and have a loamy surface layer and a loamy or sandy underlying layer. It is mostly used for woodland, pasture, and farming. 2) Tuskahoma-Sherwood-Clebit: These soils vary from shallow to deep and gently sloping to steep on valley slopes and ridges. They have a loamy surface layer and a loamy or clayey subsoil. This unit is mainly used for pasture and woodland. 3) Carnasaw-Pirum-Clebit: These

soils occur on uplands. They are deep, moderately deep and shallow, and strongly sloping to steep. They have a loamy surface layer and a clayey or loamy subsoil and are well-drained. It is mainly used for woodland and pasture. 4) Sobol-Tuskahoma-Wister: These soils are moderately deep, shallow and deep, and are nearly level to strongly sloping. They have a loamy surface layer and a clayey subsoil and are moderately well-drained soils. They occur in valleys of the Ouachita Mountains, and are mostly used for pasture (Bain and Watterson 1979).

CLIMATE

The study area has a continental climatic regime which is moderated by seasonal influences of warm, moist, southerly winds from the Gulf of Mexico. The climate ranges from semihumid to humid with an average relative humidity of about 50% in midafternoon and 82% at dawn (Bain and Watterson 1979: 1). Average annual precipitation is 115 cm, with 61% (71 cm) falling in April through June. Thunderstorms occur on about 50 days each year, usually during the summer (Bain and Watterson 1979: 1). Winters tend to be short and mild with an annual snowfall of about 10 cm between December and February. Temperatures during the winter average 7° C with an average daily minimum of -1° C. During the summer the average is 27° C with an average daily maximum of 34° C (Bain and Watterson 1979: 1). The growing season averages about 180 days with the first killing frost in November and the last in April.

FLORA AND FAUNAL

The general vegetative association of the Ouachita Mountains tends to be deciduous oak-hickory (Bruner 1931: 131-142). The pre-1900s vegetation can be divided into primary upland and lowland forests with oak, pine, and hickory being predominant. Figure 1.3 provides a reconstructed vegetation map based on field notes and plats of the 1895 and 1896 Federal Land Survey (cf. Bobalik 1977: 8-16). Even though modern vegetation has been altered by lumbering and land clearing, there are not many differences from the pre-1900s vegetation. Upland forests contain at least 30 species of trees of which oak *(Quercus* sp.*)*, hickory *(Carya* sp.*)*, pine *(Pinus* sp.*)*, and elm *(Ulmus* sp.*)* are the most abundant. Along the lower slope and stream valleys, 51 species of trees and shrubs and 76 species of herbaceous flora occur. The predominant trees are oak and hickory. Prairies contain at least 75 species of shrubs and grasses. A minimum of 146 plant and tree species recorded for the project area could have been of potential economic importance for prehistoric populations (Vehik 1979d: 16-23, Table 2).

Faunal resources in the project area are also diverse, and 49 mammal species have been recorded for the project area (Vehik 1979d: 24-27, Table 3). Several of these species are present in the faunal inventory from the Bug Hill site (34Pu-116) which is within the project boundaries. The preferred habitat for 59% of the species are woodlands (including forest borders and oak-hickory forests). At least 223 species of birds and 54 species of amphibians and reptiles have been recorded for the project area (Corps of Engineers 1973).

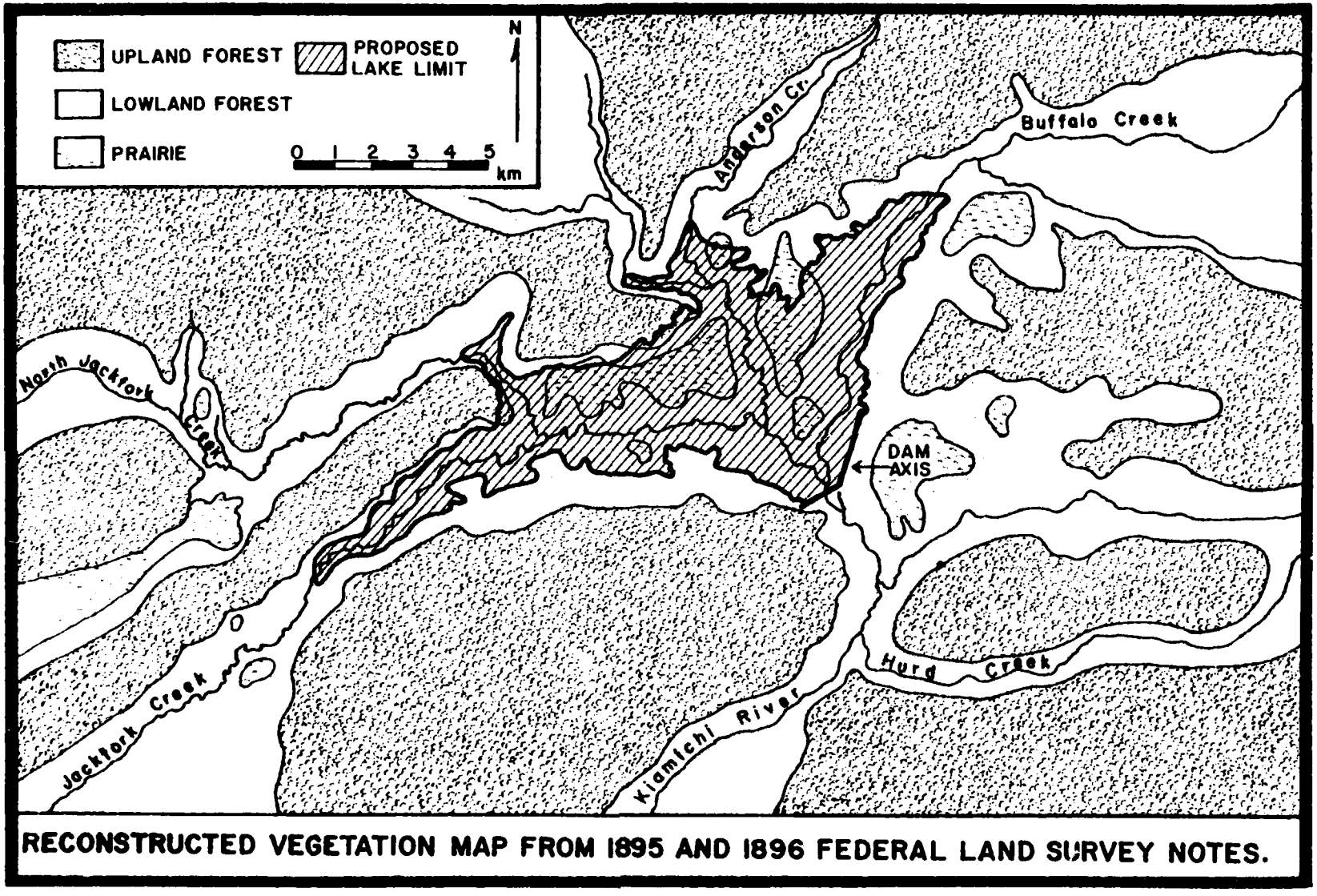


Figure 1.3. Vegetation map reconstructed from 1895 and 1896 Federal Land survey notex.

Aquatic vertebrates and invertebrates have been poorly studied for the project area. At least 87 species of fish have been recorded in the Kiamichi River, and 60 of these occur in tributaries of the river. Only four species of molluscs and one gastropod species have been reported in the project area (Corps of Engineers 1973).

PREVIOUS ARCHAEOLOGY

Intensive archaeology in the interior Ouachita Mountains in southeast Oklahoma and in the project area has been minimal. The first work was an archaeological survey which recorded 31 prehistoric sites (Neal 1972). In 1976, these sites plus ten newly recorded sites were tested and, subsequently, additional survey work was conducted (Bobalik 1977; Drass 1977: 595-657). The first major excavations consisted of the mitigation of 34Pu-99 (Bobalik 1978). Phase I investigations in the project area during 1979 constitute the greatest amount of site specific excavations.

The majority of the recent field work has been based on the testing and analysis of 38 sites in 1976 (Bobalik 1977). Five major cultural periods, Archaic, Woodland, early Caddoan, late Caddoan, and Historic were identified. It was also suggested that the Jackfork Valley was more intensively used during the Late Archaic, Woodland, and early Caddoan periods (Bobalik 1977: 555).

Archaeological work under Phase I has tended to support this generalized cultural scheme. However, new data were also recovered which assist in refining this scheme. Radiocarbon dates of A.D. 580 and A.D. 601, as well as cultural material from 34Pu-111 argue for a Woodland component which may be affiliated with the Fourche Maline phase. Earlier dates of A.D. 302 ±55 and A.D. 616 ±55 from 34Pu-105 also suggest a Woodland occupation, but cultural remains argue for a Late Archaic component. An Archaic component may also be present at 34Pu-74, but dates for this assemblage are uncertain. The early Caddoan period is well represented by the artifact assemblage and presence of two subrectangular houses from 34Pu-74. These structures have been dated between A.D. 970-1250. Data recovered during 1976 suggest that an upper component at 34Pu-105 is also early Caddoan. It has a radiocarbon date of A.D. 1100 (Bobalik 1977: 551-552). Other sites excavated during Phase I also suggest a similar typology, but materials from these sites were sparse and the lack of absolute dating hinders definite conclusions. Overall, it appears that the Jackfork Valley was relatively intensively occupied over a long period of time, but it is unknown whether these were resident populations. It also appears that new cultural materials were added to existing inventories rather than an abrupt change in material inventories. Several historic occupations are also noted for most sites, but these either represent late 19th century or early 20th century occupations. The reader is referred to Bobalik and Svec (1979) for a general archaeological background of the proposed Clayton Lake area. Of necessity, their discussion has relied on research along the northern and southern margins of the Ouachita Mountains.

HISTORIC BACKGROUND

One aspect of the project called for in the scope of work was a historical assessment of the project area. Lintz (1979a) has provided this in the Phase I report, and the interested reader is referred to this to obtain detailed information about the modern history of the project area.

In general, the historic developments in the project area may be divided into four periods: 1) Exploration Period (1719-1820): This period represents the earliest European intrusions into the project area. The earliest of these intrusions are unknown, but basic river trends were known by the 1690's (Wedel 1971; Sudbury 1975). It is significant to note that early expeditions by La Harpe in 1719, Long in 1817, and Nuttall in 1819 recorded very few permanent aboriginal inhabitants. Lintz (1979b: 53) suggests that the "Jackfork Valley was an open hunting territory used by various Caddoan groups, Osage, and perhaps Lipan Apache, and later joined by Cherokee, Delaware, and Choctaw groups prior to removal. Constant Osage warfare may have kept the area from being permanently occupied."

2) Early Choctaw Settlement Period (1820-1861): This period coincides with the Choctaw removal from Mississippi and is marked by their determination to remain a distinct nation. The major Choctaw removal occurred between 1831-1833 and resulted in the settlement of the Jackfork Valley by self-sufficient Choctaw families living on small farmsteads. It is also the period in which a military road connecting Ft. Towson and Ft. Smith was opened in 1832 and was used until at least 1840. In addition, a lumbering industry was established by 1840 and became a major economic activity which lasted nearly fifty years, and probably resulted in a population boom between 1838 and 1850.

3) Late Choctaw Settlement Period (1861-1907): This period follows the Civil War and coincides with the Reconstruction period which lasted until Oklahoma statehood. It is characterized by hardships imposed by the war, a decline in Choctaw self-determination, and increasing American control of the region. The lumbering industry continued during this period and an asphalt industry was introduced. Two population increases also occurred. One was by Cherokee and Creek refugees entering the area during the Civil War. The other increase followed the construction of a railroad for transporting wood products from portable sawmills and lumber camps. Neither improved economic conditions of the local Choctaw farmers.

4) Statehood Period (1907-Present): This period is characterized by a decline in the asphalt and lumbering industries. However, there was a substantial increase in settlers followed by a general migration of rural people toward larger towns.

In summary, this chapter has provided a general background to the Clayton Lake Project area. For more detailed, specific information, the interested reader is referred to Chapters 1-5 in Vehik and Galm (1979).

CHAPTER 2

SCOPE OF WORK AND RESEARCH DESIGNS EMPLOYED DURING PHASE II OF THE CLAYTON LAKE ARCHAEOLOGICAL PROJECT

Rain Vehik

INTRODUCTION

Since the 1979 investigations are part of a two phase mitigation program designed for the proposed Clayton Lake area, the scope of work and basic research designs do not vary greatly from those discussed previously (Vehik 1979e). The primary difference is that part of the scope of work was completed during Phase I investigations. Specifically, this includes the historical overview discussed by Lintz (1979b), and briefly summarized in Chapter 1 of this report. A preliminary geomorphological study of the project area was provided in the Phase I report (Nials 1979). Several ancillary studies such as detailed flotation and pollen analyses (Galm 1979b) and soils analysis (Galm 1979a) have indicated these approaches are, at best, of minimal value for the project area. Therefore, large scale analyses will not be conducted in general, but site specific studies will be presented in appropriate chapters.

SCOPE OF WORK

The contract between the University of Oklahoma and the U.S. Army Corps of Engineers, Tulsa District required that Phase II investigations be directed toward:

1. Excavation to the point of diminishing returns at six sites: 34Lt-32, 34Pu-74, 34Pu-100, 34Pu-102, 34Pu-105, and 34Pu-111. Upon initiation of the field program, it was learned that the Corps of Engineers still did not have complete access to 34Lt-32, and the landowner did not give permission to excavate on his land. This resulted in a contract modification, and the newly discovered Bug Hill site (34Pu-116) was substituted.

The scope of work required that the following criteria be utilized: (A) The contractor shall employ standard excavation techniques based on either stratigraphic layers or arbitrary levels, as may be deemed appropriate. (B) Data for the following analyses shall be collected: Chronometric, pollen, soils, and faunal. (C) The sites shall be mapped and the artifacts recovered in the most precise manner possible. (D) Artifacts recovered

during the investigations shall be washed, cataloged, and analyzed. (E) All sites shall be restored as closely as possible to the conditions prior to the initiation of excavations.

2. Laboratory analysis to consist of any and all current procedures, techniques, and/or disciplines thought feasible and necessary to prepare a complete and accurate written report.

3. A written report consisting of five draft copies to be completed 336 days after the contract modification (Number P0004) and 50 copies of the final report to be submitted within 45 days after receipt of the review comments. The report shall be written according to the following specifications: (A) An abstract detailing the most significant data resulting from the investigations. It shall be prepared in such a manner that it can be used verbatim for publication elsewhere as a synopsis of work performed and results achieved. (B) A brief summary description of previous archaeological research at the sites excavated, the research design employed in the study, and the excavation methods and techniques utilized. (C) The study results, including the specific analyses, interpretation and evaluation of the data, and the relationship of the findings to the research design. (D) Maps of each site showing the areas excavated. (E) Illustrative photographs and drawings.

4. Site materials and records shall be properly curated. The materials and records, in this case, will be placed in the State Depository at the Stovall Museum, University of Oklahoma.

RESEARCH DESIGNS AND PREVIOUS INVESTIGATIONS

The basic research design implemented during Phase II investigations is similar to that used during Phase I (Vehik 1979e: 67-70). Its major goal is to provide an understanding of settlement-subsistence in the Jackfork Creek Basin and to correlate this with adjacent areas. This perspective will provide an understanding of how people used their natural environment, how populations were dispersed, the methods of extracting energy from the natural environment, and why these patterns change.

The development of an adequate chronology is of primary interest. A generalized five part cultural sequence was developed for the project area, but this is based mostly on relative dating (Bobalik 1977: 555-574). Several radiometric determinations derived during Phase I investigations have alleviated this problem to some degree. However, the additive nature of chipped stone materials (especially projectile points) and generalized forms of ground stone tools demand that a controlled chronological sequence be developed. Therefore, the collection of samples for absolute dating from the excavations will be of utmost concern. These include the collection of radiocarbon and archaeomagnetic samples whenever possible. Relative dating techniques will be employed at sites and components from which samples for absolute dating cannot be obtained.

Another aspect of the research design is to determine the nature, significance, and function of site occupations. All of the sites are multicomponent and situated on different tributaries. This is significant because it allows for an analysis of diachronic change within the proposed Clayton Lake area. It also provides an opportunity to examine synchronic change within the Ouachita Mountains and areas such as the Arkansas and Red River basins at various periods of time.

The nature or type of site occupations is also significant. Postulated activities include hunting, lithic reduction, vegetal procurement and processing, and storage (Bobalik 1977, 1978; Vehik and Galm 1979). It will be important in terms of settlement-subsistence patterns to determine whether these sites represent special purpose (extractive) camps, base camps, or higher order sites such as hamlets or villages.

Special purpose (extractive) sites or occupations are considered to be the result of short-term activity, usually consisting of a single dominant task (Gibson 1974: 72). Secondary activities could occur, but in a much more restricted sense. Brown, Bell, and Wyckoff (1978: 177-178) suggest that extractive sites ..."lack evidence of permanent, roofed structures, and exhibit evidence of seasonal or transient use characterized by a limited set of artifacts".

Base camps are represented either as long or short term occupations used on a seasonal or multiseasonal basis. They serve as a base of operations from which other activities may be initiated. Material culture remains should have greater densities and reflect more generalized activities. Evidence of lithic reduction at base camps, especially those close to lithic resources, should be well represented and there should be more evidence of maintenance. It is also thought that stationary facilities such as hearths and structures with attendant features will be present. Also burials could be expected at base camps as well as refuse reflecting daily activities of the site's inhabitants.

Hamlets or villages are residential sites of variable size, usually larger than base camps. Their overall characteristics are similar to base camps, but they should be more permanent and there should be evidence of continual, year-long occupation (Gibson 1974: 72).

The excavation program and laboratory analyses will be established in such a way as to provide maximum information regarding site function, activities, and site type. The excavation program is designed to provide broad, areal coverage of each site not previously excavated. The recovery of features (especially rock concentrations, pits, and evidence of structures) and determination of activity areas will be an important concern of the excavation program. Investigations at previously excavated sites (34Pu-74, 34Pu-105, and 34Pu-111) will be oriented toward specific goals which are discussed in their respective chapters.

A functional analysis of the artifact assemblages will also be important in determining types of activities and in understanding the nature and kind of

site occupations. A qualitative functional approach will be followed (cf. Fowler 1959; House 1975: 55-73; McMillan 1971; and Winters 1969), but wear and breakage patterns will also be used in some cases.

Site specific research designs and summaries of previous investigations are provided below for each of the five sites discussed in this report. A number of individuals are responsible for each site's research design. In most instances, these individuals were also responsible for excavating the sites and writing the final report. Christopher Lintz developed the research designs for 34Pu-74 and 34Pu-102, Mike Mayo and Rain Vehik developed research designs for 34Pu-100 and 34Pu-111, and Sheila J. Bobalik developed the research design for 34Pu-105. Stan Gough was in charge of the excavations at 34Pu-111. As in the case of most research designs, field exigencies resulted in the revision of some of the research designs. The final and more detailed research designs are provided in the respective chapters for each site.

34Pu-74 (Blessingame Site)

The Blessingame site (Figure 2.1a) was found during the initial survey (Neal 1972) and was post hole tested in 1976 (Bobalik 1977). Two major artifact concentrations in the north and south areas of the terrace were discerned and major testing was conducted in these areas during Phase I excavations (Lintz 1979e). One hundred-twenty two 1 m x 1 m and eight 1 m x .50 m squares were opened to expose a series of features. However, only 29 squares were excavated to culturally sterile soil.

In the north terrace area, Phase I investigations exposed three horizontal rock concentrations, two rock hearths, and one pit feature. All but one rock concentration were located in a low mound. Within the mound, the depth of cultural deposits is 65 cm but only 24 cm adjacent to the mound.

The south terrace area contained three horizontal rock concentrations and two structures. One structure was completely excavated. The depth of cultural materials in this area ranged from 70-100 cm.

On the basis of materials recovered during Phase I excavations, the following components are postulated:

1. A lower assemblage associated with an Archaic component. This assemblage is not well defined and the range of activities and site function could not be delineated from the limited amounts of materials recovered.

2. An upper assemblage associated with an Archaic component. Most of the horizontal rock concentrations are attributed to this assemblage, but their function remains uncertain. A base camp was posited where lithic procurement and reduction and floral and faunal processing occurred.

3. There is no clear evidence of a Woodland component at the site.

4. An early Caddoan component is represented by two structures and a pit feature. A small hamlet was postulated for the south terrace area, but specialized processing activities are believed to have occurred in the north area. The size and patterning of the hamlet were not discerned.

5. An ephemeral late Caddoan/Protohistoric component is postulated for the north terrace area where two rock hearths were encountered in the upper portion of the mound. A short term processing camp is postulated.

6. Historic materials recovered from the site relate to documented cattle raising and land clearing activities.

Phase I investigations have provided general information about two major areas of the site. However, the results raise a number of specific questions about site activities, community patterning, and chronology which require additional work in broader areas of the site. The following objectives will be emphasized:

General:

1. Refine the proposed components.

2. Refine chronology.

3. Refine activity sets for the various components.

North Terrace:

1. Investigate the lower deposits of the mound in order to obtain a larger sample of early materials and locate additional features.

2. Extend trenches across the mound (N-S and E-W) to reveal stratigraphic/depositional sequences.

3. Test areas southwest of Block A to determine the extent of rock features and define limits of the artifact concentration in the north terrace area.

South Terrace:

1. Determine how many structures are present at the site.

2. Determine the relationship between structures and other features.

3. Determine the size, shape, temporal affiliation, and content of the structures.

4. Test areas west of both structures to determine the nature and extent of artifact concentrations defined in the south terrace area.

5. Increase the sample of material from the lower strata and locate features in order to refine the lower Archaic components.

A

B

C

D

Figure 2.1. General site photographs. A: The Blessingame site (34Pu-74); B: The Turtle Luck site (34Pu-100); C: The Wheeler Lee site (34Pu-102); D: The Arrowhead Hill site (34Pu-105).

34Pu-100 (Turtle Luck Site)

This small open site (Figure 2.1b) was located by Neal (1972). Test excavations in 1976 consisted of 11 post holes tests and five 1 m x 1 m squares. Based on this, the site covers an area of 55 m x 70 m (Bobalik 1977: 436-466).

Cultural materials appear to be concentrated in the northeast portion of the site, along an intermittent tributary of Anderson Creek, and is confined to the upper 35-40 cm of the deposits.

Local lithic resources, derived from nearby stream gravels, are predominant. Procurement and initial modification are represented by split and/or residually flaked pebbles or cobbles in Levels 2-3. Primary modification is represented by thick bifaces and thin biface I's in Levels 1-5. Secondary modification is reflected by three thin bifaces in Level 1. There appears to be more emphasis on finished implements which include stemmed thin bifaces and biface fragments.

A Woodland or early Caddoan occupation is suggested (Bobalik 1977: 458). An earlier component may also be represented, but data regarding this are scarce since expanding stemmed corner-notched and contracting stemmed points are found in the same levels as *Williams* and *LeFlore Plain* pottery.

The suggested range of activities include lithic processing, hunting, and floral resource processing and storage. It is unknown whether these occupations represent a base camp or a specialized activity site.

The Phase II investigations at 34Pu-100 will be very similar to those employed during Phase I at other sites in the Clayton Lake area. These investigations will address the following:

1. Identification and absolute dating of components and features.

2. Types and importance of activities (including seasonality) which were conducted.

3. Site function and how this fits into intra- and inter-valley settlement-subsistence patterns.

4. Horizontal and vertical extent of the site.

34Pu-102 (Wheeler Lee Site)

The Wheeler Lee site (Figure 2.1c) was found during the resurvey of the proposed lake (Drass 1977: 613). Information concerning the site is based on a limited amount of materials from the surface and 21 post hole tests.

The site is one of the westernmost localities to be excavated in the Clayton Lake area. Previous post hole tests revealed a single 20 m x 50 m area of concentrated cultural materials corresponding to a low natural mound at the site. Cultural materials are mainly confined to the upper 50 cm, although they may extend to a maximum of 95 cm in limited areas. The testing also revealed that one or more rock features may be present (Drass 1977: 613). Pottery, chipped stone, and ground stone materials were recovered. Based on this limited sample, it is postulated that: 1) Possibly two components (Late Archaic and Woodland/early Caddoan) are present. 2) Lithic debitage and implements represent later stages of production, and that mostly finished tools were brought to the site. 3) The site is believed to be a more permanent camp since it contained pottery and ground stone implements.

Given the small sample of material and the post hole excavations, the previous conclusions must be considered tentative and verified through controlled excavations. The following objectives will be examined during Phase II investigations at the site:

1. Define chronology of site occupation.

2. Define nature and significance of site occupation.

3. Define site function.

4. Define subsistence and settlement patterns.

5. Define the range of activities and possible changes in activity sets.

34Pu-105 (Arrowhead Hill Site)

Preliminary investigations were conducted in 1976 and 1978. The 1976 excavations (three 1 m x 1 m squares and 20 post hole tests) indicated a multicomponent site with cultural materials concentrated along the western portion of the site. The 1978 investigations (seventeen 1 m x 1 m squares) focused on the western portion of the site and were primarily concentrated on a natural mound like area at the northern end of the site. Only two squares were excavated on a natural mound like area at the southern end of the site. Based on these investigations, three areas of concentration were observed: the northern and southern mound like areas and the intervening nonmound area (Figure 2.1d).

Five cultural features have been recorded. These include two rock clusters from the northern area, one pit and one pit or post hole from the intervening area, and one pit from the southern area.

Three radiocarbon determinations are available. A date of A.D. 1100 ±75 (UGa-1519) was obtained from charcoal collected at a depth of 20-30 cm in the pit from the southern area. Two dates are from charcoal collected from two north mound squares in close proximity to two rock features. A date of

A.D. 302 ±55 (UGa-2544) was determined for the interface between Strata II and III. The third assay of A.D. 616 ±55 (UGa-2545) dates Stratum III. This date is from an excavation unit located at the apex of the north mound and is approximately 15 cm higher than the unit on the mound periphery which yielded the earlier date (UGa-2544).

Based on radiometric determinations and the recovered artifact inventory, at least two prehistoric components are indicated. An early Caddoan occupation is hypothesized during which the site was used as a base camp. An Archaic/Woodland component is also suggested by a limited artifact inventory and dates of A.D. 302 and A.D. 616. During this period, the site is believed to have functioned as a special purpose extraction camp which may have been seasonally occupied. Hunting, lithic reduction/maintenance, and resource processing are suggested activities for both components.

The Phase II investigation is designed to address several questions raised by the previous investigations. These include:

1. Are there additional components beside the hypothesized early Caddoan and Archaic/Woodland occupations? Can the Archaic/Woodland component be further refined chronologically? Can the hypothesized components be verified?

2. Are certain cultural periods missing from the archaeological record? Is this due to erosional processes or changes in subsistence-settlement patterns?

3. Are the different components horizontally segregated?

4. What is the relationship between the two mound like areas? What is the relationship between these mound like areas and the intervening nonmound area?

5. Did the site function as a base camp during early Caddoan occupation of the Jackfork Creek Valley? Did the site represent a seasonally occupied special purpose camp during earlier occupations?

6. Hunting, lithic reduction/maintenance, and resource processing are hypothesized activities throughout the occupational history of the site. Did the techniques employed in these activities change through time?

7. Are certain types of features restricted to specific chronological periods? Do these features reflect specific activity areas? Are there structures represented?

34Pu-111 (Buffalo Bend Site)

This site was located in the summer of 1978 and tested in December of the same year (Vehik 1979a; Flynn, Earman, and Vehik 1979). The low terrace along Buffalo Creek had been stripped by heavy machinery, revealing a site covering an area roughly 110 m x 98 m (Figure 3.1a-b). Testing was recommended because the materials suggested an occupation related to the Fourche Maline phase (Galm and Flynn 1978: 179), and the potential of finding a structure or fire related feature. An additional consideration was the close proximity of several rock features at 34Pu-112 and the structures at 34Pu-74.

During the testing program a 1 m grid system was established on the site. Seven 1 m squares were excavated revealing cultural deposits roughly 50 cm deep. Four of these squares were contiguous in the northeast part of the site. Another test square was excavated to the west and two test squares were in the southeast portion of the site. One feature, a burned clay and charcoal concentration, was located within the four contiguous squares.

Materials recovered during the testing confirmed expectations derived from surface finds. The artifact assemblage is similar to that expected for the Fourche Maline phase in the Lake Wister area to the northeast (Galm 1978a; 1978b; Galm and Flynn 1978). The artifacts suggest a base camp at which gathering and processing activities were conducted (Flynn, Earman, and Vehik 1979). Relationships to the Fourche Maline phase (*ca.* 200 B.C.-A.D. 800) are further indicated by two radiocarbon dates from a burned clay and charcoal concentration in the northeast part of the site. These dates, A.D. 580 ±80 (UGa-2684) and A.D. 601 ±75 (UGa-2685) fall well within the time period represented by the Fourche Maline phase. The small artifact assemblage and limited area excavated at the Buffalo Bend site make these comparisons tentative, however. The relationship of 34Pu-111 to other sites in the Jackfork Basin and elsewhere is still uncertain. Additional work in Phase II is necessary to clarify and increase our understanding of this site.

The basic goals during Phase II investigations will be:

1. To define site boundaries.

2. To clarify and increase our understanding of site stratigraphy.

3. To confirm or modify the nature and number of occupations at the site.

4. To obtain materials for absolute dating, both radiocarbon and archaeomagnetic, in order to help establish a chronology at 34Pu-111 and in the Jackfork Basin.

In summary, this chapter has attempted to explicate the major criteria required by the scope of work, the basic research design, site specific research designs, and to provide a general archaeological background for each site. The major aspect of the scope of work required excavations to the point of diminishing return at six sites. Landowner permission was denied at one site. An additional site was substituted, but will be analyzed in a separate report. The basic research goal is to provide an understanding of settlement-subsistence patterns in the Jackfork Basin and how these relate to other areas. This will be achieved by the development of an adequate chronological framework and by determining the nature, significance, and function of site occupations. It should also be pointed out that these will be the last major archaeological investigations in the Clayton Lake area before inundation, and that each site will be covered by water making future work difficult.

CHAPTER 3

PHASE II DATE RECOVERY TECHNIQUES: CLAYTON LAKE ARCHAEOLOGICAL PROJECT

Rain Vehik

INTRODUCTION

The excavation plan and laboratory procedures do not differ greatly from those utilized during Phase I (Vehik 1979e). There is some variation in the procedures used for excavating 34Pu-74, 34Pu-105, and 34Pu-111. At these sites, the excavations are oriented toward answering specific research questions, and their placement was not determined through random sampling. Excavations at the other two sites (34Pu-100 and 34Pu-102) were approached in an almost identical manner as during Phase I. The primary difference is in assigning cardinal direction to excavation unit designations rather than the cumbersome block, sub-block, and 1 m square designation used previously (Vehik 1979e).

ARCHAEOLOGICAL FIELD PROCEDURES

All of the sites have the potential of providing stratified cultural components. They also, however, are characterized by large areal distributions of cultural remains. These two features in conjunction with the mitigation requirements have made a proportional sampling strategy necessary to meet the requirement of excavations to the point of diminishing returns at each site.

The sampling strategy utilized at 34Pu-100 and 34Pu-102 consisted of the random selection of twelve 1 m squares. Figure 4.2 provides an illustration of how these squares were chosen. The first step involved the placement of 40 m x 40 m blocks over areas of heaviest material concentration. These blocks were oriented to magnetic north. These large squares were divided into sixty-four 25 m x 25 m sub-blocks which were assigned sequential numbers beginning in the southeast corner of the 40 m x 40 m square. Twelve sub-blocks were selected for further consideration through the use of a random numbers table. The final step involved the random selection of twelve 1 m squares. Each sub-block contains twenty-five 1 m squares, and these also were numbered sequentially from the southeast corner. Following this, one 1 m square was randomly selected from each of the 12 sub-blocks. In essence, this allowed the excavation of a minimum of twelve 1 m squares within each 40 m x 40 m block. In the case that a 1 m square could not be excavated because of natural factors such as trees or disturbance or because the square had been previously tested, another 1 m square was randomly selected. All 1 m squares were assigned a designation

such as N15-W25, which indicated that the square was located 15 m north and 25 m west of the southeast corner of a 40 m x 40 m block. In addition to the 12 randomly chosen squares, a 1 m square was selected (not necessarily at random) as a control square, and all sediments were water-screened through 1/16-in hardware cloth.

This type of sampling strategy required the complete excavation of each randomly selected square. The advantage of this system is that it is flexible enough to allow the modification of excavation procedures to accommodate the investigation of cultural features or artifact concentrations as deemed necessary. In other words, this excavation strategy insured that twelve 1 m squares would be fully excavated, but that other squares would be excavated to totally expose features or artifact concentrations.

With the exception of 34Pu-74, square designations at each site investigated were based on cardinal coordinates. Since Phase I excavations at 34Pu-74 were extensive, it was decided to continue using the block, sub-block, 1 m square designation employed earlier. Square designations from the southeast corner stake of each square were based on cardinal coordinates at the remainder of the sites. The southeast corner stake was also used for horizontal and vertical measurements. *In situ* artifacts or features were measured using distances north and west of the south and east walls, and vertical measurements were taken from the surface at the southeast corner of each square.

Excavations (Figure 3.1b-c) were conducted in a traditional manner using hand tools (shovels, trowels, pick mattocks, and so forth). Backhoe trenches were mechanically excavated at 34Pu-74, 34Pu-102, and 34Pu-105 (Figure 3.1d). These were used to provide data regarding stratigraphic relationships between various areas at each site. In addition, all sites were mechanically backfilled when excavations were completed.

Each square was excavated in contoured arbitrary 10 cm levels since natural strata were difficult to discern. Sediments were screened through 1/4-in mesh hardware cloth. Excavations at 34Pu-105 and 34Pu-111 deviated slightly from this procedure. Excavations were conducted in 10 cm arbitrary levels, but not all of the matrix was screened. The primary reason for this was to uncover features as quickly as possible.

Control squares at 34Pu-100 and 34Pu-102 were excavated in 5 cm arbitrary levels which were waterscreened through 1/16-in mesh hardware cloth (Figure 3.2a). In addition, a 5 liter sample was collected from each arbitrary level and saved for flotation. The fill recovered from features was either waterscreened or saved for flotation.

Field curation and documentation consisted of recording as many *in situ* artifacts as possible. A five part code system was utilized. Code 1 consisted of *in situ* artifacts, Code 2 included artifacts associated with a particular quadrant and level of a square, Code 3 denotes artifacts found in a specific level of a square, Code 4 refers to items found in a square but not associated with a level, and Code 5 denotes general surface artifacts at specific sites. As many artifacts as possible were placed in individual plastic bags, with an identifying tag, in order to limit field and laboratory induced edge damage.

Documentation consisted of excavation level forms, feature forms, burial forms, photographic records, drawings, maps, and Polaroid and 35 mm photographs of features, profiles, and other noteworthy aspects of each excavation level (Figure 3.2b). In addition, supervisors and field assistants maintained daily field notebooks which included inventories of features, samples, excavation progress, and so forth.

Site maps were prepared at each site using an alidade and plane table. Datum stakes were established at each site, and all vertical and horizontal measurements were mapped in relationship to the datum.

Profile drawings were usually obtained from the south and east walls of the excavation units. Additional profiles were also obtained from other walls if a feature or unique observation was present.

FIELD LABORATORY

A field laboratory was operated concurrently with the excavations under the supervision of Marilee Irvine. The field laboratory was responsible, on a daily basis, for receiving, washing, sorting, and cataloging excavated materials (Figure 3.2c-d), and for preparing materials to be sent to the analytical laboratory in Norman.

All materials were washed and sorted into various categories and then cataloged. Table 3.1 provides an example of the catergories and catalog system used, and a listing of the numbers of artifacts by site is provided in the Appendix. After material from a level had been cataloged the information was transferred to summary sheets. Ideally, the use of summary sheets provides instant feedback to the field crews in case excavations need to be modified.

ANALYTICAL LABORATORY

The analytical laboratory at the ARMC facility in Norman, directed by Kay Zahrai, was responsible for refining the classification of recovered materials, execution of interpretative analyses of materials, and preparation of a report. In addition, flotation was undertaken here as well as sorting these and waterscreen materials. Other duties included preparation of charcoal samples for radiocarbon dating, identification of lithic material types, measuring artifacts, and preparing materials for final curation.

Even though a relatively small sample of waterscreen and flotation samples were completely sorted, this procedure was the most time consuming aspect of laboratory work. It was hoped that charcoal as well as microfaunal, floral, and lithic remains would be recovered. Individual site results are provided in their respective chapters, and indicate that returns were minimal due to poor preservation. The same holds true for pollen analysis. Previous investigations in the Clayton Lake area have indicated that pollen preservations is extremely poor or nonexistent (Galm 1979b).

A

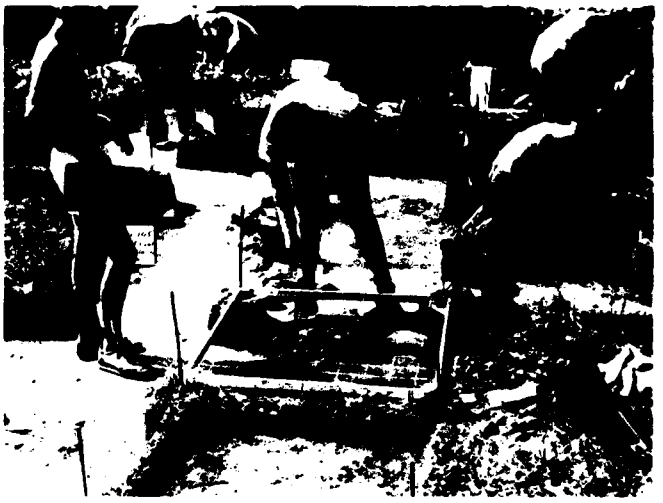
B

C

D

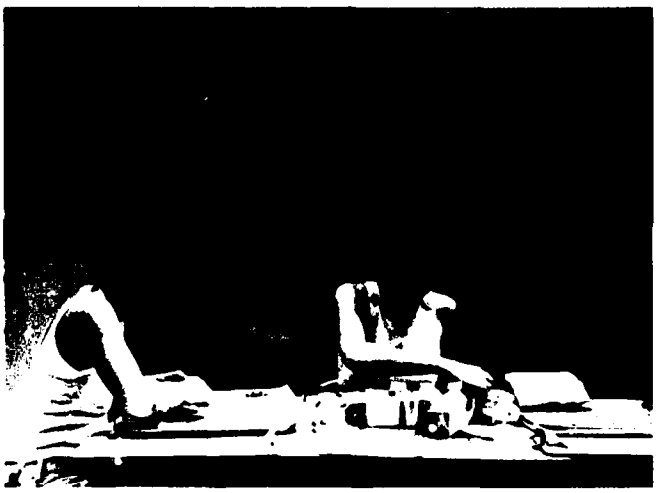
Figure 3.1. General site photographs and excavation techniques (Phase II). A: The Buffalo Bend site (34Pu-111) prior to excavation; B: Excavations in the major area at the Buffalo Bend site (34Pu-111); C: Excavations in the non-mound area at the Arrowhead Hill site (34Pu-105); D: Backhoe trench being excavated in the north terrace area at the Blessingame site (34Pu-74).

A



B

C



D

Figure 3.2. Photographs of field and laboratory procedures: Phase II. A: Waterscreening sediments from the Wheeler Lee site (34Pu-102); B: Recording a baked clay concentration from Structure 1 at the Arrowhead Hill site (34Pu-105); C: Field laboratory crew washing artifacts; D: Cataloging artifacts in field laboratory.

Table 3.1. Phase II (1979) Clayton Lake Archaeological Project catalog system.

I. Site Number: 34Pu-100, 34Pu-105, etc.

II. Lot Number: Example - N11-W20, Level 1 (0-10 cm) = #41

III. Categories

- .1 Biface
  - .1 Large contracting stemmed point
  - .2 Large expanding stemmed/corner notched point
  - .3 Large straight/bulbous stemmed point
  - .4 Large side-notched point
  - .5 Large triangular point
  - .6 Small point (miscellaneous)
  - .7 Other (drills, wedges, tested cobbles, bifaces, preforms, cores, etc.)
- .2 Biface fragment
- .3 Uniface (unifaces, modified flakes, modified blocky debris)
- .4 Ground stone
  - .1 Mano
  - .2 Grinding/milling stones
  - .3 Ground/rubbed hematite and limonite
  - .4 Ground sandstone/slate (pipes, beads, celts, abraders, etc.)
- .5 Ground stone fragment
- .6 Pecked/battered/unmodified cobble
  - .1 Hammerstones
  - .2 Other (pecked/battered cobbles, unmodified cobbles, unmodified hematite/limonite)
- .7 Ceramics
  - .1 Pottery (sherds)
  - .2 Other (beads, whorls, figurines, modeled clay)
- .8 Worked bone
- .9 Worked shell
- .10 Historic material

IV. Artifact number (given to all categories)

V. Count only: Flakes (including blocky debris)

Lithic types were determined on all artifacts, but debitage was sampled. Usually the heaviest concentration of debitage from the deepest excavation square was identified.

A major problem in lithic identification is the fact that very few quarried materials are available. Local lithic resources are abundant in nearby streambeds. However, no detailed analyses have been conducted, and it is necessary to depend on subjective type identifications. Lintz (1979a) has provided a detailed description and breakdown of lithic resources in the proposed lake area. Table 3.2 has been reproduced from Lintz's work (1979a: 31-32, Table 4) to illustrate the types of lithic resources available.

LITHIC REDUCTION MODEL

The lithic reduction model developed for the Clayton Lake Project is identical to that provided by Bobalik (1977: 31-44) and redefined during Phase I investigations (Vehik 1979e: 76-80). A summary of the major divisions of the model is reiterated below.

1. Split Cobble/Pebble Sections: These specimens are a result of splitting cobbles or pebbles into large sections for further reduction, and are representative of procurement and initial modification activities. A minimal number of large flake scars may be present either unifacially or bifacially, and these artifacts have thick, irregular cross sections and are not shaped. Cortex covers over 50% of the dorsal surface. The edges are sinuous and there is no indication of haft element preparation.

2. Tested Cobbles/Pebbles: This represents a grouping of cobbles/pebbles exhibiting cortex over most of the surface and a minimal amount of flaking. The flake scars are large, few in number, and are usually restricted to one area. There is no indication of shaping and the edges are sinuous. These specimens also represent procurement and initial modification activities.

3. Cobble/Quarried Block Biface I: These artifacts consist of pebbles, cobbles, or quarried nodules which have been selected for bifacial reduction, and probably are indicative of initial modification. The original shape of the parent material is retained since these specimens have thick, irregular cross sections, more than 50% cortex on one or both surfaces, and lack evidence of deliberate shaping. Flake scars are large, edges are sinuous, and there is no indication of a haft element.

4. Cobble/Block Biface II/Thick Biface: These artifacts represent primary modification activities and exhibit evidence of minor shaping. The edges are sinuous to slightly sinuous. They also have thick, irregular cross sections and large flake scars, but they retain either small amounts (less than 50%) or no cortex. There is no evidence of a haft element.

Table 3.2. Lithic source material types: Phase II.

Chert Type	Archaeological Synonyms	Geological Formation/Group	Geological Period	Location
Type A (Brown/Blue chert)	Woodford	Woodford	Mississippian/ Devonian	Ouachita Mountains; primarily north of Jackfork Basin, also local gravels.
	Type A	unknown	----------	
	Chickachoc	unknown	----------	
	Latimer I	unknown	----------	
	Zipper	unknown	----------	
	Messer	unknown	----------	
Type B (Black chert)	Battiest	Stanley	Mississippian	Ouachita Mountains; some within Jackfork Basin and local gravels.
	Bigfork	Bigfork	Ordovician	
	Type B	unknown	----------	
	Jackfork	Jackfork Group	Pennsylvanian	
	Atoka	Atoka Group	Pennsylvanian	
Type C (Green chert)	Kiamichi Green	unknown	----------	Ouachita Mountains; Northeast of Jackfork Basin, also local gravels.
	Novaculite, Green	Novaculite	Mississippian/ Devonian	
	Bigfork Green	Bigfork	Ordovician	
Type D (Gray chert)	Sallisaw/ Barren Fork?	Sallisaw	Devonian	Northeast Oklahoma (Illinois River); possibly Ouachita Mountains as well as local gravels?
	Gray			
	minor Varieties	unknown	----------	
	Types A and B	unknown	----------	
Type E (Novaculite)	Novaculite	Novaculite	Mississippian/ Devonian	Potato Hills; east of Jackfork Basin, also as local gravels.
	Arkansas Novaculite			
Type F (Banded chert)	Schist	unknown	----------	Uncertain; possibly Ouachita Mountains and gravels in Jackfork Basin.
Type G (Siltstone/Claystone)	Claystone	unknown	----------	Uncertain; local gravels?
	Siltstone	unknown	----------	
	Jasper	unknown	----------	
Type H (Quartizitic Sandstone)	Quartizitic Sandstone	Atoka Group	Pennsylvanian	Wide distribution in the Ouachita Mountains; local gravels.
	Ouachita Quartzite	Jackfork Group	Mississippian	
	Quartzite	Stanley	Devonian	
		Blaylock	Silurian	
		Womble		
Type I (Clear Quartz)	----------	Stanley	Pennsylvanian	Numerous localities in Ouachita Mountains; local gravels.
Type J (Miscellaneous)	----------	Uncertain various	----------	Possible local gravels.
Type K (Non-local)	Florence (Kay Co.)	Berneston	Permian	N. Central Oklahoma; Ark. Basin
	Boone	Reed Springs	Mississippian	Ozark Mountains--Ark. Basin
		Keokuk		
	Alibates	Quartermaster		Texas Panhandle--Ark. Basin

(Lintz 1979a: 30)

5. Thin Biface I: These specimens are also part of a primary modification activity set, but they exhibit more modification than the previous group. They are characterized by somewhat uniformally thinned cross sections, some shaping, and predominantly small flake scars. The edges tend to be slightly sinuous and in some specimens they may be regular. There is no indication of a haft element.

6. Thin Biface IIa: These specimens are believed to be derived from the preceding group and represent a secondary modification activity set. These activities involve final bifacial thinning and edge trimming. Artifacts in this group appear to be deliberately shaped, have uniformly thinned cross sections, and exhibit less than 10% cortex or no cortex at all. There is no haft element, but the edges are regular and flake scars are small.

7. Thin Biface IIb: Artifacts in this group also represent secondary modification, but cortex is lacking and there is indication of a haft element such as notching and constricting basal edges. Otherwise, they are similar to the previous group in attributes such as shaping, uniform thin cross sections, regular edges, and small flake scars.

8. Cobble/Block Biface III: Items in this group reflect an activity related to finished implements and maintenance. These specimens are defined primarily by their overall large size and are believed to result only from the bifacial reduction of cobbles/pebbles or quarried blocks. They display little (less than 50%) or no cortex. They also have regular edges, small flake scars, and a haft element may be present.

9. Unstemmed Thin Bifaces/Points: These are well shaped artifacts which have thin, uniform cross sections, regular edges, no cortex, and do not have prepared haft elements. They also exhibit minute edge alteration or retouch scars.

10. Stemmed Thin Bifaces/Points: These artifacts are similar to the previous group in having thin uniform cross sections, regular edges with minute edge alteration flake scars, and no cortex. The only difference is that these items have a deliberately prepared haft element.

11. Biface/Point Fragments and Segments: This represents a residual grouping of specimens that are too fragmentary for inclusion with the other thin biface groups. They exhibit shaping, thin, uniform cross sections, regular or slightly sinuous edges, and little or no cortex. In many instances, it is not possible to determine if a haft element was present.

Basically, the lithic reduction sequence described above involves the procurement and bifacial reduction of raw materials. It is important to note that specimens may either be discarded at any point in the sequence or a specimen may be removed from the sequence for modification and use and then discarded or recycled back into the reduction system. The intended goal of the model is to provide information about manufacture, use, recycling, and abandonment of lithic tools which will assist in developing and testing hypotheses involving functional variability on an intra- and inter-site basis (Bobalik 1977: 42).

A secondary reduction sequence, apparent at several sites is a core/flake technology. However, this seems to be relatively minor and is more common during the later part of the prehistoric period.

DESCRIPTIVE DATA

The description of cultural remains for each site are provided in Chapters 4-8. The classification system used is based on size, morphology, and technology. Artifacts are classified on four levels proceeding from the most general to the most particular, with a numerical designation applied to each level. Table 3.3 provides a summary of the artifact classes and groups utilized during this phase of investigations. The first level places artifacts into a general class such as chipped stone *(01)*, pottery *(02)*, historic debris *(07)*, faunal *(08)*, and so forth. The second level divides each class and places artifacts within a particular group such as points *(01)*, drills *(03)*, bifaces *(10)*, and so forth. The third level divides groups into categories and is denoted as the final two digit number. The final level indicates specific variation and is based on size, notching, stem configuration, blade form, temper type, decoration, and so forth (Galm 1978a: 136). This level is the most particular and is designated by an alphabetic letter. Thus a classification such as *01-01-01A* would mean a chipped stone *(01)* point *(01)* which has a contracting stem *(01A)*. Another example would be bifaces related to the lithic reduction sequence which are classified as *01-10-00*. The major advantage of this system is that it provides an easy way to add classes, groups, categories, and varieties. In addition, it is amenable for computerization of materials.

A series of nominal and interval measurements were taken on particular varieties of artifacts. Nominal measures such as shape, breakage patterns, flaking patterns, and so forth were observed on chipped and ground stone artifacts. Munsell Soil Color Charts (1975) were used in determining colors of stratigraphic profiles and ceramics. Interval measurements were taken on most varieties of artifacts. Projectile point measurements are illustrated in Figure 3.3. Linear measurements, in mm, were taken with vernier calipers and weights, in g, were determined using an Ohaus beam balance. These are presented for each site in summary form (range, mean, and standard deviation). Concentration indices (CI) were calculated at many sites. These provide a relative percentage of the amount of material present. In general, they are calculated by dividing the total number of artifacts per level by the number of levels excavated in a square. Since levels and squares at each site were of uniform size the calculations were not multiplied by volume.

In summary, the excavation and laboratory techniques are oriented to maximize data recovery regarding settlement-subsistence patterns in the project area. Special emphasis is placed on obtaining information about site chronology, occupation, and function.

Table 3.3. Summary of artifact classes and groups from Phase II investigations at the proposed Clayton Lake.

Chipped Stone *(01)*
POINTS (01-01-00)
DRILLS (01-02-00)
WEDGES (01-03-00)
SCRAPERS (01-05-00)
DOUBLE BITTED AXES (01-06-00)
HOES (01-07-00)
BIFACES (01-10-00)
MISCELLANEOUS BIFACE IMPLEMENTS (01-11-00)
POINT/BIFACE FRAGMENTS AND SEGMENTS (01-12-00)
MODIFIED FLAKES (01-13-00)
CORES (01-14-00)
SPLIT/TESTED COBBLES (01-15-00)
DEBITAGE (01-16-00)
Fired Clay *(02)*
CERAMICS (02-01-00)
BAKED CLAY (02-03-00)
Ground Stone *(03)*
MANOS (03-01-00)
METATES/GRINDING SLABS (03-02-00)
ABRADERS (03-03-00)
GROUND HEMATITE (03-04-00)
GORGETS (03-05-00)
MISCELLANEOUS GROUND STONE IMPLEMENTS (03-06-00)
Pecked/Battered/Unmodified Cobbles *(04)*
HAMMERSTONES (04-01-00)
PITTED STONES (04-02-00)
MISCELLANEOUS PECKED/BATTERED STONE (04-03-00)
UNMODIFIED COBBLES/PEBBLES (04-04-00)
Historic Debris *(07)*
GLASS (07-01-00)
CROCKERY/CERAMICS (07-02-00)
METAL (07-03-00)
STONE (07-05-00)
Faunal *(08)*
BONE/HORN/TEETH (08-01-00)
SHELL (08-02-00)
Floral *(09)*

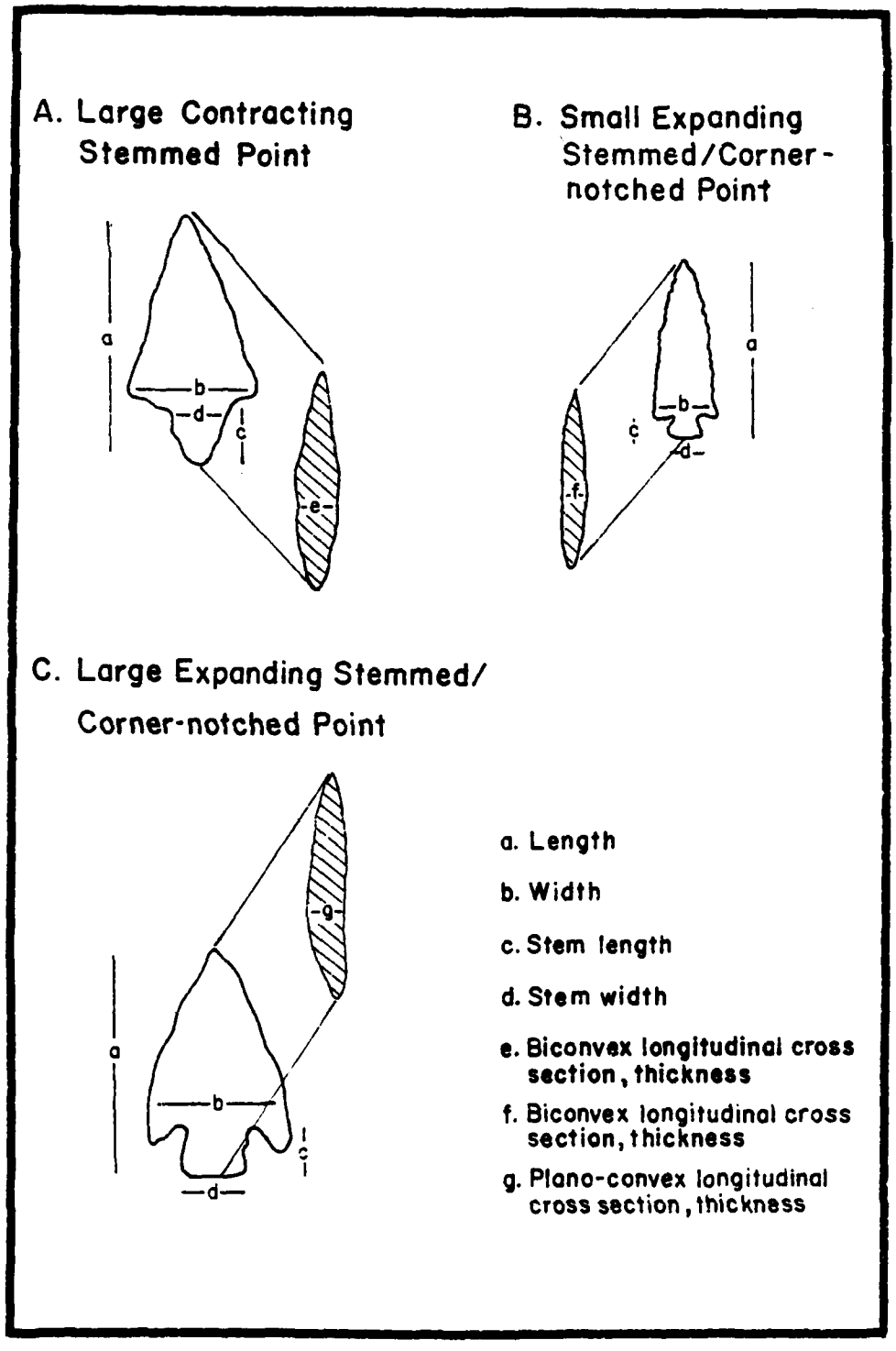


Figure 3.3 Projectile point measurements.

CHAPTER 4

THE BLESSINGAME SITE (34Pu-74): PHASE II EXCAVATIONS

Christopher Lintz

INTRODUCTION

The Blessingame site, on a prominent terrace at the juncture of Buffalo and Jackfork creeks, has an elevation of 175 m (573 ft), and covers an area of 200 m x 150 m. The terrace is in contrast to remnants of the same terrace further up Buffalo Creek. A linear rock outcrop at the north end of the terrace constitutes a natural levee which reduces erosion. The terrace drops abruptly to the north, east, and south, and slopes gradually to the southeast. Five major and several minor prairie mounds are present on the terrace top. Their designation as mounds is a descriptive reference to natural topographic features (Branson 1966) and does not imply intentionally constructed cultural mounds. Cultural materials are scattered across the terrace, but minor lateral erosion at one place along the east slope separates the site into two areas. The north area constitutes approximately one-third of the total terrace area. It has a low east-west natural linear mound on the east and a low hillock on the west. The south area has three large and several smaller mounds spaced at irregular intervals (Figure 4.1).

The site is in tall grass pasture, but the previous landowner indicated that a dense stand of trees covered the site until the 1940s. A number of depressions from uprooted trees are still visible in most areas of the site. A few taller trees were left to shade livestock. Brush and stumps were piled and burned on the terrace and then pushed over the edge resulting in charred logs protruding from earthen mounds along the north and east terrace slopes. The amount of disturbance and removal of culture bearing deposits from the terrace during the clearing activities is uncertain.

Other recent site alterations are evident from the vegetation and features on the site. A dense growth of Bermuda grass on the terrace indicates some plowing may have occurred. The duration of the plowing may have been short since the depressions from uprooted trees were clearly evident and a well-defined plow zone is missing. A barbed wire fence across the western portion of the site encloses the southern area. A wooden corral and holding pen with a loading chute is in the northwest corner of the fenced area. A small covered feeder and water trough are in the northeast quarter of the same pasture. A road from the loading chute parallels the fence and goes towards a collapsed barn, well, and old house structure 300 m northwest of the site. Finally, a high voltage power line runs across the western edge of the site.

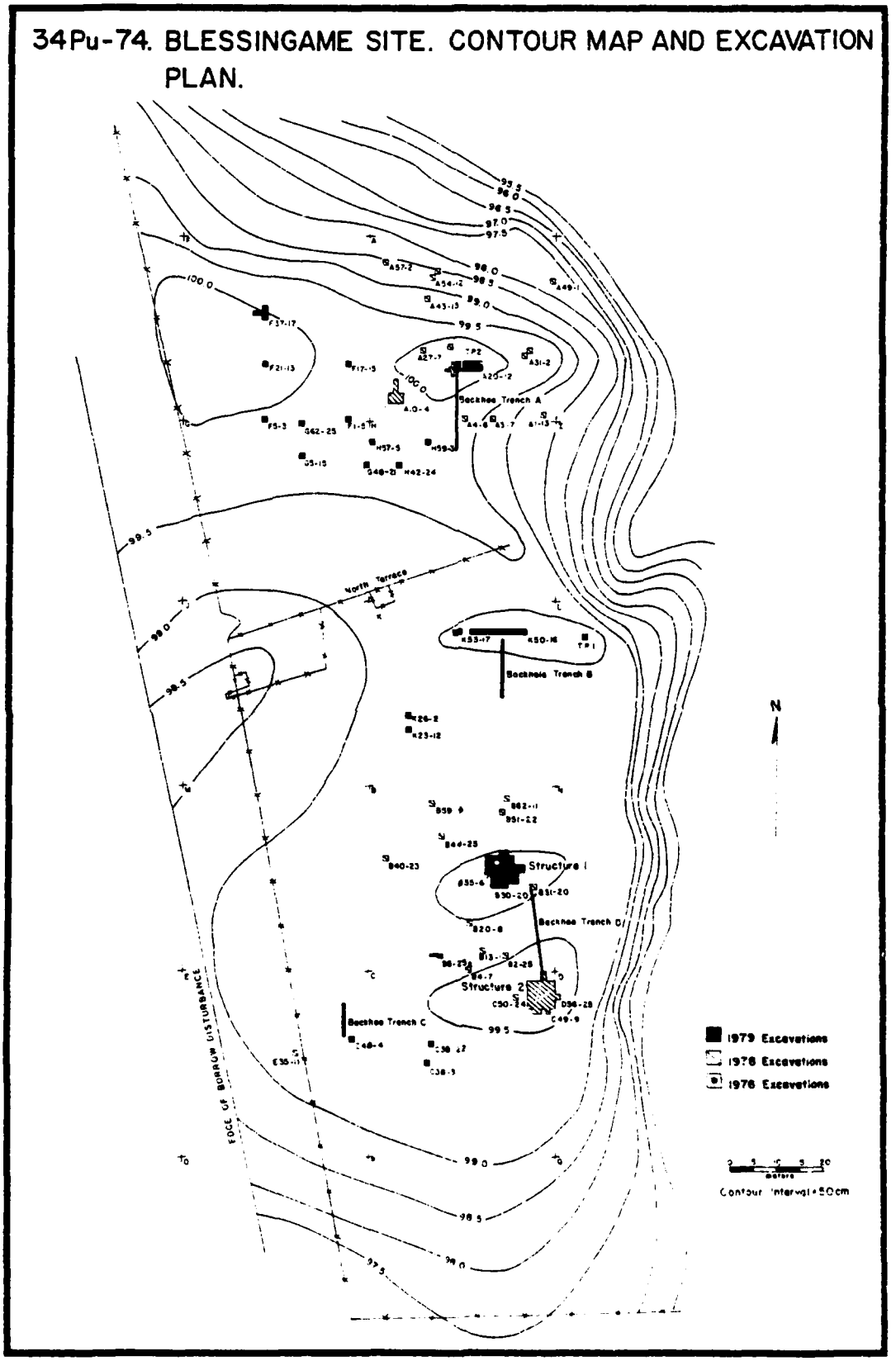


Figure 4.1. Contour map and excavation plan of the Blessingame site (34Pu-74): Phase II.

PREVIOUS INVESTIGATIONS

The site was found during the reservoir survey (Neal 1972: 7) and subsequently tested (Bobalik 1977: 488). Twelve post hole tests along four transects and seven random post hole tests in the northeastern portion of the site were used to assess the depth and nature of deposits. Two 1 m x 1 m test squares were later excavated in 10 cm intervals to provide greater vertical control. An angular rock feature (F79-1) was exposed in the upper 20 cm of the north terrace area. Charcoal from the feature yielded an uncorrected date of A.D. 1730 ±100 (UGa-1518).

The testing identified two areas of artifact concentrations separated by approximately 100 m and corresponding to the north and south terrace areas. At least two discrete occupations are suggested by the variety of artifacts. The presence of a stone pipe stem and an arrowpoint *(Bonham)* from the surface and upper levels led Bobalik (1977: 515) to postulate a Woodland or early Caddoan occupation for the upper component. A stem section from an unnamed large straight stemmed point from the lower levels suggested an earlier, perhaps Archaic, component. This component was believed to be a special purpose (extractive) camp. The Woodland/early Caddoan component was thought to be a base camp (Bobalik 1977: 565, 569, 572). The suggested range of activities appeared to be limited to hunting, nut procurement, and lithic reduction (Bobalik 1977: 517).

During the 1978 excavations, two 40 m x 40 m grid blocks, oriented to magnetic north, were superimposed over the two areas of artifact concentrations (Lintz 1979e). Block A was centered over the north terrace area, and Block B was 80 m to the south. Initially, twelve randomly selected 1 m x 1 m squares from each block were excavated in 10 cm intervals to sterile soil. Other squares were added to expose features encountered during the initial excavations. The range of features found in Blocks A and B included six horizontal angular rock concentrations, two burned rock hearths, one pit, two natural soil anomalies, one rock filled animal burrow (historic), and one structure.

With the discovery of a structure on a natural south terrace mound, emphasis shifted to testing other mounds in the area. Three additional 40 m x 40 m blocks (designated C, D, and E) were placed in an east-west line south of Block B to accommodate testing on two other mounds. A second structure was found in Blocks C and D. Because of time limitations, testing was suspended on other mounds and efforts were concentrated on exposing the two structures. Most details of Structure 2 (Blocks C-D) were obtained, but excavations were only able to expose the roof fall deposits and a small portion of the floor in Structure 1.

Altogether, 127 squares and eight 1 m x .50 m units were excavated and dry screened. Two additional squares were waterscreened for finer control. However, most squares used to expose features were not excavated to culturally sterile deposits. Ten features and two structures were recorded and partially exposed. Ten radiocarbon dates and three archaeomagnetic dates were obtained, but several inconsistencies occurred in the sequence (Lintz 1979e: 273). A total of 1404 artifacts and 77,547 unmodified flakes were recovered from the 45 cubic meters of fill excavated in 1978.

The distribution and variety of artifacts suggest five assemblages relating to four components. Two assemblages were postulated for the Archaic component, although materials from the lower levels were poorly represented. Most of the horizontal rock concentrations were attributed to this component. A single artifact assemblage and both structures were attributed to an early Caddoan component. Seven radiocarbon dates and three archaeomagnetic dates from the structures cluster between A.D. 940 and 1250. Two burned rock hearths and a limited variety of artifacts were attributed to a short termed poorly defined late Caddoan or protohistoric occupation. MASCA corrected radiocarbon dates of A.D. 1405 ±50 (Tx-3282) and 1640 ±110 (UGa-1518) were obtained from the burned rock hearths. The last component reflects recent historic activities.

PHASE II RESEARCH DESIGN

The 1978 excavations raised several questions regarding the number and kinds of activities conducted at the site, and resulted in recommending additional excavation during Phase II. Most specific inquiries are directed at the Archaic and early Caddoan components. The Archaic component is poorly represented since only 22% of the 1978 excavation units reached culturally sterile soil. Questions relating to the Archaic component include:

1. Can the postulated separate Archaic assemblages be confirmed?

2. What features and/or activities occurred on the north and south terrace areas during the Archaic stage?

3. Can refinement be made in the range of activity sets?

4. What is the nature of the Archaic occupation?

Questions relating to the early Caddoan component mainly address site size, function, and activity sets. Specific questions include:

1. How many structures are present? As a corollary, does the site represent a hamlet or a village?

2. Do structures correlate with mounds in the south terrace area?

3. What are the size, shape, and interior features of Structure 1?

4. Can interior activity areas be discerned from the artifact content?

5. How does Structure 1 compare with Structure 2?

6. Can refinements be made in the general range of activity sets?

Other general questions address refinements in the postulated components, chronology, and activity sets at the site:

1. Previous excavations found no clear evidence of a Woodland component. Does such a component exist in other areas of the site?

2. Do earlier or later components exist at the site?

EXCAVATION STRATEGIES

The 1979 objectives involved additional excavations in units started in 1978 (Structure 1 and the north terrace mound area), and new excavations in widely separated areas to test various other mounds. Consequently, an expansion of the previously established grid system was employed (Vehik 1979e: 71). The system was designed primarily to facilitate the selection of random test units and secondarily to be used for extensive or intensive contiguous excavations.

Expansion of the grid system involved superimposing a series of 40 m x 40 m grid blocks over the site. These blocks, oriented to magnetic north, were assigned alphabetic designations. During 1978, their placement was subjectively based on information pertaining to site areas and artifact densities provided by the 1976 testing program (Bobalik 1977). Each block was divided into sixty-four 5 m x 5 m sub-blocks and assigned a number beginning with the first in the southeast corner of the 40 m x 40 m block. The sub-block numbers were sequentially assigned in a manner similar to that used in assigning section numbers on U.S.G.S. topographic maps. Each sub-block contained twenty-five 1 m x 1 m squares which were numbered in a manner similar to that used to assign sub-block numbers. Each excavation unit was numbered according to its block designation, and its sub-block and square location. Thus a designation such as A8-5 would mean that it is the fifth one meter square found in the eighth sub-block of Block A.

During 1978, Blocks A and B were superimposed over artifact concentrations 80 m apart on the north and south terrace areas respectively. Additional Blocks C, D, and E were in an east-west line south of Block B to accommodate additional testing. Since the 1979 excavations were more extensive, Blocks F through Q were systematically superimposed on the previously undesignated areas starting in the northeast corner (Figure 4.2). Excavations however were confined to Blocks A, B, C, E, F, G, H, and K during the 1979 season.

The 1979 excavation strategy was aimed at several specific objectives. Consequently, all excavation units were nonrandomly placed on topographic features, near high artifact concentration areas encountered during Phase I excavations, or to pursue features.

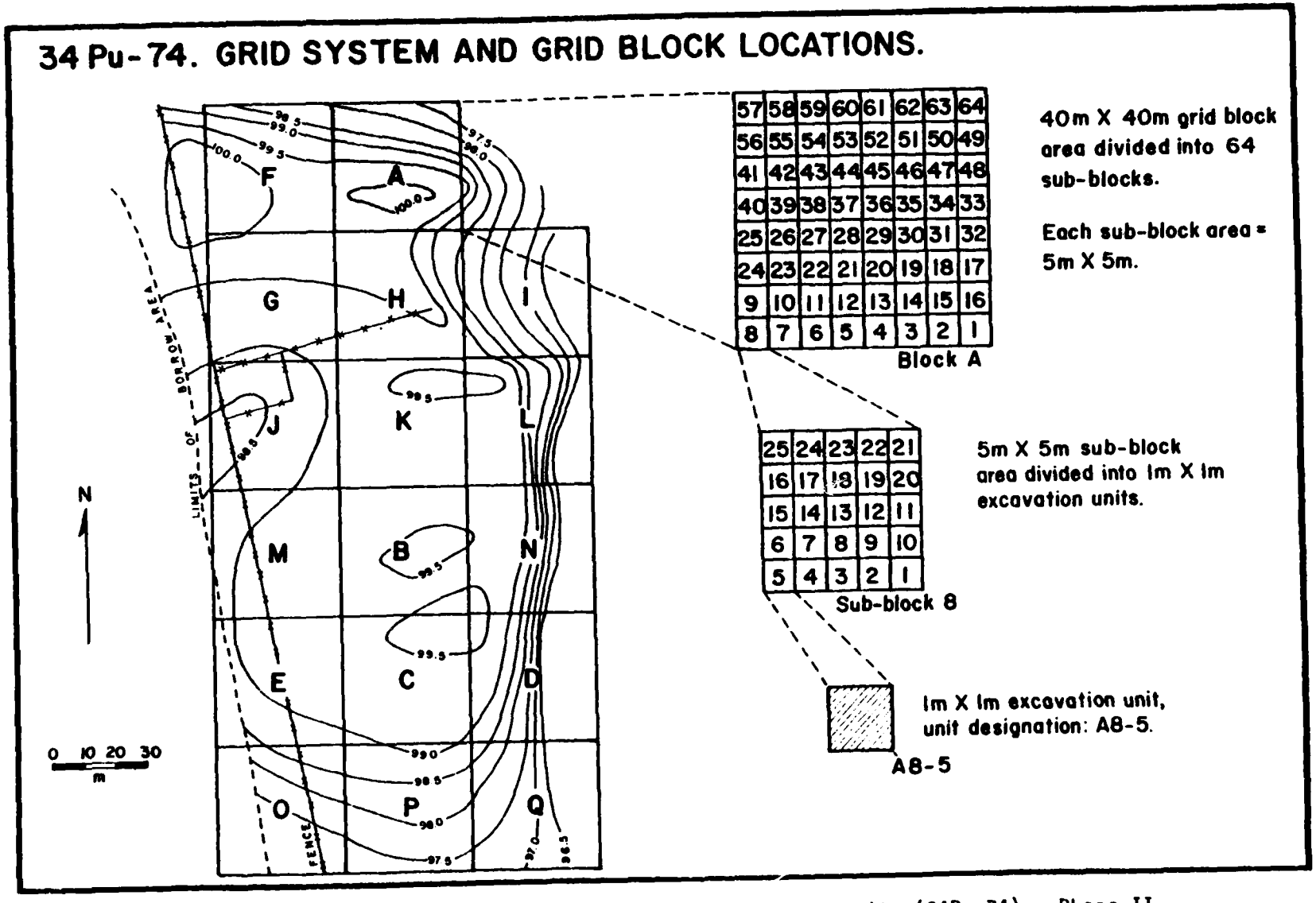


Figure 4.2. Grid system and grid block locations at the Blessingame site (34Pu-74): Phase II.

In order to determine the number of structures and to test the correlation of mounds to structures, two squares were placed on the minor mounds. Squares K23-12, K26-2, K51-17, K50-16, C38-3, C38-22, and E48-4 (paired with E35-11 which was excavated in 1978) were excavated on four low mounds in the south terrace area. Squares F37-17, F21-13, G62-25, and G51-15 were used to test two low mounds in the north terrace area. No additional structures were located although other types of features were encountered. These squares were excavated to culturally sterile soil to obtain a sample of lower component materials.

Seven other 1 m x 1 m squares in Blocks F, G, and H were excavated to determine the south and west boundary of the north terrace artifact concentration discerned during the 1978 excavations and to determine the extent of Feature 78-2. However, rocks associated with this feature were rarely encountered in these units. All squares were excavated to culturally sterile soil and are used to help define the lower component in the off mound portion of the north terrace area.

During 1978, excavations in north terrace mound squares (A20-12, A20-13, A20-14, A20-15, A20-17, and A20-18) were terminated because of insufficient time to clarify the complex superposition of one pit, two rock hearths, and two horizontal rock concentration features. The relationship of these features was determined during the 1979 excavations, and a larger sample of lower deposits from the north terrace mound was obtained.

Sixteen other squares near F37-17 and K51-17 were opened to partially expose new features found on major mounds during the 1979 season. Only eleven squares were excavated to culturally sterile soil.

Finally, twenty-three squares near B35-20 were excavated to clarify the details of Structure 1. Emphasis was placed on obtaining floor associated artifacts and details of posts and interior features. None of these units were excavated to sterile soil.

All excavations were conducted in 10 cm arbitrary levels using hand tools and screened through 1/4-in mesh hardware cloth. Except where noted, excavations continued until either the flake count from a level dropped below 10 or a feature was encountered. A total of 228 levels from 63 squares were excavated during the 1979 season. The results from waterscreen residue sorts previously conducted at 34Pu-74 provided minimal information (Lintz 1979e: 335). Consequently, waterscreening was not used to supplement the dry screening operations during 1979.

Feature numbers incorporating the year and sequential designations (i.e. F79-1, F79-2, etc.) were assigned to rock concentrations and soil anomalies. Several features excavated during Phase I and II were assigned different numbers. This practice retains the excavation phase distinctions. Feature correlations are provided in subsequent discussions. Soil, rock, flotation, and other specialized samples were collected from each feature.

Stratigraphic profiles were drawn for each test unit. Four backhoe trenches (A-D) were dug across several mounds to aid in strata correlations. Upon completion, the mechanical and hand excavated areas were backfilled.

STRATIGRAPHY

The stratigraphy at 34Pu-74 is geologically and culturally complex. Portions of the terrace were deposited as separate geological events, probably during the Pleistocene. The southern area is a gravel terrace, and the north terrace area is composed of a fine sandy loam, generally devoid of gravels. Backhoe trench B in the intervening area revealed that fine sandy loam deposits overlie the gravel deposits. However, the origins of these deposits are of little archaeological concern since the terrace age is older than aboriginal use of the valley. Soil development has occurred in both areas. However, variations in soil texture, particle size, and composition have caused differential soil weathering between the two areas. General correlations above the oldest soil horizons cannot be confidently made on stratigraphic information alone.

Cultural activities have selectively modified portions of the site. The recent clearing activities across the entire terrace have differentially removed a significant portion of the A horizon and have increased bio-turbation through the uprooting of trees. Prehistoric cultural modification of the strata is apparent at several places on the terrace, with the most noticeable being a linear mound in Block A. This mound is 68 cm higher than the surrounding area and contains five superimposed features. Furthermore, culturally derived strata are restricted to the mound area, but most strata within the north terrace area can be correlated on and off the mound.

The complex stratigraphy requires separate descriptions for the north, south, and middle terrace areas (Figure 4.3). All color descriptions are based on field soil conditions using the Munsell (1975) classification.

NORTH TERRACE DEPOSITS

Two topographic features are present in the north terrace area. One is the low east-west linear mound located in the middle of Block A. This was tested in 1976 and was the focus of the north terrace excavations in 1978 (Bobalik 1977; Lintz 1979e). The second feature is a low hillock west of the linear mound in Block F. The linear mound differs from the low hillock by having deeper cultural deposits, superimposed features, and areally limited stratigraphic units. However, recent clearing operations have removed an unknown amount of upper soil from portions of the north terrace area.

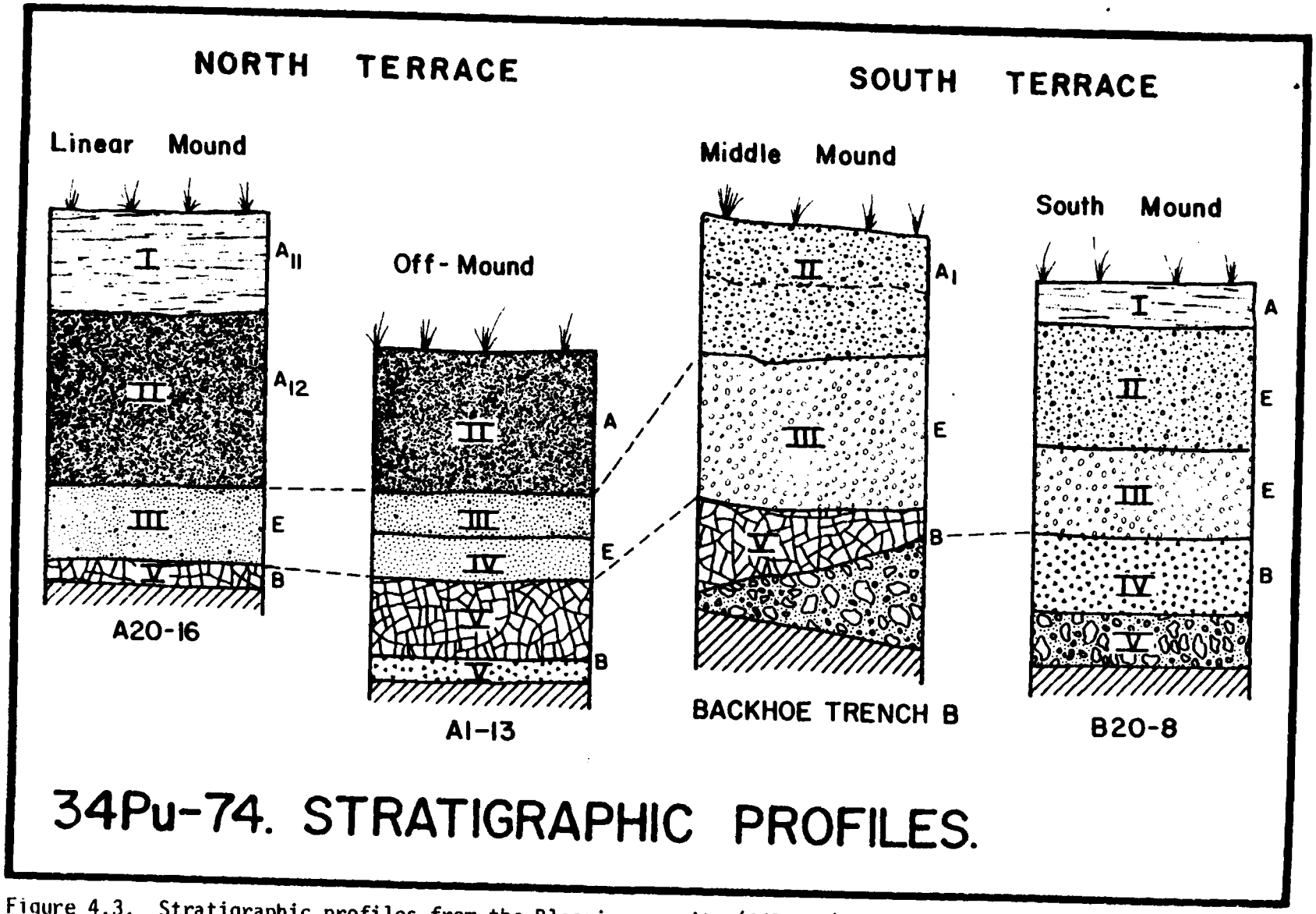


Figure 4.3. Stratigraphic profiles from the Blessingame site (34Pu-74): Phase II.

In general, six stratigraphic units occur in the north terrace area. The linear mound, low hillock, and off mound areas do not contain a complete stratigraphic sequence. Cultural materials were restricted to the upper three strata in the linear mound and the upper two strata in the low hillock and off mound areas. The other three strata were culturally sterile.

Stratum I

This unit is areally limited to the low linear mound and is not present in either the low hillock or off mound areas. It is characterized by a relatively loose dark gray brown (10YR 4/2) sandy loam with numerous marble-sized pieces of gravel, abundant cultural materials, charcoal flecks, and small gray and yellow ash nodules. It extends from the surface to a depth of 15-25 cm. Two rock hearths (F76-1/78-9 and F78-6/79-7) crosscut this unit. This unit is interpreted as an A_{11} horizon reflecting intense cultural activities on the linear mound.

Stratum II

Stratum II begins at a depth of 15 cm and extends to depths of 25-45 cm within the linear mound, but corresponds to the upper stratum in the low hillock (0-37 cm) and areas peripheral to the mounds (0-18 cm). It is a moderately compact grayish brown (10YR 5/2) sandy loam. In the linear mound area, pit feature 78-8 cuts through this stratum, but two angular rock concentrations (F78-3/79-4 and F78-10/79-5) occur within this unit. In the low hillock area, horizontal rock feature 79-2 occurs within the lower portion of this stratum. Cultural materials are abundant throughout this unit. It is interpreted as an A_{12} horizon.

Stratum III

This stratum ranges from 45-65 cm within the linear mound, from 37-50 cm in hillock deposits, and has a depth of 18-24 cm in off mound deposits. It is a moderately compact, very pale brown (10YR 7/4), sandy loam with occasional pieces of gravel and cultural materials. In the off mound areas Feature 78-2 occurs in the lower portion of this unit. Some mottling with gray-brown soil may be due to krotovina from the overlying stratum. This unit is interpreted as an A_{12}-E transition.

Stratum IV

This unit is present in the low hillock at depths of 50 cm to more than 60 cm, and in the off mound areas 24-32 cm, but not in the linear mound area. It consists of a compact reddish yellow (7.5YR 6/6) clayey loam devoid of rocks and gravels. It is culturally sterile. This unit is interpreted as an area of maximum degradation within the E horizon.

Stratum V

This unit underlies Stratum III in the linear mound area (deeper than 65 cm), and is beneath Stratum IV in areas adjacent to the mound at depths of 32-44 cm. It is a compact clayey loam with a homogeneous yellowish red (5YR 5/8) color. This unit is culturally sterile and is interpreted as an E-B horizon transition.

Stratum VI

This unit is an old weathered soil characterized by a compact yellowish red (5YR 5/8) clayey loam with pedogenic structures mottled in red (2.5YR 4/8) and yellowish brown (10YR 6/6). It is deeper than 44 cm in the peripheral mound areas and is culturally sterile. It is interpreted as a B horizon.

SOUTH TERRACE DEPOSITS

Three major and several minor topographic features are present in the south terrace area. Two of these are large irregular shaped mounds in the southern portion of this area within Blocks B and C. These were the focus of 1978 excavations and structures were found on each mound. The third is a linear mound in the northern portion of the south terrace within Block K. This mound received no previous attention. Because of its intermediate location between the north and south terrace areas, this feature was designated the middle mound for easier reference. The stratigraphic units of the middle mound displayed soil characteristics of both the north and south terrace areas. Details of the middle mound stratigraphy will follow descriptions of the south terrace deposits.

Five strata were recognized in most squares in the south mound area (Blocks B and C). The distinction between several strata is based primarily on textural variation rather than differences in color. The following description is taken from between the mounds in square B20-8 which was excavated in 1978. The strata is representative of the area and can be correlated with units in Blocks B, C, D, E, and the southern portion of K. Thickness varies slightly from area to area, and cultural materials are confined to the top four strata.

Stratum I

This unit is characterized as a dark brown (10YR 4/3) fine fraction loam with numerous rootlets. It is confined to the upper 9 cm, but additional deposits may have been removed during recent clearing. Minute charcoal flecks are rarely observed in this unit. Their significance is uncertain since charcoal could relate to recent burning or prehistoric activities. Cultural materials are abundant. This unit is interpreted as an A horizon.

Stratum II

This unit ranges from 9-30 cm deep and is characterized by a compact, dark yellowish brown (10YR 4/4) loam interspersed with occasional small pebbles. Cultural materials are abundant, although charcoal flecks are not as common as in the preceding unit. This unit is interpreted as an E horizon.

Stratum III

This unit ranges from 30-47 cm below surface. It is identical to Stratum II in color and compact loamy composition, and is believed to represent an E horizon. However, this unit contains more and large sized pebbles and gravels. Cultural materials are abundant.

Stratum IV

This unit ranges from 47-62 cm below surface. The soil is strong brown (7.5YR 5/6) clayey loam with abundant large gravels and occasional cobbles. Artifacts and cultural debris are occasionally found in this unit. It is interpreted as a B horizon.

Stratum V

This unit is deeper than 62 cm, and like Stratum IV the soil is a strong brown (7.5YR 5/6) clayey loam. This unit differs in the size and abundance of large stream rolled chert cobbles. The presence of clay accumulations and pedogenic structure indicates an old soil genesis which is weathered. The small amount of cultural material is believed to be intrusive. The presence of peds suggests that this unit may correlate with Stratum VI in the north terrace area. This unit is interpreted as a B horizon.

Stratigraphic deposits in the middle mound portion of the south terrace appear to be transitional between the north and south terrace deposits. The transition is most apparent in backhoe trench B where a facies change between fine silt loam with occasional small pebbles abruptly shifts to cobble deposits within the B horizon. Stratigraphically, the fine silt loam overlies the gravel deposit. The depositional sequence probably predates human occupation of the valley. The upper stratigraphic sequence is similar to the sequence in the north terrace area. Features occurring in the middle mound area are two rock concentrations and one possible postmold. Both rock concentrations (F79-1 and 79-6) occur in Stratum II, but the possible postmold (F79-3) occurs in the lower portion of Stratum II.

FEATURES

Sixteen cultural features were excavated during the 1976, 1978, and 1979 investigations at 34Pu-74. These features include two structures, nine horizontal rock concentrations, two rock hearths, one exterior pit, one exterior postmold and one rock filled animal burrow. Two soil anomalies (F78-1 and 78-4) are believed to be natural variations in the soil. The correlation of features exposed during the various excavation phases is presented in Table 4.1.

This section describes only those features excavated during Phase II. These features include five horizontal rock concentrations, one rock hearth, one possible postmold, and various features affiliated with Structure 1. The postmolds associated with the structure were not assigned separate feature numbers. Portions of Structure 1, one rock hearth, and two horizontal rock concentrations were partially exposed during Phase I excavations. However, new feature numbers were assigned to the portions exposed during Phase II. Subsequent discussion refers to both 1978 and 1979 features. The descriptions and interpretations of the 1978 features are provided in previous reports (Bobalik 1977: 491; Lintz 1979e: 255-271).

The organization follows the previous format and describes features in the north, middle and south mound areas separately. This format permits easy correlation of features with stratigraphic units. The artifact types and frequencies found with the 1979 features are provided in Table 4.2.

NORTH TERRACE FEATURES

Features in the north terrace area include one rock hearth and two horizontal rock concentrations in the linear mound, and one horizontal rock concentration on the low hillock. All features associated with the linear mound were partially exposed in 1978.

Table 4.1. Correlation of features at the Blessingame site (34Pu-74): Phase II.

Feature type	1976 Testing	1978 Phase I	1979 Phase II	General Location
Cultural				
Rock Concentrations				
North terrace			79-2	F37-17
		78-2		A10-6
		78-3	79-4	A20-16
		78-10	79-5	A20-17
South Terrace			79-1	K51-20
			79-6	K51-20
		78-11		B5-25
		78-14		B35-12
		78-22		B51-22
Rock Hearths		78-6	79-7	A20-15
	76-1	78-9		A21-13
Rock Filled Animal Burrow		78-23		B35-23
Exterior Pits		78-8		A20-14
Exterior Postmolds			79-3	K51-20
Structure 1				B30,31,34,35
Wall - roof fill		78-5, 78-7		
Postmolds - exterior			79-8	
Postmolds - interior			79-11	
Hearth		78-15		
Pit - interior			79-9	
Entryway			79-10	
Structure 2				C49,60,63,64
Wall - roof fill		78-12		
Postmolds - exterior		78-17 to 78-21		
Postmolds - interior		78-16		
Hearth		78-13		
Non-cultural				
Soil Anomalies		78-1		
		78-4		

Table 4.2. Artifacts associated with features at the Blessingame site (34Pu-74): Phase II.

Artifacts	North Terrace							South Terrace					Total
	Hearth		Horizontal Rock Concentrations					Postmold	Horizontal Rock Concentrations		Structure 1	Pit	
	F78-6 1978	F79-7 1979	F78-10 1978	F79-5 1979	F78-3 1978	F79-4 1979	F79-2 1979	F79-3 1979	F79-1 1979	F79-6 1979		F79-9	
Area	A20-15		A20-13		A20-13		F37-18	K51-20	K51-18 K52-17	K50-16 K51-17	B30-31-34-35	B35-7	
Depth	0-25		28-36		34-35		10-40	37-41	10-25	32-40	30-50		
01-01-01A	2	-	1	1	3	1	1	-	-	-	2	-	11
01-01-02A	-	-	-	-	-	-	-	-	-	-	1	-	1
01-01-02B	-	-	-	-	-	-	-	-	-	-	1	-	1
01-01-02D	-	-	-	-	-	-	-	-	-	-	2	-	2
01-01-02H	-	-	-	-	-	-	-	-	-	-	2	-	2
01-01-02I	-	-	-	-	-	-	-	-	1	-	2	-	3
01-01-02L	-	-	-	-	-	-	-	-	-	-	3	-	3
01-01-02M	-	-	-	-	-	-	-	-	-	-	1	-	1
01-01-02N	-	-	-	-	-	-	-	-	-	-	1	-	1
01-01-02Q	-	-	-	-	-	-	-	-	-	1	-	-	1
01-01-02R	1	-	-	-	-	-	-	-	-	-	-	-	1
01-01-02S	-	-	-	-	-	-	-	-	1	-	1	-	2
01-01-04A	-	-	-	-	1	-	-	-	-	-	-	-	1
01-01-04D	-	-	-	-	-	-	2	-	-	-	-	-	2
01-01-05A	-	-	-	-	1	-	-	-	-	-	-	-	1
01-01-05B	-	-	-	1	-	-	-	-	1	-	-	-	2
01-01-06A	1	-	-	-	-	-	-	-	1	-	-	-	2
01-01-06J	-	-	-	-	-	-	-	-	-	-	1	-	1
01-01-07C	-	-	-	1	-	-	-	-	-	-	-	-	1
01-02-01A	-	-	-	-	-	1	-	-	-	-	-	-	1
01-02-01D	-	-	-	-	-	-	-	-	-	-	1	-	1
01-02-03A	1	-	-	-	-	-	-	-	-	-	-	-	1
01-10-01A	1	3	-	2	1	1	5	-	4	1	14	-	32
01-10-02A	10	2	7	3	4	2	10	-	8	-	38	6	90
01-10-03A	3	-	2	2	1	-	4	-	4	2	36	1	55
01-10-04A	2	-	-	-	-	-	2	-	-	-	9	-	13
01-10-05A	2	-	-	-	1	-	1	-	-	-	4	-	8
01-11-01	-	-	-	1	-	-	1	-	-	-	1	-	3
01-11-02	-	-	-	-	-	-	-	-	-	-	4	-	4
01-11-07	-	-	-	-	-	-	-	-	-	-	1	-	1
01-11-08	-	-	-	-	-	-	-	-	-	-	1	-	1
01-11-09A	-	-	-	-	-	-	-	-	-	-	1	-	1
01-12-01A	6	-	2	2	7	2	8	-	4	-	27	-	59
01-13-01A	1	1	2	-	-	-	2	-	-	-	1	-	-
01-13-01B	9	4	4	10	6	32	35	-	31	9	362	21	523
01-13-01C	-	-	-	-	-	-	1	-	-	-	4	-	5
01-14-01A	-	-	-	-	1	-	1	-	-	-	2	-	4
01-15-01A	-	-	-	-	-	-	2	-	-	-	4	-	6
01-15-02A	-	-	1	3	1	-	4	-	1	1	8	-	19
01-16-02A	-	-	-	-	1	-	-	-	-	-	-	-	1
02-01-01A	-	-	-	-	-	-	-	-	-	-	1	-	1
02-01-01B	-	-	-	-	-	-	1	-	-	-	3	2	6
02-03-01A	-	-	-	-	-	-	-	-	-	-	873.5g	-	873.5g
03-01-01A	-	-	-	-	-	-	-	-	1	-	5	-	6
03-01-02A	-	-	-	-	-	-	1	-	-	-	-	-	1
03-01-04A	-	-	-	-	-	-	-	-	-	-	1	-	1
03-02-01A	-	-	-	-	-	-	1	-	-	-	1	-	2
03-03-01A	-	-	-	-	-	-	-	-	-	-	1	-	1
03-06-05A	-	-	-	-	-	-	-	-	-	-	1	-	1
04-01-01A	-	-	-	-	-	-	1	-	1	-	1	-	3
04-02-01A	-	-	-	-	-	-	-	-	-	-	3	-	3
04-03-01A	-	-	-	-	-	-	-	-	-	-	3	-	3
04-04-01	-	-	-	-	-	-	1	-	-	-	1	-	2
07-01-01F	-	-	-	-	-	-	-	-	1	-	-	-	1
07-02-02A	-	-	-	-	-	-	-	-	1	-	-	-	1
07-02-02B	-	-	-	-	-	-	1	-	-	-	-	-	1
07-02-02C	-	-	-	-	-	-	2	-	-	-	-	-	2
08-01-01A	-	-	-	0.1g	-	0.1g	0.8g	-	-	0.2g	1.5g	-	2.9g
09-01-01A	-	20.4g	-	5.0g	-	-	46.7g	-	21.7g	0.4g	9.6g	-	102.8g
Total	39	10	19	26	28	13	88	-	60	14	556	10	909

Rock Hearths

Feature 79-7/78-6 (Figure 4.4)

This feature is a shallow basin shaped rock hearth on the linear mound near A20-15. It measures 140 cm x 150 cm and extends from immediately beneath the ground surface to a maximum depth of 25 cm. The feature cuts into Stratum I and an unknown amount of materials may have been removed during historic land clearing. The fill consists of a loose dark gray and black sandy loam containing ashy charcoal residue and numerous spalls and angular pieces of sandstone. The matrix indicates extensive burning in a primary depositional context. An uncorrected radiocarbon date of A.D. 30 ±60 (Tx-3264) was obtained from 10.5 g of wood charcoal associated with the feature. This date is believed to be too early for the stratigraphic placement of this feature. The feature, stratigraphically and morphologically, resembles a rock hearth (F78-9) located 1.75 m to the west. Two uncorrected radiocarbon dates from the rock hearth are A.D. 1730 ±100 (UGa-1518) and A.D. 1450 ±40 (Tx-3282). These dates more nearly reflect the archaeological situation and may be a reasonable estimate for the age of Feature 79-7/78-6.

Horizontal Rock Concentrations

Feature 79-5/78-10 (Figure 4.4)

This feature is a 180 cm x 80 cm concentration of rocks in A20-13, A20-14, A20-17, and A20-18 on the linear mound. The feature occurs in the middle of Stratum II at a depth of 28-36 cm. The rocks are angular and rounded nodules of low quality, highly flawed chert ranging from 5 cm to 15 cm in diameter. Most rocks show fissures and gray or red cortex indicative of thermal alteration. The absence of an oxidized soil matrix and thermal spalls indicates either a low temperature, and short term fire or that the rocks are in a secondary context. A 9.0 g charcoal sample yielded an uncorrected date of A.D. 1775 ±75 (UGa-2534). This date is inconsistent with dates from Features 78-9 and 79-7/78-6 which are stratigraphically above this horizontal rock concentration.

Feature 79-4/78-3 (Figure 4.4)

This feature is a dense rock concentration underlying Feature 79-5/78-10 in the linear mound area. It was partially exposed in eight squares surrounding A20-13 at a depth of 34-45 cm and corresponds to the boundary of Strata II and III. The rocks are horizontally scattered over a level surface which does not correspond to the rise of the linear mound. The rocks include angular, rounded, and tabular shaped nodules covering a range of sandstone, siltstone, and low grade chert cobbles.

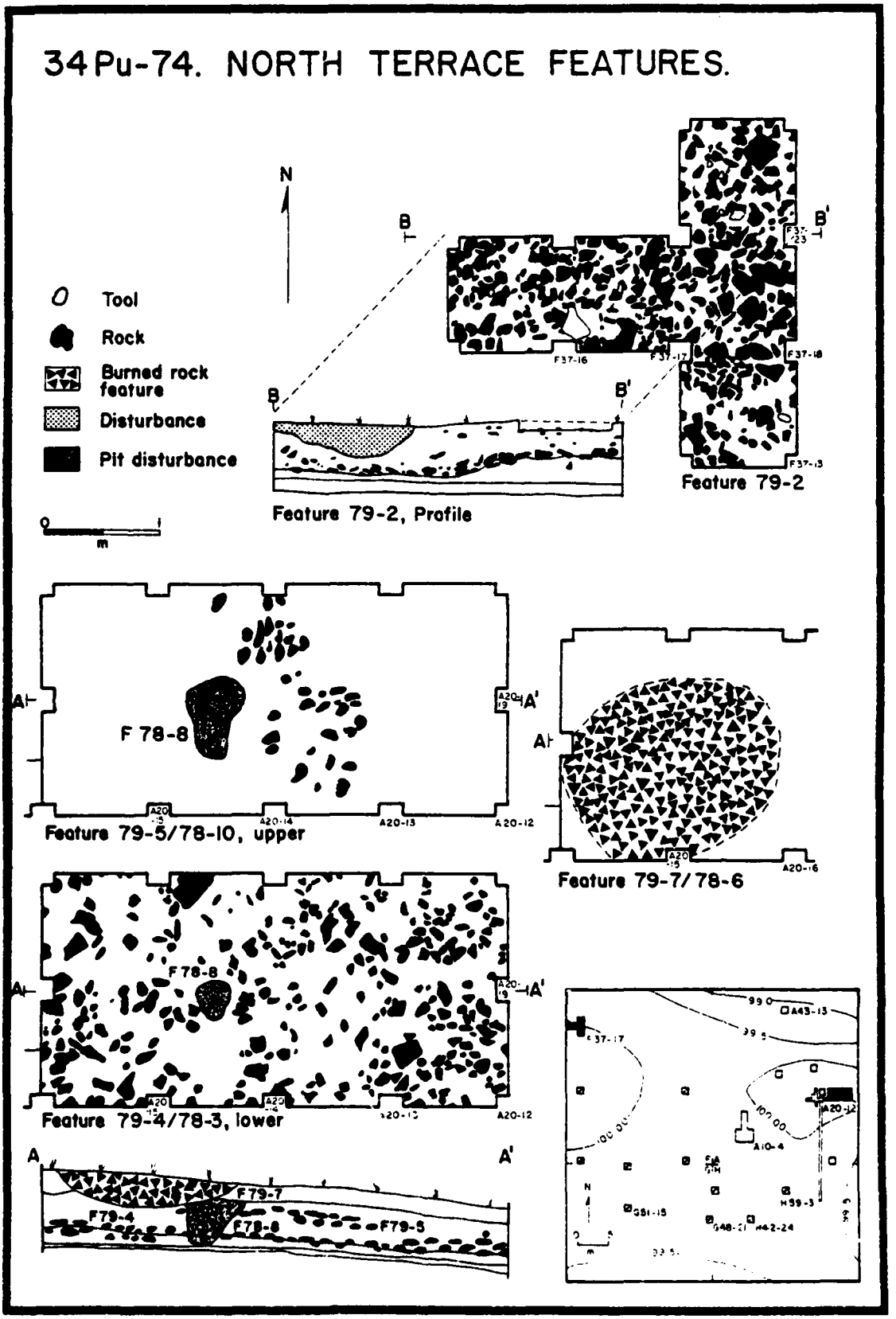


Figure 4.4. Horizontal plan views and vertical profiles of north terrace features at the Blessingame site (34Pu-74): Phase II.

Most range from 6 cm to 11 cm in diameter although a few large blocks (21 cm x 14 cm) are also present. Most are thermally discolored and some have fissures. Heat spalls and charcoal flecks rarely occur in the matrix. It is uncertain whether this feature is in a primary or secondary depositional context.

Feature 79-2 (Figure 4.4)

This feature is a very dense rock concentration located on the low hillock. A limited area of the feature was exposed in five squares around F37-18. The rocks ranged from 10 cm to 40 cm in depth although the greatest density was below 25 cm. All rocks occur within Stratum III and rest directly on Stratum IV. The rocks are a heterogeneous combination of angular and subangular sandstone, quartzite, siltstone, and poor grade chert cobbles. The size of most rocks ranges from 6 cm x 3 cm up to 8 cm x 15 cm. Several are fragmentary ground stone tools. Many are heat spalled and thermally discolored. The surrounding matrix is a dark brown ashy loam containing small amounts of charcoal and burned clay nodules. The flake density for this portion of the site is exceedingly high. This feature may be the remnants of an oven or other intense processing area involving heat or fire.

The western portion of the feature in F37-16 and F37-17 was capped by a 25 cm thick layer of B horizon soil (Stratum VI). The cap is thought to be soil disturbance from the historic brush clearing activities.

SOUTH TERRACE FEATURES

Features in the south terrace area include two horizontal rock concentrations and one possible postmold in the middle mound, and a constellation of features associated with Structure 1 in the south mound area.

Horizontal Rock Concentrations

Feature 79-1 (Figure 4.5)

This horizontal rock concentration was noted in seven squares of a trench between K51-18 and K52-17 in the upper portion of the middle mound. The feature was at a depth of 10 to 25 cm deep along the transition between Strata I and II, and consisted of a densely packed area of small (3-10 cm), angular or semiround sandstone and low grade chert cobbles within an ash/soot matrix containing charcoal and small burned clay nodules. The ashy matrix extends approximately 1 m beyond (downslope) the rock cluster in K52-16. All rocks are thermally discolored, heavily heat spalled, and have numerous fissures. This area experienced intense burning and is in a primary context.

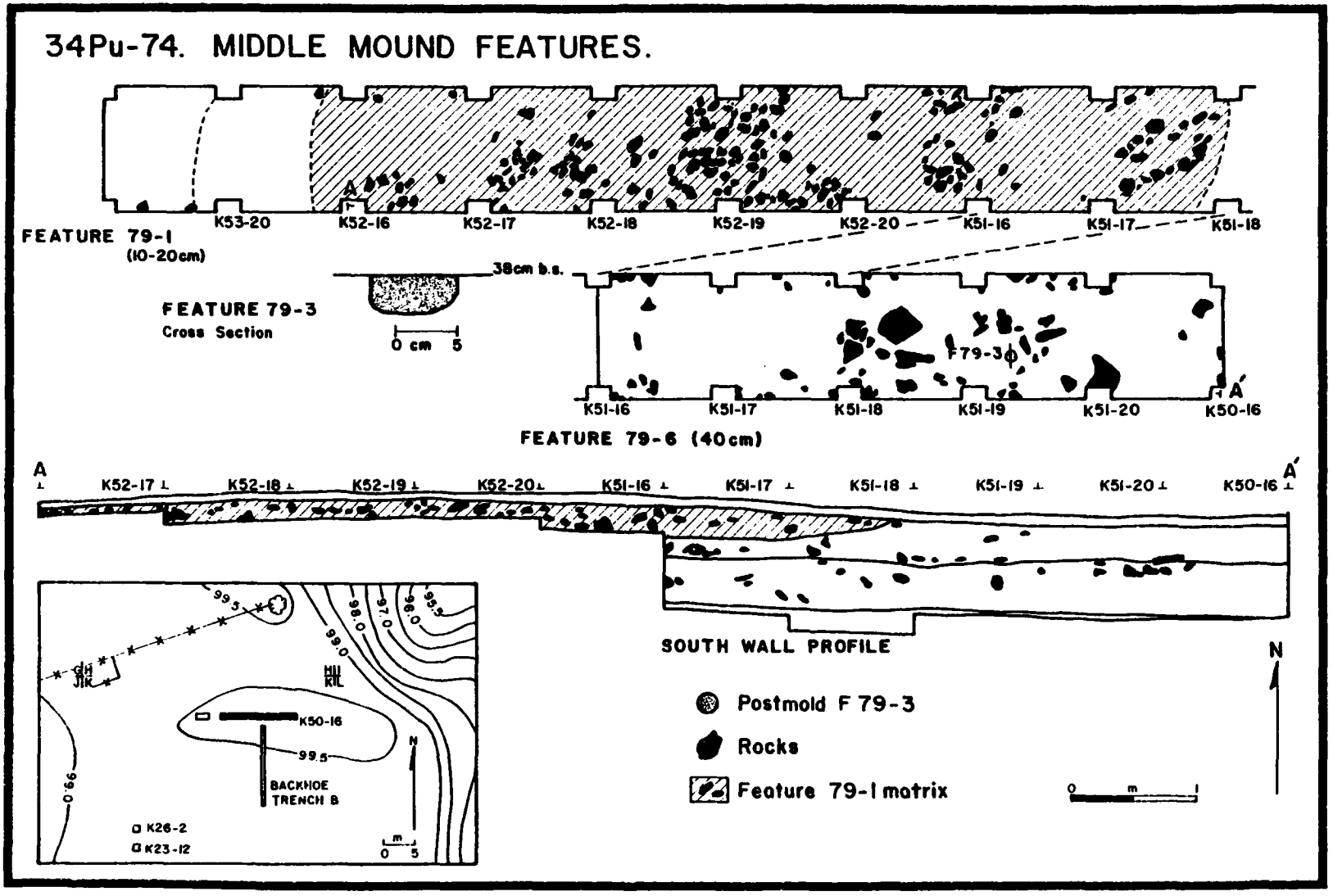


Figure 4.5. Horizontal plan views and vertical profiles of features in the middle mound area of the south terrace at the Blessingame site (34Pu-74): Phase II.

Feature 79-6 (Figure 4.5)

Feature 79-6 was selectively exposed in a 5 m trench between K50-16 and K51-17 in the middle mound. It is stratigraphically beneath Feature 79-1 near the transition of Strata II-III at a depth of 32-40 cm. The feature consists of large tabular and angular sandstone rocks ranging up to 35 cm in diameter, only a few of which display thermal discoloration, fissures, or other evidence of burning. The surrounding yellow-brown silt loam also contained very small amounts of charcoal. There is little evidence of burning activities associated with this feature. A possible postmold (Feature 79-3) may be in association.

Postmold

Feature 79-3 (Figure 4.5)

One postmold was found in K51-20 of the middle mound. It was first detected in the upper portion of Stratum III at a depth of 38 cm. It consisted of a dark soil stain, 9 cm in diameter, containing small pieces of vertically oriented wood charcoal. In cross section, the postmold had parallel sides and extended to a depth of 41 cm. Although the associated occupation surface is uncertain, the postmold may possibly be affiliated with horizontal rock concentration Feature 79-6. Whether the postmold is part of an isolated post or some large feature is uncertain.

Structure 1

Structure 1 (Figure 4.6) is located in sub-blocks B30, B31, B34, and B35. Part of this structure was located and exposed during Phase I excavations. The shape, orientation, and dimensions were ascertained from ash, daub, and charcoal distributions above the floor surface. Only seven squares were excavated to the floor surface during the 1978 season.

During 1979, the details of the interior and perimeter postmold configuration were determined as well as the entryway and other interior features. Structure 1 is subrectangular, measuring 5.35 m x 4.20 m with the long axis oriented N 11.5° W as defined by the wall posts. These dimensions are approximately 0.914 of the estimated dimensions based on ash and roof fall distributions. (Lintz 1979e: 262).

Feature 78-5 and 78-7 (Wall and Roof Fall Debris)

The composition of wall and roof fall debris was not uniform throughout Structure 1. Abundant charred organic materials, ash, and a small quantity of daub were observed 27 cm to 33 cm below ground surface in squares defining the perimeter of the structure. The most abundant charred organic material was unsplit cane concentrated in the northeast, central, southeast, and southwest portions of the structure. Examination

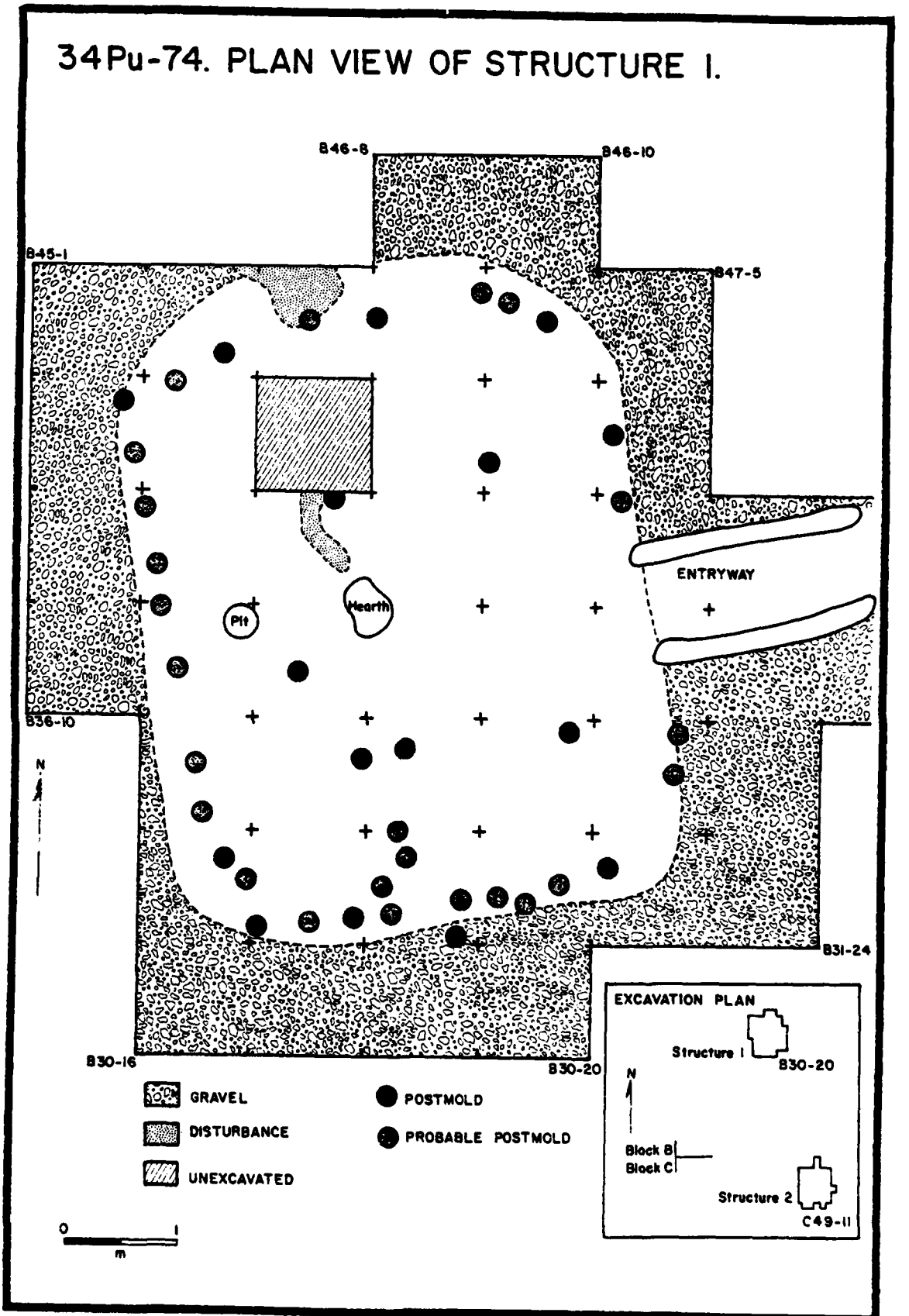


Figure 4.6. Plan view of Structure 1 at the Blessingame site (34Pu-74): Phase II.

of cane orientation failed to discern any lashing, weave, or dominant orientation. Sections of charred posts were most frequently encountered in the northeast, central, and southwest quadrants. These distributions may reflect both structural and burning conditions. Near the center of the structure, a dense concentration of daub pellets occurred at a depth of 36-40 cm. Beneath this, at a depth of 40-45 cm was a charred organic layer. None of the daub specimens showed stick or cane impressions. Four radiocarbon dates were obtained from cane and two charred post samples in 1978. The uncorrected results are A.D. 1420 ±50 (Tx-3283), 940 ±50 (Tx-3280), 1060 ±65 (UGa-2721) and 1765 ±60 (UGa-2532).

Wall Construction

The perimeter of Structure 1 consisted of a single row of vertical posts arranged in a subrectangular pattern. Thirty-two perimeter postmolds were located. However, large section of posts were observed in only three molds. Most were identified by differences in soil compaction, subtle soil discoloration, and/or the presence of charcoal flecks and daub below the floor surface (Table 4.3). Other wall posts may have gone undetected because of vagueness of the soil conditions. Wall post diameters ranged from 8 cm to 16 cm with an average of 10.9 cm. The average depth of nine cross sectioned wall postmolds is 37.6 cm below the floor. The posts were spaced at 25 cm to 55 cm intervals around the structure except near the entryway in the middle of the east wall.

Interior Posts

Nine postmolds were inside the perimeter post pattern. Six relate to roof support and reinforcing posts and three may represent a partition or bench along the south wall of the structure. The basic roof support pattern consists of four central posts, oriented vertically, in a quadrilateral arrangement. The north-south distance between posts is wider ($\bar{x}$ = 2.34 m) than the east-west distance ($\bar{x}$ = 1.60 m). The four central posts have an average diameter of 16.3 cm and depth of 20.8 cm. Two reinforcing posts near the southwest central post are of comparable size ($\bar{x}$ = 19.5 cm).

The three bench or interior partition posts extend 80 cm perpendicular from the south wall. They have an average diameter of 8.3 cm and depth of 17.0 cm. Their smaller size is comparable to the perimeter posts and suggests that they supported a lighter load than the interior posts.

Floor

Although the structure burned, the floor surface was unfired. The floor was relatively level, but gradually rose 3 cm in the middle to the hearth. Color and textural differences between the charred roof and wall fall layer and the floor were subtle near the structure's center. The floor surface was considered to be a gray loam layer

Table 4.3. Description of postmolds from Structure 1 at the Blessingame site (34Pu-74): Phase II.

Post Number	Anomaly Number	Depth Below Floor	Shape	Diameter	Description
Exterior Posts					
1	1	29	circular	12.3	soft soil, some charcoal, gray stain and occasional daub
2	2	-	circular	13.0	soft soil, charcoal flecks
3	3	-	circular	8.0	charred post in place vertically
4	4	-	irregular	14.5	soft soil, charcoal flecks, dark stain, gray ash
5	5	56	circular	8.0	abundant charcoal, dark stain
6	6	-	circular	9.0	soft soil, charcoal flecks, dark stain
7	7	-	oval	10.5	very soft soil, charcoal flecks
8	8	-	circular	10.0	soft soil, charcoal flecks
9	10	50	circular	8.0	charcoal ring, dark stain, daub
10	11	-	irregular	11.5	charcoal flecks
11	-	40	circular	10.0	soft soil, charcoal
12	-	48	irregular	12.0	soft soil, abundant charcoal
13	13	17	circular	8.5	soft soil, cane charcoal, dark stain, daub
14	14	27	irregular	11.5	soft soil, charcoal flecks, dark stain
15	15	-	circular	12.5	charcoal flecks, daub, dark stain
16	16	-	circular	*10.0*	soft soil, dark stain
17	17	-	oval	12.0	soft soil, charcoal flecks, dark stain, daub
18	18	-	circular	9.5	soft soil, charcoal flecks rare, dark stain
19	19	46	circular	9.0	soft soil, abundant charcoal, dark stain, daub
20	20	-	oval	11.5	soft soil, minute flecks of charcoal
21	21	-	circular	10.0	soft soil, abundant charcoal, dark stain, daub
22	22	-	circular	10.3	soft soil, charcoal rare, gray stain
23	23	26	circular	16.5	soft soil, charcoal, dark stain
24	24	-	circular	9.0	---
25	25	-	circular	15.0	soft soil, dark stain within lighter stain, charcoal
26	26	-	circular	10.0	cane charcoal, daub, dark stain
27	27	-	circular	9.0	soft soil, dark stain
28	29	-	circular	9.8	gray stain, daub
29	30	-	circular	11.0	soft soil, charcoal rare, gray stain
30	31	-	irregular	10.0	soft soil, charcoal rare
31	32	-	circular	10.0	soft soil, dark stain
32	33	-	circular	16.0	soft soil, charcoal rare, abundant daub
Interior Posts					
33	38	20	circular	19.0	soft soil, charcoal flecks, dark stain, daub
34	39	21	oval	14.3	soft soil, charcoal, dark stain
35	44	39	circular	25.0	soft soil, charcoal, dark stain
36	46	26	oval	19.0	soft soil, charcoal, dark stain, daub
37	47	41	oval	14.0	soft soil, charcoal, daub
38	48	16	irregular	13.0	soft soil, charcoal, daub
39	49	8	circular	8.0	soft soil, gray stain
40	50	27	circular	9.5	soft soil, charcoal, daub rare
41	51	16	circular	7.5	soft soil, charcoal, daub

containing ash and charcoal flecks beneath a layer of cane and large charred posts, and above gravelly Stratum III at a depth of 47 cm.

Feature 78-15 (Hearth)

Portions of a clay lined hearth were aligned with the entrance. It was situated between the two western roof support posts at a depth of 39-41 cm below surface. The hearth rim was missing and only an irregularly shaped part of the base measuring 25 cm x 28 cm remained. Results of archaeomagnetic dating of a hearth sample is A.D. 1200 (O.U.-1648).

Feature 79-9 (Interior Pits)

A small basin shaped pit was found between the west wall and the hearth, along the same bisecting line passing through the hearth and entryway. The pit has a diameter of 29 cm and is 18 cm below the floor. A lens of charred cane and wood in the bottom suggests that the pit was open and relatively empty when the structure burned. The artifact content includes one fragmentary base of a large, unidentifiable expanding base point, four modified flakes, and twenty-two unmodified flakes.

Feature 79-10 (Entryway)

An extended entryway was in the middle of the east wall. It consisted of two semiparallel walls of densely packed silt loam extending eastward for a distance of 2.16 m. Each wall averaged 18.5 cm thick and the space between the walls varied from 65 cm to 73 cm. The entryway foundation consisted of wall trenches excavated 26 cm and 32 cm below the approximate floor surface. The silt loam walls lacked the gravel texture characteristic of the surrounding matrix. An absence of postmolds along the walls tenuously suggests that the entryway was made of puddled adobe.

ABSOLUTE CHRONOLOGY

Eleven radiocarbon and three archaeomagnetic dates from the two structures, two rock hearths, and one horizontal rock concentration have been previously reported (Bobalik 1977: 496; Lintz 1979e: 272). Three radiocarbon dates (Tx-3284, UGa-2532, UGa-2534) were rejected for a variety of reasons (Lintz 1979e: 273). No additional materials were submitted for dating during Phase II. Subsequent discussions will refer to previously published MASCA corrected dates (Lintz 1979e: Table 47).

CULTURAL REMAINS

During Phase II, 35,475 artifacts, 827.6 g baked clay, 301.9 g floral and 13.5 g faunal materials were recovered. The artifacts include 608 bifacially chipped stone tools and items from the reduction sequence, 1,012 modified flakes, 33,751 debitage flakes, 12 ceramic sherds, 15 ground stone tools, 16 pecked stone tools, and 61 historical items.

The description of cultural remains is organized according to the classification system previously outlined. Specific class, group, category, and variety designations applicable to 34Pu-74 materials are listed in Table 4.4. Metric attributes of select chipped stone and ground stone tools are summarized in Tables 4.5 and 4.6. The nomenclature of point morphology follows Bell (1958: 1). Ceramic colors are based on Munsell (1975).

Chipped Stone *(01)*

POINTS (01-00)

Large Contracting Stemmed Points *(01-01-01)*

01-01-01A N=14: 5 Complete, 9 Fragmentary (Figure 4.7a-b)

Blade lengths and widths of these specimens are quite variable. They have triangular outlines, acute tips, straight or convex blade edges, slight shoulders (5) or prominently unbarbed shoulders (9), and relatively broad contracting stems which taper to strongly convex (11) or straight (3) bases. The shoulders are the widest part of these specimens. Cross sections are irregularly biconvex.

Comments: These specimens resemble the *Gary* type.

References: Bell 1958: 28, Pl. 14; Suhm and Jelks 1962: 197, Pl. 99.

Large Expanding Stemmed/Corner-Notched Points *(01-01-02)*

01-01-02A N=1: 1 Fragmentary (Figure 4.7c)

This specimen has straight blade edges, prominent unbarbed shoulders, a mildly expanding stem, sharply defined tangs, and a slightly convex base. Maximum width is at the shoulders, and the cross section is biconvex.

Comments: This specimen resembles the *Lange* type.

References: Bell 1958: 36, Pl. 18; Suhm and Jelks 1962: 203, Pl. 103.

Table 4.4. Summary of artifact categories and varieties from the Blessingame site (34Pu-74): Phase II.

Chipped Stone *(01)*

POINTS (01-00)
- Large Contracting Stemmed Points *(01-01)*
  - *01-01A*
- Large Expanding Stemmed/Corner-Notched Points *(01-02)*
  - *01-02A*
  - *01-02B*
  - *01-02D*
  - *01-02E*
  - *01-02H*
  - *01-02I*
  - *01-02L*
  - *01-02M*
  - *01-02N*
  - *01-02Q*
  - *01-02S*
  - *01-02AA*
- Large Expanding Stemmed/Side-Notched Points *(01-03)*
  - *01-03C*
- Large Straight Stemmed Points *(01-04)*
  - *01-04D*
- Large Unstemmed Points *(01-05)*
  - *01-05B*
  - *01-05D*
  - *01-05E*
- Small Expanding Stemmed/Corner-Notched Points *(01-06)*
  - *01-06A*
  - *01-06J*
- Small Expanding Stemmed/Side-Notched Points *(01-07)*
  - *01-07B*
  - *01-07C*

DRILLS (02-00)
- Shaped Base Drill *(02-01)*
  - *02-01A*
  - *02-01D*

SCRAPERS (05-00)
- Flake/Unifacial Scrapers *(05-02)*
  - *05-02A*

BIFACES (10-00)
- Cobble/Quarried Block Biface I *(10-01)*
  - *10-01A*
- Cobble/Block Biface II/Thick Biface *(10-02)*
  - *10-02A*

Table 4.4. Continued

Thin Biface I *(10-03)*
10-03A
Thin Biface IIa *(10-04)*
10-04A
Thin Biface IIb *(10-05)*
10-05A

MISCELLANEOUS BIFACE IMPLEMENTS (11-00)
Cobble/Quarried Block Biface I Tool *(11-01)*
11-01A
Cobble/Block Biface II/Thick Biface Tool *(11-02)*
11-02A
Thin Biface I Tool *(11-03)*
11-03A
Core Tool *(11-07)*
11-07A
Split Cobble Tool *(11-08)*
11-08A
Tested Cobble Tool *(11-09)*
11-09A

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)
12-01A

MODIFIED FLAKES (13-00)
13-01A
13-01B
13-01C

CORES (14-00)
14-01A

SPLIT/TESTED COBBLES (15-00)
Split Cobbles *(15-01)*
15-01A
Tested Cobbles *(15-02)*
15-02A

DEBITAGE (16-00)
16-01A

Fired Clay *(02)*

CERAMICS (01-00)
Plain Grog, Grit, and Bone Tempered Wares *(01-01)*
01-01A
01-01B

BAKED CLAY (03-00)
03-01A

Table 4.4. Continued

Ground Stone *(03)*

MANOS (01-00)
Unifacial Manos *(01-01)*
01-01A
Bifacial Manos *(01-02)*
01-02A
Pitted Manos *(01-04)*
01-04A

METATE/GRINDING SLABS (02-00)
02-01A

ABRADERS (03-00)
03-01A

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)
06-05A

Pecked/Battered/Unmodified Cobbles *(04)*

HAMMERSTONES (01-00)
01-01A

PITTED STONES (02-00)
02-01A

MISCELLANEOUS PECKED/BATTERED STONE (03-00)
03-01A

UNMODIFIED COBBLES/PEBBLES (04-00)
Limonite/Hematite *(04-01)*
04-01A

Historic Debris *(07)*

GLASS (01-00)
01-01A
01-01F

CROCKERY/CERAMICS (02-00)
Ironstone/Porcelain *(02-02)*
02-02A
02-02B
02-02C
02-02D
02-02E

Table 4.4. Continued

METAL (03-00)
03-01A

STONE (05-00)
05-01A

Faunal *(08)*

BONE/HORN/TEETH (01-00)
01-01A

SHELL (02-00)
Gastropods *(02-02)*
02-02A

Floral *(09)*

01-01-02B N=2: 2 Fragmentary (Figure 4.7d)

These specimens have relatively short, broad blades with slightly convex blade edges, rounded and well-defined short barbs, wide and relatively deep corner notches which produce a moderately expanding stem, rounded tangs, and relatively straight bases. The widest part is at the shoulders. Both have irregularly biconvex cross sections.

Comments: They resemble the *Ensor* type.

References: Bell 1960: 34, Pl. 17; Suhm and Jelks 1962: 189, Pl. 95.

01-01-02D N=3: 3 Fragmentary (Figure 4.7e)

These specimens have relatively short, wide blades with well-defined (1) or rounded (2) unbarbed shoulders, relatively broad and deep corner notches, moderately expanding stems, broad rounded tangs, and concave bases. The shoulders are the widest portion of these specimens. All have biconvex cross sections.

Comments: These specimens resemble the *Frio* type.

References: Bell 1960: 48, Pl. 24; Suhm and Jelks 1962: 195, Pl. 98.

01-01-02E N=1: 1 Fragmentary (Figure 4.7f)

This specimen has a broad blade with straight edges, weakly defined shoulders, very broad and deep corner notches, a moderately expanding stem, rounded tangs, and a straight base. The shoulders and tangs are equally wide. It has a biconvex cross section.

Comments: This specimen resembles the *Trinity* type.

References: Bell 1958: 96, Pl. 48; Suhm and Jelks 1962: 253, Pl. 127.

01-01-02H N=4: 4 Fragmentary (Figure 4.7g)

These specimens have broad, triangular blades with straight (1) or convex (3) blade edges, well-defined barbed shoulders, deep and narrow corner notches, moderately expanding stems, pointed (2) or well-defined rounded (2) tangs, and straight (1) or convex (3) bases. The shoulders are the widest portion of these specimens, but the barbs are not as long as the stem. These specimens have thin biconvex cross sections.

Comments: They resemble the *Marcos* type.

References: Bell 1958: 42, Pl. 21; Suhm and Jelks 1962: 209, Pl. 105.

01-01-02I N=5: 1 Complete, 4 Fragmentary (Figure 4.7h)

These specimens have relatively long, broad triangular blades with acute tips, convex (2) or recurved concave (3) blade edges, long barbs, narrow deep corner notches, and stems which are mildly (3) or moderately (2) expanding. Tangs are well-defined (3) or rounded (2) and the bases are straight (4) or slightly convex. The barbs are the widest part of these specimens and extend almost in line with the base. All have biconvex cross sections.

Comments: They resemble the *Marshall* type.

References: Bell 1958: 44, Pl. 22; Suhm and Jelks 1962: 211, Pl. 106.

01-01-02L N=4: 4 Fragmentary (Figure 4.7i-j)

These specimens have short broad triangular blades with poor to moderately defined unbarbed shoulders, broad and deep corner notches, moderately expanding stems, blunt and rounded tangs, and a concave base. Both shoulders and tangs are the widest portion on these points. Cross sections are biconvex.

Comments: These specimens resemble the *Fairland* and *Edgewood* types. They are distinguished from *01-01-02D* points by their less pronounced shoulders and shallower basal concavity.

References: Bell 1958: 20, Pl. 10, 1960: 38, Pl. 19; Suhm and Jelks 1962: 191, 183, Pls. 96, 92.

01-01-02M N=4: 3 Complete, 1 Fragmentary (Figure 4.7k)

These specimens have relatively long narrow blades with acute straight tips, non-serrated (3) or serrated (1) blade edges, moderately defined unbarbed shoulders, broad corner notches, slight to mildly expanding stems, rounded or pointed tangs, and deeply concave bases. The shoulders are the widest part of these specimens. All have biconvex cross sections.

Comments: These specimens have shoulder treatment like the *Darl* type, but the base morphology resembles the *Uvalde* type.

References: Bell 1960: 26, 92, Pls. 13, 46; Suhm and Jelks 1962: 179, 255, Pls. 90, 128.

01-01-02N N=1: 1 Fragmentary (Figure 4.7l)

This specimen has a broad blade with prominent unbarbed shoulders, deep corner notches, strongly expanding stem, rounded tangs, and a convex base. The shoulders are the widest part of the point. The cross section is biconvex.

Comments: This specimen conforms to the *Williams* type.

References: Bell 1960: 96, Pl. 48; Suhm and Jelks 1962: 259, Pl. 130.

01-01-02Q N=2: 2 Fragmentary (Figure 4.7m)

These specimens are large broad points with convex blade edges, poorly defined shoulders formed by very broad but shallow corner notches, a long weakly expanding stem, rounded tangs, and a slightly concave base. The shoulders are the broadest portion of the point. Cross sections are biconvex.

Comments: These specimens do not conform to named types, but similar specimens have been recovered from the Clayton Lake region.

References: Vehik and Galm 1979.

01-01-02S N=2: 2 Fragmentary (Figure 4.7n)

These are large broad points with undeterminable blade size and morphology. They have well-defined unbarbed shoulders, weakly expanding stems, sharply defined tangs, and concave bases. The widest part is at the shoulders. Cross sections are biconvex.

Comments: These specimens resemble the *Johnson* type.

References: Perino 1968: 40, Pl. 20.

01-01-02AA N=1: 1 Complete (Figure 4.7o)

This specimen has a long triangular blade with an acute tip, slightly convex mildly serrated blade edges, prominent unbarbed shoulders, and very broad but shallow corner notches. The stem contracts approximately half its total length before it becomes slightly expanding (almost parallel). Tangs are well-defined and the base is slightly concave. Maximum width is at the shoulders. It has a thin biconvex cross section.

Comments: It resembles the *Darl* type.

References: Bell 1960: 26, Pl. 13; Suhm and Jelks 1962: 179, Pl. 90.

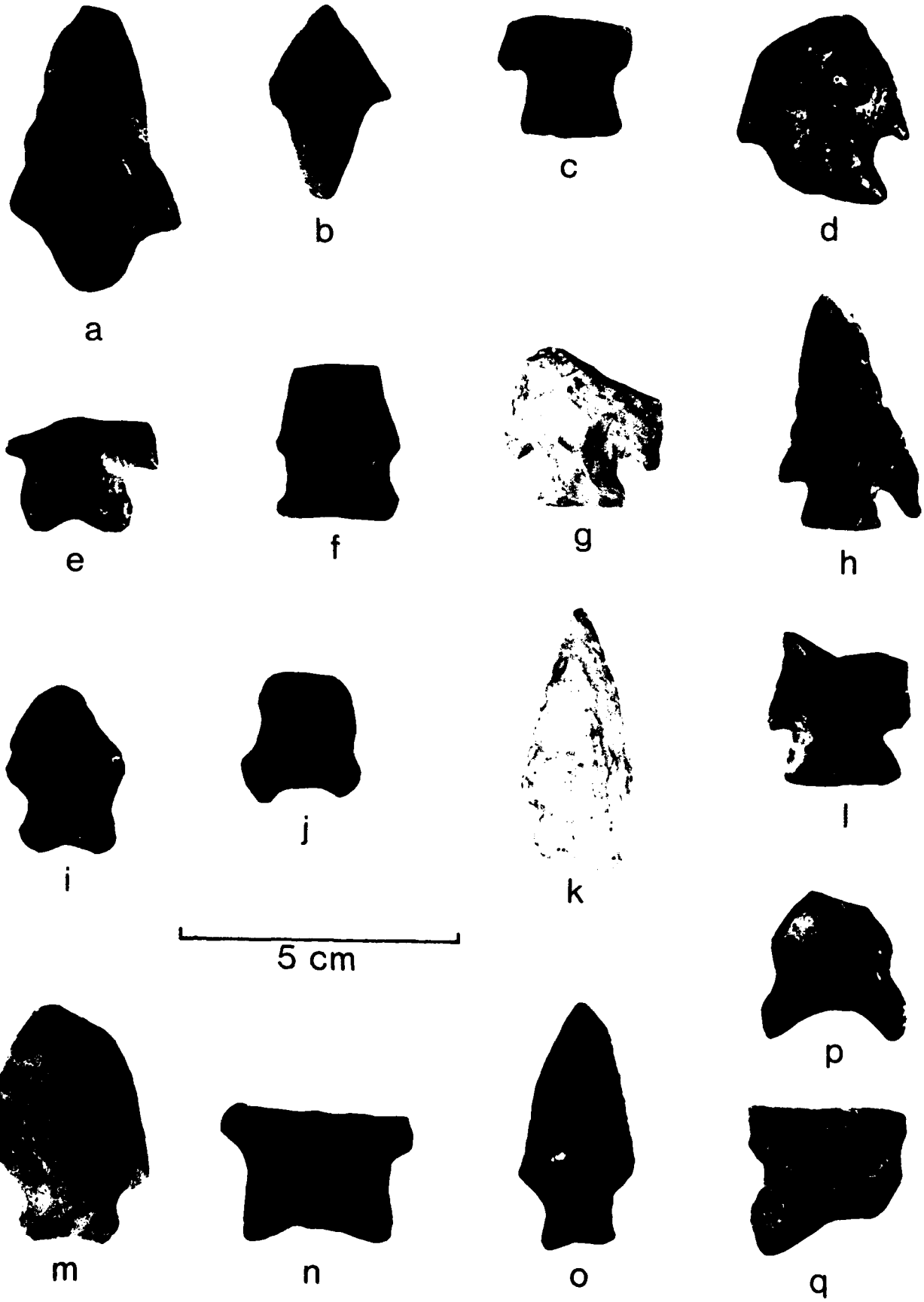
Large Expanding Stemmed/Side-Notched Points *(01-01-03)*

01-01-03C N=2: 2 Fragmentary (Figure 4.7p-q)

These specimens have very broad blades with convex blade edges, weak shoulders, broad but shallow side notches, stems that are wider than the shoulders, pointed tangs, and very broad and deep concave bases. The tip and blade edges of one specimen may have been reworked. Cross sections are biconvex.

Figure 4.7. Selected chipped stone artifacts from the Blessingame site (34Pu-74): Phase II.

a-b: *01-01-01A*
c: *01-01-02A*
d: *01-01-02B*
e: *01-01-02D*
f: *01-01-02E*
g: *01-01-02H*
h: *01-01-02I*
i-j: *01-01-02L*
k: *01-01-02M*
l: *01-01-02N*
m: *01-01-02Q*
n: *01-01-02S*
o: *01-01-02AA*
p-q: *01-01-03C*


a
b
c
d
e
f
g
h
i
j
k
l
5 cm
m
n
o
p
q

Large Straight Stemmed Points *(01-01-04)*

01-01-04D N=3: 1 Complete, 2 Fragmentary (Figure 4.8a)

These specimens have large broad blades, acute tips, convex blade edges, short well-defined barbs, a relatively long parallel stem, defined tangs, and convex bases. The barbs or lateral blade edges are the widest portion of these specimens. Cross sections are biconvex or subtriangular.

Comments: These specimens resemble the *Bulverde* type.

References: Bell 1960: 12, Pl. 6; Suhm and Jelks 1962: 229, Pl. 115.

Large Unstemmed Points *(01-01-05)*

01-01-05B N=4: 4 Fragmentary (Figure 4.8b-c)

These specimens are broad triangular points with convex blade edges near the tip which change gradually to straight (3) or slightly concave to parallel (1) near the base. Tangs are sharply pointed (3) or excurvate and rounded (1) and bases are deeply concave. The bases and parallel stems are heavily ground. Cross sections near the tip are alternately beveled, but change to biconvex near the base.

Comments: These specimens resemble the *Meserve* type.

References: Bell 1960: 52, Pl. 26; Suhm and Jelks 1962: 217, Pl. 109.

01-01-05D N=1: 1 Complete (Figure 4.8d)

This specimen has a triangular-ovate form with convex blade edges and base. The tip and tangs are rounded. The tangs are the widest portion of the specimen. It has a biconvex cross section.

Comments: This specimen does not conform to a defined type. It is considered to be a finished point rather than a Thin Biface IIa *(01-10-04A)* since it has minute edge alteration.

01-01-05E N=1: 1 Fragmentary (Figure 4.8e)

This unstemmed specimen has a broad triangular blade with recurved blade edges, prominent tangs, and a slightly concave base. The blade edges near the tip are serrated, but the proximal blade edges and base are heavily ground. The flaring tangs are the widest part of the specimen. The cross section is biconvex.

Comments: This specimen does not correspond to defined types. It shares some characteristics (non-beveled, serrated blade edge) with the *Dalton* type, but the base morphology differs.

References: Bell 1958: 18, Pl. 9.

Small Expanding Stemmed/Corner-Notched Points *(01-01-06)*

01-01-06A N=1: 1 Fragmentary (Figure 4.8f)

This specimen has a triangular blade with straight blade edges, long barbs, narrow deep side notches, a strongly expanding stem with pointed tangs, and a straight base. The barbs are the widest portion of the specimen. The cross section is biconvex.

Comments: This specimen resembles the *Scallorn* type.

References: Bell 1960: 84, Pl. 42; Suhm and Jelks 1962: 285, Pl. 143.

01-01-06J N=1: 1 Complete (Figure 4.8g)

This specimen has a triangular blade, an acute tip, straight blade edges, short rounded barbs, broad but deep corner notches, a moderately expanding stem, rounded tangs, and a straight base. The shoulders are the widest part of the specimen. It has a plano-convex cross section.

Comments: This specimen resembles the *Massard* type.

References: Brown 1976: 68, Pl. 13 k-p, 16 a-h.

Small Expanding Stemmed/Side-Notched Points *(01-01-07)*

01-01-07B N=3: 1 Complete, 2 Fragmentary (Figure 4.8h)

These specimens are small triangular points with very acute tips, straight blade edges, and relatively narrow side notches placed one-third of the distance from the base. The stem is in line with the blade edges. Tangs are pointed and the base is concave.

Comments: These specimens resemble the *Washita* type.

References: Bell 1958: 98, Pl. 49; Brown 1976: 105, Pl. 20.

01-01-07C N=2: 2 Complete (Figure 4.8i-j)

These specimens have triangular blades, acute tips, convex serrated and unserrated blade edges, prominent shoulders, relatively broad and deep side notches, a short stem which is not in line with the blade edges, sharply defined tangs, and straight bases. The base of one specimen is a hinge fracture termination of the original flake. Both shoulders and bases are the widest parts of these specimens. Cross sections are biconvex.

Comments: They resemble the *Reed* type.

References: Bell 1958: 76, Pl. 38; Brown 1976: 105, Pl. 19 d-n'.

Figure 4.8. Selected chipped stone artifacts from the Blessingame site (34Pu-74): Phase II.

a: *01-01-04D*

b-c: *01-01-05B*

d: *01-01-05D*

e: *01-01-05E*

f: *01-01-06A*

g: *01-01-06J*

h: *01-01-07B*

i-j: *01-01-07C*

k: *01-02-01A*

l: *01-02-01D*

m: *01-05-02A*

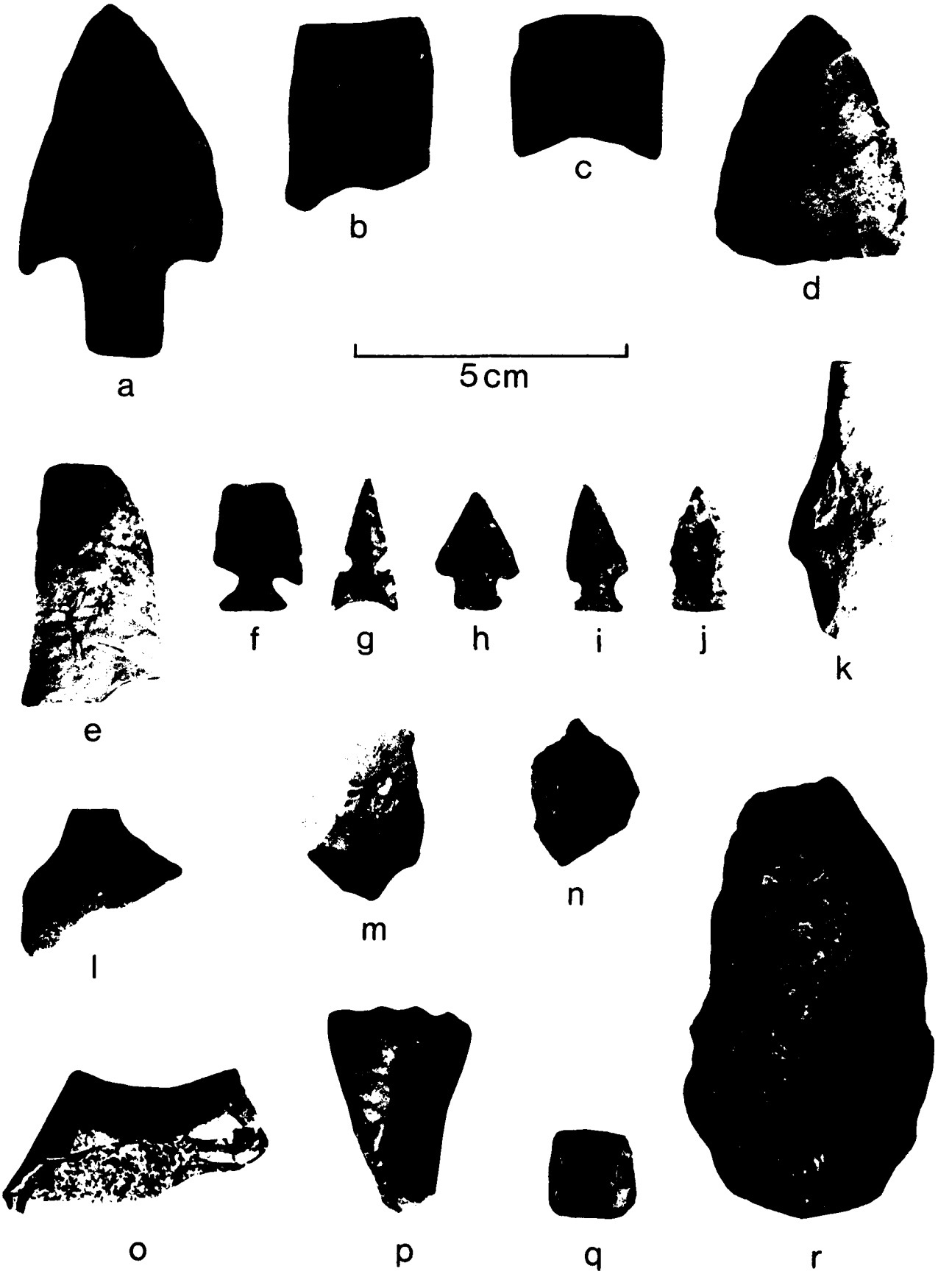
n: *01-13-01A*

o: *01-13-01B*

p: *01-13-01C*

q: *07-05-01A*

r: *01-10-01A*


a
b
c
d
5cm
e
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g
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o
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r

DRILLS (02-00)

Shaped Base Drills *(01-02-01)*

01-02-01A N=1: 1 Fragmentary (Figure 4.8k)

This specimen is made from a large contracting stemmed point *(01-01-01A)*. It has well-defined shoulders, a broad contracting stem, and a convex base. The blade has been reshaped into a long narrow shank. The tip is missing.

01-02-01D N=2: 2 Fragmentary (Figure 4.8l)

These specimens have carefully shaped bifacially worked bases. Stems are very broad and flare slightly, tangs are rounded, and bases are concave and deeply concave. Shanks are relatively narrow, but tips of both specimens are missing.

SCRAPERS (05-00)

Flake/Unifacial Scrapers *(01-05-02)*

01-05-02A N=1: 1 Complete (Figure 4.8m)

This specimen has long, unifacial flake scar patterns forming a steep edge angle along a convex distal edge. Lateral and proximal edges exhibit minimal modification. Minute crushing is visible along the working edge of the specimen. It resembles a keeled scraper.

Comments: Eight scrapers were found during the 1978 excavations (Lintz 1979e). One other scraper, made of Kay County chert, was found in 1978, but unfortunately was misplaced prior to analysis.

BIFACES (10-00)

Cobble/Quarried Block Biface I *(01-10-01)*

01-10-01A N=58: 49 Complete, 9 Fragmentary (Figure 4.8r, 4.9a)

These specimens are large, relatively thick, irregularly shaped cobbles or pebbles which have been bifacially flakes. Cortex covers most of one or both surfaces. Flake scars are characteristically large and the edges are very sinuous. Specimen shape and irregular thick cross sections reflect the morphology of the original cobble.

Cobble/Block Biface II/Thick Biface *(01-10-02)*

01-10-02A N=144: 56 Complete, 88 Fragmentary (Figure 4.9b-c)

These specimens have relatively thick irregular cross sections, sinuous edges, and large flake scars. Cortex may or may not be present. The morphology of these specimens largely reflects either the original cobble form or exhibit some indications of shaping. The size is believed to reflect the original form, although one specimen is made from a large flake.

Thin Biface I *(01-10-03)*

01-10-03A N=106: 14 Complete, 92 Fragmentary (Figure 4.9d-e)

Specimens in this category show concern for shaping and thinning. They are ovate to subtriangular in form and cross sections are uniformly thinned. Little or no cortex is present. Flake scars are smaller and the edges are slightly sinuous. None show evidence of hafting. Approximately 5% are made from flakes rather than thick cobble bifaces.

Thin Biface IIa *(01-10-04)*

01-10-04A N=25: 9 Complete, 16 Fragmentary (Figure 4.9f-h)

These specimens have a uniformly thinned cross section, regular edges, intentional shaping into a simple geometric form, and they lack a hafting element. Flake scars are small with no edge alteration. Seven specimens are small and appear to be made from flakes. The flake scar pattern on three small specimens is primarily unifacial.

Thin Biface IIb *(01-10-05)*

01-10-05A N=8: 1 Complete, 7 Fragmentary (Figure 4.9i-j)

These are uniformly thinned, shaped specimens displaying indications of a haft element. Edges are regular and flake scars are small. No edge alteration is present. None have cortex. The haft element is often asymmetrical or only one notch of a presumed pair is present. All specimens are from large bifaces.

MISCELLANEOUS BIFACE IMPLEMENTS (11-00)

Cobble/Quarried Block Biface I Tool *(01-11-01)*

01-11-01A N=7: 6 Complete, 1 Fragmentary

These items are similar to *01-10-01A* specimens but display edge retouch (6) or battering (1) along a coarse sinuous edge. They have

thick cross sections and cortex covering most of one or more faces. Flake scars are large. Their shapes largely reflect the original cobble.

Cobble/Block Biface II/Thick Biface Tool *(01-11-02)*

01-11-02A N=8: 5 Complete, 3 Fragmentary

These items are similar to *01-10-01A* artifacts, but exhibit edge alteration and crushing along portions of a sinuous edge. They have thick irregular cross sections and exhibit large flake scars. A small amount of cortex is present on one face of three specimens.

Thin Biface I Tool *(01-11-03)*

01-11-03A N=3: 3 Fragmentary

Tools in this category are uniformly thinned and show indications of shaping. Flake scars are smaller and the edges are slightly sinuous. None show evidence of hafting. Minute edge alteration separates these specimens from thin bifaces from the reduction sequence *(01-10-03A)*. The edge alteration on one specimen occurs along the steep angle edge of a break.

Core Tool *(01-11-07)*

01-11-07A N=1: 1 Complete

This specimen is an irregular blocky cobble which has had large flakes removed from several faces. It does not have sinuous edges and striking platforms occur at several locations. Crushing as a form of stabilization is present along most platform edges. Evidence of utilization is indicated by nibbling along a steep angle, non-platform edge and crushing and rounding of an adjacent flake ridge in the middle of one face. This item may have been subsequently used as a steep angle plane.

Split Cobble Tool *(01-11-08)*

01-11-08A N=2: 2 Complete

These specimens are split cobble sections *(01-15-01)* which show evidence of nibbling or rounding along an edge. Both specimens are irregularly thick plano-convex cobble sections with cortex covering most of the dorsal surface. The ventral surface on both specimens is concave. Minute edge alteration occurs on a steep angle edge. The worn edge of one specimen is also rounded.

Table 4.5. Metric attributes of selected chipped stone varieties from the Blessingame site (34Pu-74): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-01A					
$\bar{x}$	45.0	24.0	7.0	15.0	16.0
s.d.	10.0	4.0	2.0	3.0	3.0
range	36.0-57.0	17.0-31.0	6.0-10.0	9.0-18.0	11.0-20.0
N	5	14	14	14	14
01-01-02A					
$\bar{x}$	-	25.0	6.0	12.0	19.0
N	-	1	1	1	1
01-01-02B					
$\bar{x}$	-	31.0	9.0	10.0	-
range	-	-	8.0-10.0	10.0-11.0	-
N	-	1	2	2	-
01-01-02D					
$\bar{x}$	-	28.0	7.0	11.0	21.0
s.d.	-	1.0	0.3	0.3	1.0
range	-	28.0-29.0	6.0-7.0	11.0-12.0	20.0-22.0
N	-	3	3	3	3
01-01-02E					
$\bar{x}$	-	25.0	9.0	10.0	-
N	-	1	1	1	-
01-01-02H					
$\bar{x}$	-	30.0	7.0	11.0	18.0
s.d.	-	-	1.0	1.0	2.0
range	-	-	5.0-8.0	10.0-13.0	17.0-21.0
N	-	1	4	4	3
01-01-02I					
$\bar{x}$	44.0	31.0	7.0	10.0	17.0
s.d.	-	-	1.0	2.0	3.0
range	-	26.0-36.0	6.0-9.0	7.0-13.0	15.0-20.0
N	1	2	5	5	4

Table 4.5. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-02L					
$\bar{x}$	31.0	23.0	6.0	11.0	20.0
s.d.	-	-	1.0	-	-
range	-	22.0-23.0	6.0-7.0	10.0-11.0	18.0-22.0
N	1	2	4	2	2
01-01-02M					
$\bar{x}$	42.0	22.0	7.0	11.0	18.0
s.d.	8.0	1.0	0.3	1.0	1.0
range	36.0-51.0	20.0-23.0	7.0-8.0	10.0-12.0	17.0-19.0
N	3	4	4	4	4
01-01-02N					
$\bar{x}$	-	27.0	6.0	9.0	22.0
N	-	1	1	1	1
01-01-02Q					
$\bar{x}$	-	30.0	9.0	10.0	19.0
range	-	28.0-31.0	8.5-8.9	-	-
N	-	2	2	2	1
01-01-02S					
$\bar{x}$	-	32.0	8.0	15.0	27.0
range	-	30.0-35.0	7.0-8.0	15.0-16.0	-
N	-	2	2	2	1
01-01-02AA					
$\bar{x}$	46.0	22.0	5.0	10.0	14.0
N	1	1	1	1	1
01-01-03C					
$\bar{x}$	-	28.0	6.0	15.0	28.0
range	-	27.0-30.0	5.0-7.0	14.0-16.0	26.0-29.0
N	-	2	2	2	2
01-01-04D					
$\bar{x}$	64.0	43.0	9.0	18.0	16.0
s.d.	-	-	2.0	2.0	-
range	-	38.0-48.0	7.0-10.0	16.0-21.0	15.0-17.0
N	1	2	3	3	2

AD-A122 361 ARCHAEOLOGICAL INVESTIGATIONS AT CLAYTON LAKE SOUTHEAST OKLAHOMA PHASE II(U) OKLAHOMA UNIV NORMAN ARCHAEOLOGICAL RESEARCH AND MANAGEMENT CE.. R VEHIK ET AL. 1982 2/5

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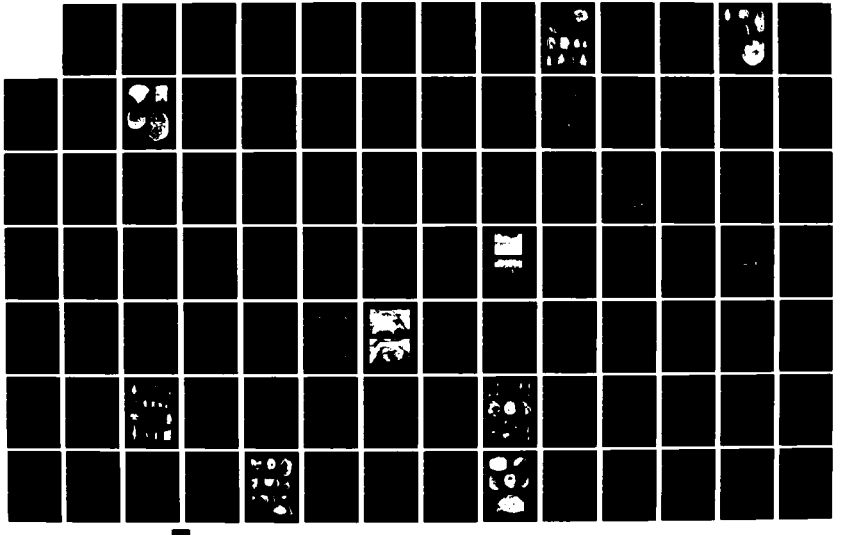


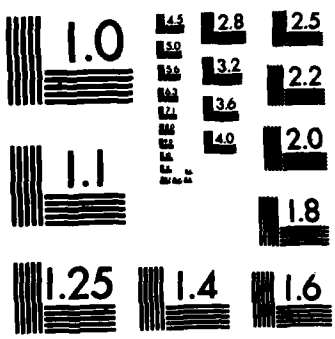


Table 4.5. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-05B					
$\bar{x}$	-	25.0	7.0	-	26.0
s.d.	-	4.0	1.0	-	-
range	-	21.0-29.0	6.0-8.0	-	23.0-28.0
N	-	4	4	-	2
01-01-05D					
$\bar{x}$	47.0	36.0	9.0	-	-
N	1	1	1	-	-
01-01-05E					
$\bar{x}$	-	-	6.0	-	-
N	-	-	10.0	-	-
01-01-06A					
$\bar{x}$	-	-	5.0	7.0	13.0
N	-	-	1	1	1
01-01-06J					
$\bar{x}$	23.0	16.0	4.0	6.0	-
N	1	1	1	1	-
01-01-07B					
$\bar{x}$	26.0	13.0	3.0	9.0	11.0
s.d.	-	-	0.2	2.0	-
range	-	13.0-14.0	2.7-3.0	8.0-11.0	9.0-13.0
N	1	2	3	3	2
01-01-07C					
$\bar{x}$	24.0	12.0	4.0	6.0	11.0
range	24.0-24.4	11.8-12.4	4.0-5.0	5.0-7.0	10.0-12.0
N	2	2	2	2	2
01-02-01A					
$\bar{x}$	-	23.0	7.0	16.0	12.0
N	-	1	1	1	1
01-02-01D					
$\bar{x}$	-	31.0	6.0	-	-
range	-	-	5.0-6.0	-	-
N	-	1	2	-	-

Table 4.5. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-10-01A					
$\bar{x}$	56.0	43.0	23.0	-	-
s.d.	12.0	11.0	11.0	-	-
range	31.0-97.0	24.0-71.0	7.0-39.0	-	-
N	49	49	49	-	-
01-10-02A					
$\bar{x}$	45.0	34.0	16.0	-	-
s.d.	10.0	8.0	4.0	-	-
range	26.0-67.0	21.0-55.0	7.0-30.0	-	-
N	56	56	56	-	-
01-10-03A					
$\bar{x}$	45.0	33.0	11.0	-	-
s.d.	7.0	8.0	2.0	-	-
range	27.0-57.0	17.0-50.0	6.0-16.0	-	-
N	15	15	15	-	-
01-10-04A					
$\bar{x}$	44.0	23.0	7.0	-	-
s.d.	17.0	6.0	2.0	-	-
range	30.0-83.0	13.0-[illegible].0	4.0-9.0	-	-
N	9	9	9	-	-
01-11-01A					
$\bar{x}$	53.0	41.0	18.0	-	-
s.d.	14.0	9.0	5.0	-	-
range	41.0-81.0	30.0-54.0	13.0-27.0	-	-
N	7	7	7	-	-
01-11-02A					
$\bar{x}$	45.0	28.0	16.0	-	-
s.d.	8.0	8.0	6.0	-	-
range	30.0-56.0	16.0-39.0	8.0-24.0	-	-
N	8	8	8	-	-
01-11-03A					
$\bar{x}$	32.0	24.0	8.0	-	-
s.d.	6.0	12.0	2.0	-	-
range	26.0-38.0	16.0-38.0	6.0-9.0	-	-
N	3	3	3	-	-

Table 4.5. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-11-07A					
$\bar{x}$	43.0	44.0	32.0	-	-
N	1	1	1	-	-
01-11-08A					
$\bar{x}$	75.0	61.0	30.0	-	-
range	53.0-98.0	56.0-65.0	27.0-32.0	-	-
N	2	2	2	-	-
01-11-09A					
$\bar{x}$	63.0	33.0	21.0	-	-
s.d.	21.0	12.0	10.0	-	-
range	41.0-81.0	19.0-40.0	13.0-34.0	-	-
N	3	3	3	-	-
01-14-01A					
$\bar{x}$	68.0	59.0	38.0	-	-
s.d.	13.0	20.0	11.0	-	-
range	48.0-87.0	22.0-90.0	21.0-52.0	-	-
N	8	8	8	-	-
01-15-01A					
$\bar{x}$	54.0	43.0	21.0	-	-
s.d.	15.0	13.0	7.0	-	-
range	37.0-84.0	27.0-75.0	11.0-33.0	-	-
N	14	14	14	-	-
01-15-02A					
$\bar{x}$	60.0	44.0	29.0	-	-
s.d.	18.0	14.0	11.0	-	-
range	31.0-108.0	21.0-74.0	14.0-51.0	-	-
N	34	34	34	-	-

Tested Cobble Tool *(01-11-09)*

01-11-09A N=3: 2 Complete, 1 Fragmentary

These specimens are tested cobbles *(01-15-02)* which also exhibit minute edge alteration. All have cortex covering most of both surfaces. The flake scars are large and irregularly spaced. Cross sections are thick and irregular and may reflect the shape of the original cobble. Edge modification occurs on steep angled portions of flaked areas (2) or along broken edges (1).

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)

01-12-01A N=120: 120 Fragments

These specimens are fragments of points *(01-01-00)*, late stages of the biface reduction sequence *(01-10-03, 01-10-04,* and *01-10-05)*, or thin bifacial tool segments *(01-11-03, 01-11-04,* and *01-11-05)*. They are too fragmentary to be assigned to specific varieties. The sample includes 30 distal, 32 medial, 20 lateral blade, and 38 basal sections. The base sections include 23 contracting stemmed forms, 11 expanding stemmed forms, 1 side-notched form, and 3 unidentifiable forms. The three unidentifiable bases and one contracting stemmed base have extensively ground edges. Three specimens are probably from small point forms.

MODIFIED FLAKES (13-00)

01-13-01A N=7 (Figure 4.8n)

These specimens have minute edge alteration at the tip (4) or along margins of a major projection. The modification occurs on either natural projections (4) or artificially created or enhanced projections (3). The modification consists of a continuous series of short flake scars and nicks on the end and near the tip section.

01-13-01B N=992 (Figure 4.8o)

These flakes display minimal shaping but have slight unifacial edge alteration present along one or more edges. The shape of the modified edge may be relatively straight (339), convex (312), concave (90), or multiple combinations (251). Modification occurs as minute flake scars and nicks at regular and irregular intervals along an edge. The unifacial modification on 10 straight and 16 convex edge specimens is so pronounced and irregular that the edge appears to be undulating. The edge is bowed on another 26 straight and 16 convex edge flakes. The length and angle of edge modification is variable. There is also little consistency in flake morphology and size.

01-13-01C N=14 (Figure 4.8p)

These specimens are believed to be denticulates and are characterized by a series of three to five prominent projections evenly spaced along a lateral or distal flake edge. In all cases, a serrated edge has been produced artificially by unifacial flaking. The tips of four specimens are rounded, battered, and crushed.

CORES (14-00)

01-14-01A N=8: 8 Complete (Figure 4.10a)

These specimens are thick blocky cobbles which have had multiple large flake scars systematically removed from a single striking platform They have irregular plano-convex cross sections. Cortex covers the platforms on six specimens and one specimen may be derived from a split cobble section *(01-15-01)*. The flaked edge is isomorphic with the striking platform edge.

SPLIT/TESTED COBBLES (15-00)

Split Cobbles *(01-15-01)*

01-15-01A N=14: 14 Complete (Figure 4.10b)

Specimens in this variety are longitudinally split sections of chert or quartzitic cobbles. They are characterized by irregularly thick plano-convex cross sections. Cortex covers much of the dorsal surface although seven specimens have had a few flakes removed from the dorsal side. Their morphology is believed to reflect the shape of the original cobble.

Tested Cobbles *(01-15-02)*

01-15-02A N=34: 34 Complete (Figure 4.10c)

These items are irregularly shaped rounded cobbles and pebbles which have from one to ten flakes randomly removed. Flake scars are large and generally are not restricted to a single area. The knapping is insufficient to produce a sinuous edge. Cortex covers most surfaces. These items represent either preliminary testing of the cobble's knapping characteristics or initial stages of the cobble biface reduction sequence.

DEBITAGE (16-00)

01-16-01A N=33,755

These specimens are unmodified flake debitage larger than 1/4 in which were recovered during dry screening.

Figure 4.9. Selected chipped stone artifacts from the Blessingame site (34Pu-74): Phase II.

a: *01-10-01A*

b-c: *01-10-02A*

d-e: *01-10-03A*

f-h: *01-10-04A*

i-j: *01-10-05A*

Fired Clay *(02)*

CERAMICS (01-00)

Plain Grog, Grit, and Bone Tempered Wares *(02-01-01)*

02-01-01A N=1: 1 Body Sherd (Figure 4.10d)

This plain sherd has a medium coarse paste. Grog inclusions range up to 2.1 mm and are the only apparent tempering agent. Thickness is 14.9 mm. It has a strong brown exterior color and a very dark gray interior color. Vessel form is indeterminate.

Comments: This variety resembles *Williams Plain.*

References: Brown 1971: 42-48.

02-01-01B N=11: 1 Rim, 10 Body Sherds (Figure 4.10e-f)

These sherds have smooth unburnished surfaces with fine (81%) or medium (18%) texture paste. Tempering includes grit and grog (36%), grog (27%), grog and bone (18%), and grog and vegetal (18%). The sherds range from 5.6-9.1 mm in thickness with an average of 7.5 mm. Exterior colors include very dark gray, grayish brown, brown, reddish brown, very pale brown, light yellowish brown, yellowish red, reddish yellow, and pink. Interior colors are predominately very dark gray (36%) and yellowish brown (27%), with a single specimen each of dark grayish brown, reddish yellow and light yellowish brown. Sherd interiors are predominately zoned (63%). The single rim sherd is from an unrestricted bowl form with a rounded lip.

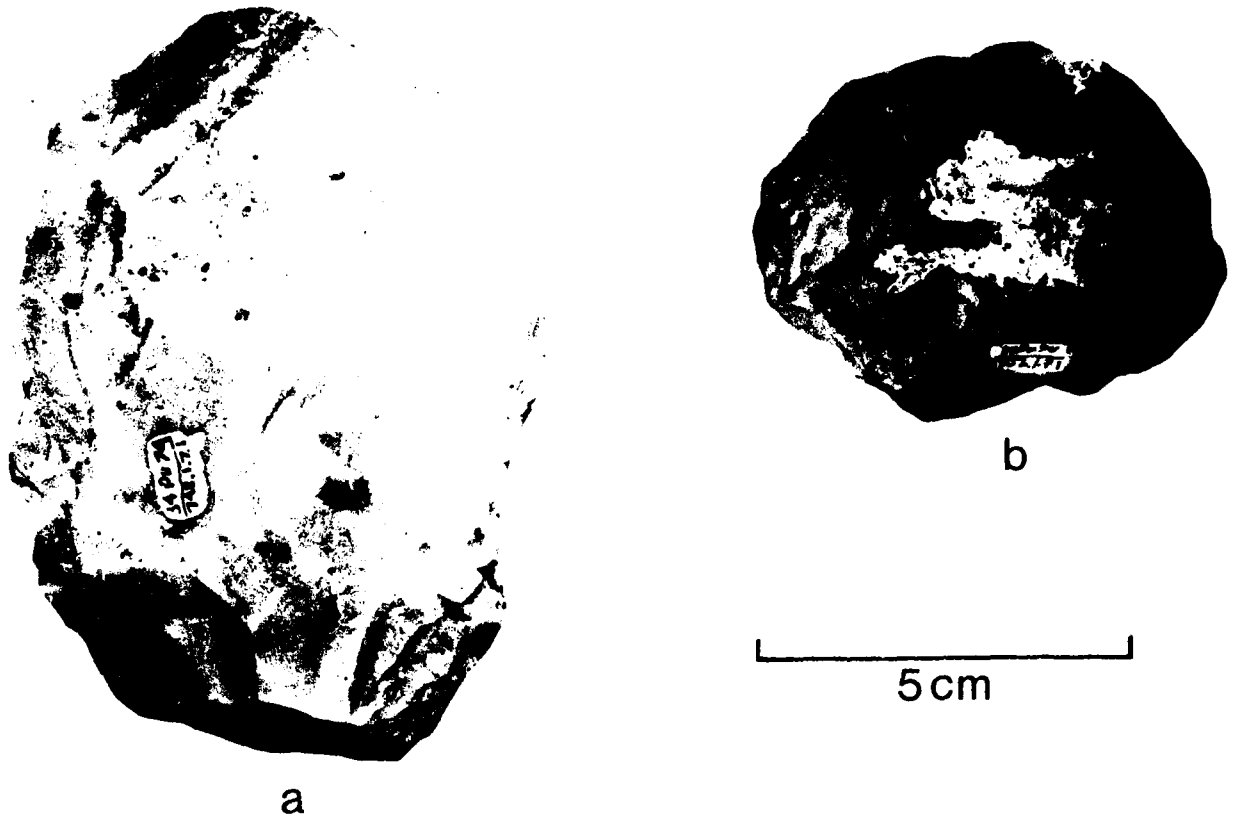
Comments: These specimens resemble *LeFlore Plain.*

References: Brown 1971: 58-63.

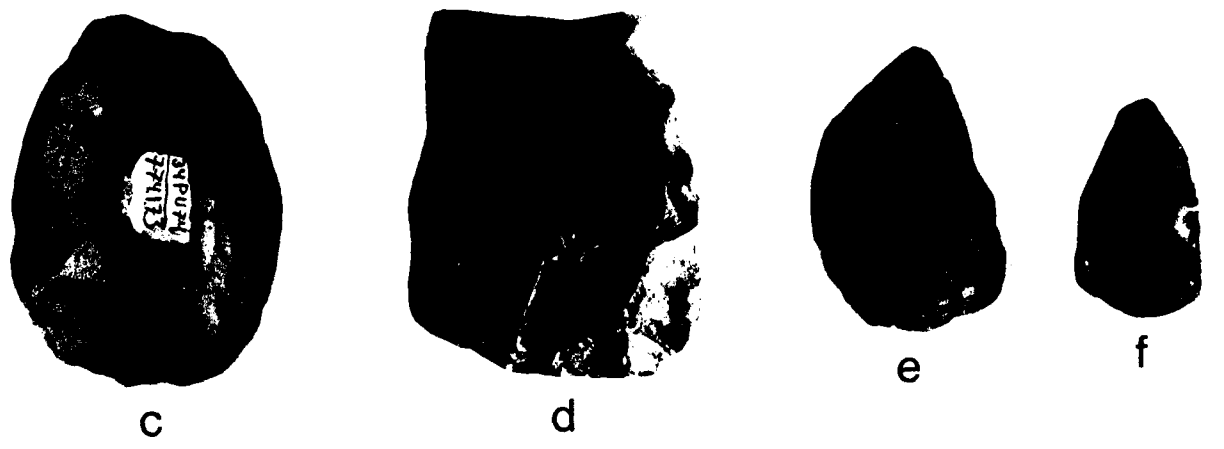
BAKED CLAY (03-00)

02-03-01A N=871.3 g

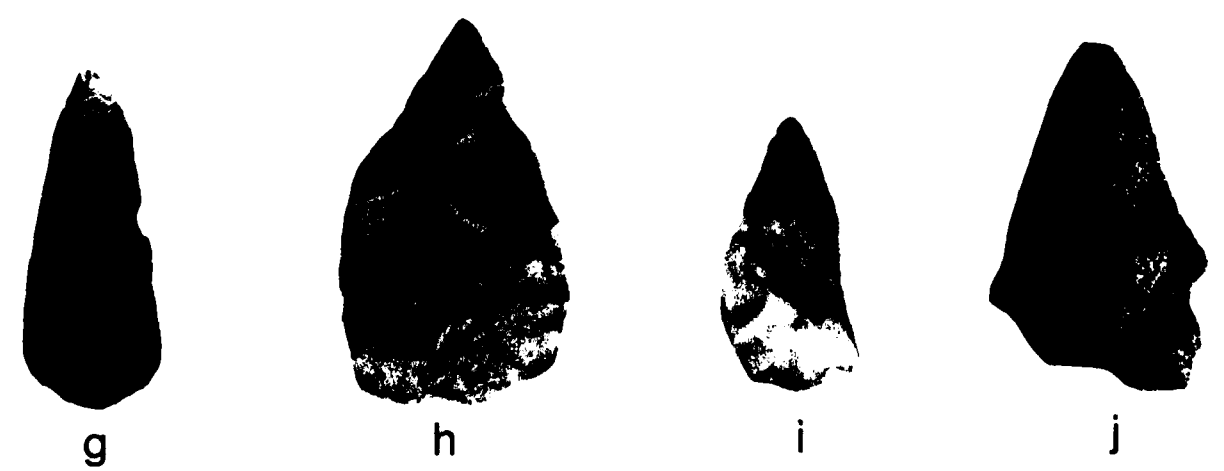
A considerable amount of untempered baked clay was recovered during the dry screening operations. None showed stick impressions. Most (825.8 g) was associated with Structure 1. Only 45.5 g were recovered from other areas of the site.



a b



c d e f



g h i j

Ground Stone *(03)*

MANOS (01-00)

Unifacial Manos *(03-01-01)*

03-01-01A N=8: 1 Complete, 7 Fragmentary (Figure 4.10g)

These specimens are irregular sandstone (6) and quartzitic sandstone (2) cobbles which have indications of wear on a single, smooth, slightly convex face. The worn surface often shows a few random shallow pits and, on harder materials, may have polish and striations. The cobble morphology is variable and generally reflects the shape of the natural stone. Three have evidence of battering on the ends and five of the specimens have been burned.

Bifacial Manos *(03-01-02)*

03-01-02A N=2: 1 Complete, 1 Fragmentary

These sandstone manos have ground surfaces on opposite cobble faces. One is oval with extensive battering on the end. The other is rectangular without any evidence of battering. Neither has been burned.

Pitted Manos *(03-01-04)*

03-01-04A N=1: 1 Fragmentary (Figure 4.11a)

This burned specimen is a bifacial mano with an area of deep, non-contiguous, V-shaped pitting in the center of the remaining portion. The pitted area has a diameter of 21 mm and is 1 mm deep. The ends are not battered or shaped.

METATE/GRINDING SLABS (02-00)

03-02-01A N=2: 2 Fragmentary

These large sandstone blocks have one flat surface which is extensively pitted. The morphology reflects the original cobble form and the edges are not battered. One specimen is burned.

ABRADERS (03-00)

03-03-01A N=1: 1 Fragmentary (Figure 4.11b)

This irregularly shaped unburned sandstone cobble has one deep V-shaped groove and numerous shallow parallel scratches across one face. Other surfaces lack modification. The groove is 31 mm long and 2 mm wide.

Figure 4.10. Selected chipped stone, ceramic, and ground stone artifacts from the Blessingame site (34Pu-74): Phase II.

a: *01-14-01A*

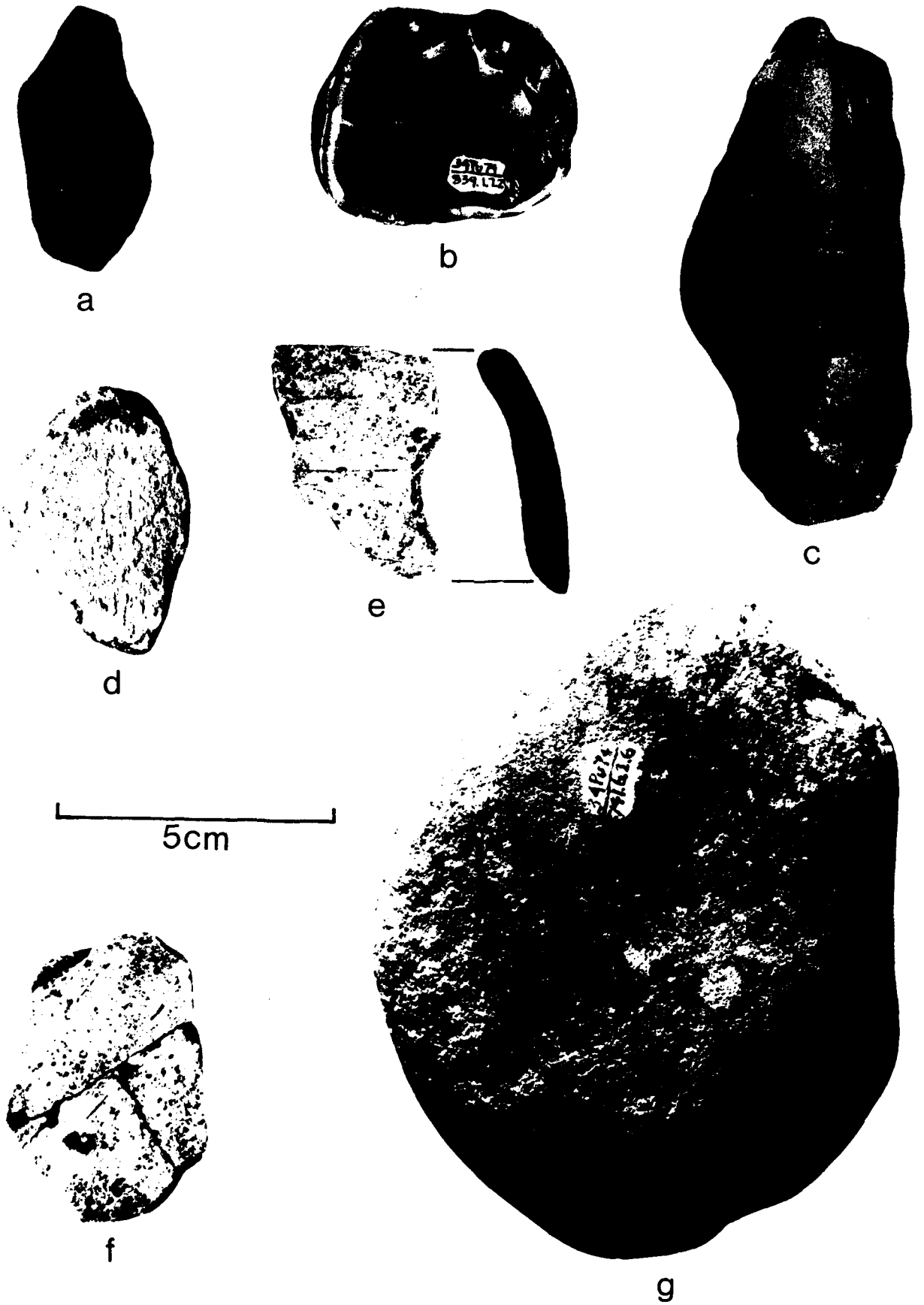
b: *01-15-01A*

c: *01-15-02A*

d: *02-01-01A*

e-f: *02-01-01B*

g: *03-01-01A*


a
b
c
d
e
f
g
5cm

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)

03-06-05A N=1: 1 Reworked

This unburned specimen is a subangular chert cobble (Type F) which has numerous faint semiparallel striations on one face. Irregular battering is present on one end and three large flake scars are present on the other. The absence of an unified groove distinguishes this artifact from abraders *(03-03-00)*.

Pecked/Battered/Unmodified Cobbles *(04)*

HAMMERSTONES (01-00)

04-01-01A N=3: 3 Complete (Figure 4.11c)

These specimens are circular and oval shaped sandstone and chert cobbles which show extensive battering on ridges, edges, and ends. The battering has resulted in surface disintegration caused by material loss from intersecting cones and impact scars. Battering is confined primarily to one end on two sandstone specimens, but is located along all edges of the chert cobble. Two specimens are burned.

PITTED STONES (02-00)

04-02-01A N=5: 2 Complete, 3 Fragmentary (Figure 4.11d)

All specimens in this variety are sandstone cobbles which have a single pitted depression on one face. The depressions on two specimens are smooth, relatively deep and U-shaped. Two specimens have smooth, shallow depressions and one specimen has an irregular battered area of deep V-shaped pits. The average pit diameter is 2.4 mm and the average depth is 1.2 mm.

MISCELLANEOUS PECKED/BATTERED STONE (03-00)

04-03-01A N=4: 1 Complete, 3 Fragmentary

Three small fragmentary sandstone specimens show extensive battering and pecking on the edges and ends. These items may be pounders or shaped edges of manos. The complete specimen is a small sandstone cobble which has battering on a pointed end and small, faint peck marks randomly placed across one flat face. The specimen is too small to be considered a mano. Two specimens have been burned.

Table 4.6. Metric attributes for selected ground and pecked stone varieties from the Blessingame site (34Pu-74): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS
03-01-01A			
$\bar{x}$	115.0	87.0	43.0
s.d.	-	-	13.0
range	113.0-117.0	-	28.0-63.0
N	2	1	7
03-01-02A			
$\bar{x}$	103.0	79.0	43.0
range	-	72.0-86.0	37.0-49.0
N	1	2	2
03-01-04A			
$\bar{x}$	-	-	41.0
N	-	-	1
03-03-01A			
$\bar{x}$	-	-	52.0
N	-	-	1
03-06-05A			
$\bar{x}$	67.0	44.0	47.0
N	1	1	1
04-01-00			
$\bar{x}$	63.0	51.0	37.0
s.d.	16.0	17.0	12.0
range	47.0-78.0	35.0-69.0	24.0-47.0
N	3	3	3
04-02-01A			
$\bar{x}$	112.0	79.0	36.0
s.d.	-	10.0	9.0
range	109.0-115.0	69.0-89.0	25.0-46.0
N	2	3	4
04-03-01A			
$\bar{x}$	70.0	46.0	43.0
range	-	-	33.0-54.0
N	1	1	2
04-04-01A			
$\bar{x}$	7.0	6.0	-
s.d.	2.0	2.0	-
range	5.0-8.0	5.0-7.0	-
N	4	4	-

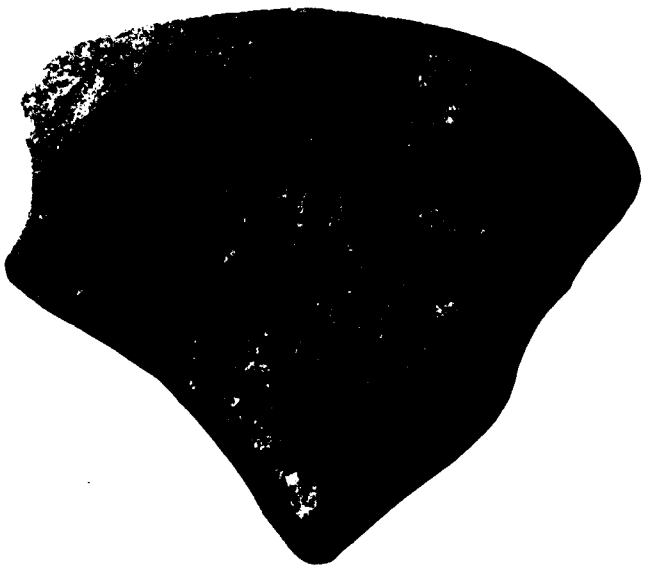
Figure 4.11. Selected ground and pecked stone artifacts from the Blessingame site (34Pu-74): Phase II.

a: *03-01-04A*

b: *03-03-01A*

c: *04-01-01A*

d: *04-02-01A*



a

b

c

d

5 cm

UNMODIFIED COBBLES/PEBBLES (04-00)

Limonite/Hematite *(04-04-01)*

04-04-01A N=4

These specimens are extremely small pieces of coarse hematite or oxidized sandstone. None have been modified. They occur as natural materials within the culture bearing deposits.

Historic Debris *(07)*

GLASS (01-00)

07-01-01A N=1

This is a melted aggregation of clear glass.

07-01-01F N=21

These small specimens are from a dark olive green bottle. Nineteen are body sherds which show no seam or embossed letters or designs. Two sherds are from the basal edge and indicate that the bottle had a kick up base. All specimens may be from a single large bottle. Although the shoulder and lip area were not recovered, these pieces probably represent portions of a wine bottle commonly used prior to 1850 (Lewis 1972: 54).

CROCKERY/CERAMICS (02-00)

Ironstone/Porcelain *(07-02-02)*

07-02-02A N=5

These are pieces of dinnerware plates with shell edge motifs. Matching and restoration of sherds has reduced the number to three sherds, and only two plates are represented. The blue shell edge specimen has a scalloped rim painted with wispy blue lines irregularly extending from the blue rim to produce a feather edge pattern on the interior face. The two green specimens retain the scalloped rim, but the feather edge appearance is achieved by a dark green stripe over impressed curving lines along the interior edge of the plate.

Comments: Shell edged wares were made in England as early as 1760 and became popular in America between 1790 and 1850.

References: Noel Hume 1970: 126-131; Price 1979: 18; Fairbanks 1962: 12; Lewis 1972: 44.

07-02-02B N=7

Sherds in this variety are glazed white on both surfaces and lack designs or maker marks. Matching and restoration has reduced the number to six specimens. Two of the three relatively thick sherds are bowl bases and three thin sherds may be from cups or saucers.

07-02-02C N=4

These sherds have flown blue transfer decorative motifs. Matching and restoration has reduced the number to two specimens. One base is from a thin cup or saucer. The blue color forms the background leaving a negative white floral motif. The blurred decorative pattern involves a band of continuous triangle and diamonds framing flower and cross motifs respectively. Additional flowers are positioned on each point of the triangular/diamond frames along the upper edge of the band. An unidentified partial maker mark, "DA..."/"3..." (set perpendicular to the letters), is on the vessel base.

The second specimen is a thin cup rim sherd with a flown blue design on both surfaces. A band next to the lip resembles a rope motif, below which are closely spaced parallel curvilinear lines.

Comments: Flown blue occur in the Eastern Ozark border region between 1830-1860.

References: Price 1979: 22.

07-02-02D N=13

These thin sherds are Mocha or Annular wares characterized by horizontal color stripes parallel to the rim of a cup or saucer. Restoration has reduced the number to nine. Four color patterns are present. The first, represented by one sherd, has thin alternating white and orange brown bands. The second pattern is present on four specimens and is characterized by a white lip, thick light blue band, thin white band, and thick mustard yellow band. A large mocha brown floral pattern overlies the yellow band. The third pattern, present on two sherds, has an alternating series of thin blue and white bands separated from a white field by a thick black band. The last pattern, on two sherds, has a white lip, a thick blue band, and a thin black band adjacent to a white field.

Comments: Annular wares achieved their greatest popularity in the United States in the first two decades of the 19th century, but have been found on Oklahoma sites postdating the Civil War.

References: Noel Hume 1970: 131; Price 1979: 18; Lewis 1972: 47; Cheek 1976: 34; Bobalik 1978:104.

07-02-02E N=2

These repoussé ware specimens have been restored to a single sherd. It has a series of overlapping scallops within a band stamped into the soft clay adjacent to the rim prior to firing. An olive green glaze has been applied over the design.

METAL (03-00)

07-03-01A N=7

These are square or cut nails with regular finished heads. Six are 12 d and one is 8 d pennyweight.

STONE (05-00)

07-05-01A N=1: 1 Complete (Figure 4.8q)

This specimen is a gun flint made from a lamellar blade section which is 17 mm long, 17 mm wide, and 6 mm thick. All edges are extensively battered and two large flakes have been spalled from the ventral surface. It is apparently expended.

Comments: The lithic material is a transluscent yellowish gray chert with white oolites. Although the color and oolites resemble local lithic Type A, the specimen is much clearer than most materials from the valley. The color and transluscent qualities resemble a Pressigyn gun flint. However, this French chert does not have oolites (Bell, personal communications). Furthermore, the prismatic morphology resembles a faceted English rather than French gunflint style (Wyckoff and Barr 1968: 56). The specimen may be an unidentified North American flint. In Oklahoma, gun flints have been found at the Posey Site (Wyckoff and Barr 1968) and Fort Towson (Lewis 1972: 59). They were most commonly used prior to the Civil War.

Faunal *(08)*

BONE/HORN/TEETH (01-00)

08-01-01A N=13.5 g

All bone debris is fragmentary and quite small. Burned bone totaled 5.9 g, while unburned bone fragments totaled 7.6 g. One burned specimen is a proximal articulating surface of a deer cannon bone and three unburned pieces are turtle carapace fragments.

SHELL (02-00)

Gastropods *(08-02-02)*

08-02-02A N=2

Identification was not attempted on either gastropod recovered during dry screening.

Floral *(09)*

Small flecks of wood, seeds, and nutshells were encountered throughout most of the site. Charred beams and abundant cane was found inside Structure 1. The voluminous amount of charred materials from Structure 1 are not included in the calculations of charred materials. A total of 25.4 g charred nuts, 0.5 g seeds, and 285.5 g wood charcoal was recovered from the rest of the site.

DISCUSSION AND INTERPRETATIONS

Most 1979 objectives involve the segregation and definition of components or delineation of activity sets. Previous work has suggested a complex cultural situation at the site, and some of the present objectives attempt to verify and refine the sequence before activity sets can be investigated. Component segregation is hampered by distances between tested areas and differences in stratigraphy, artifact distributions and densities, and types of cultural features.

Several problems can be alleviated by analyzing material variability within stratigraphically equivalent subareas of the site. Within each analytical subarea, variability in the vertical distribution of artifacts is primarily attributed to differences between material assemblages. Diagnostic artifacts from an assemblage are then used to affiliate the assemblage to a specific component. Once all subareas have been analyzed, specific component assemblages and associated features can be correlated among the analytical units to isolate major activity loci. The range of activity sets and nature of site occupations can be isolated and intersite and intercomponent variability can be readily compared for each component.

The analysis will emphasize materials recovered during Phase II. Previous materials will only be analyzed in subareas that received additional attention during the 1979 season. However, component correlation and activity set interpretations must rely on previously analyzed material distributions (Lintz 1979e; Bobalik 1977).

Concentration indices of flake debitage from all squares are calculated to aid in determining culturally and stratigraphically meaningful subareas (Table 4.7). When spatially plotted, flake densities generally correspond to topographic features (Figure 4.12). Thus, three north and two south terrace analytical areas are recognized for materials recovered during Phase II on the basis of stratigraphy and flake density data.

Analytical Area I includes five contiguous squares surrounding F37-17 on the low hillock of the north terrace. Feature 79-2 is located in this area and cultural deposits extend to a depth of 40-60 cm.

Analytical Area II includes eight contiguous squares surrounding A20-14 on the linear mound area of the north terrace. The upper portions of all squares were excavated in 1978 and two horizontal rock concentrations (F79-5/78-10 and F79-4/78-3), one pit feature (F78-8), and one rock hearth (F79-7/78-6) were noted in this mound. Cultural deposits range from 50-60 cm deep.

Analytical Area III consists of ten noncontiguous squares in Blocks F, G, and H peripheral to the hillock and linear mound in the north terrace area. No cultural features are recognized and cultural deposits range from 30 to 50 cm deep.

Analytical Area IV includes 14 squares in a trench from K53-16 to K50-16 across the northernmost mound in the south terrace area. Horizontal rock features F79-1 and F79-6, and a postmold (F79-3) were located within this area. Cultural deposits extend from 80 to 100 cm in the six squares excavated to sterile soil.

Analytical Area V includes five noncontiguous squares in Blocks C, E, and K which were dug to test three slight rises in the south terrace area. No features were found and cultural deposits extended from 70 to 100 cm. These squares are 55 m from Analytical Area III and have a greater depth of cultural deposits.

Excavations within Structure 1 of the south terrace area are confined to Levels 4 and 5. The materials are not amenable for contrastive assemblage isolation. The distribution of Structure 1 materials are presented and discussed in conjunction with the early Caddoan activity sets.

Material Distributions

Cultural materials recovered during Phase II have an unequal distribution across the defined analytical areas (Table 4.8). Although represented in all areas, most points *(01-01-00)* are from Area IV and Structure 1. Other formalized tool types *(01-02-00* and *01-05-00)* are scarcely represented at the site, although generalized bifacial tools *(01-11-00)* and items from the reduction system *(01-10-00, 01-14-00,* and *01-15-00)* are abundant in all areas. Prehistoric ceramics *(02-00-00)*

Table 4.7. Concentration Indices of flake debitage by square at the Blessingame site (34Pu-74): Phase II.

North Terrace Area				South Terrace Area			
Square Number	Number of Levels	Flakes	CI	Square Number	Number of Levels	Flakes	CI
A1-13[1]	5	407	81.4	B62-11[1]	4	119	29.8
A3-7[1]	3	546	182.0	B59-9[1]	5	126	25.2
A4-6[1]	4	931	232.8	B51-22[1]	5	290	58.0
A10-8[1] (9)*	20.5	4,526	220.8	B44-25[1]	4	204	51.0
A20-14[2] (8)*	44	11,275	256.3	B40-23[1]	6	323	53.8
A21-13[1](3.5)*	7.5	1,816	242.1	B35-4[2] (43)*	196	23,118	117.9
A31-2[1] (2)*	6	949	158.2	B31-20[1]	8	1,725	215.6
A28-13[1]	3	469	156.3	B20-8[1]	7	1,428	204.0
A27-7[1]	3	330	110.0	B13-1[1]	7	1,383	197.6
A43-13[1]	4	434	108.5	B5-25[1] (2)*	10	2,242	224.2
A49-1[1]	3	82	27.3	B4-7[1]	7.5	1,535	204.7
A54-12[1](2)*	8	973	121.6	B2-25[1]	7	960	137.1
A57-2[1]	3	217	72.3	C50-24[1]	6	1,068	178.8
F1-5	4	263	65.8	C64-5[1] (42)*	149	30,480	204.6
F5-3	4	272	68.0	C38-3	9	699	77.7
F17-15	3	528	176.0	C38-22	10	920	92.0
F21-13	2	345	172.5	E48-4	8	425	53.1
F37-17 (5)*	25	6,061	242.4	E35-11[1]	8	220	27.5
G48-21	3	264	88.0	K23-12	7	285	40.7
G51-15	5	500	100.0	K26-2	7	276	39.4
G62-25	6	1,084	180.7	K53-17 (2)*	4	787	196.8
H42-24	3	184	61.3	K51-17 (12)*	55	8,466	153.9
H57-5	3	183	61.0	T.P. 1[3]	5	1,175	235.0
H59-3	5	365	73.0				
T.P. 2[3]	5.5	1,489	270.7				

*number of contiguous squares in area
[1]1978 Phase I excavations
[2]1978 and 1979 excavations
[3]1976 test excavations

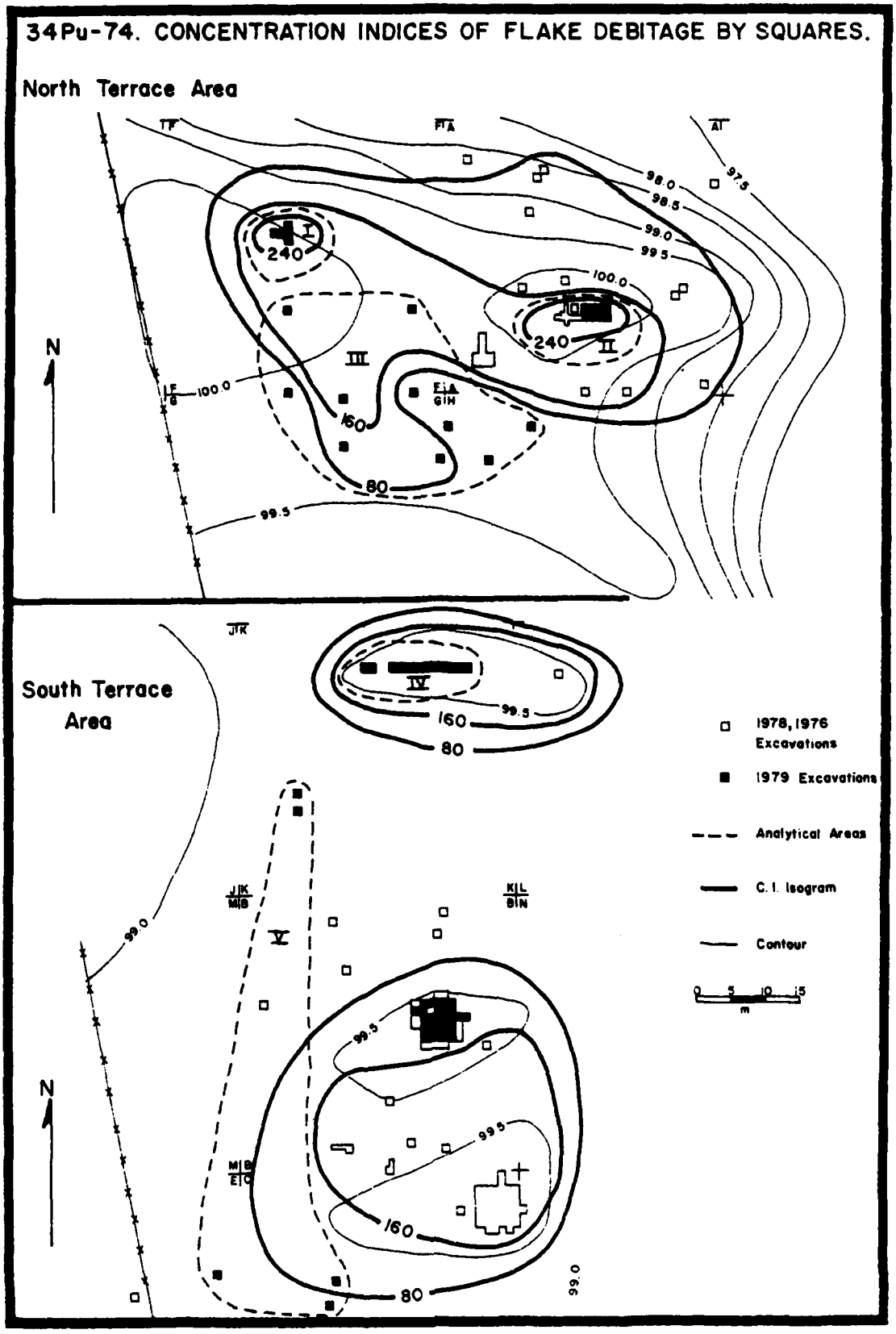


Figure 4.12. Concentration indices of flake debitage by square at the Blessingame site (34Pu-74): Phase II.

Table 4.8. Horizontal distribution of cultural materials from the Blessingame site (34Pu-74): Phase II.

Artifact Variety	North Terrace			South Terrace		Structure 1	Backhoe	Surface	Total
	Area I	Area II	Area III	Area IV	Area V				
01-01-01A	2	2	3	3	2	2	-	-	14
01-01-02A	-	-	-	-	-	1	-	-	1
01-01-02B	-	-	-	-	-	1	1	-	2
01-01-02D	-	-	-	1	-	2	-	-	3
01-01-02E	-	-	-	1	-	-	-	-	1
01-01-02H	-	-	-	1	-	2	1	-	4
01-01-02I	-	-	-	3	-	2	-	-	5
01-01-02L	-	-	-	-	-	3	1	-	4
01-01-02M	-	-	-	2	-	1	1	-	4
01-01-02N	-	-	-	-	-	1	-	-	1
01-01-02Q	-	-	-	2	-	-	-	-	2
01-01-02S	-	-	-	1	-	-	1	-	2
01-01-02AA	-	-	-	1	-	-	-	-	1
01-01-03C	1	-	-	-	1	-	-	-	2
01-01-04D	2	-	1	-	-	-	-	-	3
01-01-05B	-	1	1	1	-	1	-	-	4
01-01-05D	-	-	-	-	1	-	-	-	1
01-01-05E	-	-	-	1	-	-	-	-	1
01-01-06A	-	-	-	1	-	-	-	-	1
01-01-06J	-	-	-	-	-	1	-	-	1
01-01-07B	-	-	1	1	1	-	-	-	3
01-01-07C	-	1	-	-	-	1	-	-	2
01-02-01A	-	1	-	-	-	-	-	-	1
01-02-01D	-	-	-	-	-	1	-	1	2
01-05-02A	-	-	-	-	1	-	-	-	1
01-10-01A	6	8	4	14	9	15	2	-	58
01-10-02A	12	12	11	29	21	47	8	4	144
01-10-03A	8	5	10	29	12	38	4	-	106
01-10-04A	2	1	5	6	-	10	1	-	25
01-10-05A	1	-	-	1	2	4	-	-	8
01-11-01A	2	1	-	1	1	1	1	-	7
01-11-02A	-	-	-	3	-	4	-	1	8
01-11-03A	-	-	-	2	1	-	-	-	3
01-11-07A	-	-	-	-	-	1	-	-	1
01-11-08A	-	-	1	-	-	1	-	-	2
01-11-09A	-	1	-	1	-	1	-	-	3
01-12-01A	17	12	17	30	8	34	2	-	120
01-13-01A	2	2	-	1	-	2	-	-	7
01-13-01B	59	64	67	186	187	419	9	1	992
01-13-01C	1	-	2	5	2	4	-	-	14
01-14-01A	1	2	-	1	-	2	2	-	8
01-15-01A	2	-	3	3	1	4	-	1	14
01-15-02A	6	4	1	7	3	13	-	-	34
01-16-01A	6,061	4,045	3,988	9,253	2,605	7,784	19	-	33,755
02-01-01A	-	-	-	-	-	1	-	-	1
02-01-01B	3	-	2	1	-	5	-	-	11
02-03-01A	-	-	-	-	1.8g	869.5g	-	-	871.3g
03-01-01A	1	-	-	1	-	5	1	-	8
03-01-02A	1	1	-	-	-	-	-	-	2
03-01-04A	-	-	-	-	-	1	-	-	1
03-02-01A	1	-	-	-	-	1	-	-	2
03-03-01A	-	-	-	-	-	1	-	-	1
03-06-05A	-	-	-	-	-	1	-	-	1
04-01-01A	1	-	-	1	-	1	-	-	3
04-02-01A	-	1	-	1	-	3	-	-	5
04-03-01A	-	-	1	-	-	3	-	-	4
04-04-01A	3	-	-	-	-	1	-	-	4
07-01-01A	-	-	1	-	-	-	-	-	1
07-01-01F	1	-	-	20	-	-	-	-	21
07-02-02A	3	-	-	2	-	-	-	-	5
07-02-02B	4	-	-	3	-	-	-	-	7
07-02-02C	4	-	-	-	-	-	-	-	4
07-02-02D	6	-	1	6	-	-	-	-	13
07-02-02E	-	-	-	2	-	-	-	-	2
07-03-01A	1	-	-	6	-	-	-	-	7
07-05-01A	-	-	-	1	-	-	-	-	1
08-01-01A	3.4g	0.2g	0.9g	2.3g	4.8g	1.9g	-	-	13.5g
08-02-01A	-	-	1	-	1	-	-	-	2
09-01-01A	65.8g	33.4g	43.6g	32.3g	118.2g	8.6g	9.5g	-	311.4g
Total*	153	119	132	382	253	642	35	8	1,724

*excludes flake debitage and clay, floral and faunal residues.

are scarce but present in Areas I, III, IV, and Structure 1. Ground stone items *(03-00-00)* are most abundant in Area I and Structure 1, but also occur in Areas II and IV. Pecked stone items *(04-00-00)* are abundant in Structure 1 and minimally represented in the rest of the areas. Finally, historic materials are abundant in Areas I and IV and minimally represented in Area III.

The nature of material distributions becomes more meaningful when artifact distributions are considered vertically for each analytical area (Tables 4.9, 4.10, 4.11, 4.12, 4.13). Tool concentration indices were calculated for each analytical area and all show bimodal distributions. Heightened values occur in Levels 1 and 4 in Area I, Levels 2 and 4 in Area II, and Levels 2 and 5 in Areas III, IV, and V.

The scarcity of diagnostic artifacts in each area hampers confident assignment of component boundaries. However, the sample size is sufficient to tentatively identify the limits of major components. Two major prehistoric and one minor historic component may be identified within the areas tested during Phase II.

The consistent association of *LeFlore (02-01-01B)* and *Woodward (02-01-03A)* ceramics with *Washita (01-01-07B)*, *Scallorn (01-01-06A)*, and other small points *(01-01-07C)* suggests the presence of an early Caddoan component in Levels 1-2 of Areas I, III, IV, and V and Levels 1-3 in Area II (Bobalik and Svec 1979: 44; Galm 1978b: 75; Galm and Flynn 1978: 103). The lack of a *Williams Plain* ceramic *(02-01-01A)* and *Scallorn* point *(01-01-06A)* association argues against a major Woodland component at the site. The small side- and corner-notched points *(01-01-07C* and *01-01-06A)* occurring in Level 4 of Areas II and IV are interpreted as specimens displaced into the lower component. On the other hand, the *Plainview/Meserve* points *(01-01-05B)* in Level 3 of Area II and Level 2 of Area IV are thought to be reused specimens.

The lowest cultural unit is nonceramic and is characterized by a predominance of large points including *Gary (01-01-01A)*, *Lange (01-01-02A)*, *Frio (01-01-02D)*, *Marcos (01-01-02H)*, *Marshall (01-01-02I)*, *Martindale (01-01-02K)*, *Williams (01-01-02N)*, *Snyders (01-01-02O)*, *Johnson (01-01-02S)*, *Shumla (01-01-04C)*, and *Bulverde (01-01-04D)* varieties. These items are attributed to an Archaic component occurring in Levels 3-6 of Area I, Levels 4-6 of Area II, Levels 3-5 in Area III, Levels 4-10 in Area IV, and Levels 3-10 of Area V (Bobalik and Svec 1979: 44; Galm 1978b: 75; Galm and Flynn 1978: 103). The lowest levels generally lack diagnostic materials and probably reflect material transported through bioturbation into culturally sterile layers. The presence of *Plainview/Meserve* points *(01-01-05B)* in Level 4 of Area II is associated with *Gary* points *(01-01-01A)* and reflects artifact reuse.

There are few differences in nondiagnostic artifacts between the two components. The Caddoan assemblage contains all of the drills *(01-02-01A)*, miscellaneous pecked and battered stones *(04-03-01A)*, and limonite specimens *(04-04-01A)* while the Archaic assemblage has all the ground stone manos *(03-01-00)*, grinding slabs *(03-02-01A)*, and pitted manos *(04-02-01A)*.

Table 4.9. Vertical distribution of artifacts from Analytical Area I at the Blessingame site (34Pu-74): Phase II.

Artifact Variety	Arbitrary Levels (10 cm) 1	2	3	4	5	6	Total
01-01-01A	1	-	1	-	-	-	2
01-01-03C	1	-	-	-	-	-	1
01-01-04D	-	1	-	1	-	-	2
01-10-01A	-	-	2	3	1	-	6
01-10-02A	2	5	2	3	-	-	12
01-10-03A	1	2	1	2	2	-	8
01-10-04A	-	2	-	-	-	-	2
01-10-05A	-	1	-	-	-	-	1
01-11-01A	-	-	1	-	1	-	2
01-12-01A	7	4	4	1	1	-	17
01-13-01A	-	1	1	-	-	-	2
01-13-01B	23	11	12	12	1	-	59
01-13-01C	-	-	-	1	-	-	1
01-14-01A	-	-	-	1	-	-	1
01-15-01A	-	-	1	1	-	-	2
01-15-02A	-	1	1	3	1	-	6
01-16-01A	1756	1578	1267	1053	353	54	6061
02-01-01B	2	1	-	-	-	-	3
03-01-01A	-	-	1	-	-	-	1
03-01-02A	-	-	-	-	1	-	1
03-02-01A	-	-	-	1	-	-	1
04-01-01A	-	-	1	-	-	-	1
04-04-01A	2	1	-	-	-	-	3
07-01-01F	-	-	1	-	-	-	1
07-02-02A	3	-	-	-	-	-	3
07-02-02B	3	1	-	-	-	-	4
07-02-02C	2	2	-	-	-	-	4
07-02-02D	5	1	-	-	-	-	6
07-03-01A	1	-	-	-	-	-	1
08-01-01A	2.6g	0.75g	-	-	-	-	3.35g
09-01-01A	18.9g	45.0g	1.7g	-	0.2g	-	65.8g
Total Tools	53	34	29	29	8	-	153
Number of Levels	5	5	5	4	3	3	-
CI of Tools	10.6	6.8	5.8	7.3	2.7	-	-

Table 4.10. Vertical distribution of artifacts from Analytical Area II at the Blessingame site (34Pu-74): Phase II.

Artifact Variety	Arbitrary Levels (10 cm) 1			2			3			4			5			6			Features			Code 4	Total
	1978	1979	Total	1978	1979	Total	1978	1979	Total	1978	1979	Total	1978	1979	Total	1978	1979	Total	1978	1979	Total	1979	
01-01-01A	3	-	3	3	-	3	1	-	1	1	1	2	-	1	1	1	-	1	-	-	-	-	11
01-01-02D	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1
01-01-02S	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-01-04A	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1
01-01-05A	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1
01-01-05B	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-01-06A	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-01-07B	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-01-07C	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1
01-02-01A	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1
01-02-01C	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-02-03A	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-05-01A	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-10-01A	-	-	-	1	-	1	1	3	4	-	2	2	-	2	2	-	1	1	-	-	-	-	10
01-10-02A	8	-	8	6	-	6	6	3	9	3	4	7	5	3	8	-	1	1	-	1	1	-	40
01-10-03A	-	-	-	8	-	8	2	-	2	-	3	3	-	1	1	-	1	1	-	-	-	-	15
01-10-04A	1	-	1	2	-	2	-	-	-	1	-	1	-	1	1	-	-	-	-	-	-	-	5
01-10-05A	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-11-01A	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1
01-11-09A	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1
01-12-01A	9	-	9	6	-	6	5	4	9	3	4	7	1	3	4	1	1	2	-	-	-	-	37
01-13-01A	-	-	-	1	1	2	2	-	2	-	1	1	-	-	-	-	-	-	-	-	-	-	5
01-13-01B	7	-	7	13	4	17	5	10	15	-	28	28	6	18	24	1	1	2	-	-	-	3	96
01-14-01A	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	-	-	-	-	-	-	1*	3
01-15-02A	-	-	-	-	-	-	1	-	1	1	4	5	1	-	1	-	-	-	-	-	-	-	7
01-16-01A	2180	-	2180	2315	140	2455	1623	676	2299	694	1663	2357	310	769	1079	106	261	367	2	61	63	479	11,279
01-16-02A	-	-	-	2	-	2	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	3
02-01-03A	-	-	-	2	-	2	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	4
03-01-02A	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1
04-02-01A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	1
04-03-01A	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
08-01-01A	-	-	-	-	-	-	-	0.1g	0.1g	-	0.1g	0.1g	-	-	-	-	-	-	-	-	-	-	0.2g
09-01-01A	-	-	-	-	13.5g	13.5g	-	8.3g	8.3g	-	9.7g	9.7g	-	1.6g	1.6g	-	0.3g	0.3g	-	-	-	-	33.4g
Total			33			50			48			63			46			8			2	4	254
Number of Squares			8			8			8			8			8			4			-	-	-
CI			4.1			6.2			6.0			7.9			5.7			2.0			-	-	-

*Code 5

Table 4.11. Vertical distribution of artifacts from Analytical Area III at the Blessingame site (34Pu-74): Phase II.

Artifact Variety	Arbitrary Levels (10 cm) 1	2	3	4	5	6	Wall Scraping	Total
01-01-01A	-	1	1	-	1	-	-	3
01-01-04D	-	1	-	-	-	-	-	1
01-01-05B	-	-	-	1	-	-	-	1
01-01-07B	1	-	-	-	-	-	-	1
01-10-01A	1	2	1	-	-	-	-	4
01-10-02A	1	9	-	1	-	-	-	11
01-10-03A	3	5	1	-	1	-	-	10
01-10-04A	-	2	2	-	1	-	-	5
01-11-08A	-	1	-	-	-	-	-	1
01-12-01A	3	11	3	-	-	-	-	17
01-13-01B	20	27	6	8	4	2	-	67
01-13-01C	-	2	-	-	-	-	-	2
01-15-01A	-	1	2	-	-	-	-	3
01-15-02A	-	-	-	-	1	-	-	1
01-16-01A	905	1643	690	278	403	57	12	3988
02-01-01B	1	1	-	-	-	-	-	2
04-03-01A	-	1	-	-	-	-	-	1
07-01-01A	1	-	-	-	-	-	-	1
07-02-02D	1	-	-	-	-	-	-	1
08-01-01A	0.25g	0.4g	0.25g	-	-	-	-	0.9g
08-02-01A	-	1	-	-	-	-	-	1
09-01-01A	30.8g	8.0g	2.4g	2.2g	0.1g	0.1g	-	43.6g
Total*	32	64	16	10	8	2	-	132
Number of Squares	10	10	9	5	3	1	-	-
CI	3.2	6.4	1.8	2.0	2.7	2.0	-	-

*excludes flake debitage and residue

Table 4.12. Vertical distribution of artifacts from Analytical Area IV at the Blessingame site (34Pu-74): Phase II.

Artifact Variety	Arbitrary Levels (10 cm) 1	2	3	4	5	6	7	8	9	10	Slump	Total
01-01-01A	1	2	-	-	-	-	-	-	-	-	-	3
01-01-02D	1	-	-	-	-	-	-	-	-	-	-	1
01-01-02E	-	1	-	-	-	-	-	-	-	-	-	1
01-01-02H	1	-	-	-	-	-	-	-	-	-	-	1
01-01-02I	2	1	-	-	-	-	-	-	-	-	-	3
01-01-02M	1	-	1	-	-	-	-	-	-	-	-	2
01-01-02Q	1	-	-	1	-	-	-	-	-	-	-	2
01-01-02S	-	1	-	-	-	-	-	-	-	-	-	1
01-01-02AA	-	-	-	-	-	1	-	-	-	-	-	1
01-01-05B	-	1	-	-	-	-	-	-	-	-	-	1
01-01-05E	-	1	-	-	-	-	-	-	-	-	-	1
01-01-06A	-	-	-	1	-	-	-	-	-	-	-	1
01-01-07B	1	-	-	-	-	-	-	-	-	-	-	1
01-10-01A	-	6	2	1	2	-	3	-	-	-	-	14
01-10-02A	9	11	4	-	2	1	1	1	-	-	-	29
01-10-03A	10	8	4	1	3	1	1	-	1	-	-	29
01-10-04A	3	2	-	-	-	-	1	-	-	-	-	6
01-10-05A	1	-	-	-	-	-	-	-	-	-	-	1
01-11-01A	-	-	-	-	1	-	-	-	-	-	-	1
01-11-02A	2	-	-	-	1	-	-	-	-	-	-	3
01-11-03A	-	1	-	-	-	-	-	1	-	-	-	2
01-11-09A	-	-	1	-	-	-	-	-	-	-	-	1
01-12-01A	10	11	2	-	1	3	2	-	1	-	-	30
01-13-01A	-	-	-	-	1	-	-	-	-	-	-	1
01-13-01B	51	52	24	12	19	16	6	6	-	-	-	186
01-13-01C	3	-	-	-	1	1	-	-	-	-	-	5
01-14-01A	-	1	-	-	-	-	-	-	-	-	-	1
01-15-01A	-	1	-	1	-	-	1	-	-	-	-	3
01-15-02A	1	2	1	2	-	-	1	-	-	-	-	7
01-16-01A	2668	3038	1178	756	505	400	271	338	94	5	-	9253
02-01-01B	1	-	-	-	-	-	-	-	-	-	-	1
03-01-01A	-	-	-	-	-	-	-	-	-	-	1	1
04-01-01A	-	1	-	-	-	-	-	-	-	-	-	1
04-02-01A	-	-	-	-	-	-	-	1	-	-	-	1
07-01-01F	18	2	-	-	-	-	-	-	-	-	-	20
07-02-02A	1	1	-	-	-	-	-	-	-	-	-	2
07-02-02B	3	-	-	-	-	-	-	-	-	-	-	3
07-02-02D	6	-	-	-	-	-	-	-	-	-	-	6
07-02-02E	2	-	-	-	-	-	-	-	-	-	-	2
07-03-01A	5	1	-	-	-	-	-	-	-	-	-	6
07-05-01A	1	-	-	-	-	-	-	-	-	-	-	1
08-01-01A	0.7g	-	-	0.2g	0.1g	0.1g	-	-	1.2g	-	-	2.3g
09-01-01A	6.1g	22.6g	2.8g	0.5g	0.2g	0.1g	-	-	-	-	-	32.3g
Total*	135	107	39	19	31	23	16	9	2	-	1	382
Number of Squares	14	11	6	5	5	5	5	5	2	1	-	-
CI	9.6	9.7	6.5	3.8	6.2	4.6	3.2	1.8	1.0	-	-	-

*excludes flake debitage and residue

Table 4.13. Vertical distribution of artifacts from Analytical Area V at the Blessingame site (34Pu-74): Phase II.

Artifact Variety	Arbitrary Levels (10 cm) 1	2	3	4	5	6	7	8	9	10	Total
01-01-01A	1	1	-	-	-	-	-	-	-	-	2
01-01-03C	-	-	1	-	-	-	-	-	-	-	1
01-01-05D	-	-	-	-	-	-	-	-	-	-	-
01-01-07B	-	1	-	-	-	-	-	-	-	-	1
01-05-02A	-	-	-	-	1	-	-	-	-	-	1
01-10-01A	1	3	2	1	2	-	-	-	-	-	9
01-10-02A	6	5	2	1	2	-	2	1	-	2	21
01-10-03A	2	2	3	2	-	1	-	1	-	1	12
01-10-05A	-	-	-	-	1	-	1	-	-	-	2
01-11-01A	-	-	-	-	-	1	-	-	-	-	1
01-11-03A	-	-	-	-	-	1	-	-	-	-	1
01-12-01A	1	-	4	2	-	1	-	-	-	-	8
01-13-01B	34	35	24	24	26	20	12	7	4	1	187
01-13-01C	-	1	-	-	-	1	-	-	-	-	2
01-15-01A	-	1	-	-	-	-	-	-	-	-	1
01-15-02A	1	1	1	-	-	-	-	-	-	-	3
01-16-01A	523	642	456	277	262	190	148	64	25	18	2605
02-03-01A	-	-	0.2g	0.3g	1.3g	-	-	-	-	-	1.8g
08-01-01A	-	0.1g	4.5g	-	-	0.2g	-	-	-	-	4.8g
08-02-01A	-	-	1	-	-	-	-	-	-	-	1
09-01-01A	97.0g	14.3g	1.8g	3.4g	0.7g	0.2g	0.1g	-	0.1g	0.6g	118.2g
Total*	46	50	37	30	32	25	15	9	4	4	253
Number of Squares	5	5	5	5	5	5	5	3	2	1	-
CI	9.2	10.0	7.4	6.0	6.4	5.0	3.0	3.0	2.0	4.0	-

*excludes flake debitage and residue

These unique items occur in small quantities within the Phase II sample, and several items *(03-01-00* and *03-02-01A)* were recovered from the other component during Phase I (Lintz 1979e: 361). Other artifacts in the Phase II sample occur in both components and reflect continuity of the prehistoric components.

The presence of shell edge *(07-02-02A)*, Annular *(07-02-02D)*, flown blue ironstone ceramics *(07-02-02C)*, and a gun flint *(07-05-01A)* indicate the presence of an 1830-1860 historic component in Level 1 of Area III and Levels 1-2 in Areas I and IV (Price 1979; Cheek 1976; Noel Hume 1970). The glass in Level 3, Area I is from a historically disturbed portion of F37-16.

Component Identification, Activity Sets, and Site Function

This section discusses feature types, activity sets, site function, and age of each component. Distributional information of materials recovered during Phase I are integrated with Phase II materials for a reassessment of site occupation and significance (Lintz 1979e, Tables 56, 58, 60, 61, 62). A correlation of analytical areas, levels, and cultural features from Phase I and II excavations by components is presented in Table 4.14.

ARCHAIC COMPONENT

Archaic materials were recovered from the lower deposits in all areas of the site and are associated with seven horizontal rock concentrations and one exterior postmold (Table 4.14). Four rock concentrations are located on two mounds in the north terrace area and the northernmost mound in the south terrace area. Three other rock features do not coincide with topographic rises.

On the basis of a limited Phase I artifact sample, two Archaic assemblages were postulated for the site (Lintz 1979e: 357). Diagnostic materials from the upper assemblage include *Gary (01-01-01A)*, *Trinity (01-01-02E)*, *Frio (01-01-02D)*, *Lange (01-01-02A)*, *Marcos (01-01-02H)*, *Darl (01-01-02M)*, *Williams (01-01-02N)*, and *Carrollton (01-01-04D)* points. The lower assemblage has *Martindale (01-01-02K)*, *Williams (01-01-02N)*, *Bulverde (01-01-04D)*, and unnamed point varieties *(01-01-02Q* and *01-01-03A)*. The superimposed horizontal rock concentrations (F78-7 and F78-10) in the north terrace linear mound (Area II) provided support for multiple Archaic occupations. However, the 1978 sample of lower deposit materials from this area came from only two squares which had no diagnostic materials.

Table 4.14. Correlation of analytical areas and cultural features by component at the Blessingame site (34Pu-74): Phase II.

Component	Phase I (1978)			Phase II (1979)		
	Area	Level	Features	Area	Level	Features
LATE HISTORIC						
North Terrace	Periphery	1				
South Terrace	Structure 1	1	78-23 rock filled burrow			
EARLY HISTORIC						
North Terrace				I	1-2	
				III	1	
South Terrace				IV	1-2	
PROTOHISTORIC/LATE CADDOAN (TENTATIVE)						
North Terrace	Linear Mound	1	76-1/78-9 rock hearth			
			78-6/79-7 rock hearth	II	1	78-6/79-7 rock hearth
				III	1	
South Terrace	Structure 1	1	78-14? rock concentration			
				IV	1	
EARLY CADDOAN						
North Terrace	Linear Mound	2-3	78-8 pit feature	II	1-3	
	Periphery	1				
				I	1-2	
				III	1-2	
South Terrace	Structure 1	1-4	Structure 1	Structure 1	4	Structure 1
			78-14?			
	Structure 2	1-4	*Structure 2*			
	Periphery	1-2				
				IV	1-2	79-1 rock concentration
				V	1-2	
ARCHAIC						
North Terrace	Linear Mound	4-6	78-3/79-4 rock concentration	II	4-6	78-3/79-4 rock concentration
			78-10/79-5 rock concentration			78-10/79-5 rock concentration
	Periphery	2-5	78-2 rock concentration			
				I	3-6	*79-2 rock concentration*
				III	3-5	
South Terrace	Structure 1	5-10				
	Periphery	3-8	78-22 rock concentration			
			78-11 rock concentration			
				IV	4-10	79-6 rock concentration
						79-3 postmold
				V	3-10	
				Structure 1	5	

Extensive sampling of lower deposits during Phase II was directed at verifying the postulated separate assemblages. Indeed, *Martindale (01-01-02K), Shumla (01-01-04C), Bulverde (01-01-04D),* and unnamed point varieties *(01-01-02Q, 01-01-02AA,* and *01-01-03A)* tend to occur below the diagnostic points attributed to the upper assemblage in five areas of the site: Level 4 of Area I, Level 5 of Area IV, Level 3 of the north terrace periphery, Levels 5 and 6 of the south terrace periphery, and Level 6 below Structure 1 (Tables 4.9, 4.12; Lintz 1979e: Tables 58, 60, 61). However, the existence of a separate lower assemblage is dubious for the following reasons: 1) Most lower assemblage points occur as single specimens, and in the case of two varieties *(01-01-02Q* and *01-01-04D)* are also associated with Caddoan materials. An ephemeral occupation or fortuitous association could account for the lower assemblage distribution. 2) Vertical distinctions between the two assemblages are not great and do not always correspond to stratigraphic differences. The lower assemblage points consistently occur within 10 cm of the upper assemblage materials even though cultural remains extend 20 to 40 cm deeper in all five areas. 3) No diagnostic lower assemblage materials were found in Area II where the superimposed horizontal rock concentrations occurred. 4) Except for the lack of cultural features associated with the lower assemblage and point styles, there are no significant differences in the kinds or amounts of materials attributed to the Archaic component. Consequently the entire Archaic component is considered to be a single unit for activity set and site function purposes.

Activities conducted during the Archaic period can be inferred from artifacts and feature functions derived from replicative experiments and edge wear studies of prehistoric specimens (Ahler 1971; Brink 1978; Fowler 1959; Galm and Flynn 1978: 137-148; House 1975; Lynott 1975; Mobley 1978; Semenov 1964; Spears 1975; Wilmsen 1968; Winters 1969).

The manufacture of chipped stone tools primarily involved a generalized biface reduction sequence *(01-10-00)* although core *(01-14-00)* and split cobble *(01-15-02)* reduction strategies were also employed. Lithic materials consist of rounded cobbles obtained from local stream deposits. Some generalized bifaces *(01-11-00)* were used without further modification in a variety of scraping and cutting activities.

Points *(01-01-00)* are the only formalized tool class to commonly occur. They may have served as hunting projectiles, knives, saws, or scrapers (Ahler 1971). Formalized drills *(01-02-00),* end scrapers *(01-05-00),* and backed bifaces *(01-09-00)* occur as solitary specimens in the Archaic component indicating a minor role in processing activities.

Modified flakes *(01-13-00)* are common and may represent tools used in a variety of short term, specialized cutting, shredding, and scraping activities. Some specimens, however, may reflect incidentally damaged lithic debitage.

Several varieties of ground and pecked stone tools occur in small quantities. Many are broken and constitute part of the horizontal rock concentration features. Their function and association with the rock features are uncertain. These items are either tools used in conjunction with the feature or modified rocks fortuitously added to the concentrations. Manos *(03-01-00)* and grinding slabs *(03-02-00)* probably reflect vegetal resource processing. Pitted stones *(04-02-00)* may have been used for nut processing or bipolar/split cobble reduction strategy (Mobley 1978; Spears 1975). Hammerstones *(04-01-01A)* can be indicative of lithic reduction, pecked/ground stone tool manufacture and maintenance, or bone reduction for the extraction of grease and marrow. The abraders *(03-03-00)* are unique to the Archaic assemblage and possibly reflect wood or bone tool manufacturing sets.

All materials attributed to the Archaic component are regarded as technoexploitive artifacts. The absence of hematite, limonite, or exotic materials tenuously suggests procurement, processing, and manufacturing activities.

Horizontal rock concentrations are the most common feature associated with the Archaic materials. Some rocks are thermally discolored, cracked, and heat spalled which is indicative of burning activities. They may be hearth, oven, or stone boiling residues associated with processing, cooking, or steaming fibrous plants, nuts, or meat (Bobalik 1978: 178; House and Smith 1975: 79; Hughes 1978: 7; 1977; Duncan and Cheek 1976: 104). Other suggestions that they are remnants of hide smoking hearths or lithic heat treatment areas seem unlikely because of their large size and the scarcity of heat treated chert (Bobalik 1978: 178). It is postulated that the rock concentrations were noncontemporaneous processing activity loci on the basis of their dispersed occurrence across the terrace and the superimposed relationship of two features in Area II.

The function of the single possible postmold (F79-3) is problematic. It is near the edge of a horizontal rock concentration (F79-6) and may be associated with it. The absence of daub, ash, and organic materials suggests that it is not part of a structure and some kind of a rack, spit, or other open framework feature may be postulated.

On the basis of the diversified artifact assemblage and a broad range of inferred activity sets, it is believed that the Archaic component represents a short term base camp which may have been intermittently reused over several centuries. The seven rock concentrations undoubtedly served as focal processing activity areas. Both plant and animal resources were processed on site, but not necessarily in conjunction with the rock features. These interpretations are considered tenuous since floral and faunal remains are poorly represented.

The age of this component is uncertain. The single MASCA corrected radiocarbon date of A.D. 1660 ±85 (UGa-2534) was rejected as being too recent and inconsistent with other dates stratigraphically above the feature (Lintz 1979e: 358). The general assemblage resembles Wister phase materials

of the Late Archaic (Galm 1978a; Galm and Flynn 1978). These similarities suggest that the Late Archaic occupation at 34Pu-74 may fall between 2000 B.C. and A.D. 1.

The horizontal rock features and Archaic artifacts are similar to cultural materials found at 34Lt-32, 34Pu-71, 34Pu-72, 34Pu-73, 34Pu-99, 34Pu-102, 34Pu-105, and 34Pu-116 within the Jackfork Valley (Bobalik 1978; Vehik and Galm 1979; Vehik 1982). Burned rock features have a widespread distribution within the Ouachita Mountains (Hughes 1977, 1978; Duncan and Cheek 1976; Galm 1978a; Galm and Flynn 1978), but are different from the burned rock mounds in northeast and northcentral Oklahoma (Barr 1964; Vaughan 1975; Vehik and Pailes 1979; Vehik 1980).

WOODLAND COMPONENT

The hallmark artifacts of the Woodland period in southeast Oklahoma include a thick plainware ceramic type *(Williams Plain)* and occasional small corner-notched *(Scallorn)* points added to the existing Late Archaic assemblage (Galm 1978b: 74; Bobalik and Svec 1979: 42). Both diagnostic traits continue into the Mississippian period and are joined by several varieties of thin plainware and decorated ceramics and a greater variety of small corner-notched and side-notched points. Since *Williams Plain* ceramics *(02-01-01A)* and *Scallorn* points *(01-01-06A)* can be associated with the Mississippian period, a Woodland component is not recognized at 34Pu-74.

CADDOAN COMPONENT

Caddoan materials were recovered from the uppermost deposits in all areas of the site. Most materials recovered during Phase I were attributed to an early Caddoan occupation, but an ephemeral late Caddoan/Protohistoric assemblage is provisionally recognized (Lintz 1979e: 363). Phase II results provide no new evidence to support or refute the existence of separate components. Evidence for the later component will be reviewed after the discussion the early Caddoan component.

Early Caddoan materials are abundant in all areas of the site and associated with two structural features on separate natural mounds in the south terrace area, one horizontal rock concentration (F79-1) in Area V, and a pit (F78-8) in Area II (Table 4.14). All early Caddoan features coincide with natural topographic mounds.

Most Phase II objectives for the early Caddoan component were directed at discerning the number and relationship of structures at the site. The two structures were built on pre-existing natural rises. There is no evidence that these minor topographic rises are structural mounds. Extensive excavations have produced no evidence of more than two structures, and the presence of additional structures is considered remote.

Comparison of the two structures reveals many similarities and some differences. Both are subrectangular with central hearths and walls of vertically set posts spaced at 25 cm to 55 cm intervals. Both have a north-south longitudinal axis, however, Structure 2 is oriented N 12.5° W, and Structure 1 is N 11.5° W. Furthermore, Structure 2 is slightly larger (5.85 m x 4.95 m) than Structure 1 (5.35 m x 4.20 m). Interior feature details of Structure 2 were obscured by soil conditions. However, they may have been similar to the quadrilateral roof support posts and eastward extending entryway that are clearly defined for Structure 1. The spatial relationship of Feature 78-16 within Structure 2 is similar to the location of a pit (F79-9) west of the hearth in Structure 1. Although the former is thought to be a postmold, the size differences may be more apparent than real because of the difficulties in tracing the feature.

Additional similarities exist in the kinds, frequencies, and distribution of artifacts within the two structures. Artifacts recovered during Phase II at Structure 1 are presented for comparison in Table 4.15 although some artifacts from Level 5 are below the floor. The horizontal distribution of select artifacts and debitage near the floors are shown in Figure 4.13. The differences in the kinds and frequencies associated with the two structures are minor. Large points *(01-01-01* through *01-01-04)*, thick bifaces *(01-10-01* and *01-10-02)*, split and tested cobbles *(01-15-00)*, pitted stones *(04-02-00)*, and burned bone fragments *(08-00-00)* occur in similar frequencies in both structures. Ceramics *(02-00-00)* and biface fragments and segments *(01-12-00)* are also present in both structures, but are more common in Structure 2. Drills *(01-02-00)*, backed bifaces *(01-09-00)*, ceramic pipes *(02-02-00)*, manos *(03-01-00)*, and unmodified cobbles *(04-06-00)* are absent from one structure and occur infrequently in the other structure. The main difference occurs in frequency of thin bifaces *(01-10-03)* which are relatively common in Structure 2 but absent from Structure 1. These overall differences are not considered to be significant.

The similar distribution of artifacts in both structures suggests that they served similar functions. The greatest density of tools occurs on the periphery of both structures and is similar to the lithic debitage distribution previously reported (Lintz 1979e: 355, Figure 50). This pattern probably reflects the extent of outside tool manufacturing and processing areas as well as the use of cultural soil to build the earthen berms around the structures. The greatest interior tool concentrations are in the southwest and southeast quadrants of both structures. Dominant artifacts in these areas include ceramics *(02-00-00)*, drills *(01-02-00)*, biface fragments and segments *(01-12-00)*, thin bifaces *(01-10-03)*, split/tested cobbles *(01-15-00)*, and manos *(03-01-00)*. The interior occurrence of manos is problematic since no grinding slabs were found within the structures. It is postulated that the range of associated artifacts reflect areas of intense lithic and organic tool manufacturing, processing, and material storage. The association of large points and burned bone fragments in the eastern half, particularly in the northeast quadrant, of both structures may suggest meat processing and cooking activity areas. The scarcity of material along the west wall and northwest quadrant of the structures may reflect nonprocessing areas. Perhaps these areas, furthest from the entryways, were used for sleeping or storing

Table 4.15. Vertical distribution of artifacts from Structure 1 at the Blessingame site (34Pu-74): Phase II.

Artifact Variety	Arbitrary Levels 3	4	5	6	Area Sweep	Postmold	Wall Scrape	Total
01-01-01A	-	1	1	-	-	-	-	2
01-01-02A	-	-	1	-	-	-	-	1
01-01-02B	-	1	-	-	-	-	-	1
01-01-02D	-	-	2	-	-	-	-	2
01-01-02H	-	1	1	-	-	-	-	2
01-01-02I	-	1	1	-	-	-	-	2
01-01-02L	-	1	-	-	2	-	-	3
01-01-02M	-	-	1	-	-	-	-	1
01-01-02N	-	-	1	-	-	-	-	1
01-01-02S	-	-	1	-	-	-	-	1
01-01-05B	-	-	-	-	-	1	-	1
01-01-06J	-	1	-	-	-	-	-	1
01-01-07C	-	-	-	-	-	1	-	1
01-02-01D	-	1	-	-	-	-	-	1
01-10-01A	-	4	10	-	-	1	-	15
01-10-02A	-	12	28	-	4	3	-	47
01-10-03A	-	12	21	-	4	1	-	38
01-10-04A	-	1	8	-	-	1	-	10
01-10-05A	-	1	3	-	-	-	-	4
01-11-01A	-	-	1	-	-	-	-	1
01-11-02A	-	-	4	-	-	-	-	4
01-11-07A	-	-	1	-	-	-	-	1
01-11-08A	-	-	1	-	-	-	-	1
01-11-09A	-	-	1	-	-	-	-	1
01-12-01A	-	12	15	6	1	-	-	34
01-13-01A	-	-	1	-	-	1	-	2
01-13-01B	2	142	215	-	22	34	4	419
01-13-01C	-	3	1	-	-	-	-	4
01-14-01A	-	-	2	-	-	-	-	2
01-15-01A	-	2	2	-	-	-	-	4
01-15-02A	-	2	6	-	1	-	4	13
01-16-01A	8	2635	3930	39	528	578	66	7784
02-01-01A	-	1	-	-	-	-	-	1
02-01-01B	-	3	-	-	2	-	-	5
02-03-01A	2.8g	808.0g	55.1g	-	2.1g	0.5g	1.0g	869.5g
03-01-01A	-	2	2	-	1	-	-	5
03-01-04A	-	1	-	-	-	-	-	1
03-02-01A	-	-	1	-	-	-	-	1
03-03-01A	-	-	1	-	-	-	-	1
03-06-05A	-	-	1	-	-	-	-	1
04-01-01A	-	-	1	-	-	-	-	1
04-02-01A	-	2	1	-	-	-	-	3
04-03-01A	-	1	2	-	-	-	-	3
04-04-01A	-	1	-	-	-	-	-	1
08-01-01A	0.15g	0.8g	0.95g	-	-	-	-	1.9g
09-01-01A	-	-	-	-	8.6g	-	-	8.6g
Total tools*	2	209	338	6	37	43	8	
Number of Levels	-	28	28	-	-	-	-	

*excludes 01-10-00

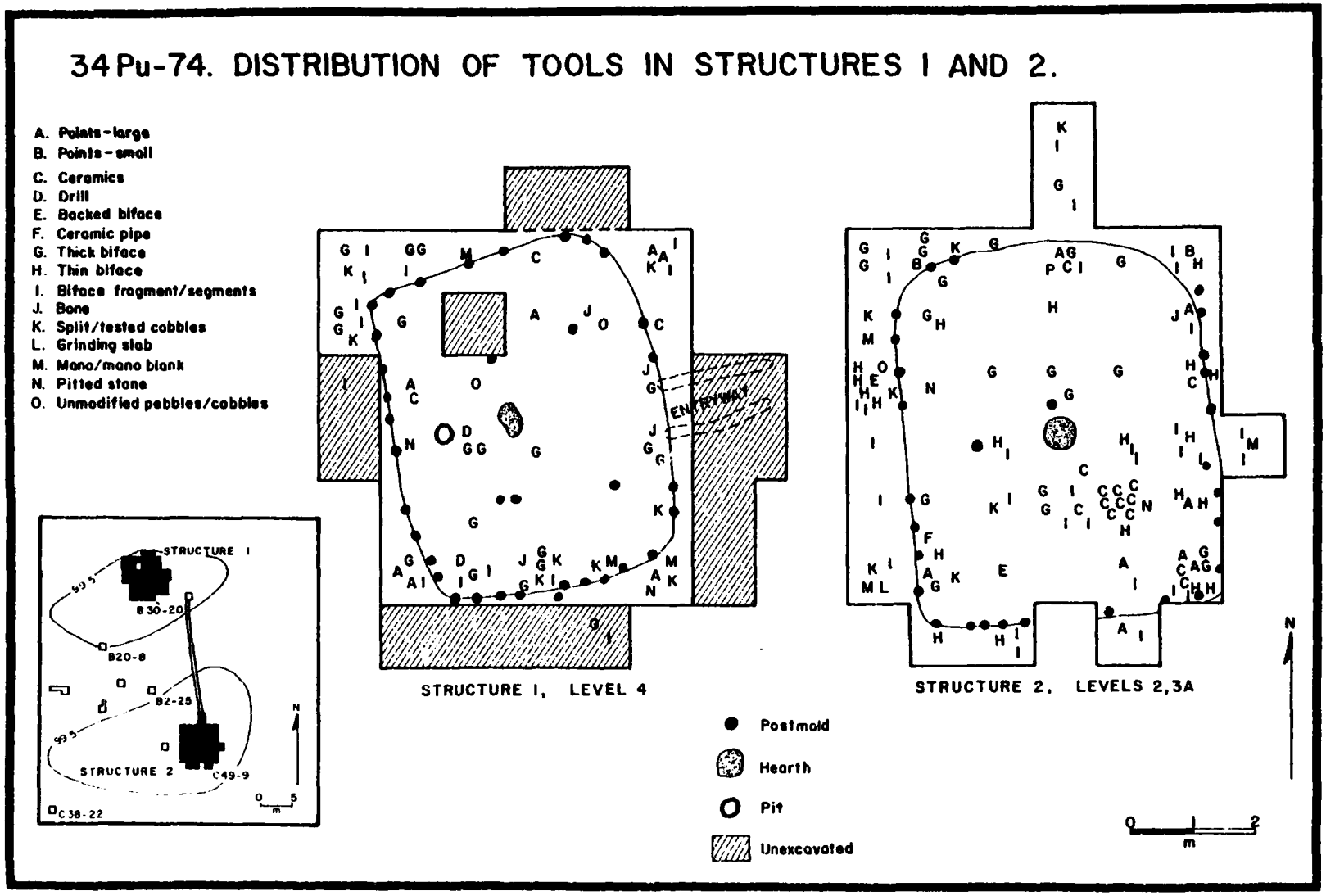


Figure 4.13. Horizontal distribution of selected tool varieties near the floor surface of Structures 1 and 2 at the Blessingame site (34Pu-74): Phase II.

personal belongings. The ceramic pipe *(02-02-00)* in the southwest corner of Structure 2 provides corroborative evidence. Pitted stones *(04-02-00)* are the only other unique artifact consistently found along the west wall. The pit (F79-9) in Structure 1 contained one large point, four modified flakes, a small quantity of unmodified flakes, and charred roof and wall fall materials. These items provide no clear indication of the function of the pit. Thick bifaces *(01-10-02)* appear to be evenly distributed across all areas of both structures.

The activities associated with horizontal rock concentration (F79-1) in Area IV are uncertain. This feature differs from the Late Archaic horizontal rock features in several aspects. The rocks are extensively heat spalled and the surrounding matrix is darker with more ash and charcoal residue. The feature is undoubtedly the locus of extensive burning activities. Associated artifacts include a hammerstone *(04-01-01A)*, one sherd *(02-01-01A)*, an abundance of large points *(01-01-01A, 01-01-02D, 01-01-02E, 01-01-02H, 01-01-02I, 01-01-02M, 01-01-02Q, 01-01-02S, 01-01-05B,* and *01-01-05E)*, numerous biface fragments and segments *(01-12-01A)*, and many examples from all stages of the biface, split/tested cobble, and core reduction sequences *(01-10-00, 01-15-00,* and *01-14-00)*. Notably absent are pecked and ground stone processing tools (Table 4.12). This area may have been used as a cooking, steaming, or roasting area for the processing of faunal remains (Bobalik 1978: Duncan and Cheek 1976).

The activities conducted near pit feature 78-8 in Area II are also uncertain. The basin shaped pit was too small (66 cm x 46 cm x 32 cm) to provide bulk storage of perishable materials. The fill matrix contained ash, charcoal flecks, and baked clay particles similar to the Stratum I matrix overlying the feature (Lintz 1979e: 255). The absence of baked pit walls suggests that no burning occurred within the feature. Stratum I fill appears to have been dumped into the pit. No diagnostic artifacts were found in the pit and materials near the orifice were restricted to a large point *(01-01-01A)*, all stages of the biface reduction system *(01-10-00)*, point/biface fragments and segments *(01-12-00)*, modified flakes *(01-13-00)*, and a core *(01-14-00)*. The recovery of extremely small flake debris from a comparable adjacent waterscreened level suggests that extensive tool maintenance was conducted around the pit area (Lintz 1979e: 338). The pit may have served as a temporary storage or holding facility used in conjunction with processing activities requiring extensive stone tool maintenance and some manufacturing.

Ninety percent of the Caddoan tool assemblage are chipped stone tools, tool fragments, and objective pieces from tool manufacturing. Large points *(01-01-01* through *01-01-05)* constitute 9% of the total assemblage. Many of the large point forms also occur in the Late Archaic assemblage and represent either artifact form continuity or extensive specimen collection and reuse. The large points may have served in a variety of cutting, sawing, or scraping activities (Ahler 1971).

Small points *(01-01-06* through *01-01-08)* constitute 3% of the total assemblage. Presumably, they served primarily as hunting projectiles although they could have served as saws or scrapers in a limited capacity.

Other formalized chipped stone tools such as drills *(01-02-00)*, end scrapers *(01-05-00)*, and backed bifaces *(01-09-00)* represent 3% of the total assemblage. Their occurrence suggests a small amount of drilling, piercing, scraping, and cutting activities (Lynott 1975; Brink 1978).

Bifaces from the reduction sequence *(01-10-00* and *01-11-00)* constitute 50% of the assemblage. Most are from the earlier reduction stages *(01-10-02* and *01-10-03)*. The presence of these specimens suggests extensive stone tool manufacturing, but many could have served as generalized biface tools *(01-11-00)*.

Point/biface fragments and segments *(01-12-00)* make up 21% of the total Caddoan assemblage. These specimens reflect either failure during the last stages of manufacture or breakage during processing activities. Cores *(01-14-00)* and split/tested cobbles *(01-15-00)* constitute only 5% of the assemblage. Their scarcity reflects the minimal role these reduction sequences played compared to the dominant biface reduction strategy.

Ceramics *(02-00-00)* contribute only 6% to the Caddoan assemblage. The scarcity of ceramics (N=61) contrasts with amounts recovered from similar sites with structures along the Red and Arkansas Rivers (Eighmy 1969; Wyckoff and Barr 1967; Harden and Robinson 1975; Israel 1979; Rohrbaugh 1973; Wyckoff 1967). The small quantity of ceramics may reflect either the specialized nature of the structures, the short duration of the occupation, or the infrequent use of ceramics by early Caddoan groups in the Ouachita Mountains. Since the majority of ceramics are undecorated (74%) or plain red slipped (21%), most sherds are believed to be from utilitarian vessels. If decorated sherds reflect status items, then the small amount of decorated sherds (N=3) indicates that the structures did not have a specialized nature.

The ground and pecked stone artifacts *(03-00-00* and *04-00-00)* make up the remaining 4% of the Caddoan assemblage. Most of these items are associated with the structures. The manos *(03-01-01)*, grinding slabs *(03-02-01)*, and pitted stones *(04-02-01)* probably reflect a variety of vegetal processing activities (Spears 1975; Mobley 1978).

The cultural affiliation and age of the component is obtained through the use of diagnostic artifacts and radiometric dates. Ceramics have often been considered a reliable temporal indicator for the Caddoan component. Wyckoff (1970b: 158) has suggested that Caddoan ceramics exhibit a decrease in the frequency of grog tempering and a corresponding increase in shell tempering through time. Based on this observation, Cartledge (1970: 70) seriated ceramics from nine Caddoan sites in the Arkansas River Valley and found that Late Caddoan (Fort Coffee) sites had 55-100% shell tempered wares and 43-0% grog tempered wares. The relative frequency of shell tempered to grog tempered sherds at the Blessingame site is 30-70%. Although the sample is small, the relative frequencies are consistent with the early Caddoan interpretation. Supporting evidence is provided by the Graves Chapel variety of the Red River pipe found inside Structure 2.

Radiometric dates for this component are based on seven radiocarbon and three archaeomagnetic dates obtained from the two structures during Phase I (Lintz 1979e: 272). Despite good archaeological context, the results vary widely. The maximum spans for one sigma values are 810 and 520 years for Structures 1 and 2 respectively using MASCA corrected radiocarbon dates. However, the age of construction was thought to be between A.D. 940 and 1250 (Lintz 1979e: 273-4). With such a broad span, the temporal relationship between the two structures is vague.

No additional materials were submitted for dating during Phase II. However, a weighted averaging procedure (Long and Rippeteau 1974) is applied to the previous radiocarbon dates to refine the age estimates (Table 4.16). All dates have been tree ring corrected using MASCA procedures, and a 230 year cane adjustment factor has been made for sample Tx-3283. This averaging procedure places more emphasis on those dates with small sigma values. The weighted factor (W) is inversely proportional to the variances (σ^2). The weighted factors are obtained in this instance by dividing the sigma of each date by the largest sigma value in the set and locating the corresponding weight factors in Table 2 provided by Long and Rippeteau (1974: 209). The dates are averaged and new sigma values are calculated using the formula in Table 4.16. The weighted average dates for Structures 1 and 2 are A.D. 1221 ±34 and A.D. 1166 ±39, respectively. These results are similar to the archaeomagnetic dates obtained from Structure 1, A.D. 1200 (O.U.-1648) and Structure 2, A.D. 1185 (O.U.-1647) and 1070 (O.U.-1646).

The significance of the temporal difference between the two structures is evaluated through a t-test using the average weighted radiocarbon dates from the two structures (Long and Rippeteau 1974: 211). Table 4.16 shows that the probability of contemporaniety of the two structures lies between .20 and .50. Since this difference is not statistically significant at the .05 level, the two structures are either contemporaneous or very nearly contemporaneous.

The stratigraphic relationship of cultural materials and debris to the floor surfaces probably suggests that the structures were sequentially occupied. Early Caddoan artifacts are found beneath the floor of Structure 2 but not under Structure 1. Furthermore, the apparent loading of 28 cm of ash and rocks (F78-14) above the roof fall of Structure 1 argues for a continued or subsequent occupation after the burning episode. On the basis of stratigraphic evidence, Structure 1 is postulated to have been occupied prior to Structure 2.

On the basis of the structures and the diversified assemblage, it is believed that the early Caddoan component represents a small hamlet occupied during the latter half of the 12th century and the first quarter of the 13th century. The nature of activities associated with the structures, coupled with a scarcity of decorated ceramics, suggest a domestic or secular function. Thus the early Caddoan component probably represents a semipermanent household occupation. The temporal relationship between the structures at the south end of the terrace and the burned rock concentration (F79-1) and the pit feature (F78-8) in the north is uncertain.

Table 4.16. Weighted average and t-test of comparability using radiocarbon dates from Structures 1 and 2 at the Blessingame site (34Pu-74): Phase II.

Averaging Radiocarbon Dates (Long and Rippeteau 1974)

Lab Number	TRC. (MASCA) Date A.D. (C)	(σ)	Wt. Factor (W)	Average Date ($\bar{N}w$)	($\bar{\sigma}$)
Structure 1					
Tx-3283*	1210*	±70*	1.25		
Tx-3280	970	±60	1.50	1221	±34.02
UGa-2721	1075	±75	1.00		
UGa-2532	1650	±70	1.25		
Structure 2					
Tx-3281	980	±60	1.50		
UGa-2533	1370	±70	1.25	1166	±38.94
UGa-2720	1190	±75	1.00		

$$\bar{N}w = \frac{(C_1 \times W_1) + (C_2 \times W_2) + \ldots (C_n \times W_n)}{W_1 + W_2 + \ldots W_n}$$

$$\bar{\sigma} = \frac{1}{\sqrt{\frac{1}{\sigma_1^2} + \frac{1}{\sigma_2^2} + \ldots \frac{1}{\sigma_n^2}}}$$

t-test of Comparability (two-tail): (Long and Rippeteau 1974)

degrees of freedom = ∞

$$t = \frac{\bar{N}w_1 - \bar{N}w_2}{\sqrt{\bar{\sigma}_1^2 + \bar{\sigma}_2^2}} = 1.064$$

Probability of contemporaneity falls between .20 (t=1.282) and .50 (t=0.674).

*Original date on cane material has been adjusted (Lintz 1979e: 272).

These areas could be specialized processing areas used by the inhabitants of the hamlet or processing localities used by other early Caddoan groups.

The only other locality in the Jackfork Valley with evidence of an early Caddoan structure is 34Pu-105, the Arrowhead Hill site (cf. Chapter 7). The relationship between these sites is uncertain, but the differences in the amount of decorated ceramics is noteworthy.

The early Caddoan occupation at 34Pu-74 bears some resemblance to Harlan and Spiro phase house sites in the Arkansas River Valley (Brown, Bell and Wyckoff 1978: 172; Briscoe 1977; Wyckoff and Barr 1967; Wyckoff 1970b; Prewitt and Wood 1969) and the Hochatown and Sanders phases in the Red River Valley (Wyckoff 1967; Rohrbaugh 1973). Insufficient diagnostic materials were recovered to demonstrate major directions of influence between these major river valleys and the Blessingame site.

The late Caddoan or Protohistoric component is tentatively recognized on the basis of two radiocarbon dates and the stratigraphic relationship of features and a limited amount of diagnostic materials. In the north terrace area, two rock hearths (F78-6/79-7 and F76-1/78-9) crosscut the early Caddoan (Stratum I) deposits in the mound area (II). MASCA corrected radiocarbon dates of A.D. 1405 ±50 (Tx-3282) and 1640 ±110 (UGa-1518) were obtained from the latter feature. The discrepancy in dates may stem from a small sample size. However, they establish an aboriginal component postdating the two structures. Additional evidence of this later occupation is suggested by the small rock concentration (F78-14) overlying Structure 1.

Few diagnostic materials can be assigned to this component with certainty. Several small side-notched points *(01-01-07A* and *01-01-07B)* occur in Level 1 of the north terrace mound (Area II), Areas III and IV, and overlying Structure 1. Their assignment to the late Caddoan/Protohistoric component is based primarily on their stratigarphic position. However, these point varieties may also occur in small quantities in the Harlan and Spiro phases (Briscoe 1977; Wyckoff 1974). Other items associated with the assemblage are not sufficiently distinctive to permit segregation.

The nature of activities reflected by the limited assemblage and features is uncertain. However, hunting and cooking or processing are suspected. The assemblage may be ephemeral, and a short term occupation is postulated. Few other late Caddoan/Protohistoric components have been recognized in the Jackfork Valley. During the Early Historic period, the valley was an unsettled open territory used by small hunting parties, scouts and raiding parties of the Osage, various Caddoan groups, and perhaps Lipan Apache (Lintz 1979b: 53). The late Caddoan/Protohistoric occupation of 34Pu-74 may be one manifestation of this land use pattern.

Caddoan and Archaic Assemblage Comparisons

Major characteristics of the prehistoric aboriginal components have been discussed separately, but have not been directly contrasted. Such a contrast is partially hindered by the inability to segregate early Caddoan from late Caddoan assemblages. However, a contrast can be made between the Caddoan components and the Archaic component. The actual frequency (N), relative frequency (%), and density (C.I.) of selected artifacts recovered during Phase I and II were tabulated for comparison (Table 4.17). Ceramics *(02-00-00)* and small points *(01-01-06, 01-01-07,* and *01-01-08)* were omitted from the relative frequency calculations since these traits are the major diagnostic criteria for segregating the assemblages within each analytical area. The differences in the relative frequency and densities (Columns G and H) may be considered a measure of contrast between the two assemblages. This procedure stresses differences in the artifact frequency and de-emphasizes mere presence or absence of artifacts which are unique, but rare to an assemblage *(01-01-08, 03-03-00,* and *03-04-00)*. Major differences only occur in the chipped stone tool inventory and there is little difference in the pecked and ground stone tool inventories. The strong similarity between the two assemblages suggests a continuity of activities and artifacts. It reaffirms the additive nature of the general artifact assemblage.

Some major differences are apparent between the chipped stone inventories. The Caddoan assemblages have large contracting stemmed points *(01-01-01A)*, drills *(01-02-00)*, backed bifaces *(01-09-00)*, later stages in the biface reduction sequence *(01-10-02* and *01-10-05)*, and point/biface fragments and segments *(01-12-01A)*. The Archaic assemblage has more early reduction stage bifaces *(01-10-01)*, biface implements *(01-11-00)*, and split/tested cobbles *(01-15-00)*. These differences may relate either to temporal changes or the nature of site occupation. The occurrence of more formalized tool forms such as drills *(01-02-00)* and backed bifaces *(01-09-00)* in the Caddoan assemblage may relate to the more permanent nature of site occupation, as implied by the structures.

HISTORIC COMPONENTS

Two historic components are suggested. The earlier historic component is represented by several varieties of decorated ceramic wares *(07-02-02)*, glass bottles *(07-01-01)*, square nails *(07-03-01)*, and a gun flint *(07-05-01A)* found in Level 1 of Area III, and Levels 1 and 2 of Areas I and IV. An unidentified iron disc *(07-03-09A)* and a small buckle *(07-03-08A)* found during Phase I in the south terrace periphery and overlying Structure 1 may also be affiliated with this component. Most of the Early Historic materials (84%) are glass and ironstone kitchen and service wares suggestive of a habitation site, possibly a homestead. The scattered occurrence of materials argues against a hauling and dumping depositional pattern. Thus, structural remains of an Early Historic homestead have been near the northwest portion of the site, even though no features were located.

Table 4.17. Comparisons between actual frequency, relative frequency, and density of selected artifacts from Caddoan and Archaic components at the Blessingame site (34Pu-74): Phase I and II.

Artifacts	Caddoan			Archaic			% Difference	CI Difference
	No.	%	CI*	No.	%	CI*		
01-01-01	39	3.9	.085	10	2.0	.040	+1.9	+.045
01-01-02	48	4.8	.105	24	4.7	.096	+0.1	+.009
01-01-03	1	0.1	.002	2	0.4	.008	-0.3	-.006
01-01-04	6	0.6	.013	4	0.8	.016	-0.2	-.003
01-01-05	4	0.4	.008	2	0.4	.008	-	+.002
01-01-06	17	-	.037	2	-	.008	-	+.029
01-01-07	11	-	.024	1	-	.004	-	+.020
01-01-08	1	-	.002	-	-	-	-	-
01-02-01	13	1.3	.028	1	0.2	.004	+1.1	+.024
01-05-01	4	0.4	.008	1	0.2	.004	+0.2	+.004
01-08-01	1	0.1	.002	-	-	-	+0.1	+.002
01-09-01	10	1.0	.022	1	0.2	.004	+0.8	+.018
01-10-01	60	6.0	.131	54	10.6	.217	-4.6	-.086
01-10-02	286	28.6	.624	138	27.0	.554	+1.6	+.070
01-10-03	135	13.5	.294	70	13.7	.281	-0.2	+.013
01-10-04	35	3.5	.076	20	3.9	.080	-0.4	-.004
01-10-05	21	2.1	.046	7	1.4	.028	+0.7	+.018
01-11-01	9	0.9	.020	17	3.3	.068	-2.4	-.048
01-12-01	228	22.8	.497	87	17.0	.349	+5.8	+.148
01-14-01	6	0.6	.013	5	1.0	.020	-0.4	-.007
01-15-01	15	1.5	.033	12	2.3	.048	-0.8	-.015
01-15-02	33	3.3	.072	35	6.8	.140	-3.5	-.068
02-01-01	26	-	.057	-	-	-	-	+.057
02-01-02	16	-	.035	-	-	-	-	+.035
02-01-03	18	-	.039	-	-	-	-	+.039
02-02-00	1	-	.002	-	-	-	-	+.002
03-01-00	15	1.5	.033	8	1.6	.032	-0.1	+.001
03-02-00	3	0.3	.007	2	0.4	.008	-0.1	-.001
03-03-00	-	-	-	2	0.4	.008	-0.4	-.008
03-04-00	1	0.1	.002	-	-	-	+0.1	+.001
03-06-00	6	0.6	.013	1	0.2	.004	+0.4	+.009
04-01-01	4	0.4	.008	3	0.6	.012	-0.2	-.004
04-02-00	9	0.9	.020	2	0.4	.008	+0.5	+.012
04-03-00	6	0.6	.013	2	0.4	.008	+0.2	+.005
04-04-00	3	0.3	.007	1	0.2	.004	+0.1	+.003
Total	1091			514				

+ = Caddoan dominant trail
- = Archaic dominant trail
* = Ceramics and small points excluded from relative frequency calculations.

The temporally diagnostic materials suggest an A.D. 1830-1860 occupation period (Price 1979; Noel Hume 1970). This Early Historic homestead may be an expression of the population boom which occurred between 1838 and 1850 when the Choctaw capitol of Nanih Waiya was located at Tuskahoma (Lintz 1979b: 58).

The later historic component is represented by barbed wire *(07-03-05A)*, fence staples *(07-03-04A)*, and fragments of a plastic bottle *(07-04-01A)* recovered in 1978 from the north terrace periphery and the area of Structure 1 in the south terrace. A rock filled animal burrow (F78-23) is also attributed to this component. These materials and features are consistent with the known brush clearing and cattle raising activities which occurred after 1940.

SUMMARY

The Blessingame site is on a prominent terrace at the confluence of Jackfork and Buffalo Creeks. The site is in pasture, although brush clearing activities during the 1940s have disturbed portions of the site.

The site was located in 1972 and minimally tested in 1976. During Phase I investigations, 129 full and 8 half squares were excavated primarily in two areas of the site. Six horizontal rock concentrations, two rock hearths, one exterior pit, one rock filled animal burrow, and two structures were partially exposed in 1978. Excavations revealed a complex stratigraphic and cultural sequence at the site. Additional excavations were necessary to examine other areas of the site and to clarify cultural relations, refine major acitvity areas, and identify the nature of site occupation for each component.

During Phase II investigations, 63 squares were opened in an extensive excavation program. Major emphasis focused on testing topographic mounds, searching for additional structures, defining limits of artifact concentrations, obtaining larger samples from the lower cultural deposits, and defining the configuration of Structure 1. In addition, four backhoe trenches were dug across several mounds to aid in stratigraphic correlation. Phase II excavations revealed three other horizontal rock concentrations and one exterior postmold. Additional excavations were conducted on two horizontal rock concentrations, one rock hearth, and Structure 1 which were located during the 1978 season.

Stratigraphic complexity and the distances between tested areas hindered direct correlation of Phase II materials. These problems were circumvented by analyzing material variability within stratigraphically equivalent subareas of the site. Five analytical subareas (I-V) were identified on the basis of differential material densities and used for artifact assemblage segregation. Materials from Structure 1 were considered separately because of the shallow nature of the excavated deposits. Diagnostic materials were used to isolate components for each of the five areas for subsequent comparison.

The intrasite analysis integrated materials from Phase II with the materials from five analytical areas defined in the analysis of Phase I. Materials from both phases were used to reassess the nature of the site's occupations. Three prehistoric and two historic components were tentatively identified.

A Late Archaic occupation is recognized as the earliest component at the site. Distributional analysis of diagnostic material did not provide support for the separate Archaic assemblages postulated during Phase I analysis. Seven horizontal rock concentrations and one postmold are attributed to this component. Most concentrations show evidence of burning and these features were the loci of major processing activities. The widespread distribution and stratigraphic superposition of two rock concentrations in the north terrace area provide some evidence to suggest that the features may be noncontemporaneous. Diagnostic artifacts include a wide variety of technoexploitive chipped, pecked, and ground stone materials which may have been used in a range of procurement, processing, and manufacturing activities. The paucity of floral and faunal materials precludes specific details of the processing activities. The diversified assemblage suggests that the site may have served as a short term base camp which may have been intermittently used over several centuries. Acceptable radiocarbon dates are not available from this lowest component. The assignment of this assemblage to the Late Archaic is based on stylistic similarities with Wister phase materials.

An early Caddoan component is also present in all areas of the site. Associated features include one basin shaped pit, one burned rock concentration, and two subrectangular structures. The size, shape and orientation of the structures are similar. Structure 1 has a quadrilateral roof support pattern, a central hearth, an eastward extended entryway, a small pit feature along the central part of the west wall, and a possible partition extending from the south wall. Interior details from Structure 2 are poorly defined. The distribution of materials within the structures suggests material processing activities in the south half and possible food processing in the northeast portion. The inferred activity sets within the structures and the scarcity of decorated ceramics are cited as evidence of a secular occupation. The early Caddoan assemblage shows a wider range of chipped stone materials than the Archaic assemblage. Most activities relate to procurement, manufacturing, and processing activities. Seven radiocarbon and three archaeomagnetic dates from the structures covered a considerable span. Weighted average radiocarbon dates of A.D. 1221 ±34 and 1166 ±39 were obtained from Structures 1 and 2 respectively. These results are in close agreement and consistent with the archaeomagnetic dates. A t-test was used to demonstrate that the structures were either contemporaneous or very nearly contemporaneous. The stratigraphic relationship of Caddoan materials to the floor surfaces suggests that the structures were sequentially occupied. The occupation was interpreted as a small hamlet on the south terrace area. The relationship between the structures and the other early Caddoan features at the site remains uncertain.

A late Caddoan or Protohistoric occupation is tenuously recognized on the basis of two radiocarbon dates (A.D. 1405 ±50 and 1640 ±110) associated with two burned rock hearths stratigraphically above the early Caddoan materials. Most of the assemblage items are impossible to segregate from the early Caddoan materials, although small side-notched points consistently occur in the uppermost levels. The occupation is thought to be a short term hunting and processing camp where specialized processing activities were conducted.

An Early Historic component is identified in three subareas in the northwest portion of the site. Most of the materials are glass and ceramic kitchen and service wares, and it is possible they reflect a homestead in the general vicinity of the site. No features were attributed to this component. Temporally diagnostic materials suggest an 1830-1860 occupation, and these dates coincide with a local population boom which accompanied the founding of the Choctaw capitol at Tuskahoma.

The last component reflects the recent brush clearing and cattle raising activities which postdate 1940. One rock filled animal burrow is attributed to this component.

CHAPTER 5

THE TURTLE LUCK SITE (34Pu-100)

Christopher Lintz

INTRODUCTION

The Turtle Luck site is on a lower terrace along the south bank of an intermittent tributary of Anderson Creek. Today, the channel of Anderson Creek is approximately 373 m northeast and 541 m east of the site, but topographic evidence suggests that an older channel formed the eastern boundary of the site. The site is approximately 4.5 m above the modern incised channel at an approximate elevation of 177 m (580 ft) above m.s.l. (Figure 5.1).

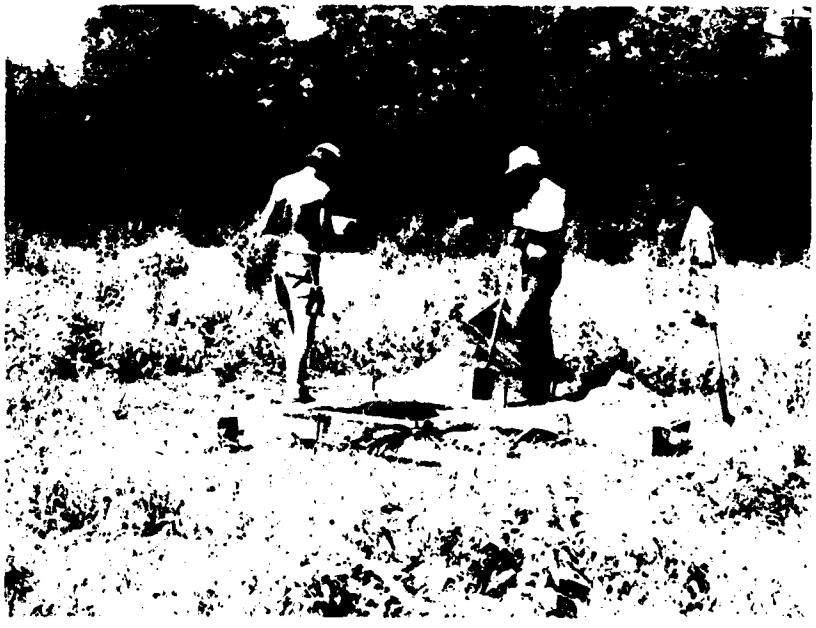
Cultural materials were confined to a 55 m x 70 m area on top of a low erosional remnant at the north edge of the terrace. Cultural material occurs on many other low mounds which are scattered along the terrace edge.

Historic land use is poorly documented, but the terrace areas south and west of the main site area have been cleared for pasture. Also a dense stand of scrub oak covers the site and extends along the terrace edge. The small size of the trees indicates a secondary growth. An underdeveloped road across the western edge of the site descends the north terrace edge. The western portion of the terrace may have been plowed at some undetermined point during the historic period, but the land has most recently been used as a pasture.

The site was found in 1976 during an attempt to relocate 34Pu-77 (Bobalik 1977: 436). Eleven post hole tests were randomly placed on the main site area and five 1 m x 1 m squares were excavated to obtain a sample of materials as well as soils for chemical and flotation analyses. These excavations revealed extensive rodent disturbances throughout the tested portion of the site.

The majority of artifacts were within the upper 70 cm of deposits, although culturally sterile zones were encountered at a depth of 33 cm in some post hole tests. The surface survey, post holes and excavated squares, produced 3 *Gary*, 3 *Edgewood*, 2 *Scallorn*, 1 unidentified point, 9 plainware sherds, 37 bifaces, 8 split cobbles, 120 modified flakes, 1 cupstone, 7469 unmodified flakes, and a small quantity of charred nuts.

A



B

Figure 5.1. A: General site photo of the Turtle Luck site (34Pu-100). Facing North. B: General site photo of peripheral squares. Facing north.

Bobalik (1977: 466) suggested that the site was repeatedly occupied as a base camp by Woodland or early Caddoan groups. However, the segregation of components was hindered by extensive rodent activity in the excavation squares. Inferred activities conducted at the site include hunting, processing and storage of vegetal resources, and lithic reduction.

Additional work was recommended at 34Pu-100 to clarify the nature of activities occurring on the upper portion of Anderson Creek and to determine their cultural affiliations.

EXCAVATION STRATEGIES

Previous testing was confined to a mound along the north terrace edge. One high density area was noted along the mound crest and north side adjacent to the steep terrace edge (Bobalik 1977: 441). Consequently, a single 40 m x 40 m block area, oriented to magnetic north, was superimposed over the mound. The southeast corner of the block was designated as the permanent datum point (N0-W0), and all square designations were based on their relative location from this point.

Twelve 1 m x 1 m test units were randomly selected from within the block (Figure 5.2). Thirty additional squares were excavated for a variety of reasons. Six squares (N0-W9, S7-W20, S23-W39, N0-W50, N20-W50, and N32-W50) were excavated to sample the periphery of the main site area and delimit the extent of the prehistoric occupation. Squares N15-W25 and N25-W20 were added to evaluate artifact densities observed during the random square excavations. Squares N25-W0 and N25-E6 were excavated in order to clarify stratigraphic relationships along the east edge of the mound. Test squares 1 (S54-W34), 2 (N0-W79), 3 (S15-W91), and 4 (S88-W30) were on, or adjacent to, other minor mounds located south and west of the main site area. Seven squares near test pit 3, and nine squares near N34-W24 were excavated to expose features.

The soil matrix from 40 of the 42 test squares was excavated in 10 cm arbitrary levels and dry screened through 1/4-in mesh hardware cloth. Excavations continued until Pleistocene gravels were encountered or productivity reached a point of diminishing return. Squares N34-W23 and N32-W22 were excavated differently. Square N34-W23 was arbitrarily chosen as a control square since it was located near the top of the main mound. The matrix was excavated in arbitrary 5 cm levels and waterscreened through 1/16-in mesh hardware cloth. A 5 liter soil sample from each level was waterscreened separately for total matrix sorting. After eight levels, it became evident that the square contained a large part of Feature 79-3. Since this was a pit and could affect the contents of the stratigraphic matrix control, a second waterscreen square was selected. The methods used to excavate N32-W22 were identical to those used in N34-W23.

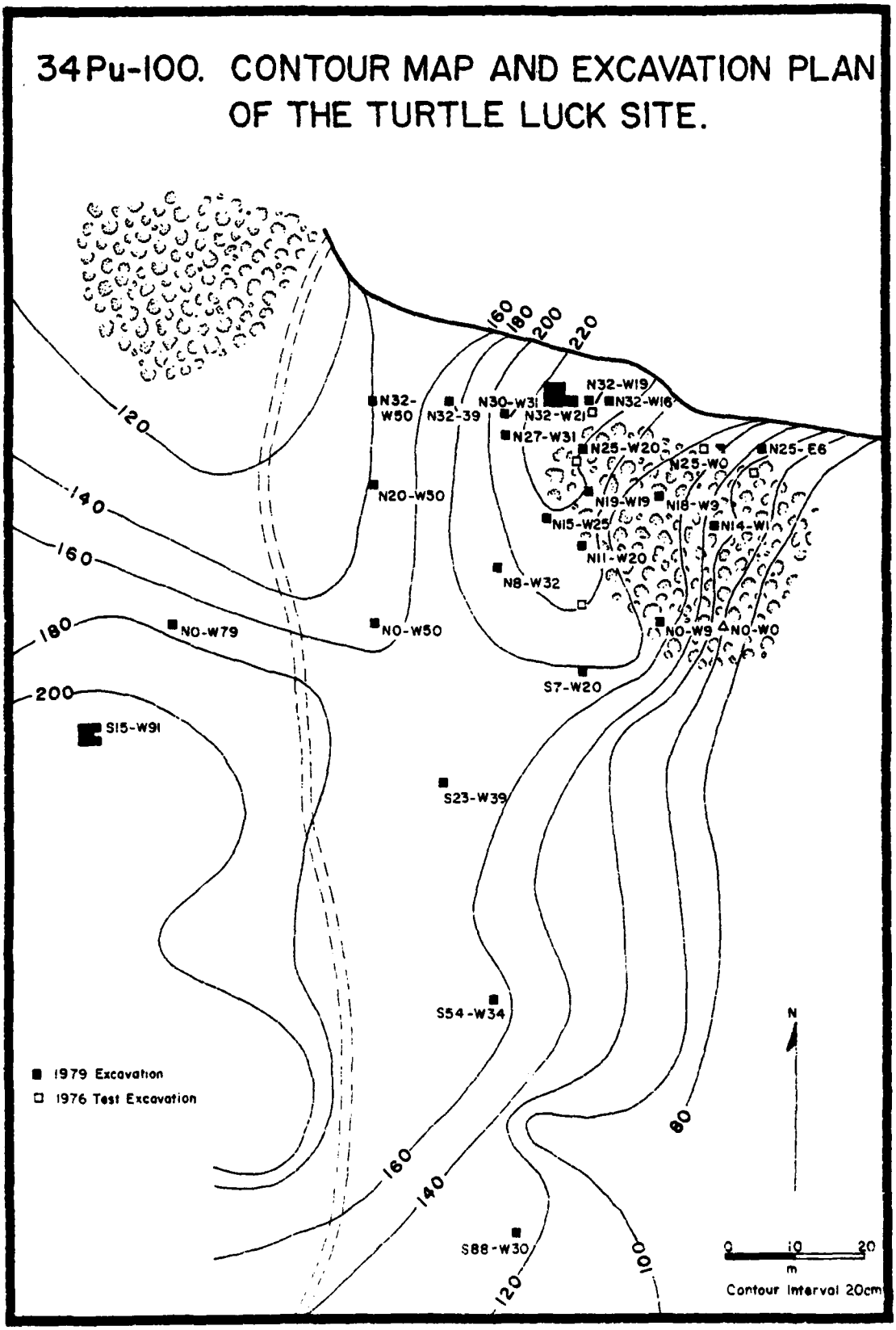


Figure 5.2. Contour map and excavation plan of the Turtle Luck site (34Pu-100): Phase II.

Feature numbers were assigned to rock concentrations and pit like depressions. Although features occasionally transcended square designations, separate excavation units were maintained to assure horizontal integrity. Soil samples were collected from most features. Most of the matrix from Feature 79-2 was floated while the matrix from Feature 79-3 was floated and waterscreened.

Stratigraphic profiles were drawn from units within the main mound area. An additional profile recorded the stratigraphy in a hand cleared portion of the terrace edge. Upon completion, all areas were mechanically backfilled.

STRATIGRAPHY

The stratigraphy at 34Pu-100 is fairly straightforward. Stratigraphic variations exist between test units, but these may be attributed to differential erosion on various parts of the site.

The basal stratum is an old colluvial deposit of rocks which either undulate or dip towards the west. Most rocks are rounded primarily from chemical weathering rather than mechanical tumbling. This unit is overlain by a Pleistocene age alluvium which has undergone considerable soil development. Subsequently, the terrace eroded down to the Pleistocene age B horizon, and in some places to the colluvial rock deposits. Evidence for erosion is seen in the differential substrata across the site as well as an abrupt soil boundary.

Later alluvium was deposited over the Pleistocene sediments. Differential erosion of the overlying alluvium produced a series of natural, low mounds on the terrace. Human occupations of the terrace focused on the slightly higher and drier mound areas and most cultural remains are within the upper zones of these areas.

Recent terrace erosion has probably accentuated the mound topography and possibly deflated deposits on the mound periphery. Historic plowing may have modified the upper portions of the cultural deposits across the terrace.

Three soil profiles indicate stratigraphic variation within the site (Figure 5.3). Square N30-W31 is from the main site area, and provides one of the most complete startigraphic sequences from the site. Squares N18-W9 and N20-W50 reflect some of the variation east and west of the main site area. Soil colors were taken from moist samples and are based on Munsell colors (1975).

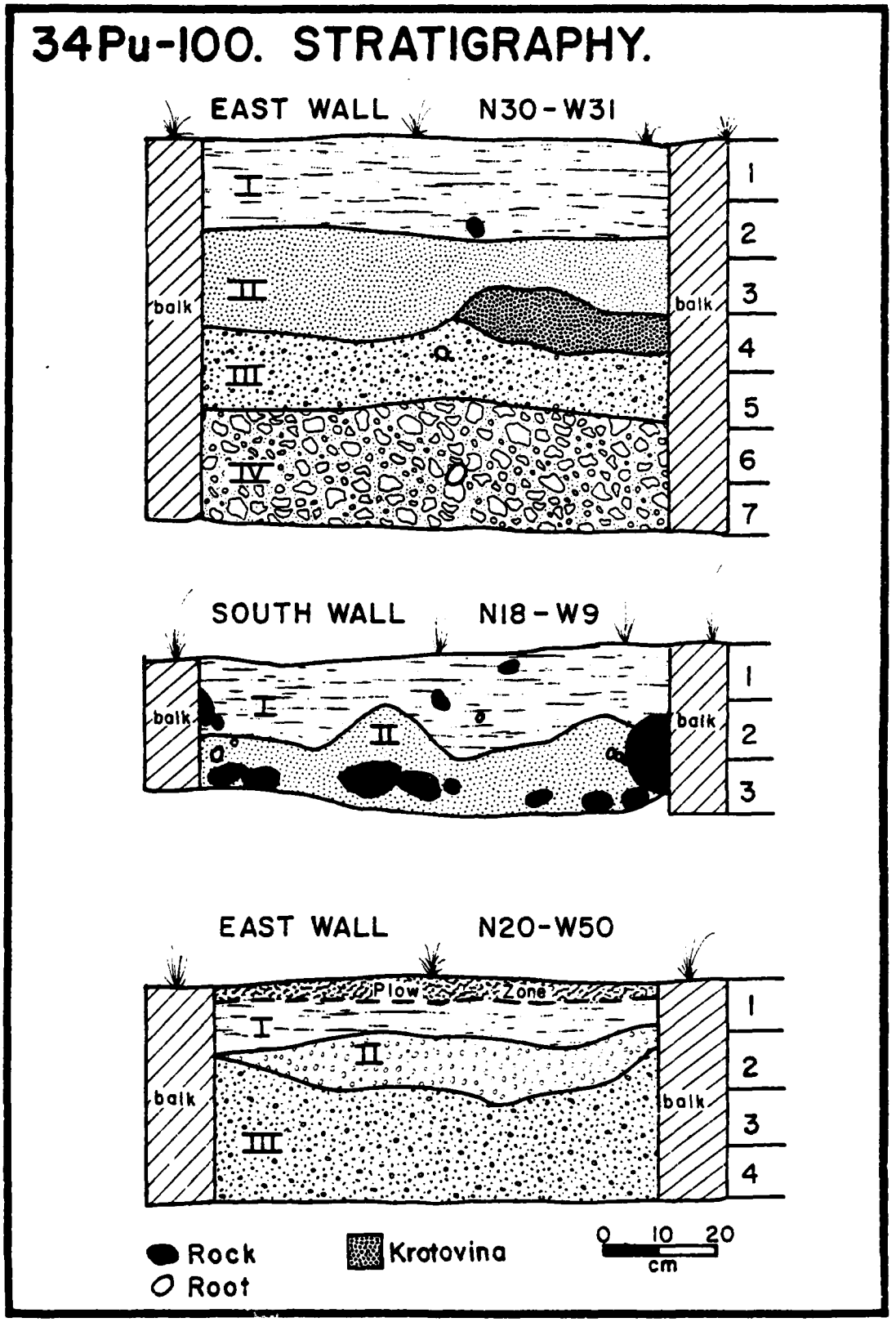


Figure 5.3. Stratigraphic profiles of excavations units at the Turtle Luck site (34Pu-100): Phase II.

MAIN SITE AREA DEPOSITS (N30-W31)

Four strata were in the upper 70 cm of the main area. Cultural materials were confined to the upper 40 cm of deposits.

Stratum I

This unit is confined to the upper 17 cm and is characterized as a dark yellow brown (10YR 4/4) sandy loam with single grain structure. It is abundantly mottled with coarse brown (7.5YR 5/4) patches. Fine rootlets, particularly near the surface, are common in this unit. Cultural materials are abundant. The boundary between Strata I and II is smooth and clear. This unit is believed to be a plow zone (Ap horizon).

Stratum II

This unit is a dark brown (7.5YR 3/2) sandy loam that extends from 17 cm to 34 cm. It has a weak crumb structure and pebble to cobble size gravels are common. Fine horizontally oriented rootlets are common near boundary zones, and bioturbation from roots and rodents is common. Cultural materials are abundant. The boundary between Strata II and III is smooth and clear. This unit is interpreted as an A horizon.

Stratum III

This unit extends from 34 cm to 46 cm and is a brown (7.5YR 5/4) loam to sandy loam with a weak fine crumb structure. It contains abundant small pebble to cobble size gravels and very few fine rootlets. Occasional krotovina are evident. There is a marked decrease in the amount of cultural materials. The boundary between Strata III and IV is smooth and clear. This unit is interpreted as an E horizon representing portions of the A and B horizons.

Stratum IV

This unit extends below 46 cm and is a yellowish red (5YR 4/6) loam with moderate fine to very fine subangular blocky structure. There is a marked decrease in the amounts of gravel and rootlets, however rodent disturbance is present. Cultural materials are very sparse in this unit. It is interpreted as a culturally sterile Pleistocene B horizon. The small amount of cultural materials reflect bioturbation.

EAST AREA DEPOSITS (N18-W9)

The soil is shallower and rocky east of the main site area. Many large rocks were exposed on the surface around N25-E6. The density of rocks hindered excavations, and occasionally excavations were stopped when a square full of rounded cobbles was exposed. The profile for N18-W9 was selected because of its depth and density of rocks. Only two strata were recognized in this unit.

Stratum I

This unit was confined to the upper 13 cm and is characterized by a brown fine sandy loam (7.5YR 5/4) with gravels and some large rounded rocks. Rodent burrows and large roots have disturbed this unit. Cultural materials are abundant. The boundary between Strata I and II is abrupt and wavy. This unit is interpreted as a plow zone (Ap horizon). The presence of occasional rocks may reflect incomplete clearing of the plowed field.

Stratum II

This unit ranged from 13 cm to depths greater than 28 cm. It is characterized by a dark brown fine sandy loam (7.5YR 3/2) with numerous large rounded rocks. The density of rocks increases with depth and covers the entire square by 28 cm. Large and small roots and rodent burrows are common. Cultural materials are abundant and occur between and beneath the upper rocks. The rounded rocks are chemically weathered instead of being abraded or waterworn. This unit is interpreted as an A horizon occurring directly on a Pleistocene age colluvial rock deposit. Profiles cut in the terrace edge reveal that the rocks are not of cultural origin. Cultural materials have filtered around them by bioturbation and colluviation processes.

WEST AREA DEPOSITS (N20-W50)

This unit was selected since it shows the compressed nature of the eroded strata west of the main site area. Three stratigraphic units were recognized, but cultural materials were confined to the upper 18 cm. The soil depths, colors, and textures are based mostly on field observations of N20-W50. However, other detailed soil characteristics are derived from N32-W39 which is representative of several squares in this area.

Stratum I

Two subunits were recognized for Stratum I deposits. The upper portion (0-4 cm) consists of a light brown sandy loam (7.5YR 6/4), while the lower portion (4-10 cm) is a light brown sandy loam (7.5YR 6/4) mottled with red and black specks probably hematite. Very small gravels occur throughout Stratum I. Cultural materials are present, but not as plentiful as in the main site area. The boundary between Strata I and II is abrupt and smooth. This unit is interpreted as a plow zone (Ap horizon) with a shallow colluvially deposited subunit from the main site area on top.

Stratum II

This stratum extends from 10 cm to 18 cm deep and consists of a light brown loamy sand (7.5YR 6/4) with very small light yellowish brown mottles. Scattered small manganese and hematite nodules also occur along with pebbles. Rootlets are common. Cultural materials are present in small quantities. The boundary between Strata II and III is abrupt and smooth. This unit is interpreted as an A horizon.

Stratum III

This stratum extends from 18 cm to depths greater than 40 cm. It is a light yellowish brown fine silt loam (10YR 6/4) with small pebbles and degrading manganese and hematite nodules. The decomposition of manganese and hematite provide a brown streaked appearance. A few very fine rootlets occur. Cultural materials are rare and probably intrusive. This unit is interpreted as an E horizon primarily transformed from the precultural B horizon deposits.

FEATURES

Feature numbers were assigned to three dense rock concentrations and one large pit. Artifacts associated with each feature are presented in Table 5.1.

Rock Concentrations

Excavations around three rock anomalies revealed certain attributes suggesting that only one rock feature (F79-2) is of cultural origin. The other two (F79-1 and F79-4) are the result of natural processes. The noncultural features will be discussed first.

Table 5.1. Materials associated with features at the Turtle Luck site (34Pu-100): Phase II.

Artifacts	Feature 79-4 Rock Concentration		Feature 79-4 Pit		Feature 79-2		Feature 79-3 (L-4-5)		Total
	Directly	Possibly	Directly	Possibly	Directly	Possibly	Directly	Possibly	
01-01-01A	-	-	-	-	-	-	3	3	6
01-01-05C	-	-	-	-	-	-	1	-	1
01-01-06A	-	-	-	-	-	-	1	-	1
01-10-01A	-	-	-	-	-	-	5	5	10
01-10-02A	-	-	-	-	-	-	7	7	14
01-10-03A	-	-	1	-	-	-	14	4	19
01-10-04A	-	-	-	-	-	-	3	2	5
01-10-05A	-	-	-	-	-	-	2	1	3
01-12-01A	-	1	-	-	-	-	13	7	21
01-13-00	-	1	-	-	-	2	36	54	93
01-15-01A	-	-	-	-	2	-	1	2	5
01-15-02A	-	-	-	-	2	-	-	-	2
01-16-01A	-	265	51	-	346	213	2243	2921	6039
02-01-01A	-	-	-	-	-	-	2	2	4
02-01-01B	-	-	-	-	-	-	6	2	8
02-03-00	-	-	-	-	-	-	54.9g	11.9g	66.8g
03-01-01A	-	-	-	-	1	-	-	1	2
03-01-03A	-	-	-	-	1	-	-	-	1
03-02-01A	-	-	-	-	1	-	-	1	2
03-06-02A	-	-	-	-	-	-	-	2	2
04-03-01A	-	-	-	-	1	-	1	-	2
04-04-01A	-	-	-	-	-	-	-	1	1
04-04-03A	-	-	-	-	-	-	-	1	1
08-01-00	-	-	-	-	-	-	0.7g	-	0.7g
09-01-00	-	0.3g	0.4g	-	-	-	39.5g	8.8g	49.0g
Total	-	267	52	-	354	215	2338	3016	6242

Feature 79-1 (Figure 5.4)

This feature number was assigned to a Pleistocene colluvial rock deposit exposed in N14-W1. The size and density of rounded rocks within a dark culture bearing soil matrix suggested a cultural association. However, excavations in nearby squares (N18-W9, N25-W0, and N25-E6) revealed similar rock densities and a profile along the terrace edge indicated considerable depth to the rock deposit. This suggests that the feature is noncultural.

Feature 79-4 (Figures 5.4, 5.5)

This rock concentration was encountered in test square 3 (S15-W91) and seven additional squares were excavated to expose it. The rock cluster is in the upper portion of Stratum II at a depth of 20-30 cm. Adjacent soils were a brown silt loam containing few gravels. However, the feature consisted of a densely packed rectangular area of unburned sandstone and siltstone cobbles measuring 220 cm north-south by 80 cm east-west. Several rocks near the cluster center were vertically oriented in parallel rows and the soil within the anomaly was mottled with yellowish brown silt loam spots. The rocks were not sorted and ranged from small gravel to large (30 cm x 30 cm) rounded, subangular and tabular rocks. The size, color, and lithic material range is identical to the Pleistocene age colluvium deposits encountered at 40 cm in adjacent squares. Some chipped stone materials occurred within the rock anomaly.

A 20 cm depression into the underlying Pleistocene gravel deposit was partially exposed immediately east and is directly associated with the anomaly. In profile, there was a continuity of rocks sloping from the dense cluster into the depression.

The distinct boundary of the anomaly and the association of occasional artifacts was initially thought to be a cultural pit with an adjacent backdirt pile. However, this suggestion does not account for the vertically oriented, parallel rows of rocks.

A more reasonable, alternative, explanation is that the observed attributes could represent remnants of a natural tree throw which post-dates the prehistoric occupations (Fred Nials, personal communication). This model postulates the presence of a large tree whose roots extended through the cultural deposits and into the Pleistocene cobble deposits. When the tree was knocked or blown over, soil and rocks were pulled up with the root system. It is postulated that the rocks, which were at one time oriented horizontally, were suspended into a perpendicular position. Decomposition of the tree roots released additional matrix, and colluvial processes affected the margins of the displaced soil. Rocks, soil, and cultural materials blended near the mound periphery and stabilized the perpendicular rocks in the lower core of mound. Cultural material was scarce or absent from the center of the anomaly since the core was minimally affected by colluvial processes. Additional materials washed into the tree root depression and helped fill it. Historic plowing may have altered the rock orientations, but they

probably have also diminished topographic differences between the mound and depression. Therefore, it is believed that Feature 79-4 is the result of natural processes.

Feature 79-2 (Figure 5.4)

This feature is a concentration of angular rocks found in the N32-W16 at a depth of 18-30 cm. It is within the lower portion of Stratum II. The horizontal extent of the feature is unknown, but appears to extend beyond the limits of the square. The rocks are sorted, angular, and have been thermally discolored. A small quantity of charcoal is associated with this feature. Many rocks are broken ground stone and large chipped stone tools. A dark reddish brown stain measuring approximately 20 cm in diameter was observed 10 cm below the rock concentration. The nature of the stain was not determined. It could represent either a burned area or displaced matrix from the lower deposits.

This cultural feature probably represents the remnant of a hearth or oven and is possibly indicative of some unidentified processing activity set which involved heat or burning.

Pits

Feature 79-3 (Figures 5.4, 5.5)

This feature is a large basin shaped pit on the mound crest near the terrace edge and occurs in portions of eight squares surrounding N33-W24. The pit measures 2.38 m north-south and 1.96 m east-west. The upper portion of the pit was undetectable in the A horizon matrix, and it was first recognized at a depth of 40 cm (boundary of Strata II-III). The pit was dug into Pleistocene rock deposits and reached a depth of 87 cm below surface. Its floor was uneven and not prepared, and no interior features were found. However, a concentration of burned rocks 30-40 cm below surface near the center of the feature may be associated with the pit orifice. A 55 cm wide channel extended from the pit to the north, possibly as far as the terrace edge. Additional excavations failed to locate other features. A dense concentration of unburned yellow rocks and soil peds in the upper deposits of N34-W23 differed from the burned rocks and matrix in the upper portion of the pit. These rocks resembled materials from the Pleistocene colluvial deposits. They suggest that the cobble substratum was deposited on the northeast side during the prehistoric excavation of the pit.

The pit matrix contained numerous chipped stone and ceramic artifacts. Other residue include 74% (51.6 g) baked clay nodules, 30% (10.0 g) charred nutshells, 41% (27.7 g) charcoal, and 70% (0.7 g) burned bone from the site. The function of this feature is uncertain, although the fill indicates burning activities.

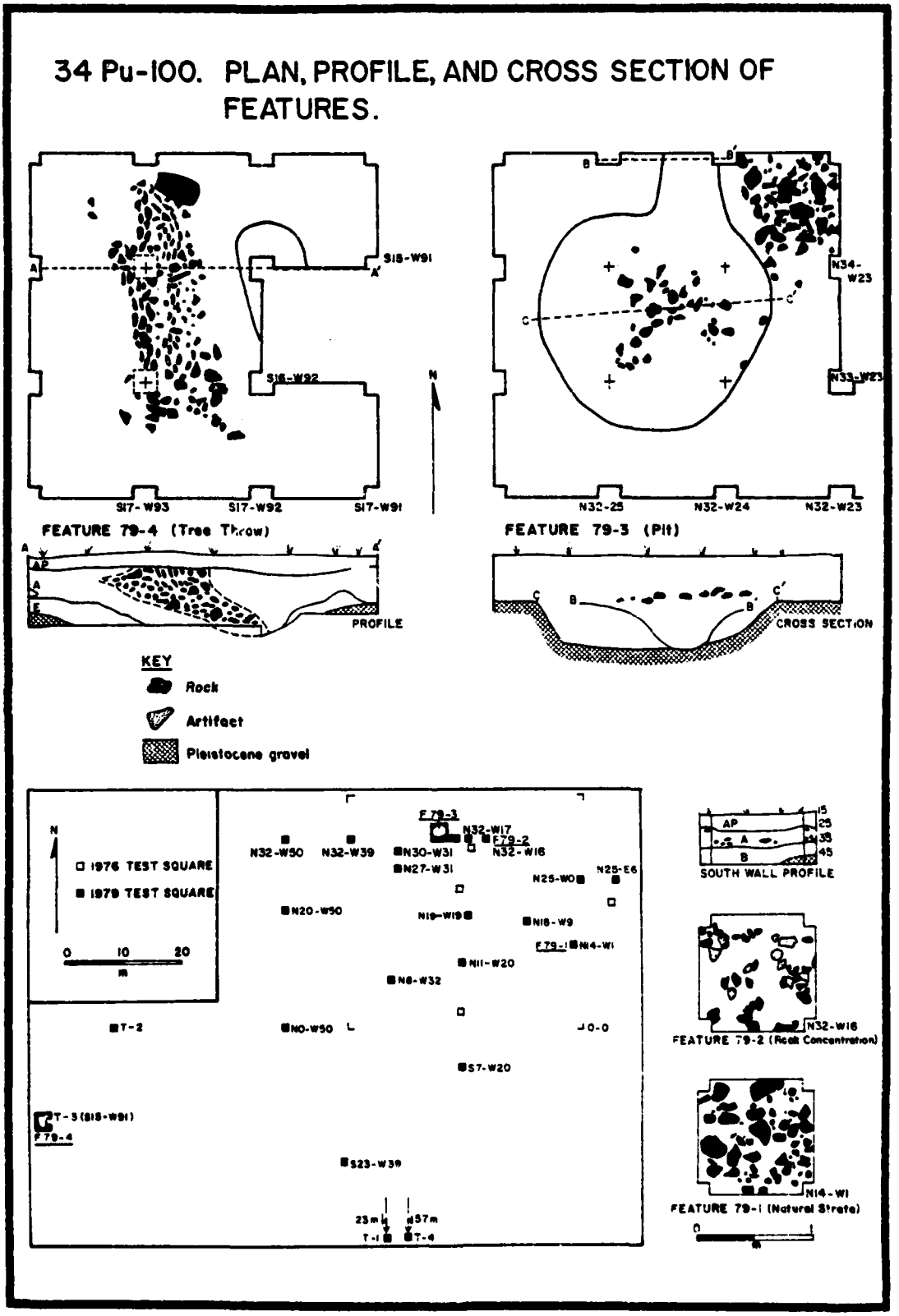


Figure 5.4. Plan, profile, and cross section of features at the Turtle Luck site (34Pu-100): Phase II.

A

B

Figure 5.5. A: Photograph of Feature 79-4 at the Turtle Luck site (34Pu-100);
B: Photograph of Feature 79-3.

RADIOCARBON DATES

Two charcoal samples were submitted for radiocarbon dating to the Balcones Research Center, University of Texas. The results are provided below in a summary form. Corrected dates are also presented (Ralph, Michael, Han 1973; Damon, Ferguson, Long, Wallick 1974) using the formula provided by Rippeteau (1974: 36). This report will refer to the uncorrected calendrical dates using the 5730 half life.

Tx-3710 (Sample Number Pu-100-1)

Half Life 5568 = 1570 ±70 B.P.
Half Life 5730 = 1617 ±70 B.P.
Calendar Date = A.D. 380 ±70 (Uncorrected 5568)
Calendar Date = A.D. 333 ±70 (Uncorrected 5730)
Corrected Date = A.D. 403 ±80 (Ralph, Michael, Han 1973)
Corrected Date = A.D. 397 ±75 (Damon, Ferguson, Long, Wallick 1974)
Provenience = Feature 79-3, lower pit fill (70-90 cm below surface) within N33-W23, N33-W24, N34-W23, and N34-W24.
Material = 11.8 g wood charcoal flecks obtained from flotation of feature matrix.
Comments = This sample provides a date for the pit feature and is consistent with the following date.

Tx-3711 (Sample Number Pu-100-2)

Half Life 5568 = 1640 ±50 B.P.
Half Life 5730 = 1689 ±50 B.P.
Calendar Date = A.D. 310 ±50 (Uncorrected 5568)
Calendar Date = A.D. 260 ±50 (Uncorrected 5730)
Corrected Date = A.D. 350-320 ±60 (Ralph, Michael, Han 1973)
Corrected Date = A.D. 323 ±57 (Damon, Ferguson, Long, Wallick 1974)
Provenience = Feature 79-3, total pit fill matrix (50-90 cm below surface) within N33-W23, N33-W24, N34-W23, and N34-W24.
Material = 11.8 g wood charcoal flecks obtained through feature matrix flotation.
Comments = This sample provides a cross check with the previous date. Both are fairly consistent.

CULTURAL REMAINS

This section describes 39,589 artifacts, 73.2 g baked clay, 101.7 g floral, and 1.0 g faunal materials recovered during the excavations. These materials came from 182 arbitrary 10 cm levels and 18 arbitrary 5 cm levels. The artifacts include 510 bifacially chipped tools, 470 modified flakes, 38,539 pieces of lithic debitage, 40 prehistoric ceramic sherds, 19 ground stone tools, 7 pecked stone tools, and 4 historic artifacts.

The organization of this section follows the classification system previously outlined. Specific class, group, category, and variety designations are listed in Table 5.2. Metric attributes of select chipped and ground stone tools are summarized in Tables 5.3 and 5.4. The nomenclature of point morphology follows Bell (1958: 1) and ceramic colors are based on Munsell Soil Color Charts (1975).

Chipped Stone *(01)*

POINTS (01-00)

Large Contracting Stemmed Points *(01-01-01)*

01-01-01A N=18: 5 Complete, 13 Fragmentary (Figure 5.6a-d)

Specimens in this variety have large triangular blades with acute tips; straight (10), concave (4), or convex (4) edges; prominent unbarbed shoulders; and relatively long contracting stems with convex bases. The shoulders are the widest portion of the specimens. Cross sections are biconvex.

Comments: These specimens resemble the *Gary* type.

References: Bell 1958: 38, Pl. 19; Suhm and Jelks 1962: 205, Pl. 103.

01-01-01D N=1: 1 Fragmentary (Figure 5.6e)

This specimen has a large, broad triangular blade with straight edges, barbed shoulders, wide and deep corner notches cut into the base, and a wide but short contracting stem with a convex base. The barbs are almost the same length as the stem. The widest portion of the point is the barbs. The cross section is biconvex.

Large Expanding Stemmed/Corner-Notched Points *(01-01-02)*

01-01-02B N=1: 1 Fragmentary (Figure 5.6f)

This specimen has a wide triangular blade with slightly convex edges, prominent unbarbed shoulders, wide corner notches, moderately expanding stem, well-defined but rounded tangs, and a straight base. The shoulders are slightly wider than the basal tangs. It is biconvex in cross section.

Comments: This specimen resembles the *Ensor* type.

References: Bell 1960: 34, Pl. 17; Suhm and Jelks 1962: 189, Pl. 95.

Table 5.2. Summary of artifact categories and varieties from the Turtle Luck site (34Pu-100): Phase II.

Chipped Stone *(01)*

POINTS (01-00)
- Large Contracting Stemmed Points *(01-01)*
  - *01-01A*
  - *01-01D*
- Large Expanding Stemmed/Corner-Notched Points *(01-02)*
  - *01-02B*
  - *01-02D*
  - *01-02E*
  - *01-02H*
  - *01-02L*
  - *01-02N*
  - *01-02S*
  - *01-02Y*
- Large Expanding Stemmed/Side-Notched Points *(01-03)*
  - *01-03B*
- Large Unstemmed Points *(01-05)*
  - *01-05C*
- Small Expanding Stemmed/Corner-Notched Points *(01-06)*
  - *01-06A*
  - *01-06C*
  - *01-06E*
  - *01-06J*
  - *01-06N*
- Small Expanding Stemmed/Side-Notched Points *(01-07)*
  - *01-07B*
  - *01-07H*
  - *01-07I*
  - *01-07K*
  - *01-07L*

BIFACES (10-00)
- Cobble/Quarried Block Biface I *(10-01)*
  - *10-01A*
- Cobble/Block Biface II/Thick Biface *(10-02)*
  - *10-02A*
- Thin Biface I *(10-03)*
  - *10-03A*
- Thin Biface IIa *(10-04)*
  - *10-04A*
- Thin Biface IIb *(10-05)*
  - *10-05A*
- Thick Biface III *(10-06)*
  - *10-06A*

Table 5.2. Continued

MISCELLANEOUS BIFACE IMPLEMENTS (11-00)
11-08A

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)
12-01A

MODIFIED FLAKES (13-00)
13-01A
13-01B
13-01C

CORES (14-00)
14-01A

SPLIT/TESTED COBBLES (15-00)
Split Cobbles *(15-01)*
15-01A
Tested Cobbles *(15-02)*
15-02A

DEBITAGE (16-00)
16-01A

Fired Clay *(02)*

CERAMICS (01-00)
Plain Grog, Grit, and Bone Tempered Wares *(01-01)*
01-01A
01-01B
Decorated Grog, Grit, and Bone Tempered Wares *(01-02)*
01-02K
Plain Shell Tempered Wares *(01-03)*
01-03A

BAKED CLAY (03-00)
03-01A
03-01B

Ground Stone *(03)*

MANOS (01-00)
01-01A
01-02A
01-03A
01-04A

Table 5.2. Continued

METATES/GRINDING SLABS (02-00)
02-01A

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)
06-02A

Pecked/Battered/Unmodified Cobbles *(04)*

HAMMERSTONES (01-00)
01-01A

MISCELLANEOUS PECKED/BATTERED STONE (03-00)
03-01A

UNMODIFIED COBBLES/PEBBLES (04-00)
04-01A
04-03A
04-04A

Historic Debris *(07)*

GLASS (01-00)
01-01A
01-01C

METAL (03-00)
Cartridges *(03-06)*
03-06A

Faunal *(08)*

BONE/HORN/TEETH (01-00)
01-01A

Floral *(09)*

01-01-02D N=2: 2 Fragmentary (Figure 5.6g-h)

These medium sized points have triangular blades with defined unbarbed shoulders, very broad but shallow corner notches, a wide moderately expanding stem, well-defined tangs, and a deeply concave base. The tangs are almost as wide as the shoulders. Both have biconvex cross sections. Multiple impact fractures occur toward the distal end.

Comments: These specimens resemble the *Frio* type.

References: Bell 1960: 48, Pl. 24; Suhm and Jelks 1962: 195, Pl. 98.

01-01-02E N=1: 1 Fragmentary (Figure 5.6i)

This is a medium sized point with undefined tip and blade edges, poorly defined shoulders, wide but shallow corner notches, a wide expanding stem, rounded tangs, and slightly convex base. The shoulders and base are approximately the same width. The cross section is biconvex.

Comments: This specimen resembles the *Trinity* type.

References: Bell 1958: 96, Pl. 48; Suhm and Jelks 1962: 253, Pl. 127.

01-01-02H N=2: 2 Fragmentary (Figure 5.6j)

These large triangular points have straight to slightly convex blade edges, barbed shoulders, relatively narrow but deep corner notches with wide strongly expanding stems, pointed tangs, and a straight or slightly convex base. The barbs are the widest part of the point, but do not extend to the same length as the stem. These specimens are biconvex in cross section.

Comments: They resemble the *Marcos* type.

References: Bell 1958: 42, Pl. 21; Suhm and Jelks 1962: 209, Pl. 105.

01-01-02L N=3: 3 Fragmentary (Figure 5.6k)

These specimens have convex to straight blade edges, poorly defined rounded shoulders, broad but shallow corner notches, moderately expanding stems, broad and rounded tangs, and a concave base. They have a biconvex cross section. Bases are approximately the same width as the shoulders.

Comments: These specimens resemble the *Edgewood* or *Fairland* types. They differ from variety *01-01-02D* by having less well-defined shoulders, rounded tangs, and a shallower basal concavity.

References: Bell 1958: 20, Pl. 10; 1960: 38, Pl. 19; Suhm and Jelks 1962: 183, 191, Pls. 92, 96.

01-01-02N N=1: 1 Fragmentary (Figure 5.6m)

This specimen has a large triangular blade with straight edged, weakly barbed shoulders, broad and deep corner notches, a weakly expanding stem, rounded tangs, and a convex base. The prominent shoulders are the widest portion of the specimen. It is biconvex in cross section.

Comments: This specimen resembles the *Williams* type.

References: Bell 1960: 96, Pl. 48; Suhm and Jelks 1962: 269, Pl. 130.

01-01-02S N=2: 2 Fragmentary (Figure 5.6l)

The blade morphology and edges on these specimens are undefined. The shoulders are weakly defined with very broad but shallow corner notches, and a moderately expanding stem. The basal tangs are sharply pointed, and the bases are straight to slightly concave. Both shoulders and tangs are sharply pointed, and the bases are straight to slightly concave. Both shoulders and tangs are approximately the same width. They have a biconvex cross section.

Comments: They resemble the *Johnson* type.

References: Perino 1968: 40, Pl. 20.

01-01-02Y N=2: 2 Complete (Figure 5.6n-o)

These carefully made specimens have long narrow triangular blades with acute tips, slightly convex edges, well-defined and slightly barbed shoulders, wide and deep corner notches, narrow expanding stems, well-defined basal tangs, and strongly convex bases. The shoulders are the widest part of the specimens. Cross sections are biconvex.

Large Expanding Stemmed/Side-Notched Points *(01-01-03)*

01-01-03B N=1: 1 Fragmentary (Figure 5.6p)

This specimen has a long, very narrow blade with straight, almost parallel edges; weakly developed shoulders; wide, very shallow side notches placed close to the base; and a straight base. Both tangs are missing. The specimen has a relatively thick biconvex cross section.

Large Unstemmed Points *(01-01-05)*

01-01-05C N=3: 3 Fragmentary (Figure 5.6q)

These specimens have large wide blades with convex edges, well-defined tangs, and slightly concave bases. All specimens are thin.

The widest portion of these specimens is along the proximal blade edge. Cross sections are biconvex.

Comments: The minute edge alteration around the perimeter separate these specimens from the Thin Biface IIa *(01-10-04A)* category.

Small Expanding Stemmed/Corner-Notched Points *(01-01-06)*

01-01-06A N=4: 3 Complete, 1 Fragmentary (Figure 5.7a-c)

These points have triangular blades with straight serrated (3), or nonserrated (1) edges, well-defined unbarbed shoulders, relatively deep and narrow corner notches, and strongly expanding stems. Tangs are well-defined (3) or rounded (1), and bases are straight to convex. The widest portion of these points occurs at the shoulders. Two specimens are asymmetrical. Cross sections are biconvex (1) and plano-convex (3).

Comments: These specimens resemble the *Scallorn* type.

References: Bell 1960: 84, Pl. 42; Suhm and Jelks 1962: 285, Pl. 143.

01-01-06C N=1: 1 Complete (Figure 5.7d)

This point has a triangular blade with an acute tip, straight edges, barbed shoulders, narrow but deep corner notches, strongly expanding stem, well-defined tangs, and a convex base. The widest portion of the point occurs at the shoulders. Its cross section is biconvex.

Comments: This specimen resembles the *Agee* type.

References: Perino 1968: 4, Pl. 2; Brown 1976: 73, Figure 14 a-r'.

01-01-06E N=1: 1 Complete

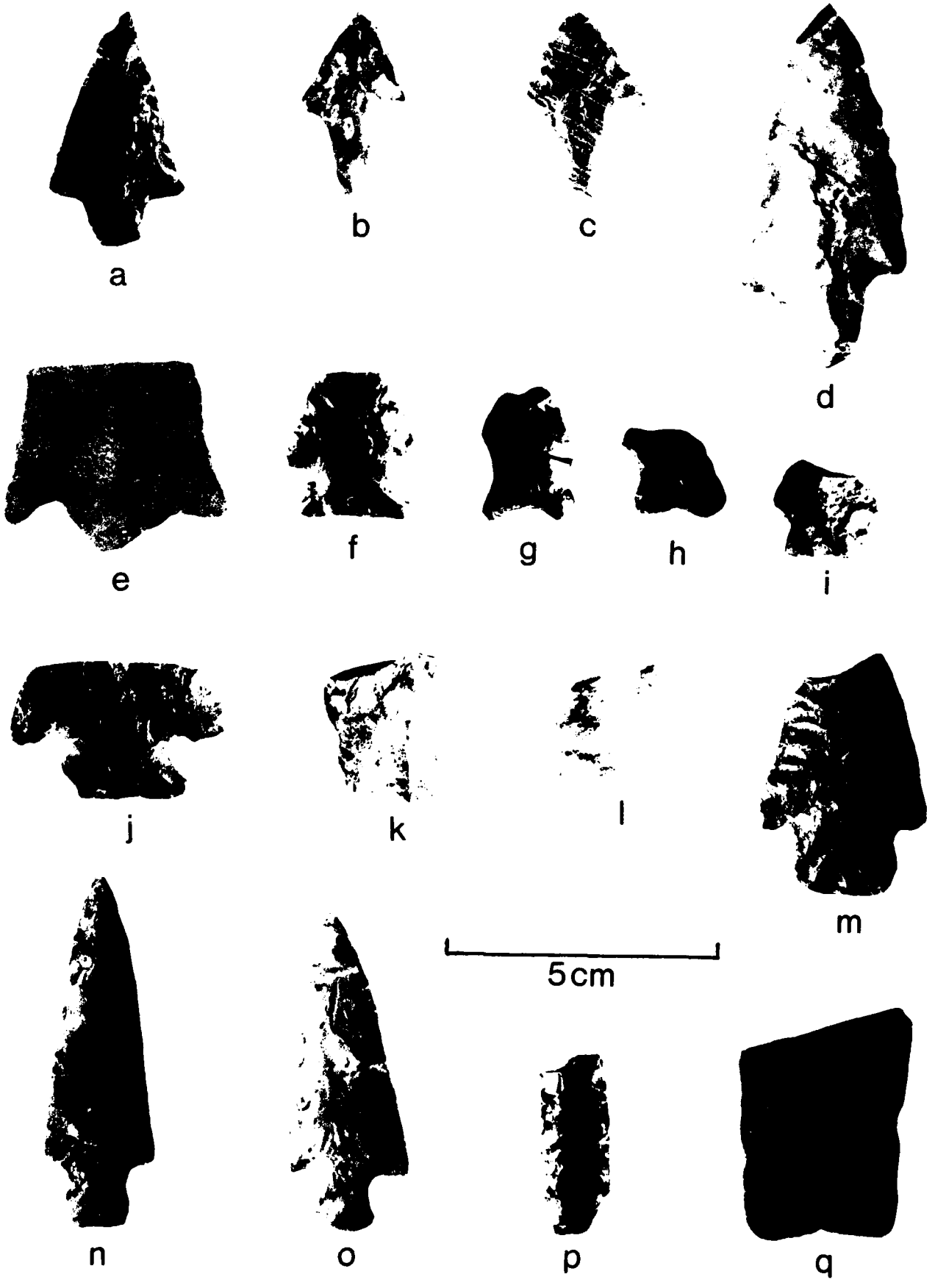
This point has a round tip, short wide triangular blade with straight edges, prominent unbarbed shoulders, and narrow but deep notches cut into the corner on one side and into the side on the other edge. The stem is characteristic of both an expanding stemmed corner-notched point with well-defined tangs, and a side-notched point with rounded tangs. The base is straight. The shoulders are the widest part, and the cross section is biconvex.

01-01-06J N=4: 4 Complete (Figure 5.7e-f)

These points have triangular blade edges with serrated (2) or non-serrated (2) edges, well-defined unbarbed shoulders, relatively broad and deep corner notches, a moderately expanding stem, well-defined tangs, and convex (3) to straight (1) bases. The shoulders are the widest

Figure 5.6. Selected chipped stone artifacts from the Turtle Luck site (34Pu-100): Phase II.

a-d: *01-01-01A*
e: *01-01-01D*
f: *01-01-02B*
g-h: *01-01-02D*
i: *01-01-02E*
j: *01-01-02H*
k: *01-01-02L*
l: *01-01-02S*
m: *01-01-02N*
n-o: *01-01-02Y*
p: *01-01-03B*
q: *01-01-05C*


a
b
c
d
e
f
g
h
i
j
k
l
m
5cm
n
o
p
q

parts of these specimens. Three are asymmetrical, one of which is made from a primary decortication flake. Cross sections are plano-convex.

Comments: These specimens resemble the *Massard* type and are differentiated from *01-01-06A* variety points by having wider corner notches and narrower stems.

References: Brown 1976: 68, Figure 13 k-p, 16 a-h.

01-01-06N N=1: 1 Complete (Figure 5.7g)

This specimen has a triangular blade with needle sharp tips, strongly concave edges, very well-defined unbarbed shoulders, broad and deep corner notches, a stem which is parallel then strongly flares or expands, sharp tangs, and a slightly convex base. The specimen is widest at the shoulders and is biconvex in cross section.

Small Expanding Stemmed/Side-Notched Points *(01-01-07)*

01-01-07B N=1: 1 Complete

This specimen has a short triangular blade with straight edges, and a single set of narrow side notches cut deeply into the middle of the edge. The stem edges are in line with the blade edges, tangs are sharply defined, and the base is slightly concave. The basal tangs are the widest portion of the point. Cross section is biconvex.

Comments: This specimen resembles the *Washita* type, *Garvin* variety.

References: Bell 1958: 98, Pl. 49; Brown 1976: 105, Figure 20.

01-01-07H N=1: 1 Complete (Figure 5.7i)

This small point has an acute tip, short triangular blade with straight serrated edges, well-defined unbarbed shoulders, narrow notches cut deeply into the side, a moderately expanding stem with defined tangs, and a strongly convex base. The widest part of the specimen occurs at the shoulders. The cross section is biconvex.

Comments: It resembles the *Keota* type.

References: Perino 1968: 42, Pl. 24; Brown 1976: 100, Figure 18 a'-m'.

01-01-07I N=1: 1 Fragmentary (Figure 5.7j)

This is a small narrow triangular point with straight, slightly serrated edges and a broad very shallow side notch located near the base. The tangs are pointed and the base is slightly convex. The

tangs are the widest part of the point. It has relatively thick biconvex cross section.

Comments: This specimen resembles the *Schild* type.

References: Brown 1976: 73, Figure 17 m'.

01-01-07K N=1: 1 Complete (Figure 5.7k)

This specimen has a narrow triangular blade with deeply serrated straight edges and a needle like tip. The shoulders are well-defined and marked by very broad and deep side notches. Below the shoulders, the stem and base resemble an inverted "Y". The tangs expand further than the blade edges and are rounded, almost bulbous. The base is strongly concave. The basal tangs are approximately twice as wide as the shoulders. This specimen has a thick biconvex cross section.

Comments: It resembles the *Pocola* type.

References: Brown 1976: 87, Figure 16 i-p.

01-01-07L N=1: 1 Fragmentary (Figure 5.7l)

This point has a long triangular blade with straight edges and prominent shoulders marked by narrow deep side notches cut close to the base. The stem is in line with the blade edges. Tangs are rounded and the base is convex. The widest part of the specimen is the tangs. The cross section is biconvex.

Comments: This specimen shares some attributes with the *Reed*, *Washita* and *Haskell* point types. It differs from the *Reed* type since the stem edges are in line with the blade; the close placement of the notches to the base separates it from the *Washita* type; and the convex base distinguishes it from the *Haskell* type.

References: Bell 1958: 76, 98, Pls. 38, 49; Perino 1968: 32, Pl. 16.

BIFACES (10-00)

Cobble/Quarried Block Biface I *(01-10-01)*

01-10-01A N=66: 62 Complete, 4 Fragmentary (Figure 5.7m)

These specimens are pebbles or cobbles whose shape largely reflects the morphology of the original cobble. They have irregular thick cross sections, very sinuous edges, and large flake scars. All have cortex covering at least half of one face and approximately two-thirds have cortex on both faces.

Cobble/Block Biface II/Thick Biface *(01-10-02)*

01-10-02A N=121: 38 Complete, 83 Fragmentary (Figure 5.7n)

These specimens are thick cobbles which have been bifacially flaked. Their shape either reflects the original cobble form or shows initial indications of shaping. They have thick irregular cross sections, sinuous edges, and large flake scars. Cortex may or may not be present on either face.

Thin Biface I *(01-10-03)*

01-10-03A N=107: 10 Complete, 97 Fragmentary (Figure 5.7o)

These specimens are uniformly thinned with little or no cortex. They have slightly sinuous edges and several have been shaped. Most are ovate or triangular in form. Flake scars are predominately small but there is no edge alteration. None have a hafting element.

Thin Biface IIa *(01-10-04)*

01-10-04A N=26: 5 Complete, 21 Fragmentary (Figure 5.7p)

These specimens have uniformly thinned cross sections, regular edges, and intentional shaping into a simple geometric form. All lack evidence of a hafting element. The flake scar pattern is small, and there is no edge alteration. These items may be regarded as preforms (Crabtree 1972). Ten specimens may be small point preforms.

Thin Biface IIb *(01-10-05)*

01-10-05A N=10: 10 Fragmentary (Figure 5.7 q-r)

These specimens resemble the preceding variety, but there is evidence of a haft element. They have a uniformly thin cross section, regular edges, and shaping into a complex geometric form. Flake scars are small but no edge alteration is present. Often the haft element is asymmetrical or only a single notch is present. These items are considered to be preforms. Seven specimens appear to have contracting stems and two may be corner-notched forms.

Thin Biface III *(01-10-06)*

01-10-06A N=1: 1 Fragmentary (Figure 5.7 s)

This specimen is made from a large tabular siltstone cobble. It has been shaped into an elongated oval form and has a relatively thick uniform cross section. Flake scars are large. Edges are slightly

sinuous. There is no indication of a haft element. Cortex occurs on both faces. This specimen may be a preform for a hoe or some other large chipped stone tool.

MISCELLANEOUS BIFACE IMPLEMENTS (11-00)

Split Section Tools *(01-11-08)*

01-11-08A N=4: 4 Complete

These items are split cobbles which have minute edge alteration along portions of the split edge or battering on the dorsal face. Characteristically they have crude plano-convex cross sections with cortex on part of the dorsal surface. The split section shape largely reflects the morphology of the original cobble. Edge alteration occurs along a steep angle edge on three specimens. One of these also shows battering and crushing along a ridge crest near the middle of the dorsal face. The last specimen shows extensive battering on the dorsal face ridges, but lacks minute edge alteration along the split edge.

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)

01-12-01A N=84

These specimens represent fragments of tools *(01-01-00)* or late stages in the reduction sequence *(01-10-03, 01-10-04,* and *01-10-05).* They are too fragmentary to permit assignment into specific varieties. The sample includes 37 tip or distal sections, 24 medial sections, 20 basal sections, and three lateral sections. Base segments are represented by 15 large contracting stemmed forms, and five parallel or expanding stemmed forms. Sixteen fragments may be from small points.

MODIFIED FLAKES (13-00)

01-13-01A N=7

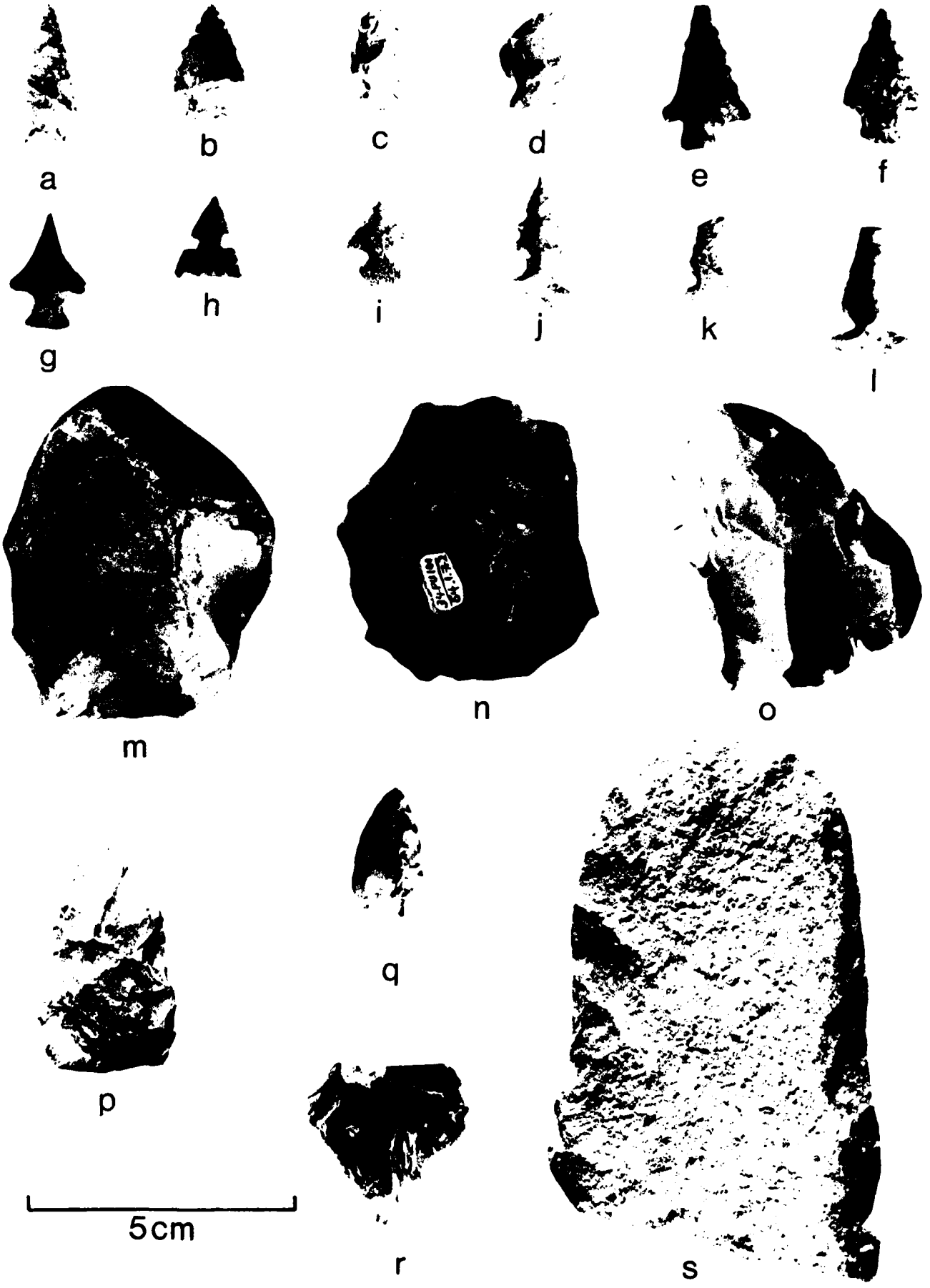
Specimens in this variety have unifacial retouch along the tip (5) or edges (2) immediately adjacent to a projection. Flaking has enhanced or strengthened the point on three specimens. The projection angle, edge angle, projection location, and general flake morphology are variable.

01-13-01B N=440

These specimens have some signs of modification or edge alteration along a portion of the lateral or distal edge. There is considerable variability in the length, shape, angle and regularity of modification,

Figure 5.7. Selected chipped stone artifacts from the Turtle Luck site (34Pu-100): Phase II.

a-c: *01-01-06A*
d: *01-01-06C*
e-f: *01-01-06J*
g: *01-01-06N*
h: *01-01-06B*
i: *01-01-07H*
j: *01-01-07I*
k: *01-01-07K*
l: *01-01-07L*
m: *01-10-01A*
n: *01-10-02A*
o: *01-10-03A*
p: *01-10-04A*
q-r: *01-10-05A*
s: *01-10-06A*


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
5cm

location of modification, and morphology of the flake. Modification occurs along a relatively straight edge (197), along a convex edge (160), along a concave edge (69), and along multiple, nonadjacent edges (14).

01-13-01C N=23

These specimens have one or more projections which artifically produce a serrated edge. Four specimens have a single projection formed by notching on either side of the distal end. Twelve have from four to seven projections spaced at regular intervals along the flake edge. The projection tips are rounded, dulled, or display minute edge alteration on five specimens. The remaining seven specimens have three to five projections of different lengths and spaced at irregular intervals along the edge. The location of the serrations, edge outline, and general flake morphology are variable.

CORES (14-00)

01-14-01A N=5: 5 Complete (Figure 5.8a-b)

These items are thick blocky cobbles which have had multiple large flake scars removed from a single striking platform. The platforms on three specimens are covered with cortex. One specimen has 22 ring cracks on the platform and 7 ring cracks on the opposite side. The edge is not sinuous, but is isomorphic with the striking platform edge. Cross sections tend to be thick and triangular.

SPLIT/TESTED COBBLES (15-00)

Split Cobbles *(01-15-01)*

01-15-01A N=12: 11 Complete, 1 Fragmentary (Figure 5.8c)

These specimens are cobbles which have been split longitudinally. They have a thick, crude plano-convex cross section with cortex covering most of the dorsal face. Their general morphology reflects the original cobble shape.

Tested Cobbles *(01-15-02)*

01-15-02A N=21: 21 Complete (Figure 5.8d)

Specimens in this variety are thick, irregularly shaped cobbles which have had several flakes randomly removed. Flake scars are large and may not be confined to a single area. Adjacent flake scars do not form a sinuous edge. Cortex covers most surfaces. These items are not shaped. Their morphology reflects the original cobble form. They represent either testing of the cobble's flaking qualities, or initial stages of the biface reduction sequence.

Table 5.3. Metric attributes for selected chipped stone varieties from the Turtle Luck site (34Pu-100): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-01A					
$\bar{x}$	45.0	28.0	7.0	14.0	16.0
s.d.	14.0	6.0	1.0	2.0	4.0
range	34.0-69.0	20.0-38.0	6.0-11.0	9.0-17.0	11.0-26.0
N	5	13	18	16	17
01-01-01D					
$\bar{x}$	-	42.0	9.0	8.0	20.0
N	-	1	1	1	1
01-01-02B					
$\bar{x}$	-	24.0	7.0	10.0	17.0
N	-	1	1	1	1
01-01-02D					
$\bar{x}$	-	18.0	7.0	15.0	13.0
range	-	-	-	14.0-15.0	12.0-14.0
N	-	1	2	2	2
01-01-02E					
$\bar{x}$	-	20.0	6.0	6.0	14.0
N	-	1	1	1	1
01-01-02H					
$\bar{x}$	-	40.0	7.0	11.0	18.0
range	-	-	7.0-8.0	10.0-12.0	-
N	-	1	2	2	1
01-01-02L					
$\bar{x}$	-	27.0	7.0	12.0	19.0
s.d.	-	-	2.0	2.0	1.0
range	-	26.0-28.0	5.0-8.0	10.0-14.0	18.0-20.0
N	-	2	3	3	3
01-01-02N					
$\bar{x}$	-	32.0	8.0	12.0	18.0
N	-	1	1	1	1
01-01-02S					
$\bar{x}$	-	-	6.0	16.0	19.0
range	-	-	5.0-7.0	-	18.0-19.0
N	-	-	2	1	2

Table 5.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-02Y					
$\bar{x}$	62.0	22.0	6.0	11.0	10.0
range	59.0-65.0	21.0-23.0	5.0-6.0	11.0-12.0	10.0-11.0
N	2	2	2	2	2
01-01-03B					
$\bar{x}$	-	13.0	5.0	7.0	9.0
N	-	1	1	1	1
01-01-05C					
$\bar{x}$	-	32.0	7.0	-	-
s.d.	-	2.0	.47	-	-
range	-	31.0-34.0	7.0-8.0	-	-
N	-	3	3	-	-
01-01-06A					
$\bar{x}$	24.0	14.0	3.0	6.0	6.0
s.d.	4.0	2.0	.48	1.0	1.0
range	20.0-29.0	11.0-16.0	3.0-4.0	5.0-7.0	5.0-7.0
N	3	4	4	4	4
01-01-06C					
$\bar{x}$	-	14.0	3.0	6.0	7.0
N	-	1	1	1	1
01-01-06E					
$\bar{x}$	17.0	12.0	3.0	5.0	5.0
N	1	1	1	1	1
01-01-06J					
$\bar{x}$	25.0	15.0	4.0	6.0	6.0
s.d.	3.0	2.0	.17	1.0	1.0
range	20.0-27.0	13.0-17.0	3.0-5.0	5.0-7.0	5.0-7.0
N	4	4	4	4	4
01-01-06N					
$\bar{x}$	23.0	15.0	4.0	6.0	6.0
N	1	1	1	1	1
01-01-07B					
$\bar{x}$	16.0	13.0	2.0	6.0	5.0
N	1	1	1	1	1

Table 5.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-07H					
$\bar{x}$	16.0	13.0	4.0	6.0	6.0
N	1	1	1	1	1
01-01-07I					
$\bar{x}$	-	9.0	4.0	6.0	5.0
N	-	1	1	1	1
01-01-07K					
$\bar{x}$	26.0	13.0	4.0	11.0	5.0
N	1	1	1	1	1
01-01-07L					
$\bar{x}$	-	15.0	3.0	5.0	7.0
N	-	1	1	1	1
01-10-01A					
$\bar{x}$	52.0	41.0	23.0	-	-
s.d.	13.0	10.0	7.0	-	-
range	25.0-86.0	22.0-68.0	11.0-39.0	-	-
N	52	62	62	-	-
01-10-02A					
$\bar{x}$	51.0	37.0	19.0	-	-
s.d.	11.0	9.0	6.0	-	-
range	29.0-89.0	19.0-60.0	10.0-37.0	-	-
N	38	38	38	-	-
01-10-03A					
$\bar{x}$	43.0	30.0	10.0	-	-
s.d.	12.0	9.0	2.0	-	-
range	20.0-58.0	16.0-46.0	6.0-14.0	-	-
N	10	10	10	-	-
01-10-06A					
$\bar{x}$	105.0	65.0	12.0	-	-
N	1	1	1	-	-
01-14-01A					
$\bar{x}$	48.0	45.0	30.0	-	-
s.d.	9.0	6.0	6.0	-	-
range	33.0-57.0	35.0-50.0	24.0-50.0	-	-
N	5	5	5	-	-

Table 5.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-15-01A					
$\bar{x}$	56.0	45.0	20.0	-	-
s.d.	10.0	8.0	4.0	-	-
range	42.0-74.0	33.0-60.0	13.0-26.0	-	-
N	12	12	12	-	-
01-15-02A					
$\bar{x}$	66.0	53.0	36.0	-	-
s.d.	26.0	23.0	13.0	-	-
range	33.0-135.0	21.0-118.0	18.0-64.0	-	-
N	21	21	21	-	-

DEBITAGE (16-00)

01-16-01A N=38,539

These specimens are unmodified flake debitage recovered from both the dry and waterscreening excavation procedures.

Fired Clay *(02)*

CERAMICS (01-00)

Plain Grog, Grit, and Bone Tempered Wares *(02-01-01)*

02-01-01A N=16: 1 Rim Sherd, 15 Body Sherds (Figure 5.8e)

These specimens have smooth surfaces, predominantly medium to coarse (88%) texture, and either grog (56%) or grog and bone (44%) as the main tempering inclusion. Five sherds (31%) also have some grit inclusions. Average sherd thickness is 9.2 mm with a range of 7.0 mm - 14.9 mm. Exterior colors are predominantly pink (19%), brown (19%), and strong brown (13%). Minor variants include shades of reddish brown, yellowish red, and dark gray. Interior colors are generally darker and are dominated by very dark gray (27%), very dark gray brown (20%), and gray brown (13%). Other interior colors represented in small quantities include black, dark gray, pinkish gray, red, and reddish yellow. Vessel forms are generally undeterminable. The single rim sherd suggests a carinated bowl form.

Comments: This variety corresponds to the *Williams Plain* type.

References: Brown 1971: 42.

02-01-01B N=11: 11 Body Sherds (Figure 5.8f)

These specimens have smooth surfaces with fine (73%) to medium (27%) textured paste. Three sherds are burnished on the exterior surface. Tempering is primarily grit and grog (64%) or grit, grog, and bone (36%) with minor inclusions of hematite (18%) and organic materials (9%). Sherds are generally thin ($\bar{x}$ = 6.9 mm) and range from 4.8 mm - 8.4 mm. Exterior colors are predominantly brown (46%) and reddish yellow (18%). Very pale brown, light brown, light gray brown, and grayish brown also occur as single specimens. Interior colors are mainly dark gray (33%), brown (17%), and reddish brown (17%). Minor variants include black, very dark gray, gray, and light gray. Vessel forms are undeterminable.

Comments: These specimens closely resemble *LeFlore Plain.*

References: Brown 1971: 58.

Decorated Grog, Grit, and Bone Tempered Wares *(02-01-02)*

02-01-02K N=1: 1 Body Sherd (Figure 5.8g)

This small sherd has a fine paste texture and is tempered with grit and grog inclusions. It is 7.1 mm thick. The interior and exterior colors are very dark gray. Decorations consist of small (2.7 mm by 1.0 mm), closely spaced, random punctates on the vessel exterior which are oriented in the same direction. The vessel form cannot be determined.

Plain Shell Tempered Wares *(02-01-03)*

02-01-03A N=12: 2 Rim Sherds, 9 Body Sherds, 1 Base-Body Juncture Sherd (Figure 5.8h-i,k)

These sherds have predominantly medium (58%) to fine (33%) paste tempered with shell. Minor inclusions include grit and grog. The shell temper in all sherds has been leached leaving a porous appearance. Sherds are generally thin ($\bar{x}$ = 6.9 mm) and range from 4.5 mm - 9.7 mm. Exterior colors are predominantly yellowish brown (36%) and reddish yellow (36%) with single sherds represented by reddish brown, brown, and pink. Interior colors are more variable and generally darker. Dark gray (27%) is the only color represented by more than one specimen. Other interior colors range from shades of light yellowish brown, brownish yellow, brown, grayish brown, very dark gray, and black. The rim and base-body juncture sherds suggest a wide mouth jar form with a flat base.

Comments: These specimens closely resemble *Woodward Plain.*

References: Brown 1971: 141.

BAKED CLAY (03-00)

02-03-01A N=69.5 g

Specimens in this variety represent irregularly shaped baked clay particles which lack tempering. None show impressions. They may represent accidentally or incidentally fired clay from daub or hearth lining.

02-03-01B N=3 (4.1 g)

These untempered, irregularly shaped clay pieces show impressions of sticks (2) or appear to be flattened (1). The stick impressions on both specimens are oriented at right angles. Projected diameters of the sticks are 1.9 mm, 0.6 mm, 0.5 mm and 0.3 mm. They may represent daub from some structural feature.

Ground Stone *(03)*

MANOS (01-00)

03-01-01A N=6: 2 Complete, 4 Fragmentary (Figure 5.9a)

These specimens are oval (2) and irregularly shaped (4) thick, sandstone (4) and quartzitic sandstone (2) cobbles that have one slightly convex face worn smooth. Four specimens display pecking on corners or entirely across the ends, but none have been extensively shaped. Their morphology largely reflects the shape of the original cobble. Five specimens have been burned.

03-01-02A N=1: 1 Fragmentary

This specimen is a fragment from an oval sandstone mano which has extensive wear on two opposing slightly convex faces. All edges show extensive battering and presumably reflect shaping. This specimen has not been burned.

03-01-03A N=1: 1 Complete (Figure 5.9b)

This is an irregularly oval sandstone mano which has extensive wear on one convex face and two worn facets on the opposite face. The ends are slightly battered, but the specimen shape largely reflects the original cobble morphology. This specimen has been burned.

03-01-04A N=4: 3 Complete, 1 Fragmentary (Figure 5.9c-d)

These specimens are irregularly shaped sandstone manos with pitted depressions on a flat worn face. Two single face and one double face manos have a single small($\bar{x}$ = 20 mm), shallow ($\bar{x}$ = 1 mm), irregularly shaped depression in the middle of a ground surface. The fourth specimen has a large ($\bar{x}$ = 48 mm), deep ($\bar{x}$ = 4 mm), U-shaped depression on both faces. Two specimens have been burned.

METATES/GRINDING SLABS (02-00)

03-02-01A N=4: 4 Fragmentary (Figure 5.9f)

These specimens are large sandstone slabs which have flat or slightly concave smooth surfaces with occasional peck marks. Two specimens with lateral edges do not show pecked or knapped edges or other attempts to shape the specimens. Three have been burned.

Figure 5.8. Selected chipped stone and ceramic artifacts from the Turtle Luck site (34Pu-100): Phase II.

a-b: *01-14-01A*

c: *01-15-01A*

d: *01-15-02A*

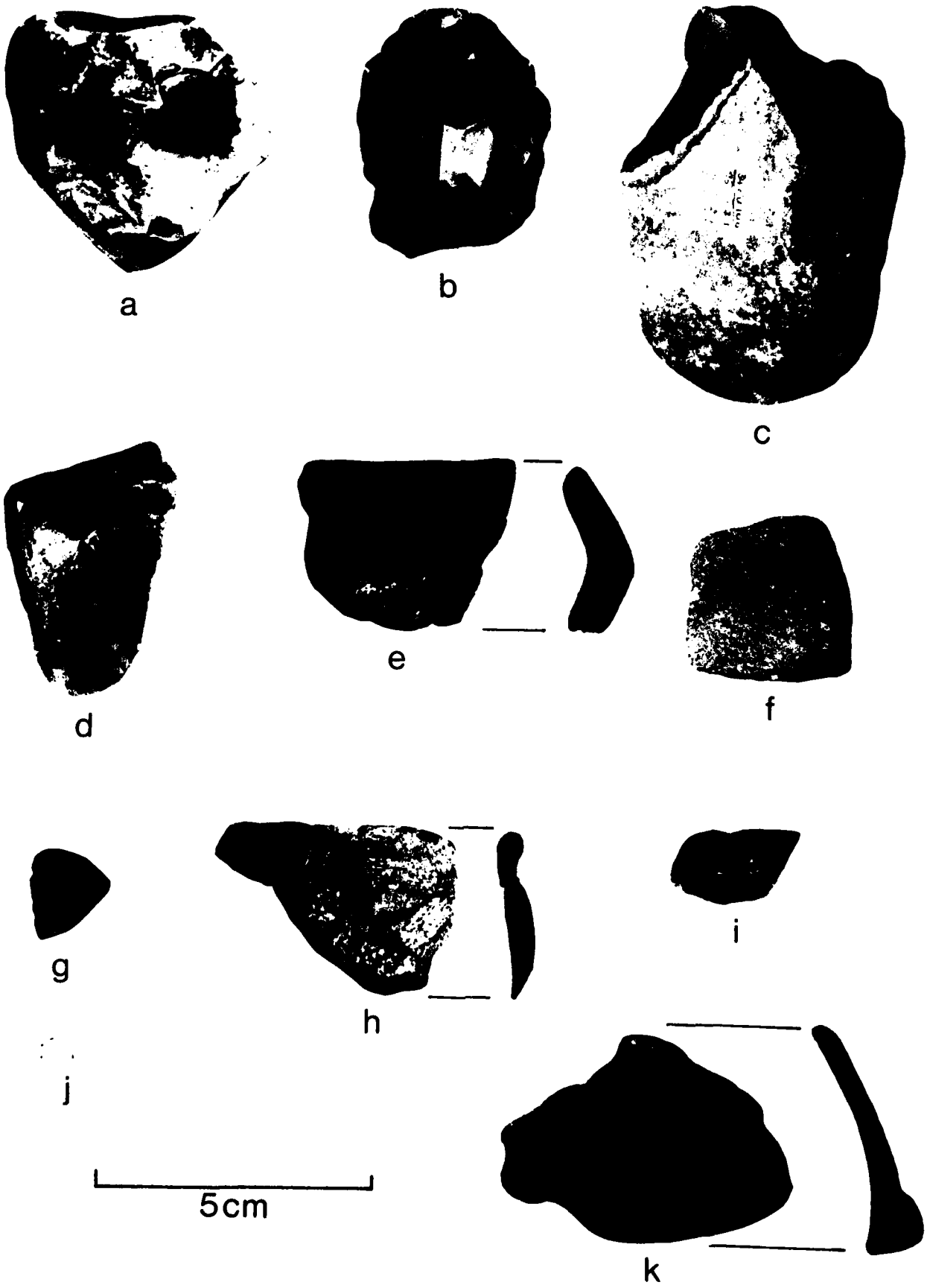
e: *02-01-01A*

f: *02-01-01B*

g: *02-01-02K*

h-i, k: *02-01-03A*

j: *04-04-04A*


a
b
c
d
e
f
g
h
i
j
k
5cm

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)

03-06-02A N=3: 3 Fragmentary

Two specimens are large oval sandstone cobbles with relatively smooth faces, but lack polish, striations, or peck marks. The edges show minimal pecking, and they have not been burned. The third specimen is a large quartzitic sandstone spall which exhibits a small amount of polish on a flat surface. The original shape and size cannot be determined, but this specimen has been burned. These items may be mano blanks but they lack clear indications of wear.

Pecked/Battered/Unmodified Stones *(04)*

HAMMERSTONES (01-00)

04-01-01A N=1: 1 Complete (Figure 5.9e)

This is a small oval quartzitic sandstone cobble which is battered and crushed along one edge. The battered surface has been partially disintegrated from extensive use. This specimen is not burned.

MISCELLANEOUS PECKED/BATTERED STONE (03-00)

04-03-01A N=2: 2 Fragmentary

These specimens are irregularly shaped sandstone and quartzitic sandstone cobbles which have minimal pecking along one edge and across one shallow concave natural surface. Both have been burned.

UNMODIFIED COBBLES/PEBBLES (04-00)

04-04-01A N=2: 1 Complete, 1 Fragmentary

These are small unmodified hematite nodules.

04-04-03A N=1: 1 Complete

This is a bowl shaped concretion fragment. The broken edges are naturally rounded.

04-04-04A N=1 (Figure 5.8j)

This specimen is a small (15.3 mm) elongated piece of unmodified galena. It was found in the fill above Feature 79-3.

Table 5.4. Metric attributes for selected ground and pecked stone varieties from the Turtle Luck site (34Pu-100): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS
03-01-01A			
$\bar{x}$	92.0	81.0	49.0
s.d.	41.0	18.0	14.0
range	58.0-151.0	64.0-109.0	27.0-65.0
N	6	6	6
03-01-02A			
$\bar{x}$	64.0	80.0	43.0
N	1	1	1
03-01-03A			
$\bar{x}$	125.0	100.0	41.0
N	1	1	1
03-01-04A			
$\bar{x}$	99.0	83.0	41.0
s.d.	28.0	13.0	2.0
range	68.0-124.0	67.0-94.0	39.0-43.0
N	4	4	4
03-02-01A			
$\bar{x}$	106.0	113.0	38.0
s.d.	31.0	77.0	6.0
range	69.0-138.0	48.0-219.0	32.0-46.0
N	4	4	4
04-01-01A			
$\bar{x}$	49.0	38.0	27.0
N	1	1	1
04-04-04A			
$\bar{x}$	15.0	5.0	4.0
N	1	1	1

Figure 5.9. Selected ground and pecked stone artifacts from the Turtle Luck site (34Pu-100): Phase II.

a: *03-01-01A*

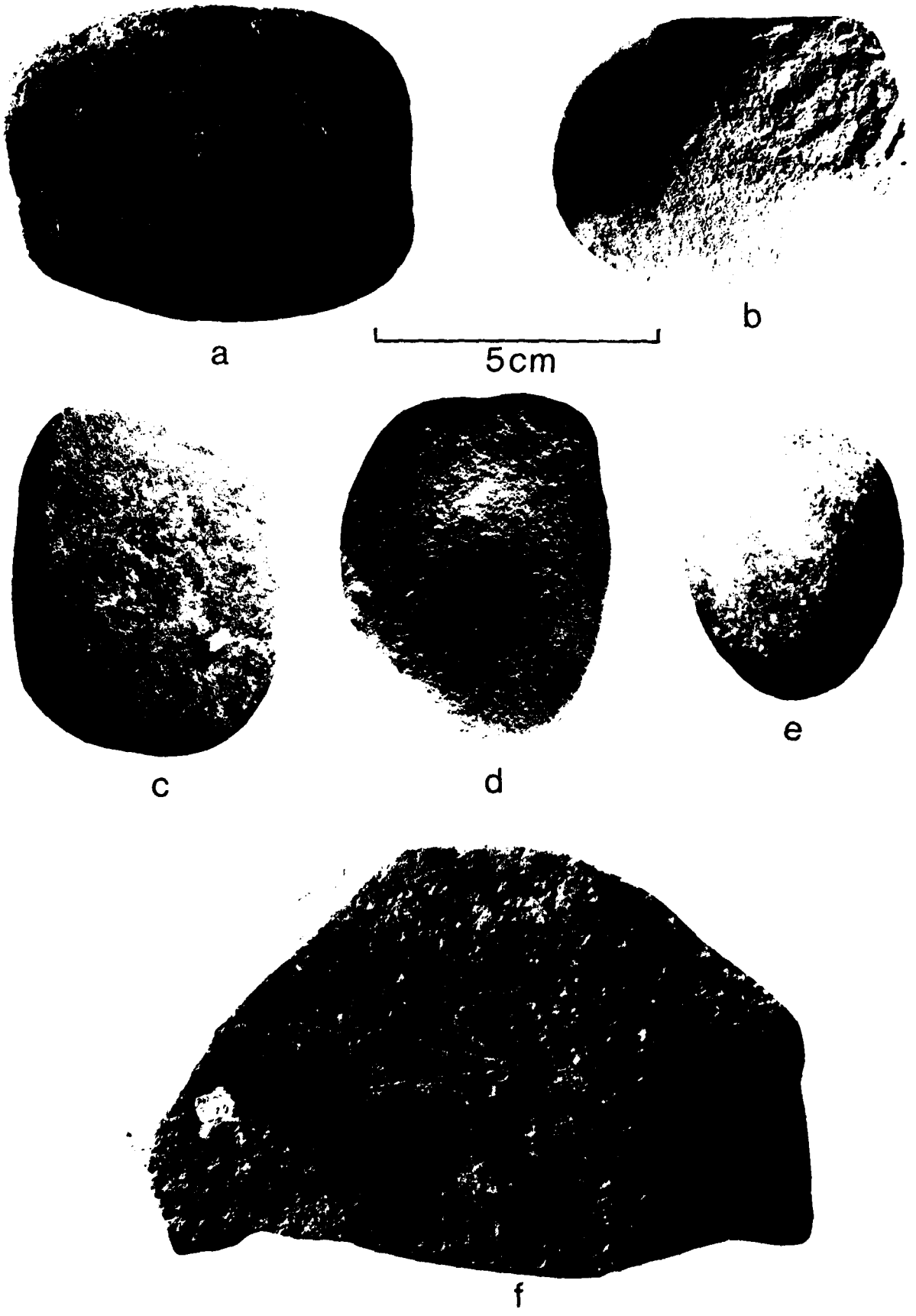
b: *03-01-03A*

c-d: *03-01-04A*

e: *04-01-01A*

f: *03-02-01A*

Note: Artifacts a-e shown at 5 cm scale.
Artifact f shown at 10 cm scale.


a
b
5cm
c
d
e
f
10cm

Historic Debris *(07)*

GLASS (01-00)

07-01-01A N=1: 1 Fragmentary

This small specimen is from the neck-body juncture of a clear glass bottle. A mold seam mark parallels the cylindrically shaped neck. The bottle shape is not determinable.

07-01-01C N=2: 2 Fragmentary

These specimens are probably from a single molded tumbler. The body constricts slightly towards the slightly concave base. Both have a series of broad longitudinal straight grooves with V-shaped cross sections which run from below the rim to the base-body juncture. The pattern resembles cut crystal.

METAL (03-00)

Cartridges *(07-03-06)*

07-03-06A N=1: 1 Complete

This is a .22 caliber long cartridge with an "H" headstamp and a rim fire mark at the edge of the base.

Faunal *(08)*

BONE/HORN/TEETH (01-00)

08-01-01A N=1.0 g

Eight burned bone fragments were recovered during dry and waterscreening operations. One specimen is a turtle carapace.

Floral *(09)*

A small quantity of charred vegetal material was recovered by dry and waterscreening techniques. Nutshells totaled 33.7 g and charred woody materials accounted for 68.0 g.

DISCUSSION AND INTERPRETATIONS

This section examines material distributions, chronology and components, lithic reduction, and procurement and activity sets conducted at the site.

Material Distribution

The excavation objectives at 34Pu-100 included sampling materials from the main mound, defining site boundaries, and testing other mounds on the terrace. Except for the mound area, many test units were scattered over considerable distances. The intervening areas make stratigraphic correlations and cultural comparisons difficult. Table 5.5 presents the square concentration indices derived by dividing the total number of artifacts per square by the number of levels. All levels have been adjusted to 10 cm intervals and total number of tools does not include modified flakes or historic debris. Figure 5.10 presents the horizontal relationships of selected tools and lithic debris across the site. Similar patterns are evident. Most debris and selected artifacts are from the main mound area with high artifact densities occurring near Feature 79-3 at the mound crest, and the eastern lower slope. This latter area contained shallow cultural deposits blending into Pleistocene colluvial gravels. The density of artifacts probably reflects extensive erosion and deflation of cultural deposits east of the present mound. Two areas will be distinguished in examining the horizontal and vertical distributions of materials: the main mound and the peripheral areas.

The main mound area consists of 26 test units which are indicated on Table 5.5 with an asterisk. These squares contain 66% of the excavated levels, 92% of the artifacts, and 88% of the lithic debitage from the site. The peripheral area includes the remaining 16 test units which contain 34% of the excavated levels, but only 8% of the artifacts and 12% of the flake debitage.

The distribution of artifacts between the main mound area, peripheral area, and surface materials is presented in Table 5.6. The main mound contains 56 of 57 artifact varieties but the peripheral area has only 20 of 57 varieties. Except for an *Agee* point *(01-01-06C)*, all artifact varieties from the peripheral area occur in the main mound area. This similarity suggests that materials from the outlying mounds and peripheral areas probably represent related activities and were possibly deposited by the same groups as those occupying the main mound. Because of the abundance and variety of materials, the horizontal and vertical distributions from the main mound area will be examined before material distributions from the peripheral area.

Table 5.5. Square concentration indices of selected artifacts and lithic debitage from the Turtle Luck site (34Pu-100): Phase II.

Square	Number of Levels	Flakes	CI	Tools	CI
S88-W30	4	130	32.5	0	0.00
S54-W34	5	408	81.6	1	0.20
S23-W39	3	40	13.3	1	0.33
S17-W91	6	335	55.8	7	1.67
S17-W92	3	346	115.3	5	1.67
S17-W93	4	446	111.5	8	2.00
S16-W92	6	348	58.0	0	0.00
S16-W93	6	402	67.0	2	0.33
S15-W91	6	458	76.3	3	0.50
S15-W92	3	251	83.7	1	0.33
S15-W93	2	221	110.5	4	2.00
N0-W79	4	153	38.3	0	0.00
S7-W20*	4	696	174.0	11	2.75
N0-W9*	2	384	192.0	6	3.00
N0-W50	4	23	5.7	2	0.50
N8-W32	6	569	94.8	10	1.67
N11-W20*	7	1477	211.0	22	3.14
N14-W1*	3	337	112.3	8	2.67
N15-W25*	7	1191	170.1	17	2.43
N18-W9*	3	700	233.3	7	2.33
N19-W19*	7	1784	254.8	19	2.71
N20-W50	4	66	16.5	2	0.50
N25-E6*	4	1962	490.5	29	7.25
N25-W0*	3	2340	780.0	15	5.00
N25-W20*	6	1253	208.8	19	3.16
N27-W31*	6	1382	230.3	25	4.17
N30-W31*	7	1349	192.7	19	2.71
N32-W16*	5	1127	225.4	19	3.80
N32-W19*	5	1444	228.8	13	2.60
N32-W39*	4	547	136.8	13	3.25
N32-W50	3	104	34.7	4	1.33
N32-W21*	5	1213	242.6	13	2.60
N32-W22*	5	432	86.4	12	2.40
N32-W23*	4	1480	370.0	15	3.75
N32-W24*	5	1678	335.6	26	5.20
N32-W25*	4	1657	414.3	35	8.75
N33-W23*	4	1343	335.8	15	3.75
N33-W24*	9	2455	272.8	59	6.56
N33-W25*	4	1398	349.5	29	7.25
N34-W23*	4	452	113.0	13	3.25
N34-W24*	9	2325	258.3	37	4.11
N34-W25*	6	1833	305.5	19	3.17

*Excavation units in the main mound area.

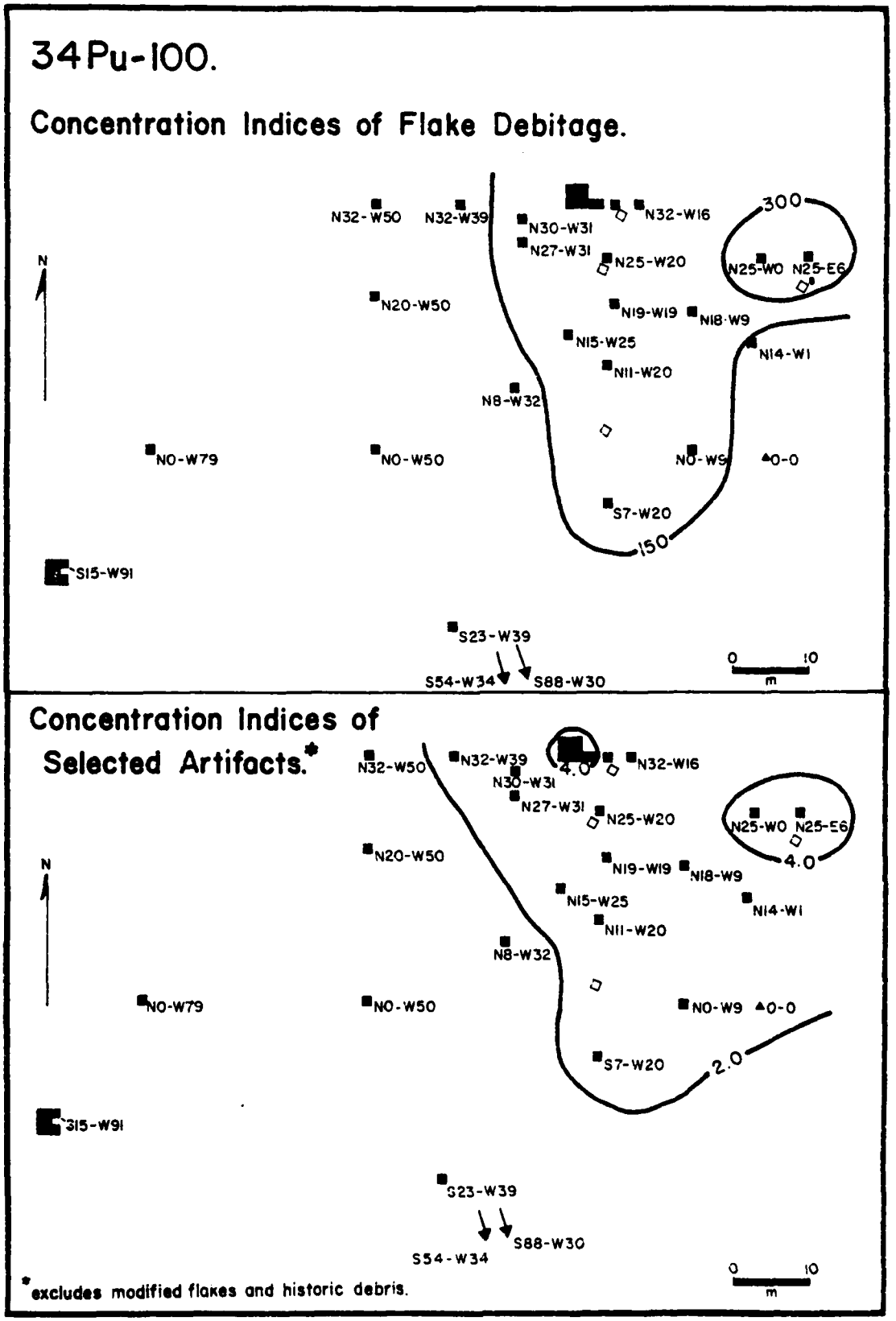
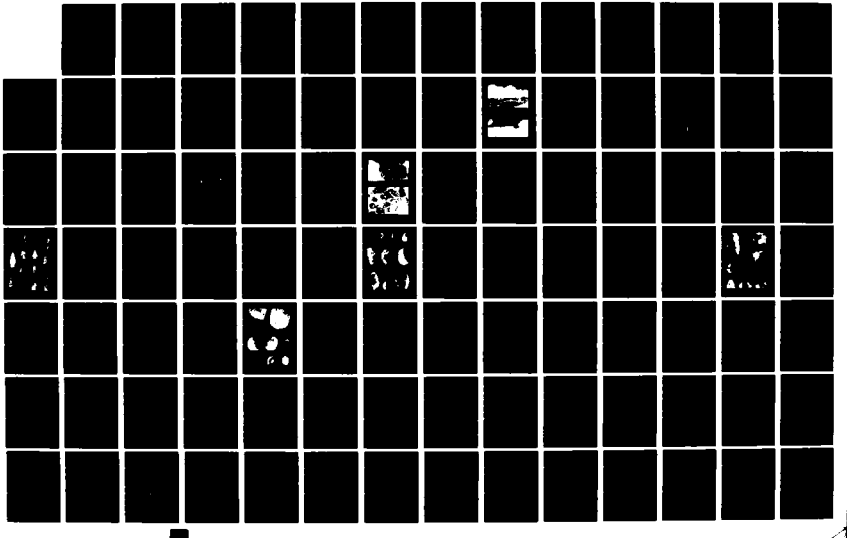


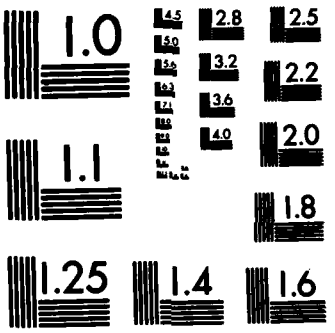
Figure 5.10. Horizontal distribution of selected artifact and flake debitage at the Turtle Luck site (34Pu-100): Phase II.

Table 5.6. Horizontal distribution of cultural remains from the Turtle Luck site (34Pu-100): Phase II.

ARTIFACT VARIETY	MOUND AREA	PERIPHERAL AREA	SURFACE	TOTAL
01-01-01A	16	1	1	18
01-01-01D	1			1
01-01-02B	1			1
01-01-02D	2			2
01-01-02E	1			1
01-01-02H	2			2
01-01-02L	3			3
01-01-02N	1			1
01-01-02S	2			2
01-01-02Y	1		1	2
01-01-03B	1			1
01-01-05C	3			3
01-01-06A	4			4
01-01-06C		1		1
01-01-06E	1			1
01-01-06J	3	1		4
01-01-06N	1			1
01-01-07B	1			1
01-01-07H	1			1
01-01-07I	1			1
01-01-07K	1			1
01-01-07L	1			1
01-10-01A	61	4	1	66
01-10-02A	105	10	6	121
01-10-03A	99	7	1	107
01-10-04A	25	1		26
01-10-05A	8	2		10
01-10-06A	1			1
01-11-08A	4			4
01-12-01A	72	12		84
01-13-01A	6	1		7
01-13-01B	406	32	2	440
01-13-01C	23			23
01-14-01A	4	1		5
01-15-01A	11	1		12
01-15-02A	18	3		21
02-01-01A	14	2		16
02-01-01B	11			11
02-01-02K	1			1
02-01-03A	12			12
02-03-01A	69.5g			69.5g
02-03-01B	4.1g			4.1g
03-01-01A	5		1	6
03-01-02A	1			1
03-01-03A	1			1
03-01-04A	3	1		4
03-02-01A	3		1	4
03-06-02A	2	1		3
04-01-01A	1			1
04-03-01A	2			2
04-04-01A	1	1		2
04-04-03A	1			1
04-04-04A	1			1
07-01-01A	1			1
07-01-01C		2		2
07-03-06A	1			1
08-01-01A	1.0g			1.0g
09-01-01A	94.6g	7.1g		101.7g
TOTAL	952	84	14	1050

AD-A122 361 ARCHAEOLOGICAL INVESTIGATIONS AT CLAYTON LAKE SOUTHEAST 3/5
OKLAHOMA PHASE II(U) OKLAHOMA UNIV NORMAN ARCHAELOGICAL
RESEARCH AND MANAGEMENT CE.. R VEHIK ET AL. 1982
UNCLASSIFIED DACW56-78-C-0212 F/G 5/6 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

MAIN MOUND AREA

The horizontal distribution of artifacts from the main mound area are presented in Table 5.7. The eleven squares near Feature 79-3 are presented as a single entry since they are contiguous. This table reveals that thick bifaces from the early reduction stages *(01-10-01A* through *01-10-03A)*, points/biface fragments and segments *(01-12-01A)*, modified flakes *(01-13-00)*, and charred plant remains *(09)* were recovered from practically every square on the mound. Other artifacts with fairly wide distributions include large contracting stemmed *(01-01-01)* and large expanding stemmed corner-notched *(01-01-02)* points, thin bifaces from the reduction sequence *(01-10-04* and *01-10-05)*, and split and tested cobbles *(01-15-00)*. The widespread occurrence of large point forms are believed to reflect their use as generalized cutting tools. Other artifacts have limited distributions. Small points *(01-01-06* and *01-01-07)*, ceramics *(02-01-00)*, baked clay *(02-03-01)*, and ground and pecked stone artifacts *(03* and *04)* are mostly from the squares surrounding Feature 79-3 near the mound crest.

Except for the squares surrounding Feature 79-3, horizontal distributional differences within the main mound area are relatively minor, and seldom include diagnostic artifact classes. The excavations reveal the most intense deposition of materials occurred along the mound crest near the terrace edge.

The distribution of lithic debitage in the main mound area is presented in Table 5.8. Concentration indices are calculated for the vertical component by dividing the total number of flakes for a level by the number of squares contributing flakes to the total. They reveal a unimodal distribution of flakes decreasing from Level 1, except for a slight increase in Level 8. This may be attributed to sampling since Level 8 debitage is derived from a single square.

The main mound area is not ideally suited for the use of concentration indices to discern the number of components. Since the depth of cultural deposits varied across the area, subtle differences are masked by this kind of analysis. An examination of individual squares reveals unimodal distributions for 20 of the 26 units. Eight squares along the east and west lower mound slopes have shallow deposits and the greatest density of materials in Level 1. The remaining 12 squares near the mound crest and to the south have deeper deposits and the greatest density of material is in Level 2. These differences may reflect extensive erosion along the lower mound slopes. Four of the six squares with bimodal flake density distributions are contiguous squares containing Feature 79-3. Since the lower peak consistently occurs between Levels 3 and 4 near the pit orifice, the bimodal distribution may reflect activities associated with the feature. Thus, the vertical distribution of flake debitage suggests either a single occupation or a gradual intensification of activities which mask multiple occupations in the main mound area.

Table 5.7. Horizontal distribution of cultural remains from the main mound area at the Turtle Luck site (34Pu-100): Phase II.

Artifacts	S7-W20	N0-W9	N11-W20	N14-W1	N15-W25	N18-W9	N19-W19	N25-E6	N25-N0	N25-W20	N27-W31	N30-W31	N32-W16	N32-W19	N32-W39	F79-3* n	F79-3* x̄	Total
01-01-01	-	-	-	-	1	1	-	2	1	-	2	-	-	1	1	8	0.73	17
01-01-02	-	-	1	-	-	-	1	1	-	-	1	-	-	-	1	8	0.73	13
01-01-03	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
01-01-05	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	0.18	3
01-01-06	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	8	0.73	9
01-01-07	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	4	0.36	5
01-10-01	3	1	2	2	5	2	-	3	-	1	3	5	1	3	3	27	2.45	61
01-10-02	2	1	2	2	3	1	7	10	8	4	2	6	2	4	3	48	4.36	105
01-10-03	4	1	6	1	2	-	3	7	3	3	4	3	3	2	2	55	5.00	99
01-10-04	-	-	2	1	1	-	-	1	-	1	-	1	1	-	1	16	1.45	25
01-10-05	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-	5	0.45	8
01-10-06	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
01-11-08	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	2	0.18	4
01-12-01	2	1	4	-	3	2	2	4	-	-	4	1	4	1	1	43	3.91	72
01-13-01A	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	4	0.36	6
01-13-01B	7	1	6	6	9	9	12	14	24	5	20	19	6	13	5	250	22.73	406
01-13-01C	1	-	2	1	1	1	-	4	1	1	-	1	1	-	-	9	0.82	23
01-14-01	-	-	-	1	-	-	1	-	-	1	1	-	-	-	-	-	-	4
01-15-01	-	-	-	-	-	1	1	-	1	-	2	-	1	-	1	4	0.36	11
01-15-02	-	1	-	-	1	-	1	1	1	4	2	1	2	-	-	4	0.36	18
02-01-01A	-	-	1	-	1	-	-	-	2	1	-	-	-	-	-	9	0.82	14
02-01-01B	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	10	0.91	11
02-01-02	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
02-01-03	-	-	2	-	-	-	-	-	-	-	-	-	-	1	-	9	0.82	12
02-03-01	-	-	-	-	-	-	-	-	0.2g	-	-	-	-	0.6g	-	72.8g	-	73.6g
03-01-01-3	-	-	1	-	-	-	-	-	1	-	1	-	2	-	-	2	0.18	7
03-01-04	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1	0.09	3
03-02-01	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	0.18	3
03-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0.18	2
04-01-01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.09	1
04-03-01	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	0.09	2
04-04-00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.27	3
07-00-00	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.09	2
08-00-00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0g	-	1.0g
09-00-00	15.3g	0.6g	0.4g	0.5g	0.6g	3.1g	0.9g	-	-	-	7.8g	6.7g	1.1g	7.5g	-	50.1g	-	94.6g
Total	19	7	30	15	27	17	31	48	44	22	45	39	26	26	18	538	48.88	952

* includes 11 contiguous squares around N33-W24.
x̄ mean number of artifacts per square associated with Feature 79-3.

Table 5.8. Distribution of lithic debitage from the main mound area at the Turtle Luck site (34Pu-100): Phase II.

Square	Arbitrary Levels (10 cm)									Pitfill	Wall Scraping	Total
	1	2	3	4	5	6	7	8	9			
S7-W20	265	373	37	21								696
N0-W9	300	84										384
N11-W20	352	470	255	170	143	57	30					1,477
N14-W1	188	121	28									337
N15-W25	322	307	305	102	49	81	25					1,191
N18-W9	304	251	137								8	700
N19-W19	354	433	342	299	199	132	10				15	1,784
N25-E6	905	605	364	88								1,962
N25-W0	1,774	484	82									2,340
N25-W20	262	403	236	224	93	35						1,253
N27-W31	489	426	196	139	100	32						1,382
N30-W31	445	297	288	161	121	27	10					1,349
N32-W16	331	213	345	207	31							1,127
N32-W19	425	543	278	147	51							1,444
N32-W39	260	246	18	7							16	547
N32-W21	336	393	322	133	29							1,213
N32-W22	79	191	72	71	19							432
N32-W23	357	472	332	319								1,480
N32-W24	295	489	307	320	124					143		1,678
N32-W25	424	484	378	353						18		1,657
N33-W23	400	345	196	237						165		1,343
N33-W24	513	441	320	372	251	168	228	145	17			2,455
N33-W25	528	575	294	1								1,398
N34-W23	161	175	45	61						10		452
N34-W24	411	515	300	374	224	140	103	36	13	141	68	2,325
N34-W25	506	536	290	265	71	25				105	35	1,833
Total	10,986	9,872	5,767	4,071	1,505	697	406	181	30	582	142	34,239
Number of Squares	26	26	25	22	14	9	6	2	2			
CI	422.5	379.7	230.7	185.0	107.5	77.4	67.6	90.5	15.0			

Concentration indices calculated for the vertical distribution of tools within the mound area shows a similar pattern to that obtained for the lithic debitage (Table 5.9). The greatest artifact density occurs in Level 1 and decreases with depth. The slight density increase between Levels 7 and 8 may be the result of a sampling bias, and consists mostly of material recovered below Level 6 from Feature 79-3.

Examination of specific diagnostic artifact classes reveals minor vertical segregation. Large contracting stemmed points *(01-01-01A)* occur throughout the deposits. Small corner-notched *(01-01-06)* and large corner-notched *(01-01-02)* points occur in the upper five levels. However, the small side-notched points *(01-01-07)* are restricted to the upper two levels. Similarly, the grit and grog tempered ceramics *(01-01-01)* occur throughout the levels, but shell tempered sherds *(02-01-03)* are restricted to the upper four levels with the majority occurring in Level 2. Other material segregations occur in artifact classes represented by small numbers. The long, narrow side-notched point *(01-01-03)*, possible hoe preform *(01-10-06)*, and miscellaneous pecked stone tools *(04-03-00)* occur in the upper deposits. Large unstemmed points *(01-01-05)*, and pitted manos *(03-01-04)* tend to occur in the lower deposits. The presence of historic materials *(07-00-00)* in Level 4 indicates extensive bioturbation at the site.

In summary, the lithic debitage distribution is predominantly unimodal in the main mound area and most tool distributions are not significantly different. However, the bimodal debitage distribution near Feature 79-3 and the restricted occurrence of most shell tempered ceramics *(02-01-03)* and small side-notched points *(01-01-07)* in the upper three levels may reflect separate components.

THE PERIPHERAL AREA

Analysis and interpretation of materials from the peripheral area are hampered by several considerations. The units are scattered over a 120 m by 63 m area with the average minimum distance between units being 24.5 m. These distances make cultural and stratigraphic correlations difficult to interpret. Consequently, vertical material distributions are provided for each square, except for the eight contiguous units surrounding Feature 79-4 (Table 5.10). The limited occurrence of artifacts from the peripheral area hinders vertical and horizontal interpretations. Most major artifact classes and groups are present in the peripheral area and mirror those from the main mound area. This similarity in diagnostic points *(01-01-00)* and ceramics *(02-01-00)* suggests that components in the peripheral area are very similar to those defined in the major mound area. It is therefore postulated that the same groups occupying the main mound also used lower natural mounds in the peripheral area.

Table 5.9. Vertical distribution of artifacts from the main mound area at the Turtle Luck site (34Pu-100): Phase II.

Artifacts	Arbitrary Levels (10 cm)									Pitfill	Wall Scraping	Total
	1	2	3	4	5	6	7	8	9			
01-01-01	6	3	1	3	1	1		1		1		17
01-01-02	5	3	3	2								13
01-01-03			1									1
01-01-05	1	1			1							3
01-01-06	2	3	3		1							9
01-01-07	1	4										5
01-10-01A	22	12	13	7	4		1			1	1	61
01-10-02A	41	17	23	13		3	3	2		3		105
01-10-03A	29	31	16	6	4	5		1		6	1	99
01-10-04A	8	7	4	2	1	1				2		25
01-10-05	2	1	1	1	1	1	1					8
01-10-06		1										1
01-11-08	1		1	2								4
01-12-01A	24	14	10	9	7	3	3	1			1	72
01-13-01A		3	1							2		6
01-13-01B	121	119	60	45	17	12	6	6	1	19		406
01-13-01C	8	8	2	4	1							23
01-14-00	1			2	1							4
01-15-01A	2	2	3	1	1	1				1		11
01-15-02A	7	4	5		2							18
02-01-01A	6	1	3		3					1		14
02-01-01B	1		3	2	2		2			1		11
02-01-02	1											1
02-01-03A	1	8	2	1								12
02-03-01	2.1g	1.4g	3.3g	5.7g	24.7g	0.5g				35.9g		73.6g
03-01-01-3			4	1	1						1	7
03-01-04	1				2							3
03-02-01	1		1	1								3
03-06-02				2								2
04-01-00				1								1
04-03-00		1								1		2
04-04-00		1		1	1					1		3
07-00-00	1			1								2
08-00-00		0.3g			0.2g	0.2g	0.2g		0.1g			1.0g
09-00-00	16.4g	6.9g	21.9g	8.8g	8.4g	2.1g	5.6g	8.8g	1.6g	13.0g	1.1g	94.6g
Total	293	244	160	107	51	27	16	11	1	38	4	952
Number of Squares	26	26	25	22	14	9	6	2	2			
CI	11.3	9.4	6.4	4.9	3.6	3.0	2.7	5.5	0.5			

Table 5.10. Horizontal and vertical distribution of tools from the peripheral area at the Turtle Luck site (34Pu-100): Phase 11.

Provenience (Square:Level)	01-01-01	01-01-06	01-10-01	01-10-02	01-10-03	01-10-04	01-10-05	01-12-01	01-13-01A	01-13-01B	01-14-01	01-15-01	01-15-02	01-16-00	02-01-01A	03-01-04	03-06-02	04-04-00	07-00-00	09-00-00	Total[2]
S88-W30																					
1	-	-	-	-	-	-	-	-	-	-	-	-	-	54	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	29	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	0.2g	
S54-W34																					
1	-	-	-	-	-	-	-	-	-	-	-	-	-	211	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	1	-	-	-	-	-	144	-	-	-	-	-	-	1
3	-	-	-	-	-	-	-	-	-	-	-	-	-	36	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-
S16-W92[1]																					
1 (8)	-	-	1	4	1	-	-	3	-	12	-	-	-	1156	1	-	-	1	2	-	25
2 (8)	1	1	1	-	2	-	-	1	-	6	1	-	2	774	-	-	-	-	-	-	15
3 (7)	-	-	-	-	1	-	-	3	-	1	-	-	1	489	-	1	-	-	-	-	7
4 (5)	-	-	-	-	-	-	-	-	-	1	-	-	-	230	-	-	1	-	-	-	2
5 (4)	-	-	-	-	1	-	-	-	-	-	-	-	-	92	-	-	-	-	-	-	1
6 (4)	-	-	-	-	-	-	-	1	-	-	-	-	-	71	-	-	-	-	-	-	1
S23-W39																					
1	-	-	-	1	-	-	-	-	-	1	-	-	-	23	-	-	-	-	-	-	2
2	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	0.2g	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-
N0-W79																					
1	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-	-	-
2	-	1	-	1	-	-	-	-	1	-	-	-	-	101	-	-	-	-	-	-	3
3	-	-	-	-	-	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
N0-W50																					
1	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
N8-W32																					
1	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-	-	-	-	-	-
2	-	-	1	1	-	-	1	-	-	4	-	-	-	187	-	-	-	-	-	1.3g	7
3	-	-	-	-	1	-	1	1	-	5	-	-	-	69	-	-	-	-	-	-	8
4	-	-	-	-	1	-	-	1	-	-	-	-	-	49	1	-	-	-	-	-	3
5	-	-	-	1	-	-	-	-	-	-	-	-	-	23	-	-	-	-	-	-	1
6	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-
N20-W50																					
1	-	-	1	-	-	-	-	-	-	-	-	-	-	46	-	-	-	-	-	-	1
2	-	-	-	-	-	1	-	-	-	1	-	-	-	16	-	-	-	-	-	-	2
3	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
N32-W50																					
1	-	-	-	2	-	-	-	1	-	1	-	1	-	89	-	-	-	-	-	-	5
2	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	0.3g	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Total	1	2	4	10	7	1	2	12	1	32	1	1	3	4305	2	1	1	1	2	2.0g	84

[1] Indicates eight contiguous squares around Feature 79-4.
[2] Debitage (01-16-00) excluded from total.

Chronology and Site Components

Component identification at 34Pu-100 is based on the occurrence and distribution of diagnostic artifacts and dates. Ceramics and projectile points are usually regarded as the best temporal indicators (Bell 1958, 1960; Perino 1968, 1971; Suhm and Jelks 1962; Wyckoff 1970a). One problem in southeast Oklahoma is that cultural transitions are marked by the addition of new traits to existing assemblages. Wholesale assemblage replacement is a relatively rare occurrence (Galm 1978a, 1978b; Galm and Flynn 1978). The later artifact varieties can readily be used for tentative component identification. However, difficulties arise in determining whether the earlier forms reflect artifact persistence or separate earlier components. Consequently, the determination of the number of components must rely on distribution frequencies and co-association of diagnostic artifact types firmly tied to an absolute chronology.

Phase I investigations in the Jackfork Valley have revealed a cultural sequence similar to that proposed for the Wister Valley (Vehik and Galm 1979). The Wister Valley sequence has been relatively well dated and reveals a number of changes in the diagnostic assemblage (Galm 1978a, 1978b; Galm and Flynn 1978). This sequence suggests that large straight stemmed points *(01-01-04)* occurred early and were followed by the co-occurrence of contracting stemmed *(01-01-01)* and expanding stemmed corner-notched *(01-01-02)* point varieties (Galm and Flynn 1978: 158). The transition from Late Archaic (Wister phase) to Woodland (Fourche Maline phase) in the Wister Valley is marked by the appearance of relatively thick grit, grog, and bone tempered ceramics *(02-01-01A)*. Small corner-notched points *(01-01-06)* are introduced during the Woodland period and increase through time, but previous varieties of large point forms still dominate the series. The transition from the Fourche Maline phase to the Evans, Harlan, and Spiro phases may represent Mississippian influences marked by the introduction of shell tempered ceramics *(02-01-03A)* and eventually small side-notched point forms *(01-01-07)*. Thick grit, grog, and bone tempered ceramics *(02-01-01A)* still occur, but a thinner variety *(02-01-01B)* is also present. Despite the introduction of new point forms and ceramics, the earlier diagnostic forms persist.

The vertical distribution of points and ceramic types from the main mound and peripheral areas at 34Pu-100 are presented in Table 5.11. Diagnostic materials from 11 squares encompassing Feature 79-3 were separated from the other main mound materials in order to reduce possible bias introduced by the pit feature. Table 5.11 shows that small points *(01-01-06* and *01-01-07)* and most ceramics *(02-00-00)* are associated with the majority of large points *(01-01-01* through *01-01-05)* in the upper three levels in the peripheral area and nonpit subarea of the main mound. In the contiguous squares containing Feature 79-3, all of the shell tempered ceramics *(02-01-03)* and most small points *(01-01-06* and *01-01-07)* are also restricted to the upper three levels. These diagnostic artifacts are attributed to an early Caddoan component which may be dated between A.D. 800 and 1350 (Galm 1978b: 75).

Table 5.11. Vertical distribution of points and ceramics by arbitrary levels (10 cm) at the Turtle Luck site (34Pu-100): Phase II.

ARTIFACTS	MAIN MOUND AREAS															PERIPHERAL AREA			SURFACE	TOTAL
	Non Pit subarea					Pit Fill, Feature 79-3 Subarea														
	1	2	3	4	5	1	2	3	4	5	6	7	8	Pitfill		1	2	3		
Points, Large																				
01-01-01A	4	3	1	-	1	1	-	-	3	-	1	-	1	1		-	1	-	1	18
01-01-01D	-	-	-	-	-	1	-	-	-	-	-	-	-	-		-	-	-	-	1
01-01-02B	-	1	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	1
01-01-02D	-	-	-	-	-	2	-	-	-	-	-	-	-	-		-	-	-	-	2
01-01-02E	-	-	-	-	-	1	-	-	-	-	-	-	-	-		-	-	-	-	1
01-01-02H	1	-	-	-	-	-	-	1	-	-	-	-	-	-		-	-	-	-	2
01-01-02L	-	-	-	-	-	-	2	1	-	-	-	-	-	-		-	-	-	-	3
01-01-02N	-	-	-	1	-	-	-	-	-	-	-	-	-	-		-	-	-	-	1
01-01-02S	1	-	1	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	2
01-01-02Y	-	-	-	-	-	-	-	-	1	-	-	-	-	-		-	-	-	1	2
01-01-03B	-	-	1	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	1
01-01-05C	1	-	-	-	-	-	1	-	-	1	-	-	-	-		-	-	-	-	3
Points, Small																				
01-01-06A	-	-	-	-	-	-	2	1	-	1	-	-	-	-		-	-	-	-	4
01-01-06C	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	1	-	-	1
01-01-06E	-	-	-	-	-	-	-	1	-	-	-	-	-	-		-	-	-	-	1
01-01-06J	-	-	-	-	-	1	2	-	-	-	-	-	-	-		-	1	-	-	4
01-01-06N	-	-	1	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	1
01-01-07B	-	1	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	1
01-01-07H	-	-	-	-	-	-	1	-	-	-	-	-	-	-		-	-	-	-	1
01-01-07I	-	-	-	-	-	-	1	-	-	-	-	-	-	-		-	-	-	-	1
01-01-07K	-	-	-	-	-	1	-	-	-	-	-	-	-	-		-	-	-	-	1
01-01-07L	-	-	-	-	-	-	1	-	-	-	-	-	-	-		-	-	-	-	1
Total Points	7	5	4	1	1	7	10	4	4	2	1	-	1	1		-	3	-	2	53
Ceramics																				
02-01-01A	4	-	1	-	-	2	-	3	-	3	-	-	-	1		1	-	1	-	16
02-01-01B	1	-	-	-	-	-	-	3	2	2	-	1	-	2		-	-	-	-	11
02-01-02	1	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	1
02-01-03	1	-	1	1	-	-	8	1	-	-	-	-	-	-		-	-	-	-	12
Total Ceramics	7	-	2	1	-	2	8	7	2	5	-	1	-	3		1	-	1	-	40

Diagnostic artifacts below Level 3 include a small corner-notched point *(01-01-06)*, several varieties of large points *(01-01-01A, 01-01-02N, 01-01-02Y,* and *01-01-05C)*, an abundance of grit and grog tempered ceramics *(02-01-01)*, and a single shell tempered sherd *(02-01-03)*. Most are diagnostic of the Woodland period. Radiocarbon dates of A.D. 260 ±50 (Tx-3711) and 333 ±70 (Tx-3710) obtained from the pit fill matrix are reasonably consistent and provide strong supporting evidence for a Woodland period occupation.

Lithic Reduction and Procurement

Lithic reduction systems and procurement methods are based primarily on chipped stone artifacts and a limited sample of lithic debitage. All stages of the postulated reduction sequence are represented by the bifacially chipped artifacts at the site (Vehik 1979e: 76-80). The basic technology for both components involves the selection and procurement of primarily waterworn cobbles for bifacial reduction. The main strategy involves the manufacture of bifacial tools from each cobble. Split cobble and core technology methods of producing tools were of secondary importance. Most large points were made from the cobble biface, and to a lesser extent, split cobble methods. Small points were generally made from flakes derived from cores or debitage from the cobble biface and split cobble methods. Flakes which were used exhibit a minimum amount of modification. There appears to be no significant shift either in the preferred reduction sequence used between the Woodland and early Caddoan components or in the proportion of thick versus thin bifaces between components.

Samples of lithic debitage and select chipped stone artifacts were sorted by lithic type. This analysis was conducted to determine preferential usage and to note differences between manufacture and maintenance patterns. The lithic debitage sample constitutes 11.5% of the total lithic debitage and consists of all unmodified flakes from N25-E6 and N33-W24. These units were selected because they had the highest flake densities from noncontiguous areas of the site. The majority of flakes are from locally available sources (Table 5.12). Only one specimen is tentatively identified as nonlocal even though it could not be classified to a specific type.

Material types from both squares occur in similar percentages. The order of the five dominant lithic types for the two squares are identical: A (80.1%), J (6.8%), H (6.4%), B (4.4%), and F (1.2%). The sequence of the other four types is variable, but they only constitute 1.1% of the sample. Lithic type A has the greatest percentage difference (1.6%) for any single lithic type between the two squares.

The chipped stone artifact sample is made up of all bifacial implements. Modified flakes *(01-13-00)* were excluded from consideration since some modification may not represent aboriginal manufacture or use. These tools were manufactured from locally available resources (Table 5.13).

Table 5.12. Vertical distribution of lithic debitage by material type at the Turtle Luck site (34Pu-100): Phase II.

Provenience (Square:Level) (10 cm)	Lithic Type											
	A	B	C	D	E	F	G	H	I	J	K	Total
N25-E6												
1	762	48	1	-	-	6	4	60	-	23	1	905
2	484	31	3	2	-	3	2	31	-	49	-	605
3	279	16	1	2	1	1	2	18	-	44	-	364
4	63	7	-	-	2	3	-	2	-	11	-	88
Subtotal	1588	102	5	4	3	13	8	111	-	127	1	1962
Percent	80.9	5.2	.3	.2	.2	.7	.4	5.7	-	6.5	.1	100.2
N33-W24												
1	432	12	-	-	4	6	1	30	-	28	-	513
2	340	27	1	2	-	7	1	22	-	41	-	441
3	259	21	-	-	-	1	2	14	-	23	-	320
4	297	17	-	-	2	6	2	26	-	22	-	372
5	192	4	2	-	2	12	2	20	-	17	-	251
6	126	4	2	2	-	3	-	20	-	11	-	168
7	174	4	-	2	1	2	-	23	-	22	-	228
8	116	3	-	1	-	1	-	15	-	9	-	145
9	12	1	-	-	-	1	-	3	-	-	-	17
Subtotal	1948	93	5	7	9	39	8	173	-	173	-	2455
Percent	79.3	3.8	.2	.3	.4	1.6	.3	7.1	-	7.1	-	100.1
Total	3536	195	10	11	12	52	16	284	-	300	1	4417

Table 5.13. Vertical distribution of selected chipped stone artifacts by material type at the Turtle Luck site (34Pu-100): Phase II.

Artifact Variety	Lithic Type									
	A	B	C	D	E	F	G	H	I	J
01-01-01A	16	1	1	-	-	-	-	-	-	-
01-01-01D	-	-	-	-	-	-	-	-	-	1
01-01-02B	1	-	-	-	-	-	-	-	-	-
01-01-02D	2	-	-	-	-	-	-	-	-	-
01-01-02E	1	-	-	-	-	-	-	-	-	-
01-01-02H	1	-	-	-	-	-	-	1	-	-
01-01-02L	3	-	-	-	-	-	-	-	-	-
01-01-02N	1	-	-	-	-	-	-	-	-	-
01-01-02S	1	-	-	-	-	-	-	-	-	1
01-01-02Y	1	-	-	-	-	-	-	-	-	1
01-01-03B	1	-	-	-	-	-	-	-	-	-
01-01-05C	2	-	-	-	-	-	-	1	-	-
01-01-06A	3	-	-	1	-	-	-	-	-	-
01-01-06C	1	-	-	-	-	-	-	-	-	-
01-01-06E	-	1	-	-	-	-	-	-	-	-
01-01-06J	4	-	-	-	-	-	-	-	-	-
01-01-06N	-	-	-	-	1	-	-	-	-	-
01-01-07B	1	-	-	-	-	-	-	-	-	-
01-01-07H	-	-	-	-	-	-	-	1	-	-
01-01-07I	1	-	-	-	-	-	-	-	-	-
01-01-07K	1	-	-	-	-	-	-	-	-	-
01-01-07L	1	-	-	-	-	-	-	-	-	-
01-10-01A	59	1	-	-	1	-	-	4	-	1
01-10-02A	103	-	1	-	-	-	1	9	-	7
01-10-03A	88	3	-	-	-	-	-	9	-	6
01-10-04A	24	1	-	-	-	-	-	1	-	-
01-10-05A	8	1	-	-	-	-	-	-	-	1
01-10-06A	-	-	-	-	-	-	1	-	-	-
01-11-08A	4	-	-	-	-	-	-	-	-	-
01-12-01A	69	3	-	-	-	1	-	5	-	6
01-14-01A	3	-	-	-	-	-	-	1	-	1
01-15-01A	12	-	-	-	-	-	-	-	-	-
01-15-02A	16	1	-	-	-	-	1	3	-	-
Total	428	12	2	1	2	1	3	35	-	25
Percent	84.1	2.4	.4	.2	.4	.2	.6	6.9	-	4.9

The lithic types used for implements, ranked in descending order of occurrence, are Types A (84.1%), H (6.9%), J (4.9%), B (2.4%), G (0.6%), C and E (0.4% each), and D and F (0.2% each).

A comparison of debitage and tool lithic types reveals similar percentages. The greatest percentage difference is in Type A with 4.8%: Types B, F, H, and J each differ by less than 3%, and Types C, D, E, G, and K show differences of less than 0.3%. These differences are not significant and most tool manufacturing is believed to have been conducted at the site.

Activities

Activity set interpretatons are hindered by the scarcity of floral and faunal materials, but they can be inferred from waterscreen residue, artifacts, and features. The waterscreen sample is derived from a 5 liter soil sample collected from each 5 cm level of N32-W22, adjacent to Feature 79-3. Additional 5 liter samples were collected from each 10 cm level of N33-W24 within pit Feature 79-3. The results of total sorting of waterscreen residue from these two areas are presented in Table 5.14. Projections of residue results can be directly compared with material quantities from standard 10 cm levels by multiplying the figures in Table 5.14 by 20.

Based on the distribution of diagnostic materials, Levels 1-6 (0-30 cm) of N32-W22 are believed to be affiliated with the early Caddoan component while Levels 7-10 (30-50 cm) of N32-W22 and all pit fill materials from N33-W24 are attributed to the Woodland component. There are minor differences in the kinds and amounts of materials recovered from the two components and virtually no difference between pit contents and adjacent soil matrix (Table 5.14). Bone, nutshells, molluscs, insects, and seeds are absent or very sparsely represented. Soil conditions have probably affected the bone and shell. Their absence from the Woodland component may merely reflect a longer exposure interval to soil conditions. The scarcity of nutshell and seeds suggest that they were either not charred or activities in this portion of the site did not involve these materials.

The nature of prehistoric activities is probably best reflected in the amounts of charcoal, baked clay nodules, rocks, and flakes. The charcoal and baked clay nodules are believed to reflect burning activities and are present in both components in similar amounts. The rocks in the upper deposits probably have a cultural origin, but the increase in Levels 8 and 9 of N33-W24 reflects their proximity to the colluvial substratum. Some rocks within the pit are burned and may be associated with roasting activities. Based on the flake data, the proportional count of large to small flakes is similar for the early Caddoan (1:9) and Woodland (1:14) components. However, the early Caddoan component has a greater amount of lithic debitage than the Woodland component. These differences may be the result of an intensification of manufacturing and maintenance activities during the early Caddoan component. Within the early Caddoan component, the large flake counts exhibit a bimodal

Table 5.14. Counts and weights of waterscreen sorts from squares N32-W22 and N33-W24 at the Turtle Luck site (34Pu-100): Phase II.

Provenience (Square:Level)	Burned Bone		Nutshell	Shell	Insect	Grass	Unburned Seeds	Charcoal	Clay	Rocks	Flakes				Wood
											1/4 inch		total		
	Ct.	Wt.	Wt.	Wt.	Wt.	Wt.	Wt.	Wt.	Wt.	Wt.	Ct.	Wt.	Ct.	Wt.	Wt.
N32-W22															
1 (0-5 cm)	-	-	-	<0.1g	-	67.4g	1.6g	<0.1g	7.1g	126.3g	17	13.4g	203	16.8g	34.6g
2 (5-10 cm)	-	-	-	0.1g	-	28.9g	0.5g	0.5g	21.0g	386.6g	36	15.5g	399	23.2g	-
3 (10-15 cm)	1	<0.1g	-	<0.1g	-	9.2g	0.1g	0.2g	14.1g	430.4g	29	16.8g	316	23.8g	-
4 (15-20 cm)	1	<0.1g	-	-	<0.1g	8.7g	<0.1g	0.2g	29.1g	396.2g	40	53.6g	292	57.5g	-
5 (20-25 cm)	-	-	-	-	1.3g	2.4g	0.1g	0.7g	16.4g	303.0g	26	16.8g	298	21.3g	-
6 (25-30 cm)	-	-	-	-	-	1.3g	0.1g	0.1g	14.8g	246.8g	22	9.2g	213	13.4g	-
7 (30-35 cm)	-	-	-	-	-	0.4g	0.1g	0.7g	20.2g	267.1g	12	4.2g	214	6.8g	-
8 (35-40 cm)	-	-	-	-	-	0.4g	0.1g	0.1g	31.7g	305.3g	11	2.4g	138	4.5g	-
9 (40-45 cm)	-	-	-	-	-	0.3g	-	<0.1g	15.7g	382.8g	8	2.6g	79	4.1g	-
10 (45-50 cm)	-	-	-	-	-	3.5g	0.7g	0.2g	14.9g	333.3g	2	0.5g	62	1.5g	-
N33-W24 Pitfill F79-3															
5 (40-50 cm)	-	-	-	-	-	0.9g	<0.1g	0.8g	10.3g	300.1g	23	10.3g	399	16.7g	3.1g
6 (50-60 cm)	-	-	0.9g	-	-	0.6g	-	0.7g	12.6g	302.8g	22	7.9g	178	11.0g	-
7 (60-70 cm)	-	-	-	-	-	0.3g	-	0.3g	5.3g	368.5g	31	14.2g	347	19.0g	-
8 (70-80 cm)	-	-	-	-	-	0.4g	-	0.4g	12.7g	764.6g	19	11.7g	209	14.8g	-
9 (80-90 cm)	-	-	-	-	-	0.2g	-	0.5g	7.2g	1883.7g	7	6.4g	87	8.4g	-

Wt. indicates weight

Ct. indicates count

distribution with increases in Levels 2 and 4, but the total flake count reveals a unimodal distribution with the maximum occurring in Level 2. These differences may indicate variation in the manufacture and maintenance pattern during the early Caddoan occupation.

Most chipped stone implements represent points *(01-01-00)*, modified flakes *(01-13-00)*, and various stages from the reduction sequence *(01-10-00, 01-14-00,* and *01-15-00)*. Ceramics *(02-01-00)*, ground *(03-00-00)*, and pecked *(04-00-00)* stone categories are equally limited. Nearly three times as many tools occur in the early Caddoan component as in the Woodland component (Table 5.15). These differences are another indication of the activity intensification that occurred at the site.

Slight differences occur in the tool assemblage of each component. The early Caddoan assemblage has a high percentage of large and small side-notched points *(01-01-03* and *01-01-07)*, small corner-notched points *(01-01-06)*, possible hoe blanks *(01-10-06)*, tested cobbles *(01-15-02)*, decorated ceramics *(02-01-02)*, shell tempered sherds *(02-01-03)*, and galena *(04-04-04A)*. The Woodland assemblage has a high percentage of possible mano blanks *(03-06-02)*, hammerstones *(04-01-00)*, and bowl shaped stone concretions *(04-04-03A)*. These differences may be considered minor since they occur in artifact categories represented by a small number of specimens. Because of the strong assemblage similarities, the activity sets for both components will be discussed together and major differences will be specifically mentioned.

Lithic reduction appears to be a major activity at the site. Tool maintenance was undoubtedly conducted in conjunction with other processing activities. A cobble biface technology was the primary manufacturing strategy. Split cobble and core reduction methods were occasionally employed by both groups. Cobbles were directly reduced into large points and bifacial tools, but flakes were either minimally modified or bifacially worked into small points. Local resources were used by both components and the entire manufacturing sequence is present.

The chipped stone inventory probably involves the manufacture of generalized tools. Large and small hafted implements (points) and modified flake tools dominate the finished chipped stone sample. Drills, scrapers, and other formalized artifact types are notably absent from both assemblages. The large points and modified flakes probably served a variety of cutting, piercing, shredding, and scraping uses (Ahler 1971). The wide variation in large point blade dimensions and their asymmetrical form suggest extensive maintenance (Galm and Flynn 1978). Variation within the modified flake class probably reflects their use as short duration tools. These artifact classes would be useful in the procurement and processing of floral and faunal resources. The small points *(01-01-06* and *01-01-07)* presumably were used as hunting projectiles and are more common in the early Caddoan component.

Table 5.15. Frequency of select tools affiliated with early Caddoan and Woodland components at the Turtle Luck site (34Pu-100): Phase II.

Artifacts	Early Caddoan (Levels 1-3) Mound	Peripheral	Total	Percent	Woodland (Below Level 3) Mound	Peripheral	Total	Percent	Combined Total
01-01-01	10	1	11	61	7	-	7	39	18
01-01-02	11	-	11	85	2	-	2	15	13
01-01-03	1	-	1	100	-	-	-	-	1
01-01-05	2	-	2	67	1	-	1	33	3
01-01-06	8	2	10	91	1	-	1	9	11
01-01-07	5	-	5	100	-	-	-	-	5
01-10-01A	47	4	51	80	13	-	13	20	64
01-10-02A	81	9	90	78	24	1	25	22	115
01-10-03A	76	5	81	77	22	2	24	23	105
01-10-04A	19	1	20	77	6	-	6	23	26
01-10-05A	4	2	6	60	4	-	4	40	10
01-10-06A	1	-	1	100	-	-	-	-	1
01-11-08A	2	-	2	50	2	-	2	50	4
01-12-01A	48	10	58	70	23	2	25	30	83
01-13-00	322	32	354	76	113	1	114	24	468
01-14-01A	1	1	2	40	3	-	3	60	5
01-15-01A	7	1	8	67	4	-	4	33	12
01-15-02A	16	3	19	90	2	-	2	10	21
02-01-01A	10	1	11	69	4	1	5	31	16
02-01-01B	4	-	4	36	7	-	7	64	11
02-01-02	1	-	1	100	-	-	-	-	1
02-01-03A	11	-	11	92	1	-	1	8	12
03-01-01	4	-	4	67	2	-	2	33	6
03-01-04	1	1	2	50	2	-	2	50	4
03-02-01	2	-	2	67	1	-	1	33	3
03-06-02	-	-	-	-	2	1	3	100	3
04-01-00	-	-	-	-	1	-	1	100	1
04-03-00	1	-	1	50	1	-	1	50	2
04-04-01A	-	1	1	50	1	-	1	50	2
04-04-03A	-	-	-	-	1	-	1	100	1
04-04-04A	1	-	1	100	-	-	-	-	1
07-00-00	1	2	3	75	1	-	1	25	4
Total			773	75			259	25	1,032

A limited amount of ceramics *(02-01-00)* was recovered from the site. Most sherds represent plainware vessels which could have been used in a variety of storage, cooking, or processing activities. One sherd associated with the early Caddoan component is from a decorated vessel.

Most ground *(03-00-00)* and pecked stone *(04-00-00)* artifacts occur in small quantities. Manos *(03-01-00)* and grinding slabs *(03-02-00)* are the most abundant artifact classes present in both assemblages and may represent a variety of vegetal processing activities. Pitted manos *(03-01-04A)* are also present in both components. Most have U-shaped depressions and may have served as nutting anvils (Spears 1975). A single hammerstone *(04-01-01)* is present in the Woodland component, and may represent generalized activities such as lithic reduction, pecked and ground stone tool manufacture, bone reduction for the extraction of marrow and grease, or other generalized pounding activities.

Several ground stone items may have been utilized, but there is very little evidence to indicate their function. Small unmodified hematite pieces *(04-04-01A)*, may be merely oxidized nodules rather than artifacts. Galena *(04-04-04A)* associated with the early Caddoan assemblage, was probably brought to the site and may be used as a base for white pigment or ground into ornaments. Galena is occasionally recovered from other Caddoan sites (Bell 1972: 234; Brown 1976: 464). The bowl shaped concretion fragment is from the lower levels and may represent an item collected by the Woodland group.

The two cultural features are assigned to separate components on the bases of depth, associated materials, and radiocarbon dates. The large basin shaped pit with a narrow channel to the north (F79-3) has been dated at A.D. 333 ±70 (Tx-3710) and A.D. 260 ±50 (Tx-3711) and is attributed to the Woodland component. This feature is large (2.15 m diameter and 47 cm deep), but the lack of postmolds and hearths suggest that it was not a structural feature. It may have served a cooking or storage function as indicated by charcoal and baked clay nodules within the pit matrix. The majority of the Woodland assemblage (73%) is in and around the pit feature (Table 5.1). Associated materials include several varieties of large and small points *(01-01-01, 01-01-05,* and *01-01-06)*, ceramics *(02-01-01A* and *02-01-01B)*, all stages of the biface reduction sequence *(01-10-00)*, split cobbles *(01-15-01A)*, modified flakes *(01-13-00)*, manos and grinding slabs *(03-01-00* and *03-02-00)*, possible mano blanks *(03-06-02)*, miscellaneous pecked stone *(04-04-01)*, and a bowl shaped concretion *(04-04-03)*. The density of material suggests that this pit was the main focal area at the site, and the range of tools reflects a broad spectrum of processing activities involving both floral and faunal resources. The burned rock concentration in the upper portion of the pit may either be associated with it or reflect a secondary deposition or subsequent activities in the same area as the pit.

The second cultural feature (F79-2) is a concentration of burned angular rocks, split/tested cobbles *(01-15-00)*, and broken ground and pecked stone tools *(03-01-01, 03-02-01,* and *04-03-01A)* within a stratigraphic unit containing early Caddoan materials (Table 5.1). The scarcity of associated artifacts makes functional interpretations difficult. Notably absent are points *(01-01-00)* and bifaces from the reduction sequence *(01-10-00)*. The large size and broken condition of artifacts within the concentration may suggest that they are secondary associations and do not reflect activities conducted near the feature. Since most items are burned, this feature may be the remnant of a large hearth or oven.

Site Function and Significance

Several differences have been noted in the range of tools, inferred activities, and feature types for the two components. The Woodland component includes a small quantity of materials in association with a large pit feature (F79-3). Although the pit may represent a labor intensive process and a wide range of chipped and ground stone artifacts were recovered, all materials are believed to be techno-exploitive tools and features. The occupation may represent a specialized extractive or processing locality used during a relatively short period of time. Other special purpose Woodland sites recognized in the Jackfork Valley include 34Pu-78, 34Ps-57, and 34Lt-31 (Bobalik 1977: 570).

There is not a significant increase in the range of the early Caddoan tool inventory over the Woodland component, but there is a marked increase in the amount of materials. This difference is thought to reflect an intensification of activities. The presence of decorated ceramics and galena possibly adds a non-technoexploitive aspect to the early Caddoan occupation. Although the only feature is a single burned rock concentration (F79-2), the amount and variety of materials suggest a base camp. Other base camps within the Jackfork Valley include 34Pu-71, 34Pu-99, 34Pu-102, 34Lt-26, 34Lt-27, and 34Lt-32 (Bobalik 1977: 571; 1978; Vehik and Galm 1979).

SUMMARY

The Turtle Luck site is on the western terrace of Anderson Creek south of an unnamed tributary. A dense stand of young scrub oak is along the terrace edge and covers most of the site. The western portion was used as open pasture. Stratigraphic evidence indicates that much of the site had been plowed.

Forty squares were excavated to culturally sterile soil. The excavations concentrated on a portion of a natural mound near the terrace edge although limited testing was conducted on other low mounds on the terrace. Because of differences in artifact densities and distances between the tested areas, a peripheral area was defined

and analyzed separately from the main site area. All cultural features were found in the main site area.

Intrasite analysis indicates that components affiliated with the Woodland and early Caddoan periods are present. The deposits containing Woodland materials were relatively shallow, but included a large basin shaped pit (F79-3). The matrix of the pit suggests burning activities, and the feature is interpreted as a processing activity locus. The scarcity of floral and faunal material makes functional interpretations difficult. A limited range of chipped, pecked and ground stone tools, and ceramics were recovered which may have complemented the processing activities. Analysis of lithic resources indicates that locally available resources were obtained, and tool manufacturing occurred at the site. The scarcity of material and absence of non-technoexploitive artifacts from the Woodland component suggest that the site may have been a special purpose extractive or processing activity locus. The duration of occupation and season could not be inferred from the recovered materials. Two radiocarbon dates from the pit feature are A.D. 333 ±70 (Tx-3710) and A.D. 260 ±50 (Tx-3711).

The early Caddoan occupation has a marked increase in quantity of materials, but only slight differences in types of artifacts. Most materials and a single rock concentration (F79-2) reflect a variety of floral and faunal processing activities. Lithic resource analysis suggests that raw materials were obtained locally and that the entire reduction sequence is present. The density of artifacts and debitage suggests activities were intensified during this occupation. In addition, the presence of galena and decorated pottery may reflect a non-technoexploitive aspect. No absolute dates are available, but on the basis of stylistic similarities of artifacts, the site is believed to have been used as a base camp between A.D. 900 and 1350.

CHAPTER 6

THE WHEELER LEE SITE (34Pu-102)

Christopher Lintz

INTRODUCTION

The Wheeler Lee site is on the floodplain east of a large meander of Jackfork Creek which is approximately 90 m west and 85 m south of the main artifact concentration area. The site is approximately 5 m above the modern incised channel and has an approximate elevation of 174 m (570 ft) m.s.l. (Figure 6.1).

Most of the cultural debris was confined to a 40 m x 50 m area on the crest and south slope of a 70 cm high northwest-southeast trending linear mound (Figure 6.2). Additional material occurred on a 45 cm high mound south of the main concentration area. The topography of the site indicates that the 70 cm high mound is a natural erosional remnant formed between a former channel of Jackfork Creek to the south and an old lateral drainage to the north.

An oak hickory gallery forest is along Jackfork Creek, but most of the floodplain surrounding the site is covered with grasses and used as pasture. This area was recently mowed and baled, making surface visibility optimal.

The former landowner indicated that this area had been utilized since the turn of the century. Reportedly, eight to ten families lived in a temporary lumber camp associated with an old steam powered saw mill on, or close to, the site. Bricks, pieces of metal fire grate, a boiler pit, and other remnants of the saw mill were visible along the banks of Jackfork Creek, 150 m southeast of the main portion of the site. The dates and duration of this occupation are uncertain. Subsequently the site area was plowed many times during the 1940s and 1950s for the cultivation of corn.

PREVIOUS INVESTIGATIONS

The site was recorded during a resurvey of the proposed lake area in the fall of 1976 and tested in the spring of 1977 (Drass 1977). Thirteen post hole tests along four transects and four random post hole tests were used to assess the depth and nature of the deposits. Most of the cultural debris was from the upper 35 cm to 90 cm of a dark brown sandy soil restricted to the crest and slopes of the linear mound.

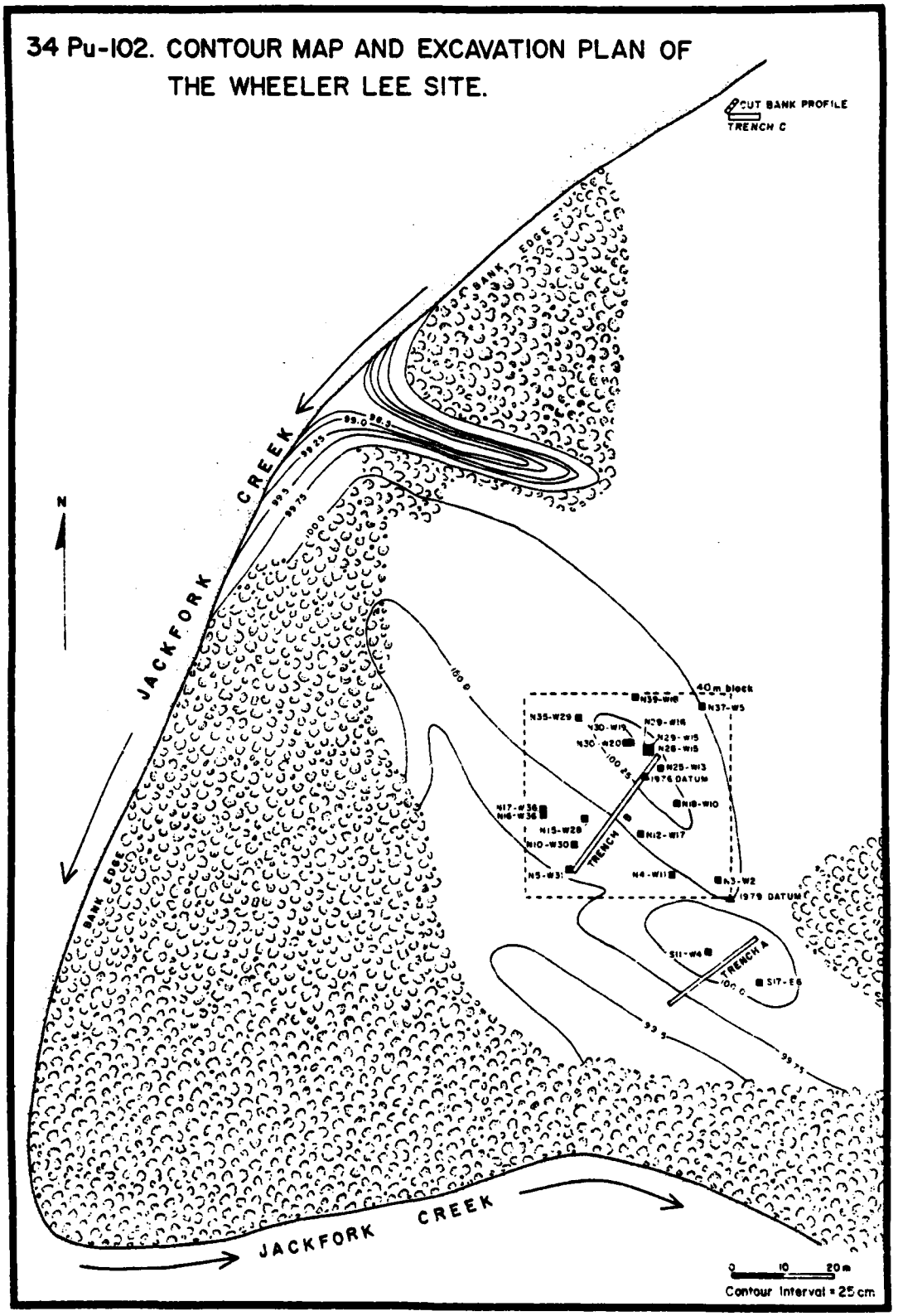


Figure 6.1. Contour map and excavation plan of the Wheeler Lee site (34Pu-102): Phase II.

A

B

Figure 6.2. A: Wheeler Lee site (34Pu-102) while excavations are in progress; B: West portion of site during land clearing operations.

One sand tempered potsherd, two manos, four thin biface fragments, one *Gary* point, one *Lange* point, and 186 flakes were obtained during the surface collection and testing. Based on small average flake size, low percentage of cortical flakes, and the recovery of only thin bifaces and finished chipped stone tools, Drass (1977: 643, 650) postulated that minimal stone tool manufacturing occurred at the site. The presence of ground stone implements and pottery led Drass (1977: 655) to suggest that the site was a more permanent camp than other sites located during the resurvey. Late Archaic and Woodland/early Caddoan components were posited on the basis of the two points and one sherd (Drass 1977: 652).

The site was recommended for additional work to clarify its functions, determine whether or not it was a permanent camp site, and to establish and clarify its cultural affiliations.

EXCAVATION STRATEGY

Previous testing suggested that the greatest density of cultural material corresponded to the crest and south slopes of the linear mound (Drass 1977: 617, 618). Consequently, a single 40 m x 40 m block, oriented to magnetic north, was superimposed over this area. A permanent datum point (N0-W0) was placed at the southeast corner of the block and all square designations for the entire site were based on their relative location to this point. For example, a 1 m x 1 m unit whose southeast corner is 3 m north and 2 m west of the datum point is designated N3-W2. A controlled surface collection and map were made to independently verify the placement of the block over the greatest density of materials at the site. One thin biface fragment, three tested cobbles, eight manos, one grinding slab, four pitted stones, one hammerstone, two ground stone fragments, 27 unmodified flakes, and 90 rocks (mostly burned) were recorded within the block area.

Twelve 1 m x 1 m squares were randomly selected from within the block as an initial sampling of the site. Five additional squares were situated nonrandomly to test either topographic features (the south mound) or to further expose cultural features encountered during the initial excavations.

The matrix for each square was excavated in arbitrary 10 cm levels and dry screened through 1/4-in mesh hardware cloth. Excavations continued until the flake count from a level dropped below 10.

In addition, four contiguous squares (N28-W15, N28-W16, N29-W15, and N29-W16) were selected near the mound crest as control units. Each was excavated in 5 cm arbitrary levels for greater vertical control, and the matrix was waterscreened through 1/16-in mesh screen. A 5 liter soil sample from each level in the southeast corner of N28-W15 was water-screened separately for total matrix sorting.

The discovery of charcoal and angular rocks eroding from the bank of Jackfork Creek at a depth of 2.35 m prompted limited excavations in an area 153 m north-northwest of the main site area. A stratigraphic profile was cut from the surface to below the rock concentration. Two test units measuring 1 m x 70 cm and oriented parallel to the bank were also dug to partially expose the rock configuration. Only the matrix within 10 cm of the rocks was screened for cultural materials.

Stratigraphic profiles from two adjacent walls were drawn for each square. Three backhoe trenches (A-C) were dug across the site to aid in strata correlation between the excavation units. All excavation units were backfilled at the end of the field season.

STRATIGRAPHY

The stratigraphy at 34Pu-102 displayed considerable variation which may be attributed to differences in the local depositional history and/or soil development. Both situations commonly occur on floodplain topography (Soil Survey Staff 1962: 284). The former reflects cut and fill episodes while the latter reflects microenvironmental situations resulting from the local topography.

Because of the apparent complexity at this site, three stratigraphic descriptions are provided. These represent examples from the linear mound, the lower slopes, and the south mound (Figure 6.3). The backhoe trenches revealed that other soil variations reflect facies changes of the same stratum. The color descriptions are based on moist field conditions. Both dry and moist colors are provided in those instances where moist colors are similar in adjacent strata.

LINEAR MOUND STRATA (N29-W15)

The squares on the crest of the linear mound which show a similar stratigraphic sequence include N18-W10, N25-W13, N28-W15, N28-W16, N29-W15, N29-W16, N30-W19, N30-W20, and N35-W29. These squares are all well drained and only a slight to moderate amount of bioturbation was noted. Consequently, preservation was generally better in these units than at the rest of the site. Three stratigraphic units were recognized (Figure 6.5a).

Stratum I

This unit is confined to the upper 17 cm of the solum. It is a relatively loose, brown (10YR 4/3 dry) or black (10YR 2/1 moist) loam with occasional pieces of sandstone cobbles (manuports), roots, lithic artifacts, debitage, burned bone, baked clay nodules, and charcoal flecks. The boundary between Strata I and II is abrupt and smooth. This unit is interpreted as the plowzone (Ap horizon).

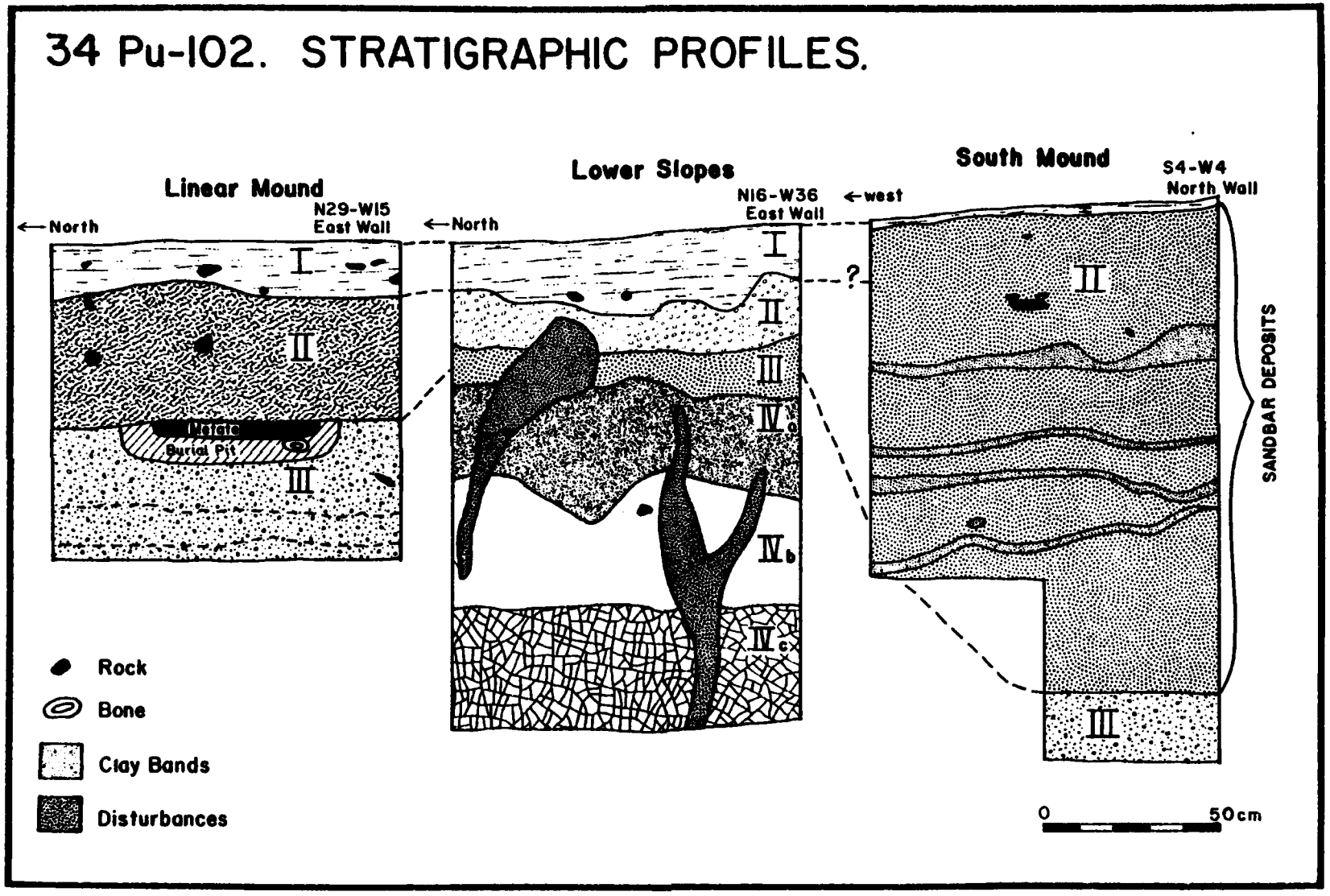


Figure 6.3. Stratigraphic profiles from the Wheeler Lee site (34Pu-102): Phase II.

Stratum II

This unit extends from 17 cm to 52 cm in depth and is a compact dark yellowish brown (10YR 4/4 dry) or black (10YR 2/1 moist) silty clay with occasional pieces of sandstone (manuports), abundant pieces of burned bone, clay nodules, charred nuts, chipped stone artifacts, and debitage. The transition between Strata II and III is abrupt and smooth. The break probably represents an erosional unconformity since it appears to truncate a burial pit (F79-5). Stratum II is interpreted as a relatively undisturbed cultural layer (A horizon).

Stratum III

This stratum extends from 52 cm to depths greater than 90 cm. It is characterized by a dark brown (10YR 3/3 moist) very compact silt with moderate structure and pedogenic development. A fine light gray silt flour has washed between the ped boundaries and differentially settled into discontinuous layers. In plan view, this stratum appears to have angular peds with gray silt in thin cracks, but in profile the gray silt layers appear as multiple concentrated bands. This stratum characteristically lacks the burned clay, burned bone, and sandstone cobbles noted in the previous two strata. Small quantities of flakes and tools occur in the upper 30 cm of this zone, but many of them may be derived from bioturbation and pedoturbation. This zone is interpreted as an old B horizon.

LOWER SLOPE AREA (N16-W36)

The lower slope area includes N17-W36, N16-W36, N15-W28, N10-W30, and N5-W31. The stratigraphy reflects color, texture, and mineral precipitates characteristic of water saturated soils. All squares had extensive bioturbation with up to 25 active and inactive crayfish burrows within a single meter square and whose depths exceeded the limits of the excavations (1.4 m).

In general, cultural materials were not as plentiful as in the linear mound units but they occurred at greater depths. The density of materials fluctuated from one level to the next within each lower slope unit. The depth of cultural materials and fluctuating artifact density differences are thought to reflect colluviation and extensive bioturbation.

Four stratigraphic units were recognized with the lowest unit containing three minor subdivisions.

Stratum I

This unit is restricted to the upper 17 cm. It is characterized by an unmottled very dark gray brown (10YR 3/2 moist) compact loam with fine rootlets, pores, occasional manuport cobbles, charcoal flecks, chipped stone artifacts, and debitage. The transition between Strata I and II is smooth and abrupt. This stratum is interpreted as the plowzone (Ap horizon).

Stratum II

Stratum II extends from 17 cm to 32 cm in depth and is characterized by a very dark gray (10YR 3/1 moist) compact loam mottled with spots of Stratum I material. It contains a few rootlets, charcoal flecks, lithic tools and debitage, and occasional fire cracked sandstone cobbles. The transition from Strata II to III is a smooth clear boundary. This zone is thought to represent the A horizon.

Stratum III

Stratum III ranges from 32 cm to 47 cm. It is a pale brown (10YR 6/3 dry) or dark grayish brown (10YR 4/2 moist) loam mottled with fine distinct areas of Strata II and IVa materials. It contains occasional rootlets, flecks of charcoal, and small quantities of lithic debitage. The transition between Strata III and IV is smooth and clear. This unit is thought to be an E horizon.

Stratum IVa

This unit is from 47 cm to 77 cm below the surface and is characterized by a grayish brown (10YR 5/2 dry) or dark grayish brown (10YR 4/2 moist) loam mottled with occasional fine granular hematite particles. Only major rootlets are present. Cultural debris and sandstone manuports occur but are confined mainly to krotovina. The boundary between this unit and the next substratum is smooth and clear. Stratum IVa is thought to be a B horizon lightly mottled with hematite particles.

Stratum IVb

This stratum extends from 77 cm to 107 cm and is characterized by a brown (10YR 4/3 moist) compact loam heavily mottled with fine granular hematite particles. This unit has moderate structure with heavy silt flour between ped surfaces. The boundary between this unit and the next is smooth and clear. This unit resembles the previous one but the color differences reflect an increase in the amount of small hematite particles.

Stratum IVc

This unit extends from 107 cm to depths greater than 140 cm. It is characterized by a dark yellowish brown (10YR 4/4 moist) clay loam with moderate structure and is heavily mottled with large hematite particles.

SOUTH MOUND STRATA (S11-W4)

The stratigraphy of the low mound south of the linear mound was unique and encountered only in S11-W4 and S17-E6 and may be attributed to a different depositional history. The south mound is thought to be a sand bar associated with an old meander scar which predates the cultural occupations. Three stratigraphic zones were noted. Soil horizons are not provided for these strata because of the uniform texture and color of the sandy matrix.

Stratum I

This unit is confined to the upper 3 cm and is characterized by a loose brown (10YR 4/3 dry) or dark brown (10YR 3/3 moist) sandy silt loam with many rootlets, occasional charcoal flecks, and lithic tools and debitage. The darker soil is attributed to recent decomposition of organic materials which readily leach through the sandy matrix. The boundary between Strata I and II is smooth and clear.

Stratum II

This stratum is composed of yellowish brown (10YR 5/4 dry) or dark brown (10YR 3/3 moist) fine sand that extends from 3 cm to 140 cm. The upper 50 cm contains occasional sandstone cobbles (manuports) and most of the lithic tools and debris. Below this, the unit contains at least five noncontinuous dark brown (10YR 3/3 moist) clay bands. These bands are attributed to the deposition of clays associated with periodic flooding. The whole unit has few rootlets, only occasional charcoal flecks, and lacks the baked clay and burned bone noted in the linear mound area. The transition from Stratum II to III is abrupt and smooth and may represent an unconformity.

Stratum III

This stratum extends from 140 cm to at least 160 cm below ground surface. It is characterized by a dark yellowish brown (10YR 4/4) compact fine sandy silt mottled with white silt flour between subangular

blocky peds. It contains no rootlets, charcoal, or cultural debris. In general, it correlates with Stratum III along the linear mound. It is interpreted as a buried B horizon which preceded the sand bar deposition.

TRANSITIONAL AREAS

The strata for N3-W2, N4-W11, N12-W17, N39-W18, and N37-W5 contain Ap, A, and B horizons. Color and soil characteristics of these strata were intermediate facies differences between the linear mound and lower slope areas.

FEATURES

Features found during the 1979 excavations were limited to rock concentrations and a burial. Soil, rock, and flotation samples were collected from feature areas. Artifacts associated with each feature are provided in Table 6.1.

Rock Concentrations

Because of the geological and topographical context of the mounds, most rocks at 34Pu-102 are believed to be manuports. Although occasional rocks were found in most levels, feature numbers were only assigned to discrete rock clusters or dense rock concentrations. Previous testing of rock concentrations at other sites in the Jackfork Valley revealed that many are extensive (Bobalik 1977; Vehik and Galm 1979). As a result, emphasis in 1979 was directed at sampling rather than totally exposing rock features at the site.

Feature 79-1 (Figure 6.4)

This feature consists of a dense rock concentration found within the upper 25 cm of N12-W17. The areal extent was not determined, but rocks continued into adjacent squares. The rocks consist of rounded to subangular shaped nodules of sandstone, shale, and chert which range from 5 cm to 10 cm in diameter. Some have fissures and a few were oxidized. Since these rocks occur within the plowzone, they may not be in their original context. However, the dense concentration of burned cobbles may represent remnants of a hearth or oven.

Feature 79-2 (Figure 6.4)

This feature was noted in N10-W30 at a depth of 52-64 cm. Stratigraphically it occurs at the transition of Strata IVa and IVb of the lower slope sequence. This feature is characterized solely by angular sandstone

Table 6.1. Artifacts associated with features at the Wheeler Lee site (34Pu-102): Phase II.

Artifact Variety	79-1	79-2	79-3	79-4	79-5	79-6	Total
01-01-01A	-	-	-	1	3	-	4
01-10-01A	-	1	-	2	-	-	3
01-10-02A	2	-	-	-	-	-	2
01-10-03A	-	-	3	-	-	-	3
01-10-04A	-	-	-	1	-	-	1
01-10-05A	-	-	-	1	1	-	2
01-12-01A	4	-	1	4	1	-	10
01-13-01B	1	-	8	5	-	-	14
01-13-01C	2	-	1	-	1	-	4
01-14-01A	1	-	-	-	-	-	1
01-15-02A	1	-	-	-	-	-	1
01-16-01A	1527	49	765	472	2	2	-
03-01-01A	1	-	1	1	-	-	3
03-02-01A	-	-	2	-	1	-	3
04-02-01A	1	-	-	1	-	-	2
07-01-01A	1	-	-	-	-	-	1
07-03-01A	1	-	-	-	-	-	1
Total tools excluding debitage	15	1	16	16	7	0	55

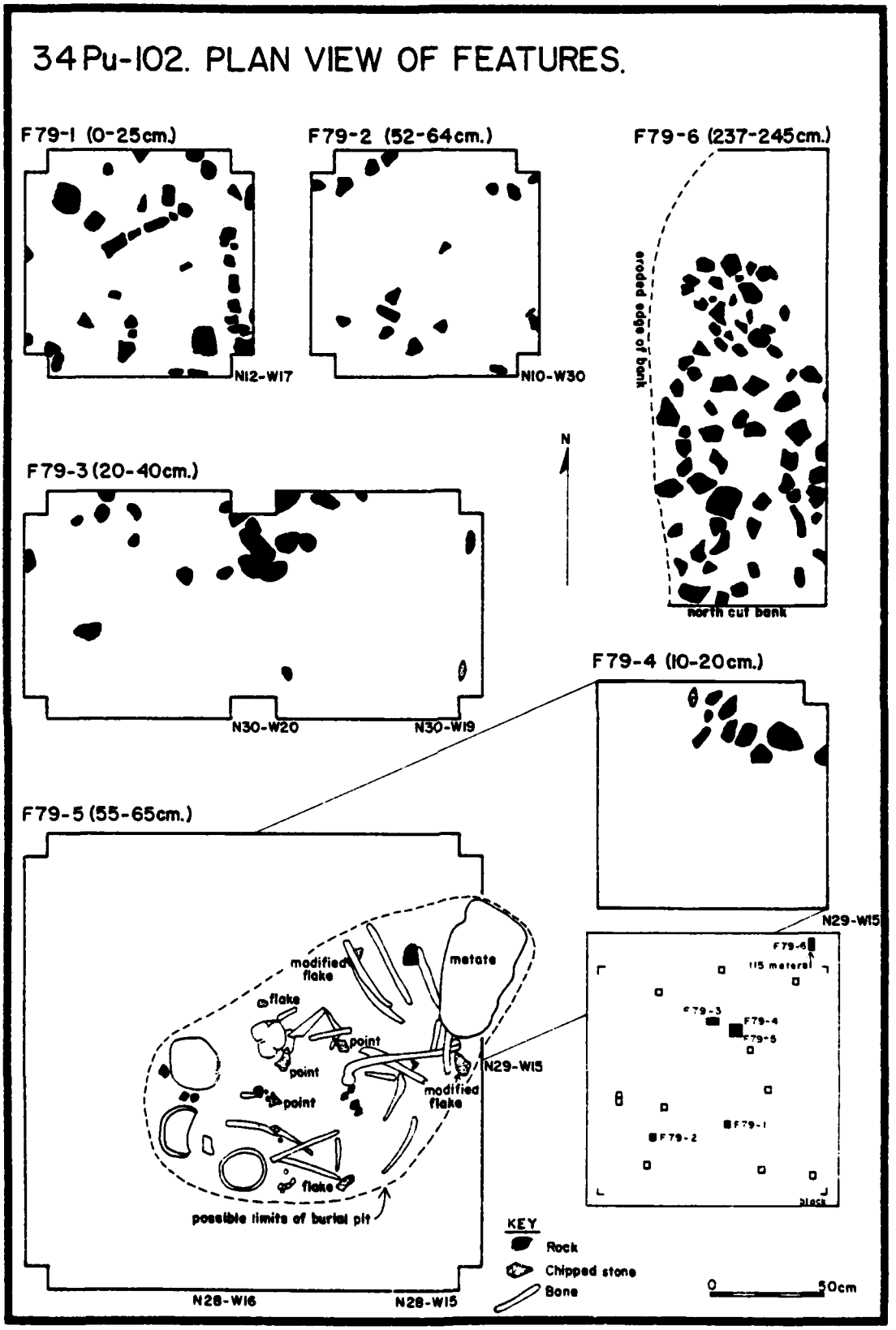


Figure 6.4. Plan view of features at the Wheeler Lee site (34Pu-102): Phase II.

cobbles that range from 3-8 cm in diameter. Some specimens have red or black surfaces indicative of thermal alteration. The extent of the feature was undetermined since the rocks extended into adjacent squares. The burning suggests that this may be the remnant of a hearth or oven. Their original context is uncertain since colluviation may have shifted rocks on the lower slope.

Feature 79-3 (Figure 6.4)

This feature was exposed in N30-W19 and N30-W20 at a depth of 20-40 cm. The upper portion of the feature is within the plowzone, but most of it occurs in relatively undisturbed deposits. A few rocks are broken but most are large rounded to subangular sandstone nodules. They are clustered within an 80 cm diameter area in the north central portion of the squares. None of the rocks appear to be thermally altered.

Feature 79-4 (Figure 6.4)

This feature number was assigned to a cluster of rocks partially exposed in the northeast corner of N29-W15 at a depth of 8-20 cm. Most of the feature is within the plowzone and may have experienced some displacement resulting in a fortuitous clustering of rocks. They are primarily large rounded and subangular sandstone nodules. A few are broken and have thermally altered surfaces.

Feature 79-6 (Figure 6.4)

This feature is a dense concentration of rocks partially exposed at a depth of 227-235 cm below surface in the cut bank of Jackfork Creek. The rocks are well sorted (5-12 cm in diameter) and are angular and subangular pieces of sandstone. Most have been thermally altered and are directly associated with abundant charred and decomposing wood. Other rocks and charcoal were visible along an 8-10 m section of the bank at the same level. Backhoe trench C cut perpendicular to the bank indicated that the rocks did not extend into the bank. A 26.8 g sample of wood charcoal from the feature yielded a date of 2242 ±90 B.C. (Tx-3714). Associated cultural materials were limited to two flakes.

This feature is interpreted as the deposition and subsequent burning of rocks and driftwood deposited by a flood. It is not believed to have cultural significance. Geomorphologically it may relate to the deposition of the clay-loam substratum preceding the occupation of the site.

Burials

Feature 79-5 (Figures 6.4 and 6.5b)

A single burial containing three or four individuals was encountered along the mound crest during the excavation of waterscreen squares (N28-W15, N28-W16, N29-W15, and N29-W16).

Despite using 5 cm levels, no burial pit was detected prior to encountering the cranium of Individual 1 at a depth of 55 cm. A burial pit is suspected since the bones were compactly arranged in their approximate anatomical position with accompanying grave goods in an area measuring 1.65 m (NE-SW) by 1.05 m (NW-SE). Examination of the east wall profile of N29-W15 revealed a subtle soil break indicative of a pit starting at the contact between Strata II and III (55 cm below surface) and extending to a depth of 67 cm.

The bones were poorly preserved. Many were little more than texture and slight color differences in the soil. Consequently few bones could be identified and despite preservation efforts, none were removed in good condition. Paleopathologies and individual sex and age could not be determined, but the cranial and femur sizes suggest that the individuals were subadult to adult.

The crania were oriented west of the long bones. No ribs, vertebrae, or pelves were recognized during excavation. Thus, this is either a secondary burial of crania and long bones in their approximate anatomical position or a primary burial of at least three flexed individuals whose bones have undergone differential preservation.

Artifacts associated with the burial include a grinding slab *(03-02-01A)* overlying the knee area at the east edge of the burial, three large flakes *(01-13-00* and *01-16-00)* near the edges of the bone mass by the leg area, and three large contracting stemmed points *(01-01-01A)* at the center of the body area. Several small unmodified rocks were located near the head and pelvic areas. In addition, a minute green speck of either paint or copper was noted near the legs, but was lost prior to analysis. It is uncertain whether the flakes, points, and rocks represent intentional grave goods or incidental inclusions. Although the points were haphazardly arranged within the body area, none were embedded in bone.

RADIOCARBON DATES

Three charcoal samples were submitted for radiocarbon dating. The results are provided below. In addition, the dates have been corrected following Ralph, Michael and Han (1973) and Damon, Ferguson, Long and Wallick (1974) using the formula provided by Rippeteau (1974: 36). However, this report will refer to the uncorrected calendrical dates based on 5730 half life.

A

B

Figure 6.5. A: Linear mound stratigraphy at the Wheeler Lee site (34Pu-102); B: Burials in the linear mound area.

Tx-3712 (Sample Number Pu-102-1):

Half Life 5568 = 3140 ±60 B.P.
Half Life 5730 = 3234 ±60 B.P.
Calendar Date = 1110 ±60 B.C. (Uncorrected 5568)
Calendar Date = 1284 ±60 B.C. (Uncorrected 5730)
Corrected Date = 1500 ±70 B.C. (Ralph, Michael and Han 1973)
Corrected Date = 1474 ±81 B.C. (Damon, Ferguson, Long and Wallick 1974)
Provenience = Waterscreen squares N28-W15, N28-W16, N29-W15, N29-W16; level 8 (35-40 cm).
Material = 19.1 g of wood charcoal recovered as flecks in waterscreen.
Comments = This sample provides a general date for Stratum II and presumably dates the upper portion of the Archaic component. Since the burial pit orifice can be traced to the Strata II-III boundary, this sample postdates the burial.

Tx-3713 (Sample Number Pu-102-2):

Half Life 5568 = 3570 ±70 B.P.
Half Life 5730 = 3677 ±70 B.P.
Calendar Date = 1620 ±70 B.C. (Uncorrected 5568)
Calendar Date = 1727 ±70 B.C. (Uncorrected 5730)
Corrected Date = 2080 ±80 B.C. (Ralph, Michael and Han 1973)
Corrected Date = 2037 ±148 B.C. (Damon, Ferguson, Long and Wallick 1974)
Provenience = Waterscreen squares N28-W15, N28-W16, N29-W15, N29-W16; levels 12-18 (55 cm to 90 cm).
Material = 6.0 g of charred wood and 1.5 g of charred nutshell.
Comments = This sample provides a date for Stratum III and is stratigraphically consistent with the previous date. Care was taken not to include burial fill matrix in the sample. This sample predates the burial feature.

Tx-3714 (Sample Number Pu-102-3):

Half Life 5568 = 4070 ±90 B.P.
Half Life 5730 = 4192 ±90 B.P.
Calendar Date = 2120 ±90 B.C. (Uncorrected 5568)
Calendar Date = 2242 ±90 B.C. (Uncorrected 5730)
Corrected Date = 2690-2820 ±100 B.C. (Ralph, Michael and Han 1973)
Corrected Date = 2687 ±136 (Damon, Ferguson, Long and Wallick 1974)
Provenience = Feature 79-6, located 227-235 cm below surface in the cut bank profile of Jackfork Creek.
Material = 26.8 g of wood submitted, but after pretreatment, sample size was only 0.16 g (Sam Valastro, personal communications).
Comments = The geomorphology suggests that this charcoal may be a residue of a burned brush pile following a flooding episode of Jackfork Creek. The date may not have cultural significance for the site, but provides an estimate of one flooding episode which may predate soil deposition on the site.

CULTURAL REMAINS

This section describes 19,776 artifacts, 26.3 g baked clay, 69.6 g floral and 26.8 g faunal materials excavated in 1979. The artifacts include 266 bifacially chipped stone tools and reduction stage items, 210 modified flakes, 19,204 lithic debitage, 38 ground stone and 24 pecked stone tools, 1 modified bone, and 33 historical items. The organization of cultural remains follows the classification system previously outlined. Specific class, group, category, and variety designations applicable to materials from 34Pu-102 are listed in Table 6.2. Metric attributes of selected chipped and ground stone tools are summarized in Tables 6.3 and 6.4. The nomenclature of point morphology follows Bell (1958: 1).

Chipped Stone *(01)*

POINTS (01-00)

Large Contracting Stemmed Points *(01-01-01)*

01-01-01A N=31: 16 Complete, 15 Fragmentary (Figure 6.6a-d)

Specimens in this variety have broad or narrow blades with convex, straight or concave edges. They have weak to strongly developed shoulders, contracting stems, and rounded bases. The shoulders are the widest part of the specimen. Cross sections are biconvex. One specimen has serrated blade edges. Eleven have asymmetrical blade edges or shoulders. One specimen has a blunt tip.

Comments: Variations in shoulder and blade sizes, shape and symmetry as well as differences in serrations are attributed to differential amounts of resharpening and use. These specimens resemble the *Gary* type.

References: Bell 1958: 28, Pl. 14; Suhm and Jelks 1962: 197, Pl. 99.

Large Expanding Stemmed/Corner-Notched Points *(01-01-02)*

01-01-02A N=1: 1 Complete (Figure 6.6e)

This specimen has a large triangular blade with an acute tip, straight edges, pronounced but unbarbed shoulders, a broad slightly expanding stem, prominent tangs, and a straight base. The shoulders are the widest part of the specimen. The cross section is biconvex.

Comments: It resembles the *Lange* type.

References: Bell 1958: 36, Pl. 18; Suhm and Jelks 1962: 203, Pl. 102.

01-01-02G N=1: 1 Complete (Figure 6.6f)

This specimen has a thick broad triangular blade, an acute tip, sharply defined shoulders which are weakly barbed, broad but deep corner notches, a slightly expanding stem, sharply defined tangs, and a straight base. The widest part of the specimen is the barbs. The cross section is biconvex.

Comments: This specimen resembles the *Summerfield* type.

References: Galm and Flynn 1978: 167, 229, Pls. 36 h-i, 47 h-j.

Table 6.2. Summary of artifact categories and varieties from the Wheeler Lee site (34Pu-102): Phase II.

Chipped Stone *(01)*

POINTS (01-00)
- Large Contracting Stemmed Points *(01-01)*
  - *01-01A*
- Large Expanding Stemmed/Corner-Notched Points *(01-02)*
  - *01-02A*
  - *01-02G*
  - *01-02H*
  - *01-02K*
  - *01-02X*
- Large Straight Stemmed Points *(01-04)*
  - *01-04D*
  - *01-04F*
- Large Unstemmed Points *(01-05)*
  - *01-05B*
  - *01-05C*
  - *01-05D*
- Small Expanding Stemmed/Corner-Notched Points *(01-06)*
  - *01-06A*

SCRAPERS (05-00)
- *05-02A*

DOUBLE BITTED AXES (06-00)
- *06-01A*

BIFACES (10-00)
- Cobble/Quarried Block Biface I *(10-01)*
  - *10-01A*
- Cobble/Block Biface II/Thick Biface *(10-02)*
  - *10-02A*
- Thin Biface I *(10-03)*
  - *10-03A*
- Thin Biface IIa *(10-04)*
  - *10-04A*
- Thin Biface IIb *(10-05)*
  - *10-05A*

MISCELLANEOUS BIFACE IMPLEMENTS (01-11-00)
- Cobble/Quarried Block Biface I Tool *(11-01)*
  - *11-01A*
- Cobble/Block Biface II/Thick Biface I Tool *(11-02)*
  - *11-02A*
- Thin Biface I Tool *(11-03)*
  - *11-03A*
- Cobble/Block Biface III Tool *(11-06)*
  - *11-06A*

Table 6.2. Continued

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)
12-01A

MODIFIED FLAKES (13-00)
13-01A
13-01B
13-01C

CORES (14-00)
14-01A

SPLIT/TESTED COBBLES (15-00)
Split Cobbles *(15-01)*
15-01A
Tested Cobbles *(15-02)*
15-02A

DEBITAGE (16-00)
16-01A

Fired Clay *(02)*

BAKED CLAY (03-00)
03-01A

Ground Stone *(03)*

MANOS (01-00)
01-01A
01-02A

METATES/GRINDING SLABS (02-00)
02-01A

GROUND HEMATITE (04-00)
04-01A
04-02A

GORGETS (05-00)
05-01A

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)
Mano Blanks *(06-02)*
06-02A
Smooth Stones - Scratched Surfaces *(06-05)*
06-05A
Smooth Stones - Shaped *(06-06)*
06-06A

Table 6.2. Continued

Pecked/Battered/Unmodified Cobbles *(04)*

HAMMERSTONES (01-00)
01-01A

PITTED STONES (02-00)
02-01A
02-02A

MISCELLANEOUS PECKED/BATTERED STONE (03-00)
03-01A

UNMODIFIED COBBLES/PEBBLES (04-00)
Hematite *(04-01)*
04-01A
Concretions *(04-03)*
04-03A

Historic Debris *(07)*

GLASS (01-00)
01-01A
01-01C
01-01D

CROCKERY/CERAMICS (02-00)
Crockery *(02-01)*
02-01B
Ironstone/Porcelain *(02-02)*
02-02B
Figurines *(02-03)*
02-03A

METAL (03-00)
Nails *(03-01)*
03-01A
Miscellaneous Pieces *(03-09)*
03-09A

Faunal *(08)*

BONE/HORN/TEETH (01-00)
01-01A

Floral *(09)*

01-01-02H N=1: 1 Complete (Figure 6.6g)

This specimen has a very acute tip, triangular blade, straight blade edges, long barbs, narrow but deep corner notches, a strongly expanding stem, well-defined tangs, and a straight base. The barbed shoulders are the widest portion of the point. The cross section is biconvex.

Comments: This specimen resembles the *Marcos* type.

References: Bell 1958: 42, Pl. 21; Suhm and Jelks 1962: 209, Pl. 105.

01-01-02K N=1: 1 Fragmentary (Figure 6.6h)

This specimen has a broad triangular blade, straight edges, short square barbs, moderately expanding stem, well-defined tangs, and a recurved base. The barbed shoulders are the widest portion of this specimen. The cross section is biconvex.

Comments: This specimen resembles the *Martindale* type.

References: Bell 1960: 70, Pl. 35; Suhm and Jelks 1962: 213, Pl. 107.

01-01-02X N=1: 1 Complete (Figure 6.6i)

This specimen has a relatively blunt tip, short broad triangular blade with convex edges, prominent rounded barbs, deep but narrow corner notches, a short, broad expanding stem, strong tangs, and a straight base. The widest part of the specimen occurs at the proximal blade edges. The cross section is biconvex.

Comments: Superficially this specimen resembles the *Grand* type, but has blunt tangs, a slightly narrow stem relative to length, and lacks the basal thinning defined for the type.

References: Perino 1971: 42, Pl. 21.

Large Straight Stemmed Points *(01-01-04)*

01-01-04D N=1: 1 Complete (Figure 6.6k)

This specimen has a very acute tip, long and narrow triangular blade, straight edges, prominent square shoulders, a long narrow parallel stem, prominent tangs, and a straight base. The widest part of the specimen is at the shoulders. Cross section is biconvex.

Comments: This specimen resembles the *Bulverde* type.

References: Bell 1960: 12, Pl. 6; Suhm and Jelks 1962: 169, Pl. 85.

Figure 6.6. Selected chipped stone artifacts from the Wheeler Lee site (34PU-102): Phase II.

a-d: *01-01-01A*

e: *01-01-02A*

f: *01-01-02G*

g: *01-01-02H*

h: *01-01-02K*

i: *01-01-02X*

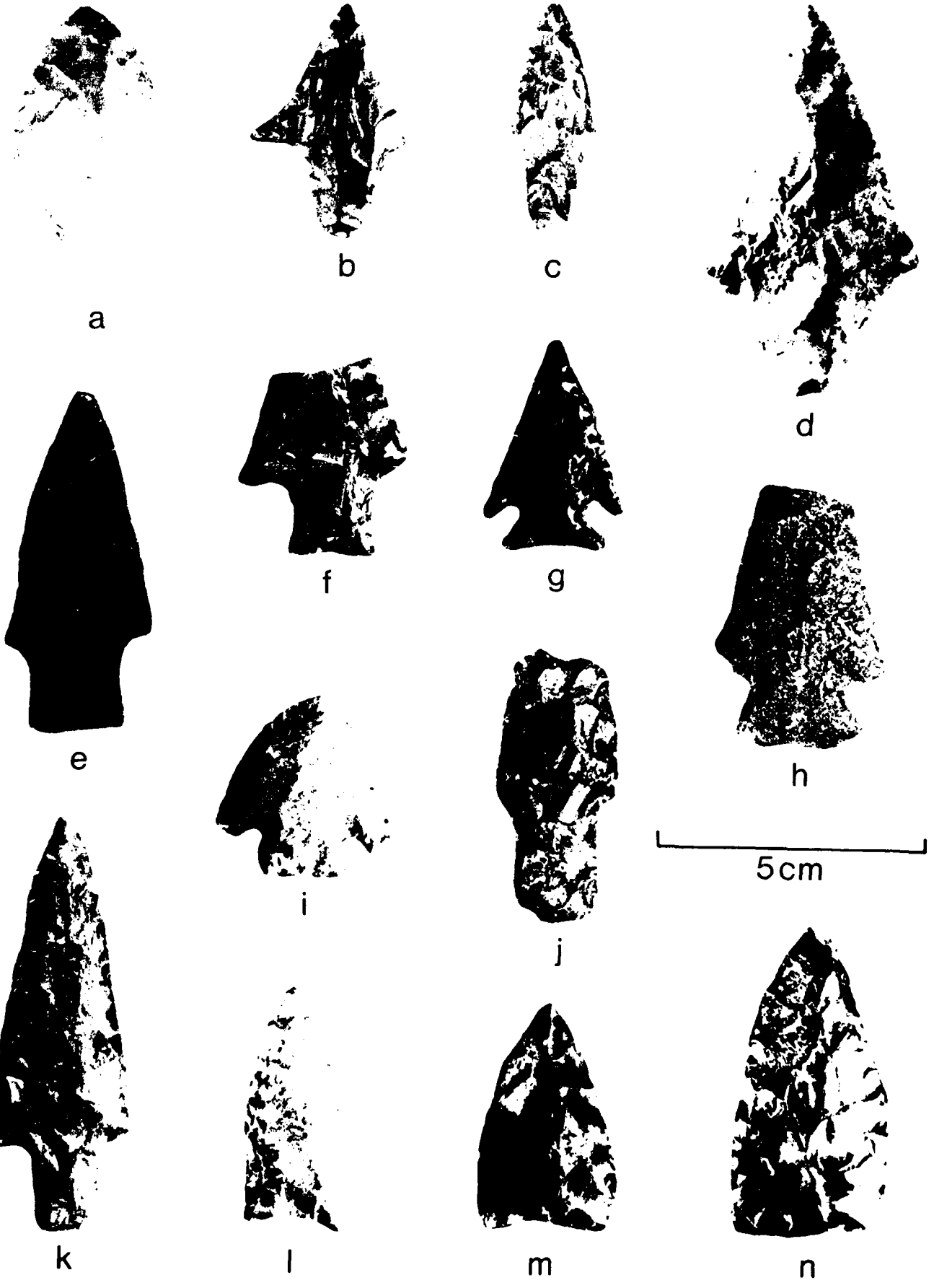
j: *01-01-04F*

k: *01-01-04D*

l: *01-01-05B*

m: *01-01-05C*

n: *01-01-05D*


a
b
c
d
e
f
g
h
i
j
5cm
k
l
m
n

01-01-04F N=1: 1 Fragmentary (Figure 6.6j)

This specimen has a long triangular blade with straight edges, small shoulders, a long parallel stem, rounded tangs, and a convex base. Both faces have been extensively heat spalled. The widest part of the specimen occurs at the shoulders. The cross section is biconvex.

Large Unstemmed Points *(01-01-05)*

01-01-05B N=1: 1 Complete (Figure 6.6l)

This specimen has a relatively broad lanceolate blade, slightly convex edges, parallel-sided ground stem, prominent tangs, and a concave base. The blade is collaterally flaked and has three basal flutes on each face which extend approximately half the length of the point. The widest part occurs near the middle of the blade edge. It has a biconvex cross section.

Comments: This specimen resembles the *Plainview* type.

References: Bell 1958: 74, Pl. 37; Suhm and Jelks 1962: 239, Pl. 120.

01-01-05C N=1: 1 Complete (Figure 6.6m)

This specimen has a broad triangular blade with convex edges, an acute tip, prominent tangs, and a concave base. Minute alteration occurs on all edges. The widest portion is along the proximal lateral blade edges. The cross section is biconvex.

01-01-05D N=1: 1 Complete (Figure 6.6n)

This item has a broad triangular blade with an acute tip, convex edges, prominent tangs, and a slightly concave base. The proximal blade edges are the widest part of the specimen. Neither the base nor the proximal blade edges are ground. The specimen has a plano-convex cross section. All edges display minute alteration.

Comments: This specimen resembles the *Tortugas* type.

References: Bell 1958: 92, Pl. 46; Suhm and Jelks 1962: 249, Pl. 125.

Small Expanding Stemmed/Corner-Notched Points *(01-01-06)*

01-01-06A N=7: 1 Complete, 6 Fragmentary (Figure 6.7a-c)

These specimens have broad triangular blades with acute tips, straight to convex edges, prominent to moderately barbed shoulders, deep corner notches, moderately expanding stems, and prominent tangs. The bases are predominately straight (6) but can be slightly concave (1). One specimen has a serrated

blade. The shoulders are the widest part of the point. Cross sections are biconvex (6) or plano-convex (1). All specimens appear to be made from flakes.

Comments: These specimens resemble the *Scallorn* type.

References: Bell 1960: 84, Pl. 42; Suhm and Jelks 1962: 285, Pl. 143.

SCRAPERS (05-00)

01-05-02A N=2: 1 Complete, 1 Fragmentary (Figure 6.7d)

These specimens are thick, triangular flakes which display intensive unifacial retouch and step fractures on the distal, dorsal edge. The complete specimen has unifacial step fractures and slight notching on each side of the proximal end.

DOUBLE BITTED AXES (06-00)

01-06-01A N=1: 1 Fragmentary (Figure 6.7e)

This is a double bitted ax fragment which has been split longitudinally. The remaining portion consists of one notch and bit end. The notch has been slightly ground and the bit end has numerous small hinge scars and is dulled by battering.

BIFACES (10-00)

Cobble/Quarried Block Biface I *(01-10-01)*

01-10-01A N=19: 19 Complete (Figure 6.7f)

Specimens in this variety consist of pebbles, cobbles, or large flakes which have some indications of bifacial reduction. Their outlines largely reflect the morphology of the original cobble. Characteristically, they have thick irregular cross sections, very sinuous edges, large flake scars, and cortex covering more than half of one face.

Cobble/Block Biface II/Thick Biface *(01-10-02)*

01-10-02A N=49: 21 Complete, 28 Fragmentary (Figure 6.7g)

These specimens are thick cobbles which have been bifacially flaked. Their shapes reflect either the original cobble form or show initial indications of shaping. They have thick irregular cross sections, sinuous edges, and large flake scars. Cortex may be present, but the amount is thought to relate to the original cobble size.

Thin Biface I *(01-10-03)*

01-10-03A N=39: 8 Complete, 31 Fragmentary (Figure 6.7h)

These artifacts appear to be uniformly thinned and exhibit little or no cortex. They have slightly sinuous edges and show some concern for shaping. Most are ovate or triangular in form. None have evidence of hafting. Flake scars are predominately small.

Thin Biface IIa *(01-10-04)*

01-10-04A N=8: 2 Complete, 6 Fragmentary (Figure 6.7i)

These specimens have uniformly thin cross sections and regular edges. They have been intentionally shaped into simple geometric forms and they lack hafting elements. Flake scars are generally small and there is n. evidence of edge alteration.

Thin Biface IIb *(01-10-05)*

01-10-05A N=8: 3 Complete, 5 Fragmentary (Figure 6.7j)

These specimens are similar to the preceding category, but also have evidence of a haft element. They have uniformly thin cross sections, regular edges, and are shaped into complex geometric forms. Flake scars are small and no edge alteration is evident. The haft elements are often asymmetrical or only one notch is present.

BIFACE IMPLEMENTS (11-00)

Cobble/Quarried Block Biface I Tool *(01-11-01)*

01-11-01A N=1: 1 Complete

This specimen is a blocky chert nodule with a thick irregular cross section, large flake scars, and cortex on all surfaces. It has a sinuous edge along one side. Minute edge alteration occurs in the form of small step and hinge fractures along a steep angled edge adjacent to a cortex covered surface.

Cobble/Block Biface II/Thick Biface I Tool *(01-11-02)*

01-11-02A N=1: 1 Complete

This specimen has a thick irregular cross section with very sinuous edges and large flake scars. Cortex is present on both faces. The shape of the specimen largely reflects the original cobble morphology. A series of continuous minute edge alteration flake scars along a 28 mm edge of the specimen indicates that it may have been a tool.

Thin Biface I Tool *(01-11-03)*

01-11-03A N=1: 1 Complete (Figure 6.7k)

This specimen is a D-shaped narrow biface which has a uniformly thin cross section, slightly sinuous edges, and both large and small flake scars. The cross section is biconvex. Indications of possible use are represented by minute edge alteration and slight crushing or projections along a straight lateral edge.

Cobble/Block Biface III Tool *(01-11-06)*

01-11-06A N=1: 1 Fragmentary (Figure 6.8a)

This specimen is a large elongated oval siltstone biface which has slightly sinuous edges, large flake scars, and cortex on one face. Extensive grinding is present on one lateral edge and on the flake scar crests on one face. The cross section is thick and irregular.

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)

01-12-01A N=67: 67 Fragmentary

Specimens in this variety represent fragments of tools *(01-01-00)* or late stages in the reduction sequence *(01-10-03, 01-10-04,* and *01-10-05)*. They are too fragmentary to be assigned to any of the preceding categories. These specimens include 27 distal sections, 16 medial sections, 12 lateral sections, and 22 basal sections. One tip has an alternately beveled blade and a second is possibly from a small point. Base segments are represented by 17 contracting stem forms and five parallel or expanding stem forms.

MODIFIED FLAKES (13-00)

01-13-01A N=6

These specimens display minute edge alteration along the tip (1) or margins (5) of a projection. The projection on two specimens has been artificially enhanced. The modification consists of short flake scars and crushing which occurs at regular and irregular intervals.

01-13-01B N=180

This variety of flakes displays minimal shaping or unifacial edge modification along one or more lateral or distal edges. Modified edges are relatively straight (50%), slightly concave (20%), slightly convex (25%), and multiple combinations (15%). Modification occurs as minute flake scars, or crushing at regular (93%) and irregular (7%) intervals along the edges. One specimen exhibits nonparallel striations on a

Figure 6.7. Selected chipped stone artifacts from the Wheeler Lee site (34Pu-100): Phase II.

a-c: *01-01-06A*

d: *01-05-02A*

e: *01-06-01A*

f: *01-10-01A*

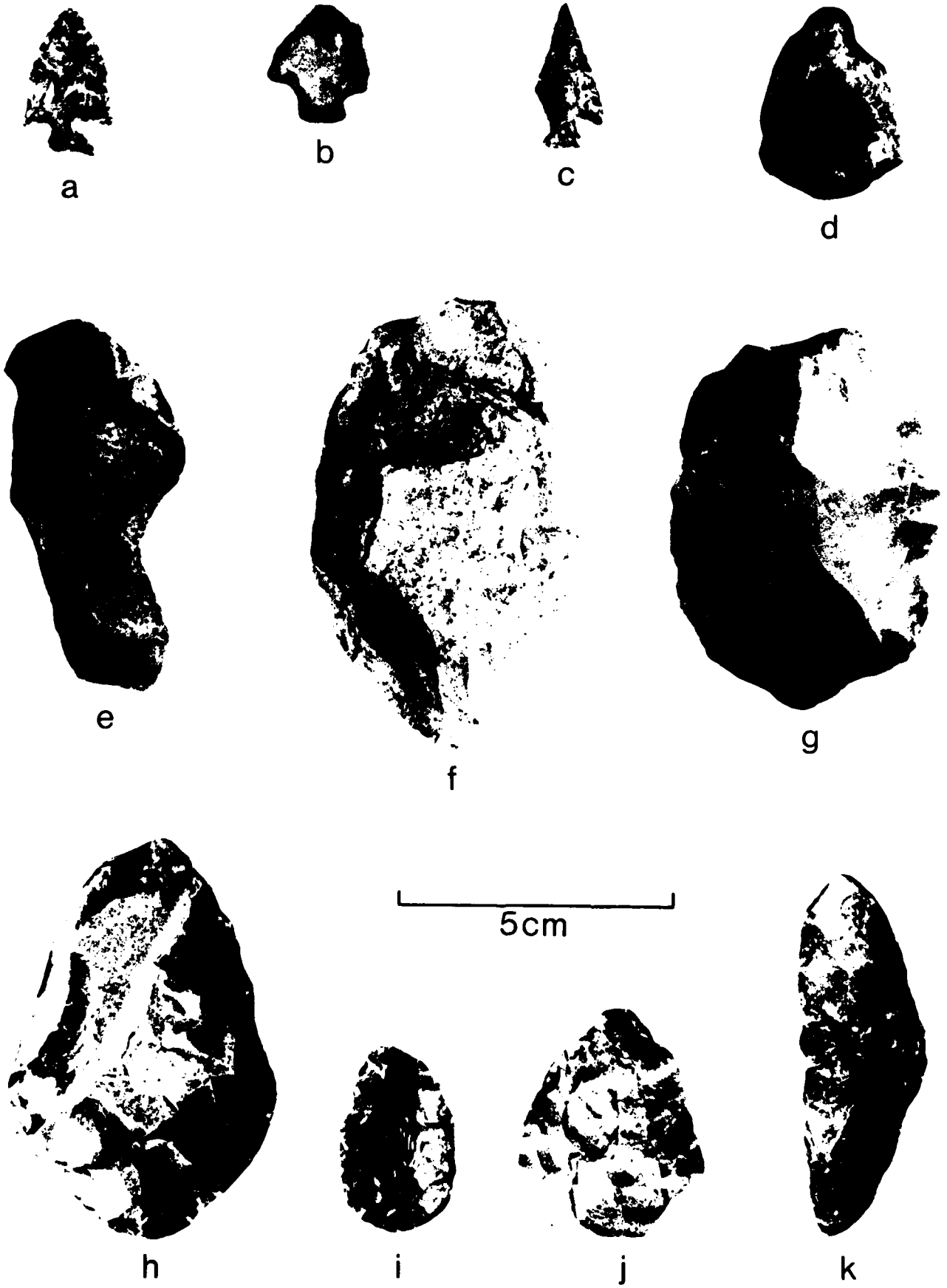
g: *01-10-02A*

h: *01-10-03A*

i: *01-10-04A*

j: *01-10-05A*

k: *01-11-03A*


a
b
c
d
e
f
g
5cm
h
i
j
k

cortical area of one face in addition to unifacial straight lateral edge modification. The striations do not extend to the flake edge, and may not relate to the edge modification.

01-13-01C N=24

These specimens are thought to be denticulates and are characterized by a series of three to nine projections spaced evenly along a lateral or distal edge. The projections are created by unifacial knapping. Tips of five specimens are rounded, battered, and crushed.

CORES (14-00)

01-14-01A N=5: 5 Complete (Figure 6.8b)

Items in this variety are thick blocky cobbles which have had multiple large flakes removed from a single striking platform. The striking platform on four specimens is cortex covered. The edge of most specimens is isomorphic with the striking platform edge. Flake scars on one specimen display double bulbs which may be from bipolar flaking.

SPLIT/TESTED COBBLES (15-00)

Split Cobbles *(01-15-01)*

01-15-01A N=4: 3 Complete, 1 Fragmentary (Figure 6.8c)

Artifacts in this variety are chert and quartzite cobbles which have been split longitudinally. They have thick, irregular cross sections, a flat ventral surface, and cortex covering the dorsal surface. Their morphology reflects the configuration of the original cobble. Presumably they represent an early stage in cobble reduction.

Tested Cobbles *(01-15-02)*

01-15-02A N=12: 12 Complete (Figure 6.8d)

Specimens in this variety are thick, irregularly shaped, stream rolled cobbles which have had several flakes randomly removed. Flake scars are large and may not be restricted to a single area. Cortex still covers most surfaces. There is no indication of shaping, and these specimens reflect either preliminary testing of the cobble's knapping characteristics, or initial stages of the cobble biface reduction sequence.

Table 6.3. Metric attributes for selected chipped stone varieties from the Wheeler Lee site (34Pu-102): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-01A					
$\bar{x}$	52.0	28.0	7.0	16.0	18.0
s.d.	11.0	6.0	2.0	3.0	5.0
range	33.0-74.0	17.0-44.0	5.0-14.0	8.0-23.0	11.0-30.0
N	18	29	31	25	31
01-01-02A					
$\bar{x}$	-	29.0	9.0	17.0	19.0
N	-	1	1	1	1
01-01-02G					
$\bar{x}$	-	-	9.0	14.0	17.0
N	-	-	1	1	1
01-01-02H					
$\bar{x}$	41.0	27.0	6.0	9.0	20.0
N	1	1	1	1	1
01-01-02K					
$\bar{x}$	-	-	8.0	13.0	24.0
N	-	-	1	1	1
01-01-02X					
$\bar{x}$	35.0	34.0	6.0	8.0	18.0
N	1	1	1	1	1
01-01-04D					
$\bar{x}$	79.0	27.0	7.0	17.0	13.0
N	1	1	1	1	1
01-01-04F					
$\bar{x}$	-	-	-	23.0	17.0
N	-	-	-	1	1
01-01-05B					
$\bar{x}$	46.0	19.0	6.0	21.0	19.0
N	1	1	1	1	1
01-01-05C					
$\bar{x}$	43.0	28.0	6.0	-	28.0
N	1	1	1	-	1

Table 6.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-05D					
$\bar{x}$	60.0	30.0	6.0	-	30.0
N	1	1	1	-	1
01-01-06A					
$\bar{x}$	26.0	15.0	4.0	6.0	7.0
s.d.	2.0	3.0	1.0	1.0	2.0
range	23.0-28.0	13.0-20.0	3.0-5.0	4.0-7.0	4.0-9.0
N	3	6	7	7	7
01-05-02A					
$\bar{x}$	45.0	27.6	10.0	-	-
range	36.0-54.0	-	9.7-10.3	-	-
N	2	1	2	-	-
01-06-01A					
$\bar{x}$	-	-	11.0	-	-
N	-	-	1.0	-	-
01-10-01A					
$\bar{x}$	60.0	46.0	23.0	-	-
s.d.	21.0	19.0	7.0	-	-
range	40.0-133.0	28.0-112.0	11.0-41.0	-	-
N	20	20	20	-	-
01-10-02A					
$\bar{x}$	55.0	41.0	20.0	-	-
s.d.	19.0	10.0	8.0	-	-
range	33.0-105.0	26.0-64.0	10.0-36.0	-	-
N	23	23	23	-	-
01-10-03A					
$\bar{x}$	50.0	32.0	10.0	-	-
s.d.	14.0	10.0	2.0	-	-
range	32.0-73.0	19.0-50.0	6.0-13.0	-	-
N	8	8	8	-	-
01-10-04A					
$\bar{x}$	47.0	27.0	8.5	-	-
range	35.0-58.0	23.0-31.0	8.0-9.0	-	-
N	2	2	2	-	-

Table 6.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-10-05A					
$\bar{x}$	57.0	34.0	9.0	15.0	23.0
s.d.	14.0	3.0	2.0	-	-
range	43.0-70.0	31.0-37.0	8.0-11.0	10.0-21.0	16.0-29.0
N	3	3	3	2	2
01-11-06A					
$\bar{x}$	66.0	24.0	11.0	-	-
N	1	1	1	-	-
01-14-01A					
$\bar{x}$	39.0	67.0	47.0	-	-
s.d.	10.0	14.0	15.0	-	-
range	22.0-46.0	50.0-82.0	31.0-70.0	-	-
N	5	5	5	-	-
01-15-01A					
$\bar{x}$	61.0	37.0	25.0	-	-
s.d.	12.0	7.0	3.0	-	-
range	51.0-73.0	30.0-44.0	23.0-29.0	-	-
N	4	3	4	-	-
01-15-02A					
$\bar{x}$	64.0	46.0	29.0	-	-
s.d.	16.0	18.0	12.0	-	-
range	43.0-93.0	24.0-84.0	15.0-56.0	-	-
N	12	12	12	-	-

Figure 6.8. Selected chipped and ground stone artifacts from the Wheeler Lee site (34Pu-102): Phase II.

a: *01-11-06A*

b: *01-14-01A*

c: *01-15-01A*

d: *01-15-02A*

e-f: *03-05-01A*

g-h: *03-04-01A*

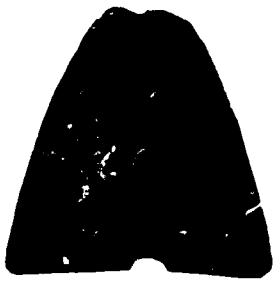
a

b

d

c

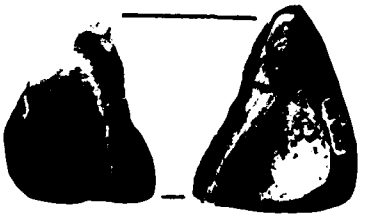
5cm



e

f

g



h

DEBITAGE (16-00)

01-16-01A N=19,204

These specimens represent unmodified flake debitage larger than 1/4-in, and were recovered during dry and waterscreening operations. Two specimens of slate or coarse siltstone display numerous parallel striations on a relatively flat dorsal surface, but neither is polished. The striations are parallel to the flake axis on one specimen, but are perpendicular on the other artifact. Both have small flake scars on the dorsal surface adjacent to the striking platform.

Fired Clay *(02)*

BAKED CLAY (03-00)

02-03-01A N=71

This variety consists of small, rounded baked clay nodules which lack impressions. These nodules were found in squares near the mound crest and are indicative of burning activities. Their combined weight is 26.3 g.

Ground Stone *(03)*

MANOS (01-00)

03-01-01A N=9: 3 Complete, 6 Fragmentary (Figure 6.9c-d)

Specimens in this variety are oval (2) to irregularly shaped (7) sandstone cobbles which exhibit grinding and smoothing on a single face. The opposite face is unaltered. Three manos exhibit extensive pecking and battering along the edges. Four fragmentary specimens have been burned.

03-01-02A N=9: 4 Complete, 5 Fragmentary

These specimens are oval (3), slightly squared (2), and elongated to oval (4) sandstone and quartzitic sandstone cobbles which display wear on two faces. Six specimens exhibit various degrees of pecking and battering on the edges which are indicative of shaping. Occasional peck marks occur on the faces. Two specimens have been burned.

METATES/GRINDING SLABS (02-00)

03-02-01A N=7: 3 Complete, 4 Fragmentary

These specimens are large tabular sandstone slabs which have wear and peck marks on one (5) or two (2) flat or slightly concave surfaces. The edges are unshaped. Three specimens have been burned.

GROUND HEMATITE (04-00)

03-04-01A N=4: 3 Complete, 1 Fragmentary (Figure 6.8g-h)

These specimens are irregularly shaped pieces of soft hematite (3) or limonite (1) which exhibit numerous parallel scratches. Two specimens have multiple wear facets. One heavily worn specimen is a concretion fragment.

03-04-02A N=1: 1 Fragmentary

This specimen is a flake from a dense specular hematite nodule which has been smoothed and highly polished across the convex dorsal surface. Microscopic examination reveals numerous fine striations. The configuration of the original specimen is indeterminable.

GORGETS (05-00)

03-05-01A N=2: 2 Fragmentary (Figure 6.8e-f)

These specimens are carefully shaped thin pieces of slate which have been drilled. One is a lateral portion of a gorget which is broken along the centrally located biconical drill holes. This specimen has a serrated appearance caused by eight nicks cut to different depths and irregularly spaced along the finished edge. The second specimen represents approximately half of a bipointed bar gorget. It has smooth convex edges and two holes biconically drilled along the central axis.

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)

Mano Blanks *(03-06-02)*

03-06-02A N=3: 2 Complete, 1 Fragmentary

These specimens are oval to irregularly shaped sandstone cobbles with occasional peck marks on a convex surface. The faces are even but not smooth. These items may be early stages in mano production. All specimens have been burned.

Smooth Stones-Scratched Surfaces *(03-06-05)*

03-06-05A N=2: 1 Complete, 1 Fragmentary (Figure 6.9b)

These specimens are irregularly shaped tabular cobbles of slate which have been knapped around the edges. Both have an area of smoothing and wear on a cortical surface characterized by numerous short but deep nonparallel striations.

Smooth Stones-Shaped *(03-60-06)*

03-06-06A N=1: 1 Complete (Figure 6.9a)

This specimen is a thick rectangular piece of slate which has numerous ground facets on all but one face. The shaping facets are characterized by minute parallel striations. One smooth surface has an area of peck marks with deep trailing nonparallel striations.

Pecked/Battered/Unmodified Cobbles *(04)*

HAMMERSTONES (01-00)

04-01-01A N=3: 2 Complete, 1 Fragmentary (Figure 6.9e)

These specimens are chert and quartzitic sandstone cobbles with varying amounts of battering on one or more natural ridges or projections. The battering consists of severe crushing along surfaces caused by the creation of multiple small intersecting impact cones and subsequent surface disintegration. Occasional flakes were removed along a thin ridge of one hammerstone.

PITTED STONES (02-00)

04-02-01A N=5: 4 Complete, 1 Fragmentary (Figure 6.9f-g)

These specimens are oval to irregularly shaped sandstone cobbles which have a pitted depression on one face. All have relatively smooth U-shaped depressions. One specimen has two pits on a single face. Two were manufactured from manos *(03-01-00)*. Two specimens have been burned.

04-02-02A N=3: 2 Complete, 1 Fragmentary

Specimens of this variety are characterized by single pitted depressions on both faces of sandstone cobbles. Two specimens have smooth faces and may have served as manos. The pitted depressions on two specimens are smooth U-shaped concavities, but they are deep and irregular on the third specimen.

MISCELLANEOUS PECKED/BATTERED STONE (03-00)

04-03-01A N=10: 10 Fragmentary

These are sandstone cobbles which exhibit minor pecking on faces (2), lateral edges (4), or corner/projections (4). Pecking appears to be minimal on six specimens. One with pecking on an edge exhibits faint striations on a portion of one face. Six specimens have been burned.

UNMODIFIED COBBLES/PEBBLES (04-00)

Hematite *(04-04-01)*

04-04-01A N=2: 2 Complete

These specimens are small irregular hematite nodules. Neither has been modified.

Concretions *(04-04-03)*

04-04-03A N=1: 1 Fragmentary

This specimen is a burned bowl shaped concretion fragment. It shows no signs of modification.

Historic Debris *(07)*

GLASS (01-00)

07-01-01A N=7

These specimens are clear bottle glass sherds. Two have embossed letters or designs. One sherd has the letters "HO" or "HU", while the other has a series of three narrow rows of closely spaced (*ca.* 16 per cm) vertical lines. The absence of more diagnostic patterns and small size prevents bottle identification.

07-01-01C N=4

These specimens have been purpled by the sun. Two are body sherds from bottles. One is a finished rim from either an everted medicine bottle lip or the base of a Gibson glass.

07-01-01D N=3

None of these brown glass specimens show seams, maker's marks, or embossed letters.

Figure 6.9. Selected ground and pecked stone artifacts from the Wheeler Lee site (34PU-102): Phase II.

a: *03-06-06A*

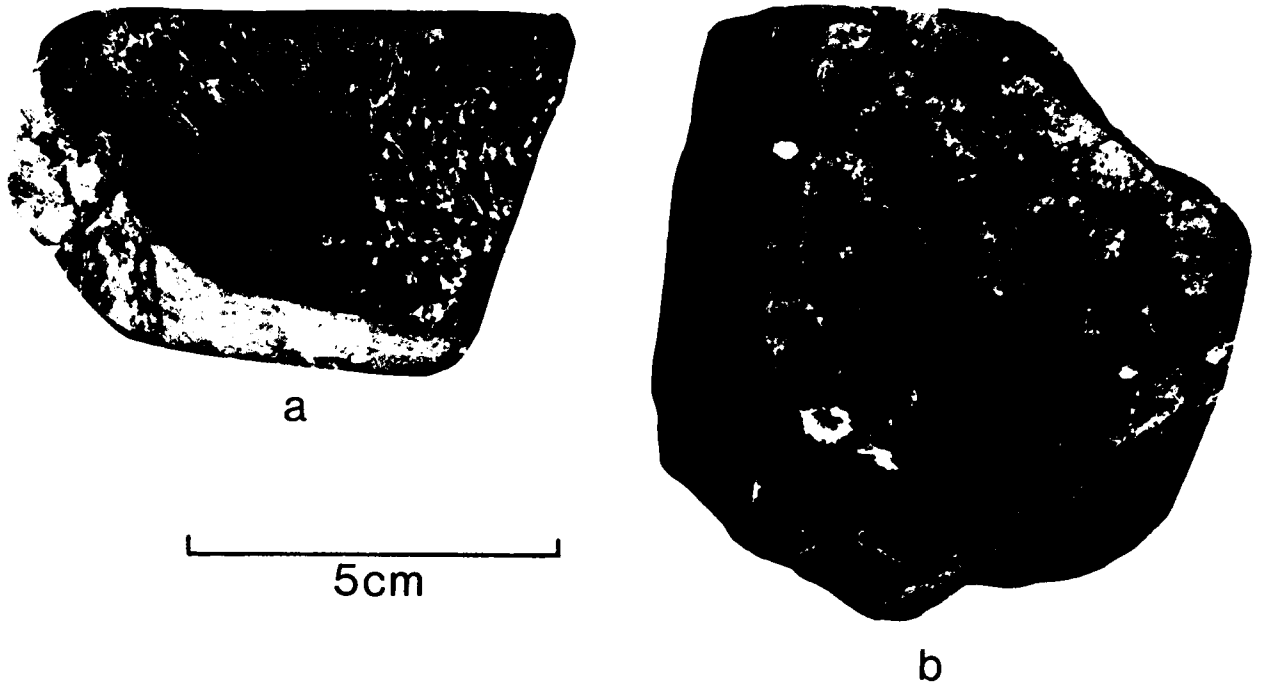
b: *03-06-05A*

c-d: *03-01-01A*

e: *04-01-01A*

f-g: *04-02-01A*

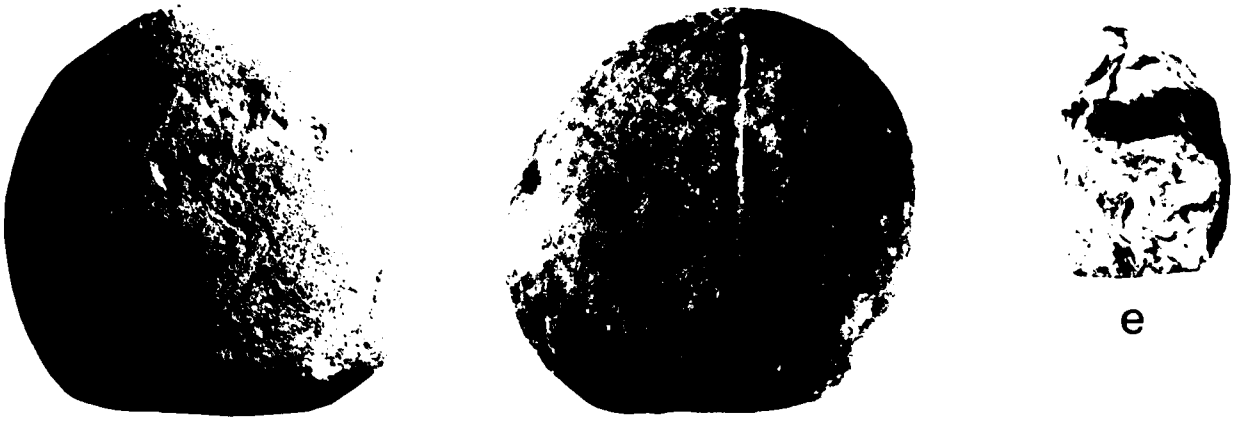
Note: Artifacts a-b shown at 5 cm scale.
Artifacts c-g shown at 10 cm scale.



a

5cm

b



c

d

e

10cm

f

g

Table 6.4. Metric attributes for selected ground stone varieties from the Wheeler Lee site (34Pu-102): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS
03-01-01A			
$\bar{x}$	107.0	86.0	48.0
s.d.	26.0	14.0	10.0
range	76.0-158.0	68.0-110.0	32.0-61.0
N	7	6	9
03-01-02A			
$\bar{x}$	119.0	105.0	46.0
s.d.	12.0	13.0	13.0
range	104.0-137.0	88.0-127.0	26.0-65.0
N	6	6	9
03-02-01A			
$\bar{x}$	473.0	301.1	44.0
s.d.	-	-	15.0
range	284.0-662.0	211.0-391.0	25.0-66.0
N	2	2	7
03-04-01A			
$\bar{x}$	27.0	22.0	9.0
s.d.	4.0	5.0	3.0
range	21.0-31.0	15.0-26.0	6.0-12.0
N	4	4	4
03-05-01A			
$\bar{x}$	-	37.0	6.0
range	-	-	5.8-6.1
N	-	1	2
03-06-02A			
$\bar{x}$	88.0	80.0	37.0
s.d.	-	9.0	-
range	79.0-98.0	70.0-88.0	33.0-41.0
N	2	3	2
03-06-05A			
$\bar{x}$	67.0	49.0	26.0
N	1	1	1

Table 6.4. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS
03-06-06A			
$\bar{x}$	80.0	75.0	25.0
range	-	-	25.1-25.4
N	1	1	2
04-01-01A			
$\bar{x}$	84.0	64.0	39.0
range	70.0-98.0	63.0-64.0	32.0-45.0
N	2	2	2
04-02-01A			
$\bar{x}$	73.0	80.0	44.0
s.d.	9.0	10.0	14.0
range	66.0-83.0	68.0-93.0	31.0-67.0
N	3	4	5
04-02-02A			
$\bar{x}$	95.0	79.0	54.0
s.d.	-	13.0	8.0
range	73.0-117.0	68.0-94.0	46.0-62.0
N	2	3	3
04-04-01A			
$\bar{x}$	10.0	7.0	2.0
range	8.0-12.0	7.0-8.0	1.9-2.0
N	2	2	2
04-04-03A			
$\bar{x}$	44.0	39.0	19.0
N	1	1	1

CROCKERY/CERAMICS (02-00)

Crockery *(07-02-01)*

07-02-01B N=4

These sherds are stoneware with a colored glaze on the convex surface and a white glaze on the concave surface. The colors suggest two vessels are represented. One has a glaze ranging through shades of gray-green and blue-green while the other has a broad red-brown glaze band. Neither has maker's marks.

Ironstone/Porcelain *(07-02-02)*

07-02-02B N=8

These sherds are thin, fine paste, ironstone dish wares which have glazed white on both surfaces. Three sherds (rims and base) are from a saucer form, one is possibly from a bowl and the others are from unidentifiable vessels. The possible bowl base has a partial unidentifiable maker's mark "3" incised along its edge.

Figurines *(07-02-03)*

07-02-03A N=1

This white glazed sherd has an irregularly curved surface. It is 33 mm thick. It may represent part of a figurine or decorative jar.

METAL (03-00)

Nails *(07-03-01)*

07-03-01A N=4

The corrosion on these nails is extensive and has rendered the size and shape unidentifiable. All are broken. One specimen has a double head.

Miscellaneous Pieces *(07-03-09)*

07-03-09A N=2

The machined specimen is a flat, semicircular iron bar with a wedge shaped tip on one end. The convex edge is grooved and the concave side has a large semiciruclar notch. The second specimen may be a short segment of a narrow iron strap. Both are heavily corroded.

Faunal *(08)*

BONE/HORN/TEETH (01-00)

08-01-01A N=284

This variety refers to unmodified bone materials recovered during the dry screening operation. One large specimen found on the surface is an unburned proximal articulating surface of a bovine humerus. It has been cut at right angles with a power saw. The remainder of the bone fragments are burned and have a combined weight of 26.8 g. Twelve were identified as fragments of box turtle *(Terrepene ornata)* carapace.

Floral *(09)*

CHARCOAL/NUTS/SEEDS (01-00)

Small flecks of charred wood and nutshells were encountered in most squares. A total of 69.6 g was collected during dry screening. Nearly half (31.2 g) came from the cut bank profile (F79-6), which may not have cultural origins. A total of 12.0 g of nutshell and 26.4 g of wood charcoal was collected from the rest of the site.

DISCUSSION AND INTERPRETATIONS

This section examines the horizontal and vertical distribution of materials, chronology and components, lithic reduction and procurement, and activity sets conducted at the site.

Material Distribution

Topographic and stratigraphic differences at the Wheeler Lee site must be considered when examining the horizontal and vertical distribution of cultural materials. The 1979 excavations concentrated on the crest and lower slope of a natural linear mound with additional squares excavated on a small natural mound further to the south. Table 6.5 presents concentration indices derived by dividing the total number of prehistoric artifacts per square by the number of 10 cm levels. When the relationship of these indices are spatially represented several clusters emerge (Figure 6.10). Horizontally, major concentrations of artifacts and lithic debitage correspond to the two mounds. Conversely, the lower slope squares contain a sparse amount of materials, are characterized by extensive bioturbation, and will be of limited utility in assessing the vertical distribution of artifacts. The linear mound, south mound, and lower slope areas will be considered separately in examining the horizontal and veritcal distribution of materials.

Table 6.5. Concentration indices of tools and debitage from the Wheeler Lee site (34Pu-102): Phase II.

Square	Number of Levels	Flakes	CI	Tools	CI
N39-W18	6	453	75.5	14	2.3
N37-W5	7	506	72.3	4	0.6
N35-W29	10	617	61.7	19	1.9
N30-W20	7	652	93.1	29	4.1
N30-W19	9	1478	164.2	65	7.2
N29-W15	9	1672	185.8	41	4.5
N29-W16	9	1706	189.6	33	3.7
N28-W15	9	1815	201.7	32	3.6
N28-W16	9	1671	185.7	39	4.3
N25-W13	10	1474	147.4	32	3.2
N18-W10	10	1560	156.0	57	5.7
N17-W36	7	153	21.9	1	0.1
N16-W36	2	49	24.5	2	1.0
N15-W28	13	841	64.7	36	2.8
N12-W17	7	1640	234.3	18	2.6
N10-W30	7	227	32.4	6	0.9
N5-W31	5	22	4.4	2	0.4
N4-W11	9	509	56.6	17	1.9
N3-W2	8	499	62.4	8	1.0
S11-W4	10	897	89.7	23	2.3
S17-E6	9	762	84.7	26	2.9

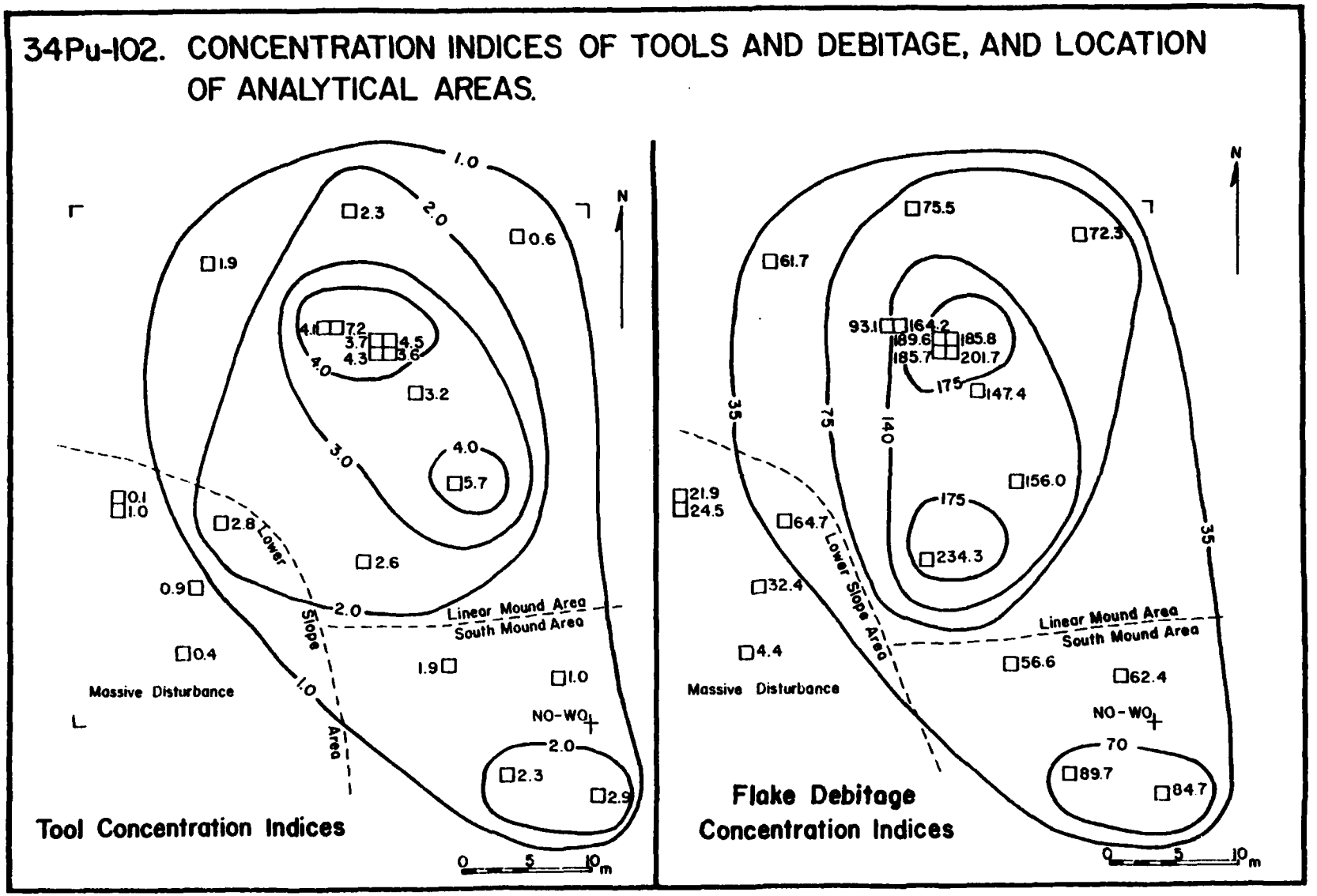


Figure 6.10. Concentration indices of tools and debitage, and location of analytical areas at the Wheeler Lee site (34Pu-102): Phase II.

The linear mound analytical area consists of N12-W17, N18-W10, N25-W13, N28-W15, N28-W16, N29-W15, N29-W16, N30-W19, N30-W20, N35-W29, N37-W5, and N39-W18. This area contains 60% of the excavated levels, but includes 78% of the artifacts and 79% of the lithic debitage. The south mound analytical area includes S17-E6, S11-W4, N3-W2, and N4-W11. It contains 21% of the excavated levels and 14% of the tools and 14% of the lithic debitage. The lower slope analytical area includes N5-W31, N10-W30, N15-W28, N16-W36, and N17-W36. It contains 20% of the levels but only 8% of the tools and 7% of the lithic debitage.

HORIZONTAL DISTRIBUTION

The horizontal distribution of artifacts across the three areas is presented in Table 6.6. Chipped stone items common to all areas include large contracting stemmed *(01-01-01A)* and small corner notched points *(01-01-06A)*, items from the early stages of the reduction system *(01-15-00, 01-10-01A, 01-10-02A,* and *01-10-03A)*, and fragments of points or thin bifaces *(01-12-01A)*. Most other chipped, pecked and ground stone items are restricted to limited site areas.

The linear mound area contained horizontal rock concentrations (F79-1, F79-3, and F79-4) and the burial (F79-5). It also exhibited the most assemblage variation and material quantities (Table 6.6). All but three categories of material remains were present in this area. Items not present include unmodified hematite *(04-04-01A)*, unmodified concretions *(04-04-02A)*, and the faceted smooth shaped stone *(03-06-06)*.

The south mound contained no cultural features. Items unique to this area include the faceted smooth shaped stone *(03-06-06A)* and the unmodified concretion fragment *(04-04-02A)*.

The lower slope area contained horizontal rock concentration Feature 79-2 which could have been altered by colluviation. The only artifact unique to the lower slope area is a smooth stone with scratched surfaces *(03-01-05)*.

The distributional differences between the three areas appear relatively minor. The greatest difference is the restricted distribution of large expanding stemmed/corner-notched points *(01-01-02)*, straight stemmed points *(01-01-04)*, and unstemmed points *(01-01-05)* on the linear mound area. Most differences in points and other tools occur in artifact varieties represented by a single specimen. These differences may reflect variations in intensity rather than kind of activities between the three areas.

Table 6.6. Horizontal distribution of artifacts at the Wheeler Lee site (34Pu-102): Phase II.

Artifacts	Lower Slope Area					South Mound Area				Linear Mound Area													Total
	N5-W31	N10-W30	N15-W28	N16-W36	N17-W36	S17-E6	S11-W4	N3-W2	W4-W11	N12-W17	N18-W10	N25-W13	N28-W15	N20-W16	N29-W15	N29-W16	N30-W19	N30-W20	N35-W29	N37-W5	N39-W18	Backhoe	Surface	
01-01-01A	-	-	2	-	-	1	2	1	-	-	2	5	1	2	5	4	4	1	-	-	-	1	-	31
01-01-02A	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
01-01-02G	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
01-01-02H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
01-01-02K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
01-01-02X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
01-01-04D	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
01-01-04F	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1
01-01-05B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-01-05C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
01-01-05D	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
01-01-06A	1	-	-	-	-	1	-	-	-	-	3	-	-	1	-	1	-	-	-	-	-	-	-	7
01-05-02A	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	2
01-06-01A	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
01-10-01A	-	2	3	-	-	2	1	-	1	-	-	-	1	1	4	1	1	1	-	1	-	-	-	19
01-10-02A	-	-	2	-	-	2	-	1	1	2	9	1	3	3	2	6	7	3	2	-	1	4	-	49
01-10-03A	-	-	4	-	-	7	1	-	1	1	1	7	1	3	2	1	6	3	-	-	1	-	-	39
01-10-04A	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	1	-	1	-	-	2	1	8
01-10-05A	-	-	1	-	-	-	-	-	-	-	1	-	2	1	1	1	-	1	-	-	-	-	-	8
01-11-01A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
01-11-02A	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
01-11-03A	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
01-11-06A	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
01-12-01A	-	1	1	-	-	5	4	1	1	6	7	6	3	6	8	3	2	2	5	2	3	1	-	67
01-13-01A	-	-	3	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	-	-	-	-	6
01-13-01B	1	2	14	1	-	5	11	4	8	2	23	6	10	15	11	14	35	8	2	1	6	1	-	180
01-13-01C	-	-	2	-	-	1	-	-	-	2	5	2	1	1	1	1	5	1	2	-	-	-	-	24
01-14-01A	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-	1	-	1	-	-	-	-	-	5
01-15-01A	-	-	-	1	-	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	4
01-15-02A	-	-	1	-	-	-	1	-	2	1	-	-	1	1	1	-	-	1	-	-	-	1	2	12
02-03-01A[1]	-	-	-	-	-	-	0.1g	-	-	-	-	6.9g	-	-	-	-	13.8g	5.5g	-	-	-	-	-	26.3g
03-01-01A	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	1	-	2	-	1	-	3	9
03-01-02A	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	-	-	-	5	9
03-02-01A	-	-	-	-	-	-	1	-	-	-	1	-	-	-	1	-	-	2	-	-	1	-	1	7
03-04-01A	-	-	-	-	-	-	-	-	1	-	-	-	1	-	1	-	-	1	-	-	-	-	-	4
03-04-02A	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
03-05-01A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	2
03-06-02A	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	3
03-06-05A	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2
03-06-06A	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
04-01-01A	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	1	3
04-02-01A	-	-	-	-	-	-	-	-	1	1	-	1	-	-	1	-	-	-	-	-	-	-	1	5
04-02-02A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
04-03-01A	-	-	-	-	1	1	-	1	-	-	-	2	-	-	-	-	-	1	2	-	1	-	1	10
04-04-01A	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
04-04-02A	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
07-01-00[1]	-	-	-	-	-	1	1	-	-	3	2	-	-	2	-	2	-	-	1	1	-	1	-	14
07-02-00[1]	-	-	-	-	-	1	-	-	-	-	-	2	3	1	2	2	-	-	-	1	-	1	-	13
07-03-00[1]	-	1	-	-	-	1	-	-	-	1	1	-	1	-	1	-	-	-	-	-	-	-	-	6
08-01-01A[1]	-	-	-	-	-	-	-	-	-	-	0.2g	1.5g	8.1g	2.6g	4.8g	3.6g	1.5g	4.5g	-	-	-	-	19.2g	46.0g
09-01-01A[1]	-	0.1g	4.2g	0.8g	-	1.1g	0.6g	0.8g	2.4g	-	0.1g	4.5g	0.1g	5.7g	0.7g	1.1g	1.8g	2.2g	0.2g	-	-	-	-	26.4g
09-01-01A[1]	-	0.3g	-	-	-	0.4g	-	0.1g	0.4g	1.2g	0.4g	2.1g	0.6g	-	0.1g	-	3.9g	2.0g	0.5g	-	-	-	-	12.0g
Total[2]	2	6	36	2	1	26	23	9	17	18	57	32	32	39	43	33	65	29	19	4	14	13	19	571
Number of Levels	5	7	13	2	7	9	10	8	9	7	10	10	9	9	9	9	9	7	10	7	6			
CI	0.4	0.9	2.8	1.0	0.1	2.9	2.3	1.0	1.9	2.6	5.7	3.2	3.5	4.3	4.7	3.7	7.2	4.1	1.9	0.6	2.3			

[1]excluded from CI
[2]used in calculating CI

VERTICAL DISTRIBUTION

Table 6.7 presents the horizontal and vertical distribution of lithic debitage and calculates concentration indices by levels for the three areas. An examination of concentration indices reveals a unimodal distribution of materials from the linear and south mound areas, but a bimodal debitage distribution from the lower slope area. The unimodal debitage distribution from the two mound areas reflects an intensification of cultural deposition at the site through time which may mask subtle occupational differences. The density distribution of the lower slope materials could reflect increased colluviation, separate occupation, or a random pattern reflecting bioturbation. Nevertheless, the density distribution of lithic debitage shows major decreases after Level 2 in the south mound (CI = 223.8 to 5.93) and linear mounds (CI = 367.2 to 183.1). These may reflect an intensification of activities in the upper two levels.

The vertical distribution and concentration indices of selected tools are presented in Table 6.8 for the lower slope area, Table 6.9 for the south mound area, and Table 6.10 for the linear mound area. These indices reveal a bimodal distribution of tools for the south mound and linear mound areas and an erratic tool distribution for the lower slope area. The erratic tool distribution may be attributed to the extensive crawfish disturbances previously noted. Consequently, the vertical distribution of tools from the lower slope area is of little utility in determining the number of occupations and activities conducted.

The tool concentration indices from the south and linear mound areas (Tables 6.9 and 6.10) also reveal major decreases in tools after Level 2 which correspond with similar decreases in lithic debitage. There appears to be some vertical separation of materials within each of the mound areas.

In the linear mound area, large contracting stemmed points *(01-01-01A)* occur in Levels 1-7 and cluster bimodally in Level 2 (46%) and Levels 5-6 (29%). A similar pattern occurs with the large expanding stemmed/corner-notched points *(01-01-02)*. The *Martindale* type *(01-01-02K)* is associated with Level 2 while the *Lange (01-01-02A)* and *Summerfield (01-01-02G)* types are associated with Levels 5 and 6. Large straight stemmed points *(01-01-04)* are confined to the upper two levels while large unstemmed points *(01-01-05)* occur in Level 3. Small expanding stemmed/corner-notched points are restricted to the upper two levels. The unifacial scrapers *(01-05-02A)* occur in Levels 4 and 5 but the double bitted ax *(01-06-01A)* is within the plowzone of Level 1. Point/biface fragments and segments *(01-12-01A)* and modified flakes *(01-13-00)* are most abundant in Levels 1-2 but show a second peak in Level 4.

Artifacts associated with the reduction system include biface varieties *(01-10-01* through *01-10-05)*, cores *(01-14-01)* and split/tested cobbles *(01-10-00)*. Examples from most stages of the reduction sequence occur in the upper six levels. In general, they are most abundant in Level 1 and gradually decrease with depth. However, the ratio of items from the early reduction sequence *(01-10-01A, 01-10-02A, 01-14-01A,* and *01-15-00)* increase with depth over items from the late stages of the reduction sequence

Table 6.7. Horizontal and vertical distribution of lithic debitage by area at the Wheeler Lee site (34Pu-102): Phase II.

Square	Arbitrary Levels (10 cm) 1	2	3	4	5	6	7	8	9	10	11	12	13	Code 4	Total
Lower Slope Area															
N5-W31	16	2	1	3	-	-	-	-	-	-	-	-	-	-	22
N10-W30	85	29	20	20	24	41	8	-	-	-	-	-	-	-	227
N15-W28	170	247	124	91	57	51	52	50	53	19	12	8	7	-	941
N16-W36	22	27	-	-	-	-	-	-	-	-	-	-	-	-	49
N17-W36	46	26	26	14	18	5	18	-	-	-	-	-	-	-	153
Subtotal	339	331	171	128	99	97	78	50	53	19	12	8	7	-	1,392
Number of Levels	5	5	4	4	4	3	3	1	1	1	1	1	1	-	-
CI	67.8	66.2	42.8	32.0	24.8	32.3	26.0	50.0	53.0	19.0	12.0	8.0	7.0	-	-
South Mound Area															
S17-E6	253	200	92	69	43	43	38	20	4	-	-	-	-	-	762
S11-W4	204	251	126	91	83	40	62	18	15	-	-	-	-	-	890
N3-W2	130	202	77	42	30	9	5	4	-	-	-	-	-	-	499
N4-W11	129	242	42	9	26	25	12	10	6	-	-	-	-	8	509
Subtotal	716	895	337	211	182	117	117	52	25	-	-	-	-	8	2,660
Number of Levels	4	4	4	4	4	4	4	4	3	-	-	-	-	-	-
CI	179.0	223.8	59.3	52.8	45.5	29.3	29.3	13.0	8.3	-	-	-	-	-	-
Linear Mound Area															
N12-W17	882	586	102	23	25	16	6	-	-	-	-	-	-	-	1,640
N18-W10	457	404	213	137	110	106	37	60	14	6	-	-	-	16	1,560
N25W13	649	246	250	162	74	52	29	9	1	2	-	-	-	-	1,474
N28-W15[2]	515	585	246	159	133	73	50	34	20	-	-	-	-	-	1,815
N28-W16[2]	468	554	255	163	95	73	43	16	4	-	-	-	-	-	1,671
N29-W15[2]	376	472	247	247	156	94	47	26	7	-	-	-	-	-	1,672
N29-W16[2]	519	418	212	235	138	108	48	19	9	-	-	-	-	-	1,706
N30-W19	313	375	220	256	127	94	62	24	7	-	-	-	-	-	1,478
N30-W20[1]	-	42	-	199	151	115	72	46	18	9	-	-	-	-	652
N35-W29	199	141	67	100	38	29	16	19	2	-	-	-	-	6	617
N37-W5	195	123	69	74	20	16	9	-	-	-	-	-	-	-	506
N39-W18	113	135	117	55	23	10	-	-	-	-	-	-	-	-	453
Subtotal	4,686	4,081	2,197	1,762	1,054	743	393	225	73	8	-	-	-	22	15,244
Number of Levels	11	11	12	12	12	12	11	9	9	3	-	-	-	-	-
CI	426.0	367.2	183.1	146.8	87.8	61.9	35.7	25.0	8.1	2.7	-	-	-	-	-
Backhoe	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19,297

[1]levels 1 & 2 not screened and not included in CI calculations.
[2]waterscreened materials - only flakes larger than 1/4 inch included in count.

Table 6.8. Vertical distribution of selected artifacts from the lower slope area at the Wheeler Lee site (34Pu-102): Phase II.

Artifacts	Arbitrary Levels (10 cm)													Code	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	4	
01-01-01A	-	1	1	-	-	-	-	-	-	-	-	-	-	-	2
01-01-06A	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
01-10-01A	-	1	-	1	1	-	1	1	-	-	-	-	-	-	5
01-10-02A	1	-	1	-	-	-	-	-	-	-	-	-	-	-	2
01-10-03A	2	1	-	1	-	-	-	-	-	-	-	-	-	-	4
01-10-05A	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
01-11-02A	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
01-12-01A	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
01-13-01A	-	2	-	-	-	-	1	-	-	-	-	-	-	-	3
01-13-01B	3	2	2	4	1	2	-	1	1					2	18
01-13-01C	-	-	-	1	-	-	-	-	-	1	-	-	-	-	2
01-15-01A	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
01-15-02A	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
03-01-01A	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
03-06-05A	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
04-03-01A	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
04-04-01A	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
07-03-00	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
09-01-01A	-	0.8g	-	2.0g	-	0.1g	0.5g	0.2g	0.4g	-	1.1g	-	-	-	5.1g
09-01-01A	0.3g	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3g
Total	7	11	5	9	2	3	3	2	1	1	1	-	-	3	48
Number of Levels	5	5	4	4	4	3	3	1	1	1	1	1	1	-	-
CI	1.4	2.2	1.3	2.3	0.5	1.0	1.0	2.0	1.0	1.0	1.0	-	-	-	-

(01-10-03A, 01-10-04A, and *01-10-05A)*. For Levels 1-2, the ratio is 22:24; Levels 3-4, 21:10; Levels 5-6, 17:4; and Levels 7-8, 2:0.

The greatest concentration of baked clay *(02-03-01A)* is in Level 4 but a minor peak also occurs in Level 2. Ground and pecked stone artifacts *(03-00-00* and *04-00-00)* were not plentiful in any level. Ninety-six percent of the historic materials *(07-00-00)* occur in the upper two levels. Faunal *(08-00-00)* and floral *(09-00-00)* materials were poorly preserved but are represented in almost every level.

Rock features 79-1, 79-3, and 79-4 are associated with Levels 3, 3-4, and 1-2 respectively. The surface which truncates the burial pit (F79-5) may be erosional and is associated with Level 6 at a depth of 55 cm below surface. The burial pit extends to a depth of 67 cm.

A similar distribution is noted for materials in the south mound area (Table 6.9). Large contracting stemmed points *(01-01-01A)* have a deeper distribution than the small expanding stemmed/corner-notched points *(01-01-06A)*. Nothing in the south mound area refutes the pattern noted for the linear mound area. Many of the chipped and ground stone varieties which were equally distributed across the levels of the linear mound are absent or occur as solitary specimens in the south mound area.

Chronology and Site Components

Component identification at 34Pu-102 is based on the presence of temporally diagnostic materials, their distribution, the distribution of nondiagnostic materials, and radiocarbon dates.

Ceramics and point forms have been considered the best temporal indicators in southeast Oklahoma (Bell 1958, 1960; Brown 1976; Perino 1968, 1971; Suhm and Jelks 1962; Wyckoff 1970a). Unfortunately, temporally diagnostic items are very limited from the site. The only ceramic artifact was a single potsherd recovered during the initial testing phase (Drass 1977).

Ten of the twelve point varieties are represented by single specimens. Large contracting stemmed points *(01-01-01A)* occur throughout the cultural levels in the linear and south mound areas. *Gary* points *(01-01-01A)* are not temporally sensitive since they occur from Late Archaic through the Woodland and Caddoan periods (Bell 1958; Galm 1978a: 234; Galm 1978b: 74-76; Brown 1976). Small expanding stemmed/corner-notched points *(01-01-06A)* are restricted to the upper two levels of the linear and south mound areas. These points *(Scallorn)* are temporally better as a component indicator since they are absent from the Archaic (Bell 1958; Galm 1978a).

Two prehistoric components are postulated on the basis of distributional breaks in the vertical concentration indices of lithic debitage and artifacts in Level 2. This is coupled with the occurrence of small points in the upper two levels (Tables 6.8, 6.9, and 6.10). The earlier

Table 6.9. Vertical distribution of selected artifacts from the south mound area at the Wheeler Lee site (34Pu-102): Phase II.

Artifacts	1	2	3	4	5	6	7	8	9	Total
01-01-01A	1	1	2	-	-	-	-	-	-	4
01-01-06A	1	-	-	-	-	-	-	-	-	1
01-10-01A	1	-	-	1	-	1	1	-	-	4
01-10-02A	-	3	-	-	-	-	1	-	-	4
01-10-03A	-	2	2	2	-	1	1	1	-	9
01-12-01A	-	6	-	1	1	3	-	-	-	11
01-13-01B	7	7	4	5	2	3	-	-	-	28
01-13-01C	1	-	-	-	-	-	-	-	-	1
01-15-01A	-	-	1	-	-	-	-	-	-	1
01-15-02A	-	1	-	1	1	-	-	-	-	3
02-03-01A	-	-	-	-	0.1g	-	-	-	-	0.1g
03-02-01A	-	-	1	-	-	-	-	-	-	1
03-04-01A	-	1	-	-	-	-	-	-	-	1
03-06-06A	-	1	-	-	-	-	-	-	-	1
04-02-01A	-	1	-	-	-	-	-	-	-	1
04-03-01A	-	1	-	-	-	1	-	-	-	2
04-04-01A	-	-	-	-	-	1	-	-	-	1
04-04-02A	-	1	-	-	-	-	-	-	-	1
07-01-00	-	2	-	-	-	-	-	-	-	2
07-02-00	1	-	-	-	-	-	-	-	-	1
07-03-00	1	-	-	-	-	-	-	-	-	1
09-01-01A	-	0.8g	0.8g	0.5g	-	2.5g	0.1g	0.2g	-	4.9g
09-01-01A	-	-	-	0.7g	0.1g	-	-	0.1g	-	0.9g
Total	13	27	10	10	4	10	3	1	-	78
Number of Levels	4	4	4	4	4	4	4	3	-	-
CI	3.3	6.8	2.5	2.5	1.0	2.5	0.8	0.3	-	-

Table 6.10. Vertical distribution of selected artifacts from the linear mound area at the Wheeler Lee site (34Pu-102): Phase II.

Artifact Variety	Arbitrary Levels (10 cm) 1	2	3	4	5	6	7	8	9	10	Code 4	Total
01-01-01A	6	5	3	1	4	3	2	-	-	-	-	24
01-01-02A	-	-	-	-	-	1	-	-	-	-	-	1
01-01-02G	-	-	-	-	1	-	-	-	-	-	-	1
01-01-02K	-	1	-	-	-	-	-	-	-	-	-	1
01-01-04D	1	-	-	-	-	-	-	-	-	-	-	1
01-01-04F	-	1	-	-	-	-	-	-	-	-	-	1
01-01-05B	-	-	1	-	-	-	-	-	-	-	-	1
01-01-05D	-	-	1	-	-	-	-	-	-	-	-	1
01-01-06A	2	3	-	-	-	-	-	-	-	-	-	5
01-05-02A	-	-	-	1	1	-	-	-	-	-	-	2
01-06-01A	1	-	-	-	-	-	-	-	-	-	-	1
01-10-01A	2	3	1	3	1	-	-	-	-	-	-	10
01-10-02A	7	4	12	5	4	7	-	-	-	-	-	39
01-10-03A	12	5	5	2	-	2	-	-	-	-	-	26
01-10-04A	2	1	-	1	-	1	-	-	-	-	-	5
01-10-05A	2	2	1	1	1	-	-	-	-	-	-	7
01-11-01A	-	1	-	-	-	-	-	-	-	-	-	1
01-11-03A	-	-	1	-	-	-	-	-	-	-	-	1
01-11-06A	1	-	-	-	-	-	-	-	-	-	-	1
01-12-01A	16	17	3	5	2	6	3	-	-	-	1	53
01-13-01A	1	-	-	-	1	1	-	-	-	-	-	3
01-13-01B	41	29	13	25	12	6	3	1	1	-	2	133
01-13-01C	8	2	2	4	2	2	1	-	-	-	-	21
01-14-01A	1	1	-	-	1	-	1	1	-	-	-	5
01-15-01A	-	-	-	-	2	-	-	-	-	-	-	1
01-15-02A	2	2	-	-	1	-	-	-	-	-	-	5
02-03-01A	0.1g	4.2g	2.6g	15.7g	2.3g	0.6g	0.7g	-	-	-	-	26.2g
03-01-01A	1	1	2	1	1	-	-	-	-	-	-	6
03-01-02A	1	-	1	-	-	1	-	-	-	-	-	3
03-02-01A	1	1	-	2	1	-	-	-	-	-	-	5
03-04-01A	-	-	-	-	1	-	-	1	1	-	-	3
03-04-02A	1	-	-	-	-	-	-	-	-	-	-	1
03-05-01A	1	-	-	1	-	-	-	-	-	-	-	2
03-06-02A	-	1	1	1	-	-	-	-	-	-	-	3
04-01-01A	-	1	-	-	-	-	-	-	-	-	1	2
04-02-01A	1	1	1	-	-	-	-	-	-	-	-	3
04-03-01A	1	2	2	-	-	-	-	1	-	-	-	6
07-01-01A	7	3	-	1	-	-	-	-	-	-	-	11
07-02-01A	8	3	-	-	-	-	-	-	-	-	-	11
07-03-01A	3	1	-	-	-	-	-	-	-	-	-	4
08-01-01A	0.1g	1.7g	5.4g	5.4g	10.0g	3.1g	0.7g	0.1g	-	-	-	26.8g
09-01-01A	0.3g	1.4g	1.9g	7.2g	3.1g	1.8g	0.5g	0.1g	-	0.1g	-	16.4g
09-01-01A	-	1.7g	2.2g	2.2g	1.4g	2.2g	1.0g	0.1g	-	-	-	10.8g
Total	130	91	50	54	36	30	10	4	2	-	4	411
Number of Levels	11	11	12	12	12	12	11	9	9	3	-	-
CI	11.8	8.3	4.2	4.5	3.0	2.5	0.9	0.4	0.2	-	-	-

component has experienced disturbance from bioturbation and possible erosion. The integrity of the later component has been affected by historic plowing activities.

The earlier component (Component 1) is characterized by an absence of pottery and small points and by the presence of large contracting stemmed points *(01-01-01A)*, large expanding stemmed/corner-notched points *(01-01-02A* and *01-01-02G)*, and large unstemmed points *(01-01-05D)*. One large unstemmed point *(01-01-05B)* usually attributed to the Early Archaic is in association with large contracting stemmed points *(01-01-01A)*, and overlies large expanding stemmed/corner-notched points *(01-01-02)*. This context suggests that it may represent a reused artifact. Other Component 1 artifacts include scrapers *(01-05-02A)*, bifaces from all stages of the reduction sequence *(01-10-00)*, modified flakes and denticulates *(01-13-00)*, cores *(01-14-00)*, and split and tested cobbles *(01-15-00)*. Ground stone items include manos *(03-01-00)*, grinding slabs *(03-02-00)*, ground hematite *(03-04-01A)*, and gorgets *(03-05-01A)*. Pecked stone items include a hammerstone *(04-01-01)*, pitted stones *(04-02-01A)*, and miscellaneous pecked and battered fragments *(04-03-01A)*. Component 1 features include a multiple burial (F79-5) and horizontal concentrations of burned rock (F79-1, 79-3, and 79-4). The point varieties, gorgets and pitted stones resemble materials associated with the Late Archaic Wister phase (Galm 1978a).

Radiocarbon dates of 1284 ±60 B.C. (Tx-3712) and 1727 ±70 B.C. (Tx-3713) are associated with Component 1 materials and are consistent with the temporal placement of the Late Archaic stage in eastern Oklahoma (Galm 1978a; Galm and Flynn 1978).

The later prehistoric component (Component 2) has been disturbed by cultivation, but is characterized by the presence of small points *(01-01-06A)* in addition to large contracting stemmed *(01-01-01A)*, large expanding stemmed *(01-01-02K)*, and large straight stemmed points *(01-01-04D* and *01-01-04F)*. Other chipped stone implements from Component 2 include a double bitted ax *(01-06-01A)*, bifaces from all stages of the reduction system *(01-10-01* through *01-10-05)*, modified flakes and denticulates *(01-13-00)*, and tested cobbles *(01-15-02A)*. Ground stone items include manos *(03-01-00)*, grinding slabs *(03-02-01)*, ground specular hematite *(04-03-02A)*, and a gorget fragment *(03-05-01A)*. Pecked stone materials include a hammerstone *(04-01-01)* and pitted stones *(04-02-01A)*. These artifacts suggest a Woodland, possibly Fourche Maline phase, affiliation for this component (Bell 1958, 1973; Galm 1978a, 1978b; Galm and Flynn 1978).

A historic component is represented by glass *(07-01-00)*, crockery *(07-02-00)*, and nails *(07-03-00)*. Temporally diagnostic materials are rare, but the presence of purpled glass dates a portion of the occupation prior to 1917 (Spivey et al. 1977).

Lithic Reduction and Procurement

An examination of the artifacts indicates that all stages of the reduction sequence are represented. The basic technology involves the selection and procurement of cobbles for bifacial reduction. Split cobble reduction and the use of cores to produce implements were of a secondary importance.

Although the same reduction strategies were present in both components, there appear to be some differences between the two components. As previously discussed in this chapter, items from the reduction sequence are most abundant in the uppermost level and gradually decrease with depth. But the ratios of artifacts from the early reduction sequence were greater with increased depth than items from the late stages of the reduction sequence.

In order to test the significance of this difference between Component 1 and 2 from the linear mound area, a Chi Square test was performed (Table 6.11). The null hypothesis states that there is no significant difference between Component 2 (Levels 1-2) and Component 1 (Levels 3-8). A .05 level of significance was chosen to reject the null hypothesis. The result indicates that the null hypothesis should be rejected.

Table 6.11. Contingency table of lithic reduction stage materials in the linear mound area at the Wheeler Lee site (34Pu-102): Phase II.

Components	Early Lithic Reduction Stage	Late Lithic Reduction Stage	Total
Component 2 (Woodland) Levels 1-2	18	24	42
Component 1 (Archaic) Levels 3-8	38	14	52
Total	56	38	94
x^2 - 8.80 D.F. - 1			

Variations between the components may reflect different emphasis on the stages of manufacturing. The Late Archaic component is predominantly made up of items from early stages of the reduction sequence *(01-10-01, 01-10-02, 01-14-00,* and *01-15-00)*. Presumably, cobbles were being collected and brought to the site for total biface reduction. The Woodland component predominantly consists of items from the later stages of the reduction sequence *(01-10-03, 01-10-04,* and *01-10-05)*. Possibly some cobbles were prepared at off site localities and transported to the site for further reduction.

Alternatively, the large number of thick bifaces in the Late Archaic component may reflect a higher incidence of failure during the early manufacturing stages coupled with little concern for recycling broken debris back into the reduction system. Less failure and/or more recycling of broken specimens could have occurred during the Woodland component.

Samples of select chipped stone artifacts (Table 6.12) and debitage (Table 6.13) from each component were sorted by lithic type to determine preferential use and difference between debitage and finished tools. The selected tool sample consists of most chipped stone tools from the linear and south mound areas. Modified flakes *(01-13-00)* were excluded because of the uncertainty of distinguishing accidentally from culturally modified materials. Table 6.12 reveals that all artifacts are made from locally available resources (Types A-J). In general, the dominant types for both components are similar. Figure 6.11 presents a graphic illustration of the differences between components in terms of chipped stone tools and lithic debitage. Although the lithic types vary between the two components, the percentage difference for any single lithic type is small. The maximum difference is only 8% for Type A. Overall, the two components are remarkably similar. The sample of lithic debitage consists of all unmodified flakes from N18-W10 and N30-W19. These units were selected because they contained the greatest density of flakes from the south and linear mound areas. Table 6.13 indicates that all debitage are derived from locally available sources. Figure 6.10 indicates that the differences between components are minimal, and the maximum difference for any single lithic type between components is only 6% for Type A.

A comparison of lithic types for the debitage and tools by each component reveals a very close fit (Tables 6.12 and 6.13). The greatest percentage difference for any single type in Component 1 is 3.7% for Type F, while the greatest difference for Component 2 is 5.3% for Type J. Based on these data, it can be argued that most tool manufacturing was conducted on site.

Table 6.12. Lithic type frequencies of selected artifacts from the linear and south mounds at the Wheeler Lee site (34Pu-102): Phase II.

Artifacts	A	B	C	D	E	F	G	H	I	J	Total
Component 1 (levels 3-8)											
Early Reduction Stages											
01-01-01	5	-	-	-	-	1	-	1	-	1	8
01-10-02	24	1	-	-	1	1	-	-	-	2	29
01-14-00	-	-	-	-	-	2	-	1	-	-	3
01-15-00	2	-	-	-	-	3	-	1	-	1	7
Late Reduction Stages											
01-10-03	11	1	-	-	-	1	1	1	-	-	15
01-10-04	2	-	-	-	-	-	-	-	-	-	1
01-10-05	1	-	-	-	-	-	-	1	-	1	3
Finished Tools											
01-01-01	8	-	-	-	-	-	-	3	-	4	15
01-01-02	-	1	-	-	-	-	-	1	-	-	2
01-01-05	2	-	-	-	-	-	-	-	-	-	2
01-05-02	1	-	-	-	-	1	-	-	-	-	2
01-11-00	1	-	-	-	-	-	-	-	-	-	1
01-12-00	18	1	-	-	-	-	-	4	-	2	25
Total	75	4	-	-	1	9	1	12	-	11	114
Percent	65.8	3.5	-	-	0.9	7.9	0.9	10.5	-	9.6	-
Component 2 (levels 1-2)											
Early Reduction Stages											
01-10-01	4	-	-	-	-	-	-	1	-	1	6
01-10-02	11	-	-	-	-	1	-	1	-	1	14
01-14-00	1	-	-	-	-	1	-	-	-	-	2
01-15-00	5	-	-	-	-	-	-	-	-	-	5
Late Reduction Stages											
01-10-03	17	1	-	-	1	-	-	1	-	-	20
01-10-04	2	-	-	-	-	-	-	1	-	-	3
01-10-05	3	-	-	-	-	-	-	-	-	1	4
Finished Tools											
01-01-01	8	3	-	-	-	-	-	1	-	1	13
01-01-02K	-	-	-	-	-	-	-	1	-	-	1
01-01-04	2	-	-	-	-	-	-	-	-	-	2
01-01-06	4	-	-	-	-	-	-	-	-	2	6
01-06-01	-	-	-	-	-	-	1	-	-	-	1
01-11-00	-	-	-	-	-	1	1	-	-	-	2
01-12-00	30	4	-	1	-	-	-	1	-	3	39
Total	87	8	-	1	1	3	2	7	-	9	118
Percent	73.7	6.8	-	0.8	0.8	2.5	1.7	5.9	-	7.6	-

Table 6.13. Debitage material type frequencies at the Wheeler Lee site (34Pu-102): Phase II.

Provenience (Level:Square)	A	B	C	D	E	F	G	H	I	J	Total
Component 1											
Level 3											
N18-W10	149	14	1	-	-	10	2	18	-	19	213
N30-W19	145	6	-	-	4	2	-	24	-	39	220
Level 4											
N18-W10	91	7	-	2	1	4	1	6	-	26	137
N30-W19	168	7	-	-	7	14	-	31	-	29	256
Level 5											
N18-W10	65	5	1	1	1	9	-	6	-	17	110
N30-W19	72	4	-	-	2	3	-	30	-	16	127
Level 6											
N18-W10	73	9	-	-	-	8	-	10	-	6	106
N30-W19	57	8	-	-	-	1	-	17	-	11	94
Level 7											
N18-W10	19	5	-	-	-	3	-	3	-	7	37
N30-W19	35	1	-	1	2	5	1	9	-	8	62
Level 8											
N18-W10	38	3	-	-	-	1	-	10	-	8	60
N30-W19	10	1	-	-	1	2	-	7	-	3	24
Level 9											
N18-W10	6	1	-	-	-	-	-	6	-	1	14
N30-W19	3	-	-	-	-	-	1	1	-	2	7
Level 10											
N18-W10	5	-	-	-	-	-	1	-	-	-	6
Total	936	71	2	4	18	62	6	178	-	192	1473
Percent	63.5	4.8	0.1	0.3	1.2	4.2	0.4	12.1	-	13.0	-
Component 2											
Level 1											
N18-W10	297	34	4	-	2	9	4	42	-	65	313
N30-W19	228	11	-	-	1	9	-	19	-	45	457
Level 2											
N18-W10	301	23	1	-	1	10	4	24	-	40	375
N30-W19	251	19	-	1	1	11	-	42	-	50	404
Total	1077	87	5	1	5	39	8	127	-	200	1549
Percent	69.5	5.6	0.3	0.1	0.3	2.5	0.5	8.2	-	12.9	-
Provenience uncertain											
N18-W10	8	1	-	-	-	-	-	4	-	3	16
Percent	6.0	0.8	0.2	0.2	0.9	0.9	0.1	3.9	-	0.1	-

34Pu-102. COMPARISON OF UNMODIFIED DEBITAGE AND TOOLS FROM THE PREHISTORIC COMPONENTS BY LITHIC MATERIAL TYPES.

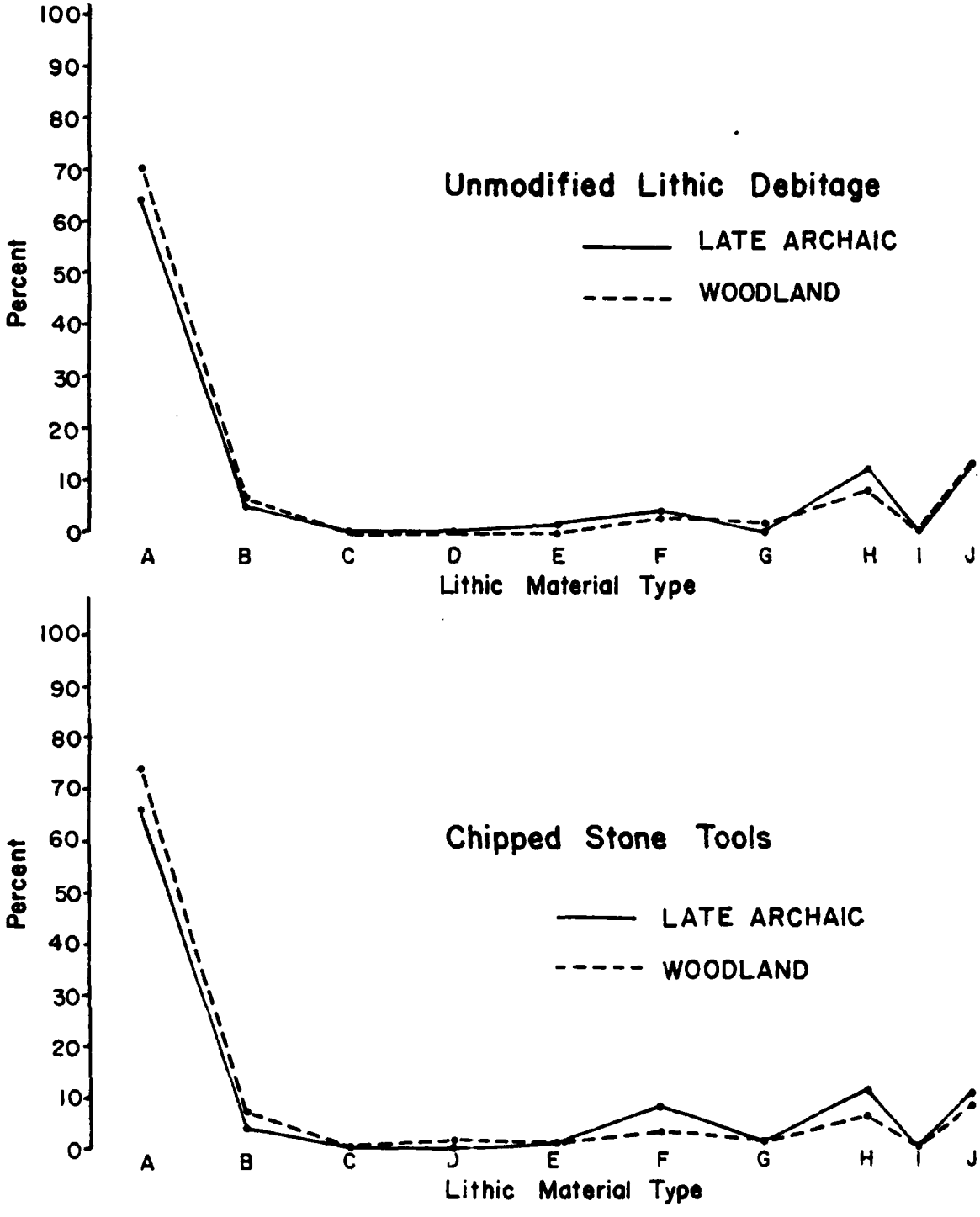


Figure 6.11. Comparison of lithic debitage and chipped stone tools by lithic material type at the Wheeler Lee site (34Pu-102): Phase II.

Activities

Activities during the prehistoric occupations can be inferred from the waterscreen residue, artifacts, and features. The waterscreen sample is derived from a 5 liter sample collected from each 5 cm level of the southeast corner of N28-W15. Table 6.14 presents the results of waterscreen sorts. As expected, quantities are abundant in the upper levels and diminish with depth. With few exceptions, variations do not appear to be significant. Nutshell and rocks are predominant at 15-20 cm, flakes and baked clay peak at 25-30 cm, and burned bone and baked clay are most common 45-50 cm below surface. Small quantities of burned bone, nutshell, charcoal, and clay in all levels suggest that cooking or processing activities using fire occurred in both components.

The components are characterized by very similar tool inventories, and activities of both components will be considered together. Inferred activity differences between components will be specifically mentioned.

Lithic reduction of chipped stone tools appears to be a major activity set. A generalized bifacial tool technology is present in both components. Lithic analysis has revealed that local resources were used and that the entire reduction system occurred on site. There is some evidence to indicate that the Late Archaic component may have been less concerned with recycling broken materials back into the reduction system.

Points *(01-01-00)* were the most common artifacts recovered. Large points may relate to a number of activities including hunting projectiles, knives, saws, or scrapers (Ahler 1971). As such they would be useful in procuring and processing faunal and occasional floral materials. Small points from the Woodland component are believed to function mainly as hunting projectiles.

Modified flakes *(01-13-00)* may represent tools used for a variety of short term, specialized cutting, shredding, and scraping activities (Wilmsem 1968). Some modified flakes could merely reflect incidental damage to flake debitage.

A double bitted ax *(01-06-01)* from the Woodland component may reflect woodworking. Unifacial scrapers *(01-05-02)* from the Late Archaic component may represent specialized faunal/vegetal processing implements for a number of different tasks. The vertical provenience of the single potsherd recovered earlier is undetermined (Drass 1977). However, its presence probably reflects limited cooking or storage activities.

The ground and pecked stone artifacts reflect a range of activities. Manos *(03-01-00)* and grinding slabs *(03-02-00)* suggest processing of vegetal resources (Mobley 1978). Hammerstones *(04-01-01A)* can be indicative of lithic reduction, pecked/ground stone tool manufacturing, or faunal reduction for the extraction of grease or marrow. The pitted stones *(04-02-00)* can be used in bipolar and split cobble lithic reduction or in vegetal and nut processing. The latter is probably the case since these artifacts are characterized by U-shaped depressions (Spears 1975).

Table 6.14. Counts and weights of 5 liter waterscreen sorts from N28-W15 at the Wheeler Lee site (34Pu-102): Phase II.

Provenience (Square:Level) (5 cm)	Burned Bone Ct.	Burned Bone Wt.	Nutshell Wt.	Shell Wt.	Insect Wt.	Seeds Unburned Wt.	Seeds Burned Ct.	Seeds Burned Wt.	Charcoal Wt.	Clay Wt.	Rocks Wt.	Grass Wt.	Flakes 1/4 inch Ct.	Flakes 1/4 inch Wt.	Flakes total Ct.	Flakes total Wt.	Other Wt.
N28-29 - W15-16 SE 1 (0-5 cm)	35	0.6g	0.1g	-	-	0.3g	7	<0.1g	<0.1g	0.9g	167.3g	20.0g	20	5.8g	211	8.6g	1.8g
N28-29 - W15-16 2 (5-10 cm)	25	0.1g	-	-	-	<0.1g	5	<0.1g	0.1g	0.2g	185.7g	2.4g	47	16.1g	234	36.0g	0.4g
N28-29 - W15-16 3 (10-15 cm)	10	0.1g	0.7g	-	-	<0.1g	-	-	0.3g	0.9g	409.1g	1.2g	32	28.1	128	32.1g	-
N28-29 - W15-16 4 (15-20 cm)	17	0.2g	0.1g	-	<0.1g	-	-	-	0.4g	1.8g	116.1g	1.7g	23	16.5g	103	19.6g	-
N28-29 - W15-16 5 (20-25 cm)	18	0.2g	0.3g	-	-	-	-	-	0.4g	1.5g	278.3g	1.6g	24	13.5g	176	16.6g	-
N28-29 - W15-16 6 (25-30 cm)	10	0.5g	0.5g	-	-	-	-	-	0.3g	2.2g	97.4g	0.6g	23	88.8g	76	91.1	-
N28-29 - W15-16 7 (30-35 cm)	23	0.8g	0.2g	-	-	<0.1g	-	-	0.4g	1.1g	14.3g	0.9g	15	8.0g	76	9.1g	-
N28-29 - W15-16 8 (35-40 cm)	15	0.3g	-	<0.1g	-	-	-	-	0.3g	1.3g	20.1g	0.3g	11	2.6g	74	4.1g	-
N28-29 - W15-16 9 (40-45 cm)	17	0.1g	-	-	-	<0.1g	-	-	0.1g	0.6g	5.8g	0.2g	2	1.3g	63	2.0g	<0.1g
N28-29 - W15-16 10 (45-50 cm)	27	0.2g	<0.1g	-	-	-	-	-	0.3g	2.3g	6.9g	0.2g	5	1.1g	52	1.7g	0.1g
N28-29 - W15-16 11 (50-55 cm)	19	0.1g	-	-	-	-	-	-	0.1g	0.8g	45.6g	<0.1g	6	4.0g	37	4.6g	-
N28-29 - W15-16 SE 12 (55-60 cm)	9	0.1g	-	-	-	-	-	-	<0.1g	0.1g	9.7g	<0.1g	5	1.9g	31	2.4g	<0.1g
N28-29 - W15-16 14 (65-70 cm)	9	0.1g	-	-	-	-	-	-	0.2g	-	0.5g	0.1g	-	-	22	0.6g	-
N28-29 - W15-16 15 (70-75 cm)	16	0.2g	-	-	<0.1g	-	-	-	0.4g	0.1g	57.0g	0.2g	4	2.8g	2[illegible]	3.1g	-
N28-29 - W15-16 16 (75-80 cm)	12	0.6g	0.1g	-	-	-	-	-	0.2g	0.1g	2.7g	0.1g	5	1.1g	18	1.5g	-
N28-29 W15-16 17 (80-85 cm)	2	0.1g	-	-	-	-	-	-	0.1g	0.2g	2.5g	0.1g	-	-	5	0.1g	-
N28-29 W15-16 18 (85-90 cm)	-	-	-	-	-	-	-	-	<0.1g	-	0.1g	<0.1g	-	-	2	<0.1g	-

Wt. indicates weight Ct. indicates count

Several ground stone varieties may suggest non-technoexploitive activities. The presence of faceted soft hematite fragments *(03-04-01A)* in the Late Archaic component indicates the use of pigments. The function of the polished specular hematite *(03-04-02A)* from the Woodland component is uncertain, but may be some kind of ornament. Similarly, the significance of the gorget fragments *(03-05-00)* in both components is uncertain.

Floral and faunal remains are scarce. The presence of charred nutshells suggests plant processing. A generalized gathering pattern is indicated by the burned turtle shells, but a wider range of animals may have been involved.

Most of the rock features are attributed to the Late Archaic component. Feature 79-2 is the only one possibly affiliated with the Woodland component. Although the precise function of these features is uncertain, most contain some burned rocks. An oven or hearth for the processing of plant and animal remains may be postulated (Hughes 1978: 7; Duncan and Cheek 1976: 104).

The burials are assigned to the Late Archaic component. The presence of multiple interments in a single grave may indicate the death of several people from disease, or accidental, or intentional causes within a short time. Alternatively, the burial may reflect the seasonal accumulation of the dead in a charnel area for later interment when conditions became more favorable.

From the range of features, tools, and inferred activities, it is postulated that the site functioned as a base camp rather than a special purpose camp during both prehistoric occupations (Bobalik 1977: 435). However, the occupational duration is uncertain.

A limited amount of glass, porcelain, and metal objects reflect a superficial historic component. Most materials represent construction or kitchen goods. The dates and activities for this component are in agreement with the historically documented saw mill camp southeast of the mound. The scarcity of material suggests that the camp was not within the tested limits of the mound. Perhaps the recovered materials represent refuse areas from the saw mill camp or were deposited when this area was cultivated.

SUMMARY

The Wheeler Lee site is in a low floodplain ridge of Jackfork Creek. The site is in pasture and has been under cultivation in the past. Twenty-one squares were excavated to culturally sterile soil or until flake counts dropped below 10.

There appear to be differences in deposition and bioturbation. The linear mound represents an erosional floodplain remnant formed by an old channel of Jackfork Creek to the south and an unnamed tributary to the north. A low mound in the old Jackfork Creek channel is thought be a sandbar remnant. These depositional differences precede cultural occupations at the site. Massive crawfish disturbances have occurred along the lower mound slopes and within the old Jackfork Creek channel. Because of these differences, three areas of the site were defined and analyzed separately: the linear mound area, the south mound area, and the lower slope area. Little emphasis was placed on the latter area because of massive disturbance.

Intrasite analysis suggested the presence of two prehistoric and one historic component. Component 1 is thought to represent a Late Archaic occupation. Two radiocarbon determinations of 1284 ±60 B.C. (Tx-3712) and 1727 ±70 B.C. (Tx-3713) date this Late Archaic component. From the wide range of materials and features recovered, a base camp was postulated. The multiple interment and most of the rock concentrations are attributed to this component. Major activities conducted during the Late Archaic include manufacture and maintenance of chipped and ground stone tools, hunting and gathering of animals, scraping, cutting, shredding, and grinding of plant and animal products, and processing of animal and vegetal materials. The presence of ground pigment suggests non-technoexploitive activities. Lithic resources appear to have been gathered locally and there seems to be little concern for the recycling of broken bifaces from the early reduction stages back into the manufacturing system.

Component 2, even though affected by cultivation, is believed to be a Woodland base camp with a similar range of activities as noted for the Late Archaic occupations. This component possibly has one rock feature (F79-2), but lacks the interments attributed to the earlier component. Artifact differences between the two components are minimal. There appears to be a continuity of Late Archaic cultural materials with the addition of small points and perhaps ceramics. Other differences involve the absence of pigment even though a polished specular hematite nodule is associated with the Woodland component. The relatively low proportion of thick bifaces is believed to reflect more concern for recycling broken bifaces into the lithic reduction system.

The last component represents a light scattering of historic material which dates to the early 1900s. Historically, a small lumber camp existed near, but apparently not on the site itself.

CHAPTER 7

THE ARROWHEAD HILL SITE (34Pu-105)

Sheila J. Bobalik

INTRODUCTION

This site is on a floodplain terrace approximately 165 m east of the present channel of Buffalo Creek. Several old meander scars which support a gallery forest of scrub oak circumscribe the site. One of two oxbows which parallel the western terrace edge truncates the northwestern margin of 34Pu-105. The slight rises or mounds apparent at the northern and southern edges of the site represent terrace remnants (Figure 7.1). The intervening nonmound area is a function of extensive erosion. The site has an elevation of 175 m (574 ft), but will be submerged at maximum flood pool level. Although cultivated in the past, the site area has most recently been used for pasture.

PREVIOUS INVESTIGATIONS

This site was recorded in 1972 (Neal 1972: 16). Subsequent testing involved the excavation of 20 post hole tests and three 1 m x 1 m test squares (Bobalik 1977: 517-554). Based on these tests, it was suggested that the site was multicomponent with cultural material concentrated along the western portion of the terrace, and that it covered a 100 m x 180 m area. A variety of chipped stone artifacts, ground stone, ceramics, bone, and baked clay were recovered (Bobalik 1977: 525-526). A carbon stained matrix (Feature 76-1) was excavated in the south mound area. Wood charcoal, baked clay, burned bone, ceramics, and thermally altered rocks were associated with this feature which yielded a date of A.D. 1100 ±75 (Bobalik 1977: 523).

Phase I investigations focused on the northern portion of the site (Vehik 1979f). At that time, a 40 m x 40 m grid block (A) was superimposed over the major concentration area. Twelve 1 m x 1 m squares were randomly selected from this block. Three nonrandom squares were excavated to more fully expose features from the intervening nonmound area and to test the south mound (Vehik 1979f: 397). An additional nonrandom square near the apex of the north mound was selected as a control unit, from which all sediments were waterscreened.

Materials collected during the 1978 program included: large and small stemmed projectile points, biface categories representing all stages of lithic reduction, lithic debitage, processing implements (such as a drill, scrapers, modified flakes, and pecked and ground stones), pottery, baked clay, bone,

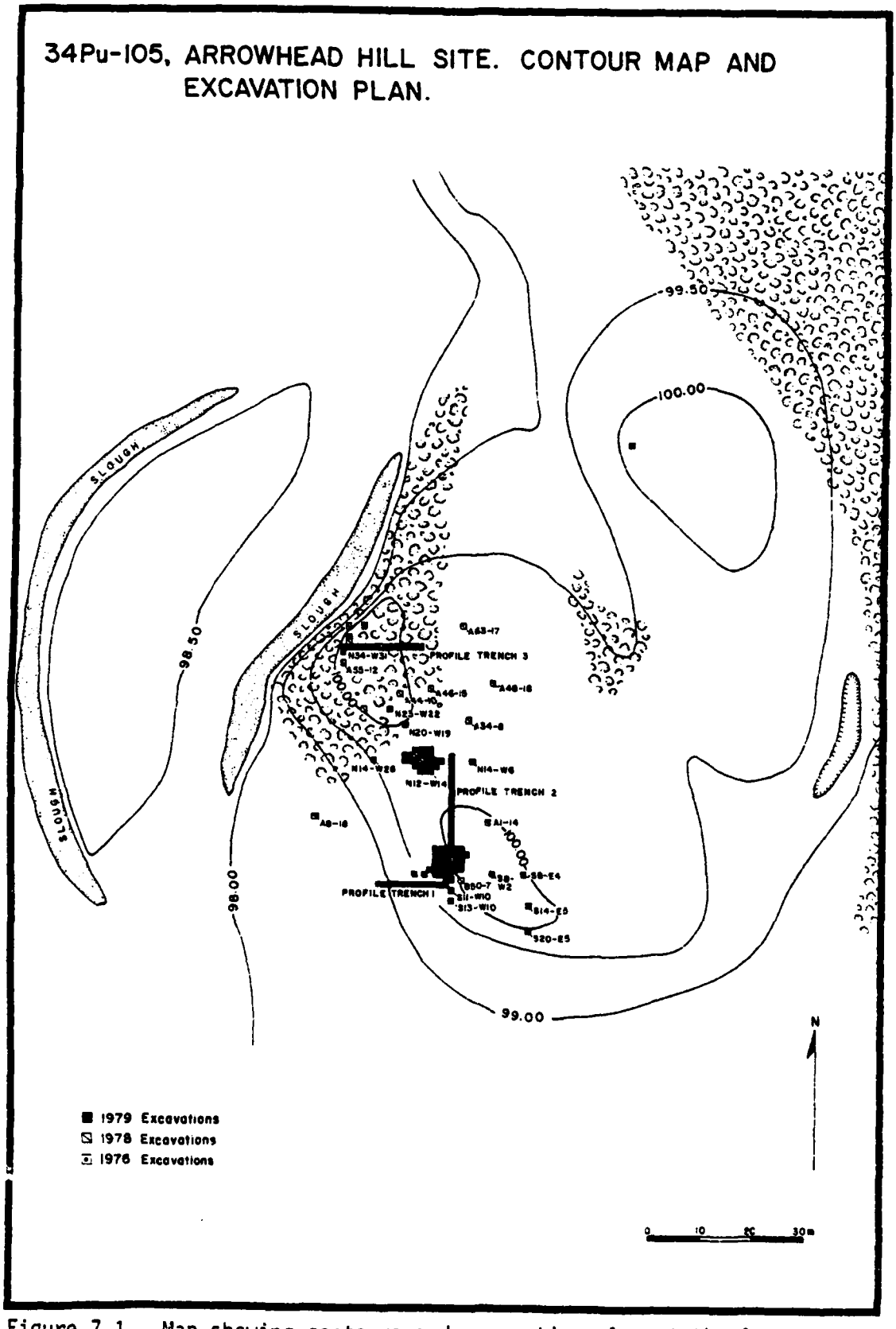


Figure 7.1. Map showing contours and excavation plan at the Arrowhead Hill site (34Pu-105): Phase II.

and historic debris (Vehik 1979f: 439, Table 75). Two rock features (F78-1 and F78-3) were excavated in the north mound area. A pit feature (F78-2) and a pit or postmold (F78-4) were recorded from the intervening nonmound area (Vehik 1979f: 401-403).

Charcoal collected from the north mound area yielded two radiocarbon dates (Vehik 1979f: 403-404). A date of A.D. 302 ±55 (UGa-2544) is from charcoal collected at a depth of 10-20 cm from a peripheral square in the north mound. A date of A.D. 616 ±55 (UGa-2545) is from charcoal recovered at the apex of the north mound at a depth of 25-30 cm.

On the basis of radiometric determinations and the artifact analyses, two prehistoric components and a historic component were suggested for 34Pu-105. Hunting, lithic reduction/maintenance, and resource processing are inferred activities for both prehistoric components. An early Caddoan occupation dated A.D. 1100 is hypothesized during which time the site is believed to have functioned as a base camp (Bobalik 1977: 551, 552; Vehik 1979f: 449-451). Feature 76-1 from the south mound is associated with this occupation. The pit features (F78-2 and F78-4) from the central nonmound area may also be associated with this component. An earlier Archaic/Woodland component which may date between A.D. 302-616 is also indicated. During this period, 34Pu-105 is believed to have been used as a special purpose extraction camp which may have been seasonally occupied (Vehik 1979f: 450). Two rock concentrations (F78-1 and F78-3) are attributed to this earlier component.

EXCAVATION STRATEGIES

The Phase II investigations were designed to refine the proposed chronology, isolate and determine feature relationships, verify proposed site functions, determine the presence of structures and their relationship to other features, and clarify stratigraphic relationships. Since the Phase I program concentrated on the north mound area, Phase II investigations focused on the central nonmound area and the south mound, and a series of contiguous 1 m squares were opened in both areas (Figure 7.1). Additional squares were excavated in all three areas to answer specific questions.

The 1978 grid system was incorporated into the Phase II research program. The 1978 square designations (A20-22) reflected Block A subdivisions employed in the random sampling process (Vehik 1979d: 71-73). However, implementation of this identification system is awkward and immediate recognition of adjacent or nearby squares is difficult. During Phase II, the 1978 permanent datum, established at the southeast corner of Block A, was assigned 0, 0 coordinates. As a result, 1979 square designations were based on the distance of the southeast corner from the permanent datum (N14-W15, S8-E4).

Excavations focused on the intervening nonmound area where a pit (F78-2) and a pit or postmold (F78-4) had been partially uncovered. Twenty-three squares were opened around the 1978 units which yielded these features.

These squares were excavated so that the same arbitrary level was exposed before subsequent levels were opened. This strategy allowed us to determine feature relationships. Two isolated 1 m squares were also excavated to discern the nature of the erosional sequence. All central area units were excavated in arbitrary 10 cm increments. Since the identification and interpretation of structures and other features was desired, Level 1 (0-10 cm) from the central area was generally not screened. However, the matrix from these 17 unscreened levels was carefully examined and any observed artifacts were collected. The remaining levels from this area were dry screened through 1/4-in mesh hardware cloth. Excavations were terminated when it was determined that there were no additional features in this area.

Investigations were then directed to the south mound area. A series of contiguous 1 m squares were opened around Feature 76-1. Since the feature intersected four of the Phase II 1 m squares, these partial squares were excavated as a single 2 m x 2 m unit (S6-W9). Seven 1 m squares were excavated to examine the periphery of the south mound area. Excavations generally proceeded in arbitrary 10 cm increments with the matrix being dry screened through 1/4-in mesh hardware cloth. However, this strategy was modified towards the end of the field season. In an effort to expose additional structure related features, nine 1 m squares were shovel skimmed to 20 cm or 30 cm below surface, and the sediments were examined but not screened. Below 30 cm each arbitrary 10 cm level was dry screened. Forty-six 1 m squares and one 2 m x 2 m unit were excavated from the south mound area.

A limited amount of work was conducted at the north mound area to assist stratigraphic interpretations and to obtain organic materials suitable for dating the lower deposits. Three 1 m squares (N20-W19, N23-W22, and N37-W30) were excavated in screened arbitrary 10 cm levels. A 1 m x 2 m unit (N34-W31) oriented north-south was selected for waterscreening in order to recover datable material. This unit was south of the 1978 waterscreen square (A58-10). Eleven 5 cm levels were excavated and the matrix was waterscreened through 1/16-in mesh hardware cloth. For each level, materials recovered from the north half of this 1 m x 2 m unit were segregated from the south half. Also, a five liter sample was collected from the south half of each level for flotation analysis. These five liter samples were totally picked in the laboratory while the remainder of the waterscreen levels were picked specifically for datable material.

Flotation samples were collected from features and all pits and postmolds were cross sectioned and profiled. Stratigraphic profiles were recorded for many of the excavation units. In addition, three mechanically excavated trenches provided stratigraphic profiles which facilitated lateral correlation of the three excavation areas. Given our concern with determining the nature and relationship of cultural features, time did not permit the excavation of all units to culturally sterile deposits. Therefore, excavations were terminated at various depths across the site. All opened areas were backfilled after the investigations were completed.

In summary, 76 units including a 2 m x 2 m and a 1 m x 2 m square were excavated during Phase II. Sixteen arbitrary 10 cm levels and 11 arbitrary 5 cm levels were excavated in the north mound along with 98 arbitrary 10 cm levels from the intervening nonmound area. South mound investigations involved 68 arbitrary 10 cm levels, five 20 cm levels, and four 30 cm levels.

STRATIGRAPHY

Eight stratigraphic units were identified at 34Pu-105. Backhoe trenches were used in an attempt to laterally correlate strata from the three major excavation areas. Profiles from these trenches illustrate the stratigraphic sequence (Figure 7.2). Color determinations are from moist samples (Munsell 1975). These descriptions represent a refinement of the stratigraphic sequence outlined during Phase I (Vehik 1979f: 397-401).

Stratum I

The uppermost stratum is composed of loose loam to silt loam extending across the site, and is believed to be the result of modern cultivation. Colors range from dark brown (10YR 3/3) to very dark grayish brown (10YR 3/2). Vertical thickness varies from 2-11 cm. Roots and medium to fine rootlets are common. Cultural materials are abundant.

Stratum II

This stratum consists of structureless dark brown (10YR 3/3) to very dark grayish brown (10YR 3/2) sediments. It extends over the entire site and varies in thickness from 18-38 cm. Textural classes range from silt loam to loam. Moderate to fine rootlets and worm casts are present.

A facies change from the northern to the southern part of the site may be present. The darker sediments from the south mound area are believed to be a function of more intensive cultural activities. Additionally, dark yellowish brown (10YR 4/4) mottles, 1-2 cm in diameter, are common for the central area. This mottling may reflect bioturbation and the natural stripping of this part of the terrace. Cultural materials are abundant.

Stratum III

This stratum is composed of a very dark grayish brown (10YR 3/2) compact silt loam. It is recognized at a depth of 25-34 cm and varies in thickness from 2-33 cm. Subangular blocky peds are weakly defined. This

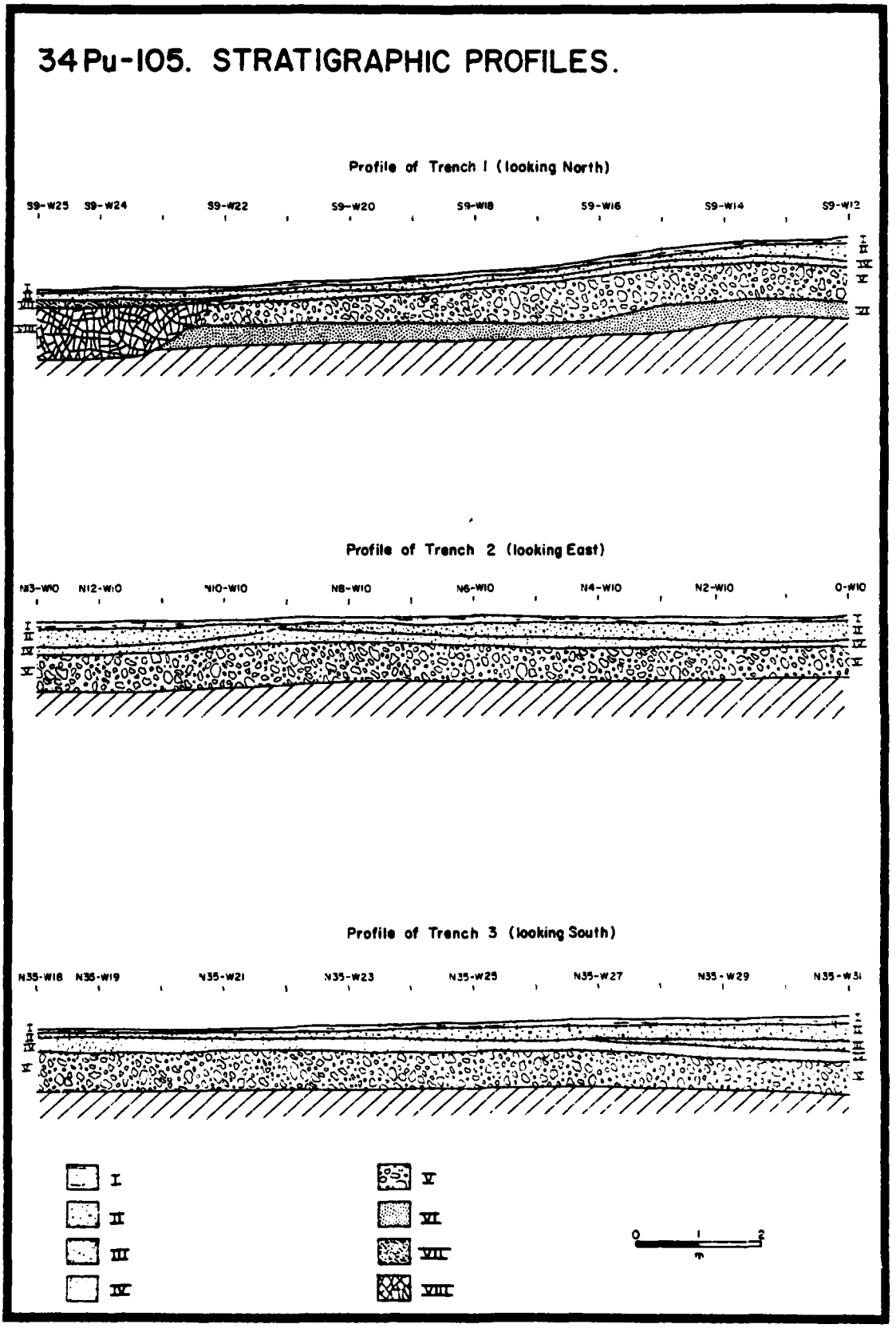


Figure 7.2. Stratigraphic profiles of backhoe trences at the Arrowhead Hill site (34Pu-105): Phase II.

stratigraphic unit underlies Stratum II but is restricted to the north mound area. Stratum III represents a buried soil that presumably extended over the terrace. Bioturbation is indicated. Cultural materials are not as common as in the preceding strata.

Stratum IV

This stratum consists of a very compact silt loam with approximately 10% more clay-sized particles than in the preceding strata. This stratum extends across the site and varies in thickness between 4-18 cm. It underlies Stratum II except in the north mound area where it underlies Stratum III. Colors range from a dark brown (7.5YR 3/2-4/4) to a dark yellowish brown (10YR 3/4-4/4). Moderate subangular blocky peds with few clay films on the ped faces characterize this unit. Cultural materials are present in limited quantities.

Stratum V

This is a basal soil composed of an extremely compact silt loam which approaches a clay loam and occurs over the entire terrace. Colors range from a strong brown (7.5YR 5/6) to a dark brown (7.5YR 3/4-4/4). Thick clay films are present on the faces of subangular blocky peds. A limited amount of cultural material which is most likely intrusive was recovered from the upper portion of this stratum.

Stratum VI

This stratigraphic unit is a dark yellowish brown (10YR 3/6) sandy loam. Mechanical analysis indicates that fine sand (33%) and very fine sand (29%) are the major constituents of this unit. This stratum, observed at a depth of 64-88 cm and at least 40 cm thick, is restricted to the eastern portion of the south mound profile trench where it underlies Stratum V. Cultural materials are absent.

Stratum VII

This stratum, believed to represent the uppermost unit of a cut and fill sequence, is a slightly porous dark yellowish brown (10YR 3/4) loam. It is restricted to the western portion of the south mound profile trench, and underlies Stratum II at a depth of 14 cm ranging in thickness from 6-16 cm. Moderate subangular blocky peds are observed. Cultural materials are absent.

Stratum VIII

This stratigraphic unit is a very dark grayish brown (10YR 3/2) extremely compact clay loam. It is restricted to the western portion of the south mound profile trench. It underlies Stratum VII at a depth of 22-28 cm and represents the earlier segment of a cut and fill episode. Stratum VIII varies in thickness from 4 cm to at least 76 cm. Thick clay films occur on the faces of subangular blocky peds. Few pores are noted. Cultural materials are absent.

Discussion

The identified strata generally consist of well sorted silts and sands indicative of low energy fluvial deposition. The profile sections also provide evidence of extensive erosion of the terrace soils (Figure 7.2). Strata VII and VIII reflect an old cut and fill sequence which truncates Strata IV, V, and VI along the southwestern edge of the terrace. Strata VII and VIII may represent a relic channel filling. Additional erosion was extensive enough to remove much of Stratum III and expose the underlying soil for the central and southern portions of the terrace. As a result, a remnant of this buried soil (Stratum III) is restricted to the north mound area. A subsequent depositional episode (Stratum II) covered the entire terrace area. The present terrace configuration is the function of an additional period of erosion. This natural stripping probably removed the uppermost deposits from the central portion of the site.

FEATURES

A variety of features were excavated. They include: 11 pits, one rock concentration, and seven postmolds associated with a single structure. Two of the pits were partially exposed during the 1978 investigations. Color determinations are based on moist samples (Munsell 1975).

Pits

Feature 78-2 (Figure 7.3)

This pit was partially excavated during the 1978 field program (Vehik 1979f: 401). In 1979, the remaining quarter of this feature was uncovered in the southwest corner of N15-W16 at a depth of 10-45 cm. The pit walls taper toward a slightly convex base. The fill consisted of a very dark brown (10YR 2/2) loam while the more compact surrounding matrix was a dark brown (10YR 3/3) silt loam. A few flakes and two thermally altered rocks were recovered from this quarter of the feature. Flotation of the pit matrix yeilded charcoal (2.2 g), burned nuts (0.1 g) and tiny nodules of baked clay. A krotovina extends from the base.

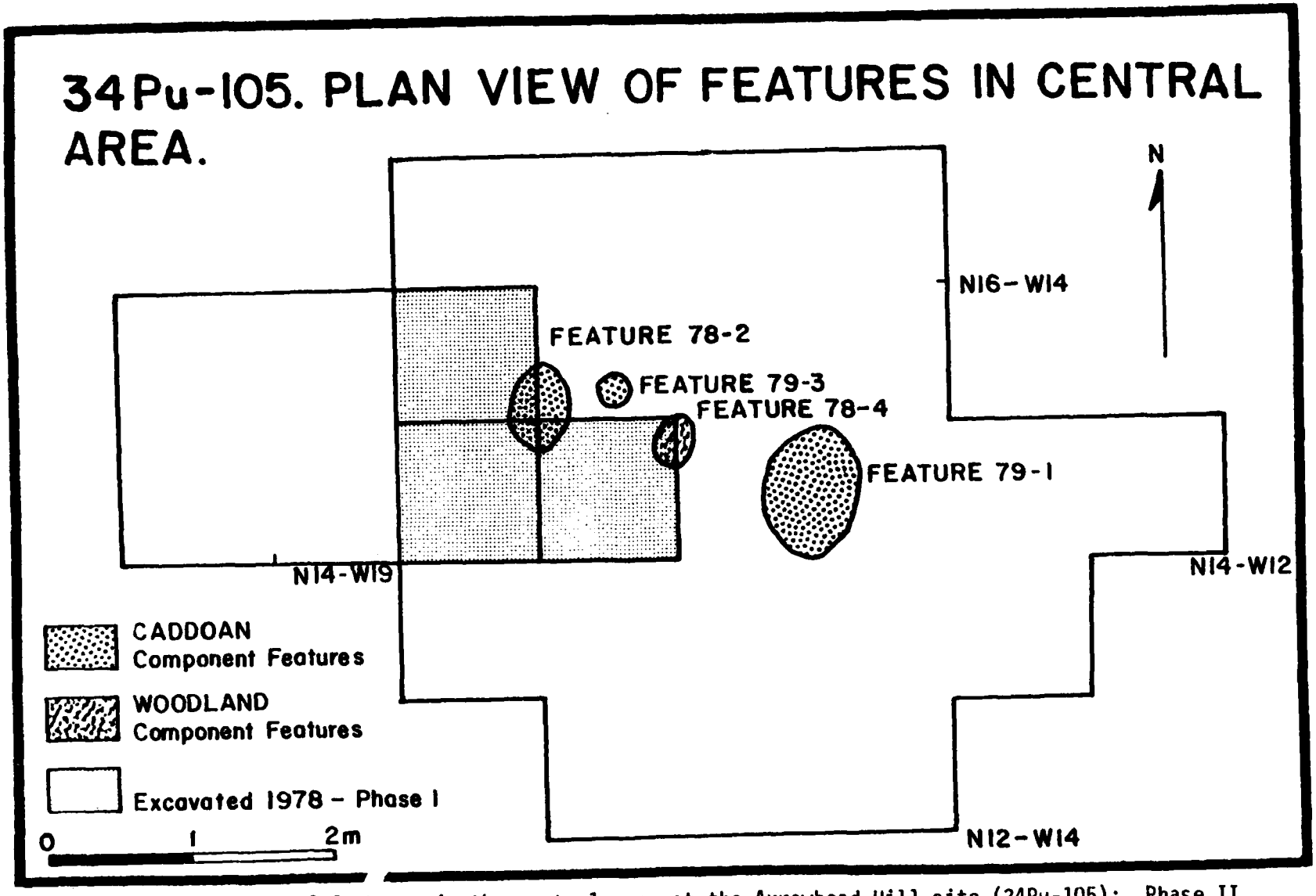


Figure 7.3. Plan view of features in the central area at the Arrowhead Hill site (34Pu-105): Phase II.

Feature 78-4 (Figure 7.3)

This elliptical shaped feature was partially exposed in 1978. The remainder was uncovered this season in the northwest corner of N14-W15. It was first noted at 25 cm below ground surface and continued to a depth of 55 cm, and measures 29 cm east-west and 25 cm north-south at its orifice. The walls taper slightly toward the convex base. The pit matrix is a very dark brown (10YR 2/2) loam and the surrounding sediments are a more compact dark brown (10YR 3/3) silt loam. Irregularities in the feature margins are a function of bioturbation. A split cobble *(01-15-01A)*, flakes, and charcoal flecks (0.1 g) are associated with the feature.

Feature 79-1 (Figure 7.3)

This elliptical shaped feature measures 81 cm x 100 cm at the orifice and the walls taper slightly toward the base. It is in the western third of square N14-W14 and the eastern half of N14-W15. The pit is broad and shallow, and was first observed 6 cm below ground surface, continuing to a depth of 30 cm. The fill consists of loose very dark brown (10YR 2/2) loam with scattered flecks of charcoal. The surrounding matrix is dark brown (10YR 3/3) compact silt loam. The diffuse boundaries of this pit are believed to be due to bioturbation. Associated materials include one sherd *(02-10-05A)*, a piece of unmodified hematite *(04-04-01A)*, charcoal (1.3 g), burned nuts (1.1 g), flakes, and a few thermally altered sandstone fragments.

Feature 79-3 (Figure 7.3)

This circular feature was first observed at 10 cm below surface and continued to a depth of 40 cm. It is in the southern half of N15-W16. The southern edge of the feature apparently extended into a 1978 excavation unit (A20-22). The feature orifice measures 26 cm east-west and at least 28 cm north-south. The walls taper slightly toward the convex base which was disturbed by an animal burrow. The feature fill consists of a loose very dark brown (10YR 2/2) loam. The surrounding matrix is a compact dark brown (10YR 3/3) silt loam. Flotation of the pit matrix has yielded charcoal (0.6 g), burned nuts (0.1 g), and small pieces of baked clay.

Feature 79-5 (Figure 7.4)

This feature consists of a roughly circular concentration of burned nutshells. It is in the northeast quarter of S6-W11, and was first noticed at 30 cm below surface, extending to a depth of 46 cm. The margins of this feature could not be clearly discerned. However, the nuts were more concentrated in an area measuring 38 cm north-south and 31 cm east-west. This feature probably represents a pit. The feature matrix is somewhat looser than the surrounding sediments and consists of very dark brown (10YR 2/2) loam. The surrounding matrix is very dark grayish brown (10YR 3/2) loam. Burned nutshells (23.3 g), charcoal, burned bone, baked clay, and a few angular rocks were recovered from this feature.

Feature 79-6 (Figure 7.4)

This elliptical shaped feature measures 22 cm x 30 cm at its orifice. The walls taper slightly toward the convex base. It is in the southwest corner of S4-W8, and was first observed 40 cm below surface and extended to a depth of 66 cm. The matrix consists of a loose very dark brown (10YR 2/2) loam. The surrounding matrix is a more compact very dark grayish brown (10YR 3/2) loam. Ten chert cobbles were stacked in the feature along its north wall. The diffuse boundaries of this pit are a result of bioturbation. Associated materials include a Thin Biface I *(01-10-03A)*, charcoal (3.9 g), burned nuts (0.2 g), and tiny pieces of baked clay, bone, and shell.

Feature 79-9 (Figure 7.4)

This pit, in the center of S7-W14, is kidney-shaped in plan view. It was recognized at 30 cm below ground surface and continued to a depth of 54 cm. The matrix consists of a loose dark gray (10YR 4/1) loam. Although the pit orifice measures 48 cm north-south, the east-west orifice dimension is only 19 cm. This feature is shelved in profile since at 46 cm below surface, the east-west dimension of the pit expands to 32 cm in width. At that point, the pit walls begin tapering toward the convex base.

The matrix surrounding this pit consists of compact strong brown (7.5YR 5/6) loam with subangular blocky structure and clay skins on ped faces. Similar sediments occur east of the feature and are believed to represent dirt which was removed during pit construction. This area of possible backdirt exhibits the same color, texture, structure, and clay skins as the underlying deposit. However, this possible backdirt was first observed along the eastern margins of the pit at a depth of 10 cm. The horizontal extent of this backdirt increases with depth and truncates the feature wall to produce the kidney-shaped orifice. It is suggested that the pit was used and then partially filled with backdirt, possibly as a result of slope wash. However, the pit continued to be utilized after it was partially filled. This interpretation is consistent with the shape and profile outline of the feature. Additionally, it explains the occurrence of the compact strong brown subangular blocky sediments above and surrounding this pit.

An alternative interpretation is that the feature configuration is a function of bioturbation. This does not adequately explain the occurrence of the sediments with clay skins in the stratum above the feature. However, rodent disturbance may have contributed to some of the irregularity observed for this feature. Flotation of a sample of the pit fill has yielded charcoal (1.0 g) and burned nuts (0.1 g).

Feature 79-10

This feature probably represents a pit. Located in the northeast corner of S8-E4, this semi-circular feature is truncated on the north by an unexcavated square. It measures 42 cm east-west and at least 18 cm north-south at the orifice. The feature walls taper toward the convex base.

The feature was first observed 30 cm below surface and continued to a depth of 62 cm. The fill is a loose very dark brown (10YR 2/2) loam. The surrounding matrix is pale brown (10YR 6/3) loam. A flotation sample of the feature matrix produced one piece of pottery *(02-01-01B)*, charcoal (5.3 g), burned nuts (3.2 g), baked clay, and tiny fragments of bone and shell.

Feature 79-11 (Figure 7.3)

This irregularly circular feature is in S4-W11 and S4-W10. It measures 32 cm x 27 cm at the orifice and tapers toward the convex base. This feature was first recorded at 34 cm below surface and continued to a depth of 51 cm. The feature matrix consists of very dark brown (10YR 2/2) loam with considerable quantities of charcoal. The more compact surrounding sediments are a very dark grayish brown (10YR 3/2) loam. Flotation of the feature fill yeilded charcoal (47.0 g), burned nuts (0.4 g), baked clay (13.5 g), and a few unidentifiable bone fragments. Charcoal from this pit has yielded a date of A.D. 1013 ±90 (WSU-2354).

Feature 79-12 (Figure 7.4)

This circular feature is in S3-W13 and S3-W12. It was first observed at 30 cm and continued to a depth of 46 cm. It measures 72 cm x 74 cm at the orifice and the walls taper toward the base. The irregular margins are a function of bioturbation. The feature matrix is a loose very dark brown (10YR 2/2) loam with considerable quantities of charcoal. The more compact surrounding sediments are a very dark grayish brown (10YR 3/2) loam. A sample of the feature was removed for flotation analysis. This yielded charcoal (31.1 g), burned nuts (2.1 g), and tiny pieces of baked clay and shell.

Feature 79-13 (Figure 7.4)

This feature is a circular pit with an orifice diameter of 26 cm. It is in the southeast corner of S4-W10 and the northeast corner of S5-W10. It was first observed about 30 cm below surface and continued to a depth of 39 cm. The pit walls taper slightly toward the convex base. The fill consists of a loose very dark brown (10YR 2/2) loam with numerous pieces of charcoal. The surrounding sediments are a more compact very dark grayish brown (10YR 3/2) loam. Flotation of the feature matrix has produced charcoal (56.6 g), burned nuts (1.3 g), tiny pieces of baked clay, and bone fragments.

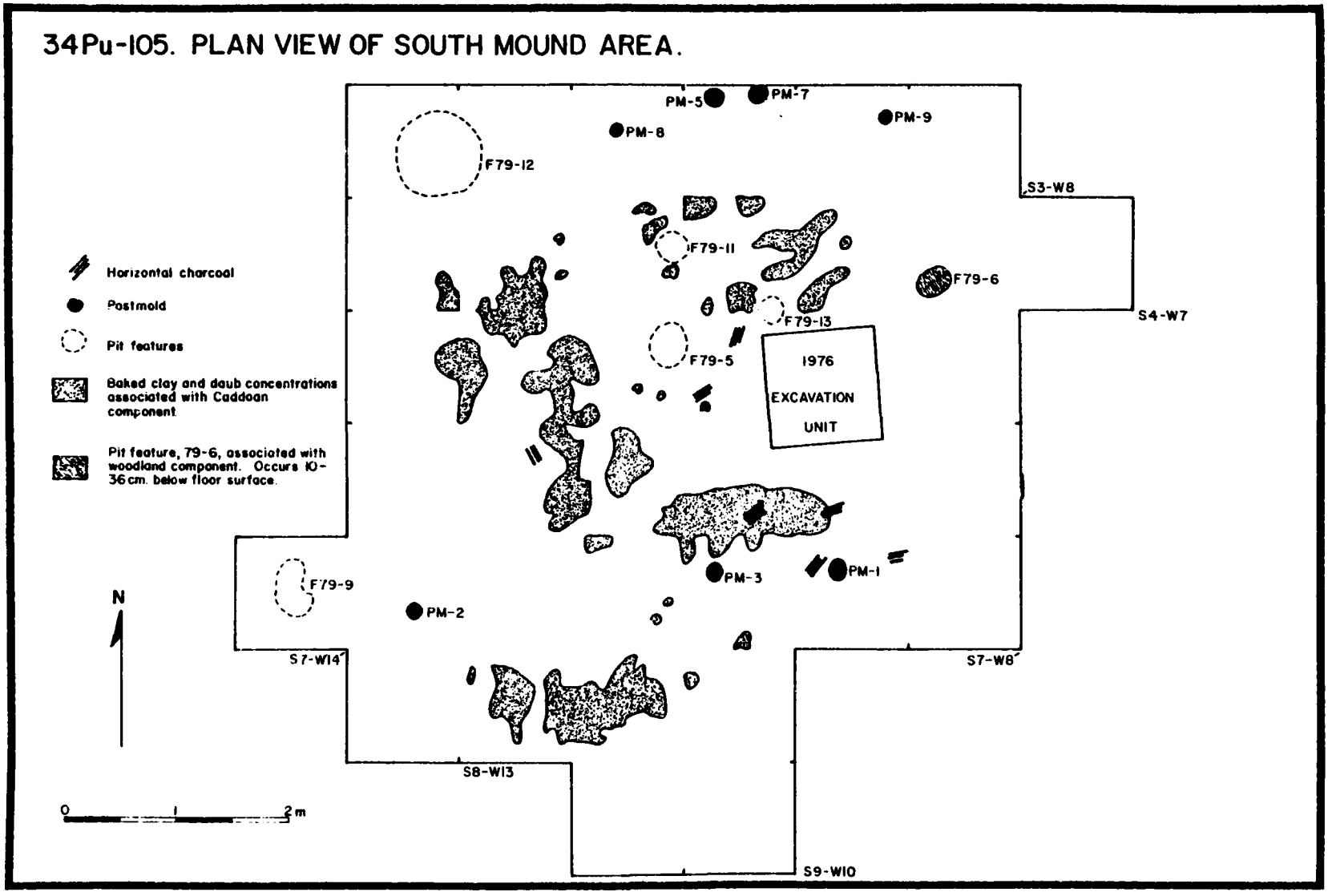
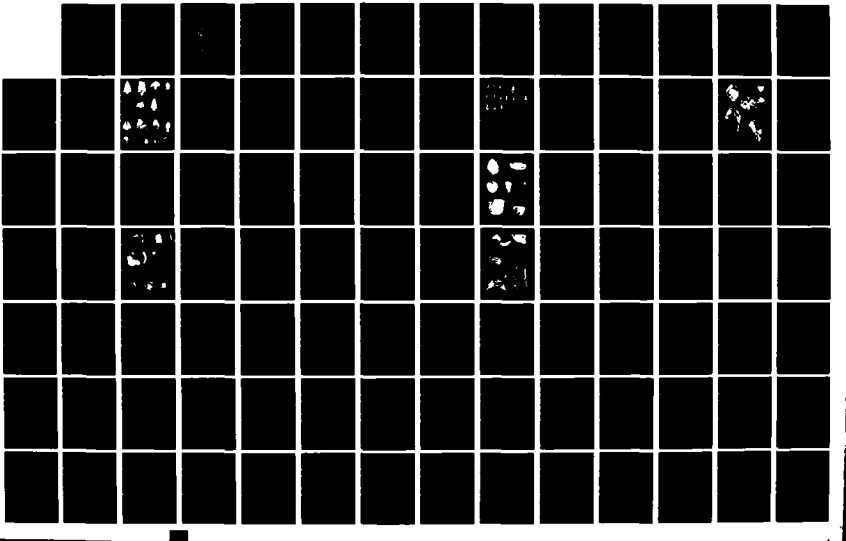
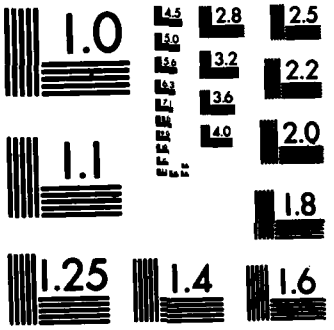


Figure 7.4. Plan view of features and possible structure on the south mound area of the Arrowhead Hill site (34Pu-105): Phase II.

AD-A122 361 ARCHAEOLOGICAL INVESTIGATIONS AT CLAYTON LAKE SOUTHEAST OKLAHOMA PHASE II(U) OKLAHOMA UNIV NORMAN ARCHAELOGICAL RESEARCH AND MANAGEMENT CE.. R VEHIK ET AL. 1982 4/5

UNCLASSIFIED DACW56-78-C-0212 F/G 5/6 NL





Rock Concentration

Feature 79-2 (Figure 7.5)

This feature is a fairly well sorted scatter of approximately 20 sandstone and streamworn chert cobbles in N23-W22. It occurs between 17-28 cm below ground surface and appears to continue into unexcavated areas. The rocks range between 4-12 cm in diameter and none appear thermally altered. The associated matrix is dark brown (10YR 3/3) silt loam which does not appear to have been oxidized. A flotation sample from the feature matrix yielded charcoal (2.4 g), burned nuts (0.1 g), and small pieces of baked clay and bone fragments. These data suggest either a short term burning episode or a secondary depositional context. Associated artifacts include two thick bifaces *(01-10-02A)*, a split cobble *(01-15-01A)*, and a unifacial mano fragment *(03-01-01A)*. One slipped piece of pottery *(02-01-02A)* from Level 3 of this square is possibly associated with the feature but was recovered near a disturbed area.

Feature 79-2 is approximately 3 m south of rock feature 78-1 which was exposed during the 1978 excavation (Vehik 1979f: 403). These features exhibit virtually identical stratigraphic positions and matrix associations, and may actually represent a single rock concentration.

Structure I

A series of related features have been exposed in the south mound area (Figure 7.4). These include postmolds and extensive concentrations of charcoal and daub including Feature 76-1. Seven postmolds define the north and south walls of the structure. The distance between the two series of postmolds is 4.2 m. The east and west walls and interior roof supports could not be defined. Three pits (F79-5, F79-11, and F79-13) located within the presumed walls of the structure along with two nearby pits (F79-9 and F79-12) are believed to be associated with it. Associated materials are generally restricted to the following area: S3 to S7 and W9 to W13.

Wall and Roof Fall

Daub and charcoal occur between 10-30 cm below ground surface. Dense concentrations of daub and most of the charcoal were exposed near the presumed center of the structure (Figure 7.4). Two burned logs were recovered from this area at a depth of 20-26 cm. Some of the daub exhibits cane or stick and grass impressions, and mud dauber nests were recovered from the daub concentrations. A radiocarbon date of A.D. 1100 ±75 (UGa-1519) from Feature 76-1 dates this structure (Bobalik 1977: 523). This material is believed to represent roof and wall fall.

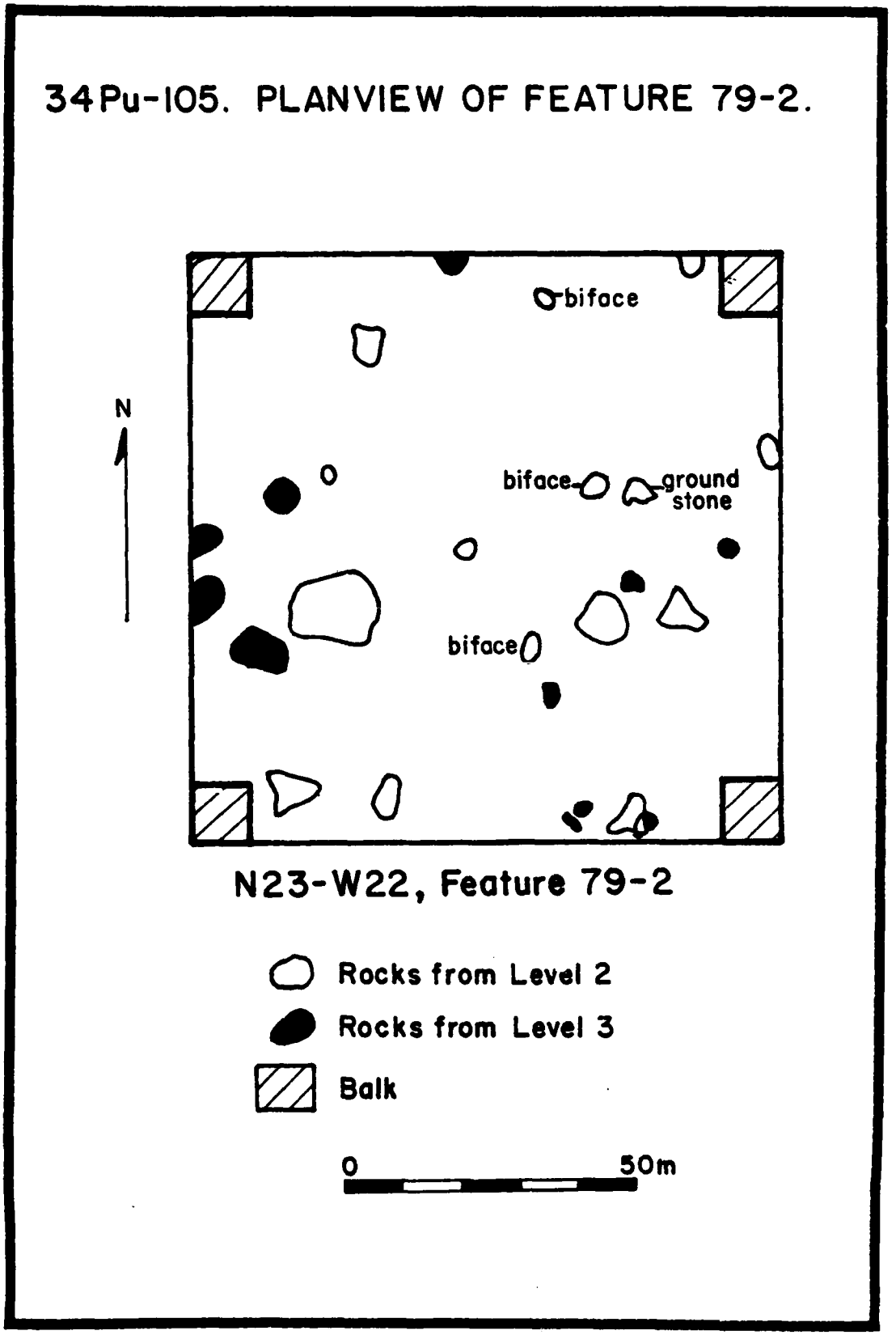


Figure 7.5. Plan view of Feature 79-2 at 10-20 cm and 20-30 cm in N33-W22 at the Arrowhead Hill site (34Pu-105): Phase II.

Table 7.1. Description of postmolds associated with Structure 1 at the Arrowhead Hill site (34Pu-105): Phase II.

Feature Number	Postmold Number	Diameter (cm)	Depth* (cm)	Shape (Planview)	Description	Square
F79-4	1	20 x 19	46-62	circular	dark stain, charcoal flecks (.1g)	S7-W9
F79-7	2	15 x 11	45-53	irregular	dark stain, charcoal flecks	S7-W13
79-8	3	15 x 15	50-61	circular	dark stain, vertical burned post, charcoal (8.0g)	S7-W10
F79-14	5	19 x 16	40-56	irregular	dark stain, vertical burned post, charcoal (9.0g) submitted for C-14	S3-W10
F79-15	7	18 x 16	50-64	circular	dark stain, charcoal flecks (.5g)	S3-W10
F79-16	8	9 x 9	40-47	circular	dark stain, charcoal flecks	S3-W11
F79-17	9	12 x 12	40-51	circular	dark stain, charcoal flecks	S3-W9

*below ground surface

Floor

No distinction could be made between the floor and the overlying roof and wall fall matrix. However, there are large pieces of charcoal oriented parallel to the ground surface in Level 3 (20-30 cm). In addition, the quantity of daub and charcoal decreases markedly below this level. Therefore, the analytical floor for the structure has been placed between 20-30 cm.

Wall Construction

Two series of irregularly spaced postmolds are believed to indicate the north and south walls of the structure. The southern row is represented by three postmolds while the northern wall consists of four postmolds arranged in a slight arch (Figure 7.4). The postmolds are characterized by steeply tapered walls, rounded bases, and a vertical orientation. They exhibit a loose very dark brown (10YR 2/2) charcoal matrix and range between 9-20 cm in diameter (Table 7.1). Unfortunately, the postmolds could not be detected until they penetrated Stratum IV between 40-50 cm deep. This is several centimeters below the structure's analytical floor. Charcoal collected from Postmold 5 (F79-14) has yielded a date of A.D. 1126 ±90 (WSU-2355).

RADIOCARBON DATES

Seven radiocarbon dates are available for 34Pu-105. Three of these determinations, discussed below, are based on charcoal collected during Phase II while material for the fourth sample was recovered during the 1978 investigations. Although corrected dates are provided, the uncorrected determinations based upon the half life of 5730 will be used throughout this report.

SMU-703 (Sample No. 34Pu-105-4):

Half Life 5730	= 1707 ±54 B.P.
Uncorrected Date	= A.D. 243 ±54
Corrected Date	= A.D. 290-320 ±64 (Ralph, Michael, and Han 1973)
Corrected Date	= A.D. 305 ±60 (Damon, Ferguson, Long, and Wallick 1974)
Provenience	= A58-10; Level 8 (35-40 cm)
Material	= 11.0 g charcoal and burned nutshell (*Carya* spp.) recovered from the 1978 waterscreen square. Surrounding matrix is a compact silt loam (Stratum III).
Comments	= This stratigraphic assay dates the bottom of Stratum III at the apex of the north mound.

WSU-2353 (Sample No. 34Pu-105-5):

Half Life 5730 = 1648 ±85 B.P.
Uncorrected Date = A.D. 302 ±85
Corrected Date = A.D. 390 ±95 (Ralph et al. 1973)
Corrected Date = A.D. 366 ±89 (Damon et al. 1974)
Provenience = N34-W31; Level 11 (50-55 cm)
Material = 10.8 g charcoal collected from north half of 1 m x 2 m waterscreen unit. Surrounding matrix is a very compact silt loam (Stratum IV).
Comments = This stratigraphic date corresponds to the top of Stratum IV near the apex of the north mound.

WSU-2354 (Sample No. 34Pu-105-6):

Half Life 5730 = 937 ±90 B.P.
Uncorrected Date = A.D. 1013 ±90
Corrected Date = A.D. 1053 ±100 (Ralph et al. 1973)
Corrected Date = A.D. 1046 ±95 (Damon et al. 1974)
Provenience = Feature 79-11; S4-W11 and S4-W10; (34-51 cm)
Material = 20.0 g charcoal collected during flotation of feature matrix.
Comments = This sample provides a date for an internal pit feature associated with Structure I.

WSU-2355 (Sample No. 34Pu-105-7):

Half Life 5730 = 824 ±90 B.P.
Uncorrected Date = A.D. 1126 ±90
Corrected Date = A.D. 1186 ±100 (Ralph et al. 1973)
Corrected Date = A.D. 1148 ±95 (Damon et al. 1974)
Provenience = Postmold 5 (F79-14); S3-W10; (41-57 cm).
Material = 9.0 g charcoal recovered during flotation of postmold contents.
Comments = This sample provides a date for Structure I.

These determinations are consistent with dates previously obtained at the site. Samples WSU-2354 and WSU-2355 bracket the date of A.D. 1100 ±75 (UGa-1519) based on roof and wall fall (F76-1) from Structure 1 (Bobalik 1977: 523). The four stratigraphic dates from the north mound area form a sequence ranging from A.D. 243 ±54 (SMU-703) to A.D. 616 ±55 (UGa-2545). Sample WSU-2353 is consistent with an earlier determination of A.D. 302 ±55 (UGa-2544) for the top of Stratum IV at the periphery of the north mound (Vehik 1979f: 404). Although sample SMU-703 appears to be out of sequence with respect to its stratigraphic position (bottom Stratum III), the standard deviations of SMU-703, UGa-2544 and WSU-2353 all overlap. In general, the stratigraphic dates from the north mound area are consistent with current interpretations of site stratigraphy and cultural occupation.

CULTURAL REMAINS

Cultural remains are described in the following section. Table 7.2 lists artifact categories and varieties used in this analysis. Summary statistics for selected chipped stone and ground stone artifacts are in Tables 7.3 and 7.6. Measurements are in millimeters and generally represent maximum dimensions. The terminology used in the ceramic section follows Brown (1971). Munsell soil color charts (Munsell 1975) have been used to determine color variation of the ceramic sample.

Chipped Stone *(01)*

POINTS (01-00)

Large Contracting Stemmed Points *(01-01-01)*

01-01-01A N=86: 6 Complete, 80 Fragmentary (Figure 7.6a-c)

These points have pronounced contracting stems and triangular blades. Maximum width occurs at the shoulders which range from prominent to weakly defined. Cross sections are biconvex (65%) and plano-convex (35%). Acute tips occur in 13% of the sample and 16% have slightly rounded distal ends due to reworking. Distal impact fractures occur on 8% of these specimens. Blade edges are straight (55%), slightly concave (24%), or slightly convex (20%). Base outlines include convex (54%), pointed (14%), straight (4%), and indeterminate (28%). Most of the specimens have been reworked, especially at the shoulders (70%).

Comments: These artifacts are comparable to the *Gary* point type.

References: Bell 1958: 28, Pl. 14; Suhm and Jelks 1962: 197, Pl. 99.

Large Expanding Stemmed/Corner-Notched Points *(01-01-02)*

01-01-02F N=2: 2 Fragmentary (Figure 7.6d-e)

These artifacts have triangular blades. Maximum width is at the shoulders which are weakly defined. The expanding stems result from broad, shallow corner notches. Bases are straight with slightly rounded basal corners. An impact fracture occurs at the distal end of one item. The other artifact has a rounded tip due to extensive reworking of the blade. Both specimens have reworked shoulders. Blade edges are slightly convex, and cross sections are biconvex.

Comments: These are similar to *Ellis* points.

References: Bell 1960: 32, Pl. 16; Suhm and Jelks 1962: 187, Pl. 94.

Table 7.2. Summary of artifact categories and varieties from the Arrowhead Hill site (34Pu-105): Phase II.

Chipped Stone *(01)*

POINTS (01-00)
- Large Contracting Stemmed Points *(01-01)*
  - *01-01A*
- Large Expanding Stemmed/Corner-Notched Points *(01-02)*
  - *01-02F*
  - *01-02G*
  - *01-02H*
  - *01-02N*
  - *01-02O*
  - *01-02T*
  - *01-02W*
  - *01-02AA*
- Large Straight Stemmed Points *(01-04)*
  - *01-04A*
  - *01-04G*
- Small Expanding Stemmed/Corner-Notched Points *(01-06)*
  - *01-06A*
  - *01-06C*
  - *01-06D*
  - *01-06J*
  - *01-06K*
  - *01-06L*
  - *01-06M*
- Small Expanding Stemmed/Side-Notched Points *(01-07)*
  - *01-07A*
  - *01-07C*
  - *01-07G*
  - *01-07H*
  - *01-07I*
  - *01-07J*
- Small Unstemmed Points *(01-08)*
  - *01-08A*
  - *01-08D*
- Small Parallel Stemmed/Corner-Notched Points *(01-09)*
  - *01-09A*
  - *01-09B*

DRILLS (02-00)
- Shaped Base Drills *(02-01)*
  - *02-01B*

WEDGES (03-00)
- *03-01A*

SCRAPERS (05-00)
- Flake/Unifacial Scrapers *(05-02)*
  - *05-02A*

Table 7.2. Continued

DOUBLE-BITTED AXES (06-00)
06-01A

HOES (07-00)
07-01A

BIFACES (10-00)
Cobble/Quarried Block Biface I *(10-01)*
10-01A
Cobble/Block Biface II/Thick Biface *(10-02)*
10-02A
Thin Biface I *(10-03)*
10-03A
Thin Biface IIa *(10-04)*
10-04A
Thin Biface IIb *(10-05)*
10-05A
10-05B
Cobble/Block Biface III *(10-06)*
10-06A

MISCELLANEOUS BIFACE IMPLEMENTS (11-00)
Thick Biface Tool *(11-02)*
11-02A
Split Cobble Tool *(11-08)*
11-08A

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)
12-01A

MODIFIED FLAKES (13-00)
13-01A
13-01B

CORES (14-00)
14-01A

SPLIT/TESTED COBBLES (15-00)
Split Cobbles *(15-01)*
15-01A
Tested Cobbles *(15-02)*
15-02A

DEBITAGE (16-00)
16-01A

Table 7.2. Continued

Fired Clay *(02)*

CERAMICS (01-00)
- Plain Grog, Grit, and Bone Tempered Wares *(01-01)*
  - *01-01A*
  - *01-01B*
- Decorated/Slipped Grog, Grit, and Bone Tempered Wares *(01-02)*
  - *01-02A*
  - *01-02D*
  - *01-02E*
  - *01-02F*
  - *01-02H*
  - *01-02I*
  - *01-02J*
  - *01-02K*
  - *01-02L*
  - *01-02M*
- Plain Shell Tempered Wares *(01-03)*
  - *01-03A*
- Decorated Shell Tempered Wares *(01-04)*
  - *01-04A*
- Plain Shale Tempered Wares *(01-05)*
  - *01-05A*

BAKED CLAY (03-00)
- Baked Clay *(03-01)*
  - *03-01A*
  - *03-01B*
- Mud Dauber Nests *(03-02)*
  - *03-02A*

Ground Stone *(03)*

MANOS (01-00)
- Unifacial Manos *(01-01)*
  - *01-01A*
- Bifacial Manos *(01-02)*
  - *01-02A*
- Pitted Manos *(01-04)*
  - *01-04A*

METATE/GRINDING SLAB (02-00)
- Slab *(02-01)*
  - *02-01A*

GROUND/RUBBED HEMATITE (04-00)
- Ground Hematite *(04-01)*
  - *04-01A*
- Polished Hematite *(04-02)*
  - *04-02A*

Table 7.2. Continued

GORGETS (05-00)
05-01B

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)
Smoothed/Scratched Stones *(06-05)*
06-05A
06-05B

Pecked/Battered/Unmodified Cobbles *(04)*

PITTED STONES (02-00)
Unifacial *(02-01)*
02-01A
Bifacial *(02-02)*
02-02A

MISCELLANEOUS PECKED/BATTERED STONE (03-00)
03-01A

UNMODIFIED COBBLES/PEBBLES (04-00)
Unmodified Hematite/Limonite *(04-01)*
04-01A

Historic Debris *(07)*

GLASS (01-00)
01-01A
01-01B
01-01C
01-01H

METAL (03-00)
Nails *(03-01)*
03-01A
03-01B
Fence Staple *(03-04)*
03-04A
Slugs *(03-07)*
03-07A
Metal Button *(03-10)*
03-10A
Wagon Hardware *(03-11)*
03-11A

Table 7.2. Continued

Faunal *(08)*
BONE/HORN/TEETH (01-00)
01-01A
SHELL (02-00)
Mollusc *(02-01)*
02-01A
Floral *(09)*

01-01-02G N=2: 2 Fragmentary (Figure 7.6f)

These specimens have triangular blades with straight to slightly concave edges. Cross sections are biconvex and plano-convex. Maximum width is at the pronounced shoulders. The shoulders of one point are barbed, and on both the shoulders are broken. The expanding stems are well-defined with straight edges and are the result of large, broad corner notches. The bases are straight with rounded basal corners. The tips of both specimens are broken. An impact fracture occurs at the distal end of one specimen. The blade edges have been reworked.

Comments: Specimens in this variety are similar to the *Summerfield* type.

References: Galm and Flynn 1978: 167, Fig. 36 h-i; 229, Fig. 47 h-j.

01-01-02H N=4: 4 Fragmentary (Figure 7.6g)

These specimens have triangular blades. Maximum width is at the shoulders which are pronounced and barbed. Blade edges are slightly concave (75%) or straight (25%). One item exhibits alternately beveled blade edges. Two cross sections are biconvex and two are plano-convex. Two specimens have acute tips and the others are broken. Deep, narrow corner notching has resulted in expanding stems. Bases are straight with acute basal corners. All exhibit reworked shoulders and one specimen has a reworked distal end.

Comments: These artifacts are comparable to *Marcos* points.

References: Bell 1958: 42, Pl. 21; Suhm and Jelks 1962: 209, Pl. 105.

01-01-02N N=1: 1 Complete (Figure 7.6h)

This artifact has a long, broad triangular blade. The tip is rounded due to reworking. Maximum width is at the shoulders which are pronounced and weakly barbed. The blade edges are slightly convex, and display evidence of reworking. Deep corner notches have produced a short broad expanding stem. The base is slightly convex and basal corners are acute. It has a biconvex cross section.

Comments: This artifact resembles the *Williams* point type in haft morphology.

References: Bell 1960: 96, Pl. 48; Suhm and Jelks 1962: 259, Pl. 130.

01-01-02O N=1: 1 Complete (Figure 7.6i)

This specimen has a short, broad triangular blade with convex edges. The distal end is rounded due to reworking. It is plano-convex in cross section. Maximum width is at the shoulders which are prominently barbed and reworked. The short, narrow base expands as a result of deep corner notches. The base is slightly convex and the basal corners are acute.

Comments: It resembles points of the *Snyders* type.

References: Bell 1959: 88, Pl. 44.

01-01-02T N=1: 1 Fragmentary (Figure 7.6j)

This artifact is characterized by a broad triangular blade with straight edges. It has prominent, barbed shoulders which are in line with the straight base. Basal corners are acute. The expanding stem is well-defined and is the result of deep corner notches. It has a biconvex cross section.

Comments: This item is similar to the *Castroville* points.

References: Bell 1960: 14, Pl. 7.

01-01-02W N=1: 1 Fragmentary (Figure 7.6k)

This reworked specimen exhibits a triangular blade with straight edges. Maximum width is at the broken shoulders. The base is straight with rounded basal corners. Deep, broad corner notches have produced an expanding stem. The cross section is biconvex.

01-01-02AA N=1: 1 Fragmentary (Figure 7.6n)

This specimen has a long, narrow triangular blade with straight edges. Maximum width is at the shoulders which are weakly defined. The artifact is biconvex in cross section. The base is concave and the basal corners are slightly rounded. The expanding stem is the result of broad, shallow corner notches. The distal end is missing due to an impact fracture.

Comments: This item is comparable to the *Darl* points.

References: Bell 1960: 26, Pl. 13; Suhm and Jelks 1962: 179, Pl. 90.

Large Straight Stemmed Points *(01-01-04)*

01-01-04A N=2: 2 Fragmentary (Figure 7.6l)

These specimens have reworked triangular blades with straight edges. They are characterized by long straight stems. Maximum width is at the reworked shoulders which are pronounced. One artifact is broken so that the base outline could not be discerned. The other specimen has a slightly convex base with acute basal corners. They have biconvex cross sections.

Comments: These artifacts are comparable to *Carrollton* points.

References: Bell 1958: 12, Pl. 6; Suhm and Jelks 1962: 171, Pl. 86.

Figure 7.6. Selected chipped stone artifacts from the Arrowhead Hill site (34Pu-105): Phase II.

a-c: *01-01-01A*

d-e: *01-01-02F*

f: *01-01-02G*

g: *01-01-02H*

h: *01-01-02N*

i: *01-01-02O*

j: *01-01-02T*

k: *01-01-02W*

l: *01-01-04A*

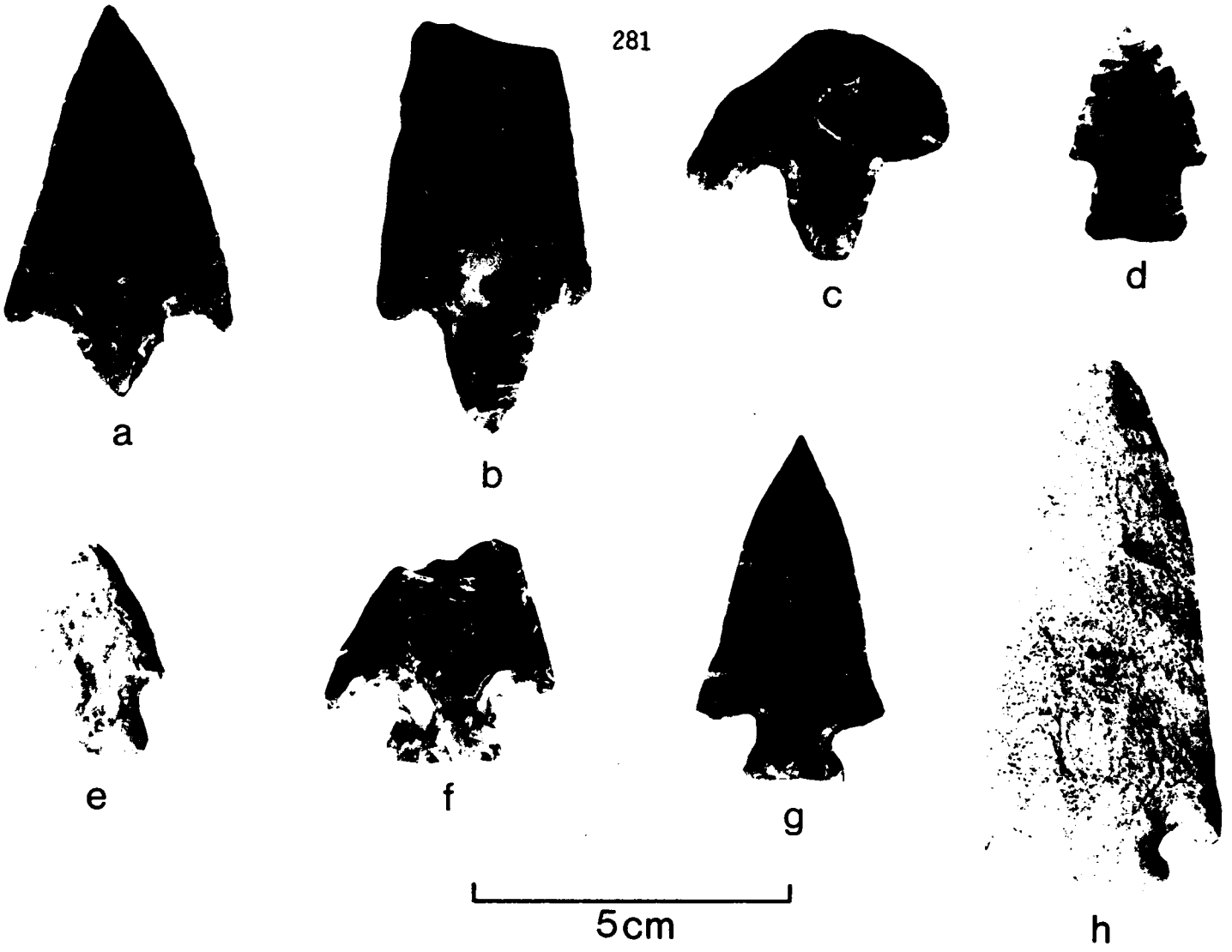
m: *01-01-04G*

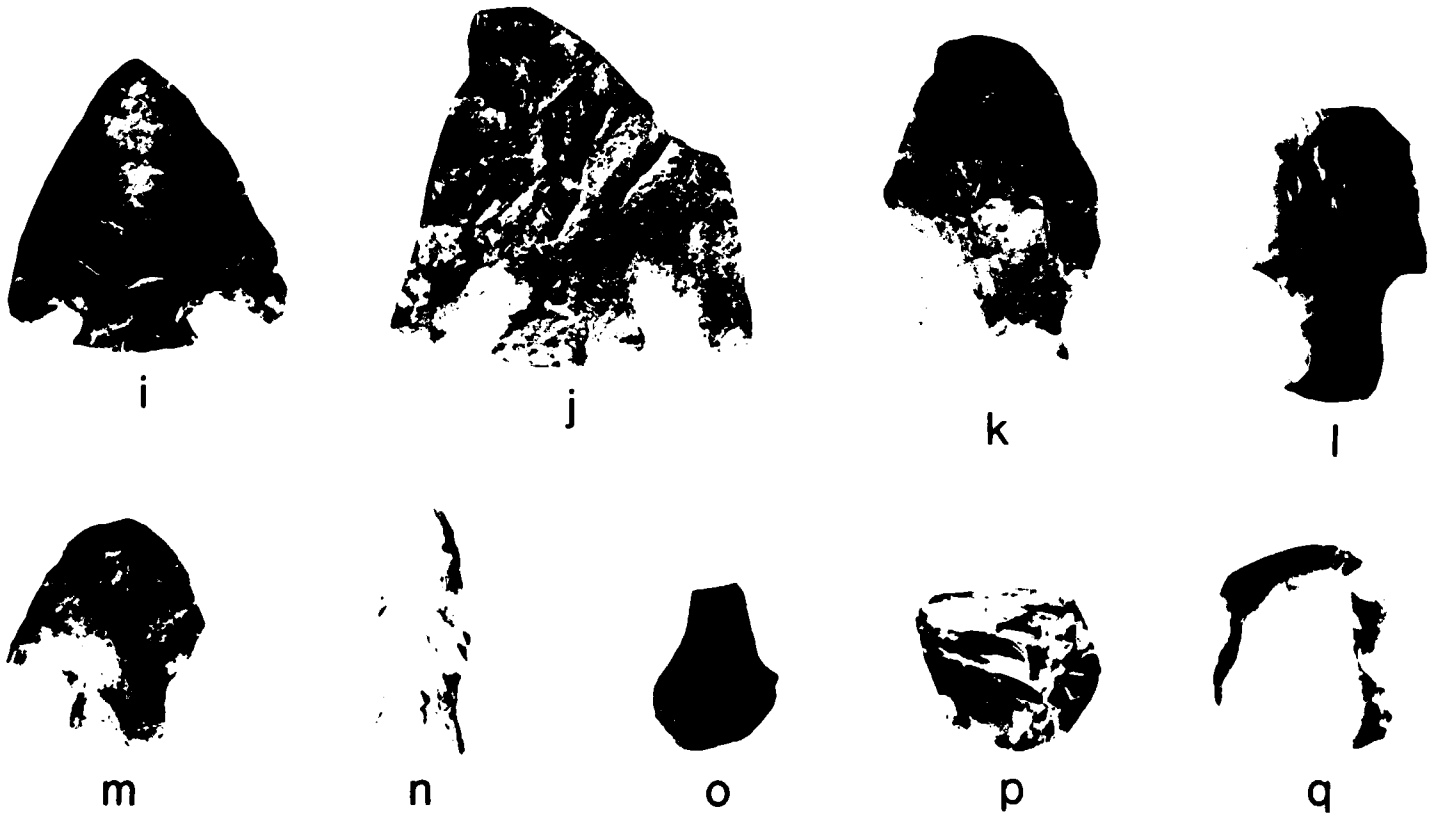
n: *01-01-02AA*

o: *01-02-01B*

p: *01-03-01A*

q: *01-05-02A*


a
b
c
d
e
f
g
h
5cm


i
j
k
l
m
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o
p
q

01-01-04G N=1: 1 Fragmentary (Figure 7.6m)

This artifact which has a biconvex cross section exhibits a straight stem, but the base outline could not be determined. The reworked blade is triangular with straight edges. Maximum width is at the shoulders. The complete shoulder is slightly barbed. An impact fracture occurs at the distal end.

Small Expanding Stemmed/Corner-Notched Points *(01-01-06)*

01-01-06A N=11: 3 Complete, 8 Fragmentary (Figure 7.7a)

These artifacts have triangular blades. The complete specimens have acute tips. Maximum width is at the prominent shoulders. Barbs are present on 27% of the sample. Cross sections are either biconvex (36%) or plano-convex (64%). The plano-convex items have extensive flaking on one surface and minimal edge modification on the opposite surface. As a result, the original ventral surface of the flake is present. Blade edges are straight (64%), concave (18%), or convex (18%). Bases are straight to slightly convex. Deep, narrow corner notches produce an expanding stem.

Comments: These specimens resemble the *Scallorn* point type.

References: Bell 1960: 84, Pl. 42; Suhm and Jelks 1962: 285, Pl. 143; Brown 1976: 81-82, Figure 17.

01-01-06C N=3: 3 Fragmentary (Figure 7.7b)

These items are characterized by narrow, deep corner notches and barbed shoulders where maximum width is attained. Blades are triangular with slightly concave blade edges. Stems are expanding and bases are straight (67%) or convex (33%). Cross sections are biconvex and plano-convex. The plano-convex specimen exhibits only minimal edge modification on one surface.

Comments: These are similar to *Agee* points.

References: Brown 1976: 73, Figure 14.

01-01-06D N=1: 1 Complete (Figure 7.7c)

This item has a triangular blade, an acute distal tip and straight blade edges. It has relatively narrow corner notches and an expanding stem. The base is convex and basal corners are acute. Maximum width is at the shoulders which are prominent. It has a biconvex cross section.

Comments: This specimen is similar to *Homan* points.

References: Perino 1968: 34, Pl. 17; Brown 1976: 92, Figure 17.

01-01-06J N=6: 6 Fragmentary (Figure 7.7d)

These specimens have triangular blades. Distal ends are acute (33%). Maximum width is at the shoulders which are prominent. Deep corner notches produce an expanding stem with straight edges. Blade edges are straight (83%) or serrated (17%). Three bases are straight and three are slightly convex. Only one specimen is bifacially well flaked and has a biconvex cross section. The remaining artifacts have plano-convex cross sections. They exhibit only minimal edge modification of the ventral surface of the flake.

Comments: These artifacts are comparable to the *Massard* type.

References: Brown 1976: 68, Figure 13, 16, 17.

01-01-06K N=3: 2 Complete, 1 Fragmentary (Figure 7.7e)

These items exhibit relatively long triangular blades with acute distal ends and either concave (67%) or slightly convex (33%) blade edges. Maximum width is at the shoulders which are prominent, slightly barbed, and reworked. Bases are concave with rounded basal corners. Expanding stems are due to deep, broad corner notches. One extensively bifacially flaked specimen has a biconvex cross section. The others have plano-convex cross sections, and exhibit minimal edge modification of the original flake ventral surface.

Comments: These specimens are comparable to the *Pocola brazil* point type.

References: Brown 1976: 87, Figure 13 t-u.

01-01-06L N=1: 1 Complete (Figure 7.7f)

This specimen is distinguished by a long, narrow triangular blade and a plano-convex cross section. The distal end is acute. Blade edges are straight and the maximum width occurs at the shoulders which are weakly defined. Relatively narrow corner notches have resulted in an expanding stem which is nearly as wide as the shoulders. The base is slightly convex and the basal corners are rounded. The ventral surface exhibits minimal edge modification.

Comments: This item resembles *Sequoyah* type points.

References: Perino 1968: 88, Pl. 44; Brown 1976: 90, Figure 16.

01-01-06M N=1: 1 Complete (Figure 7.7g)

This reworked artifact has deep, narrow corner notches and an expanding stem. Maximum width is at the base which is slightly concave. Basal corners are acute. Shoulders are pronounced. One blade edge is straight while the opposite edge has been reworked so that it appears to have been notched. The distal end is rounded due to reworking. The cross section is biconvex.

Small Expanding Stemmed/Side-Notched Points *(01-01-07)*

01-01-07A N=3: 3 Fragmentary (Figure 7.7h)

These artifacts have concave bases with rounded basal corners. Maximum width occurs at the shoulders which are prominent but unbarbed. Blades are triangular and the blade edges are straight. Deep, narrow side notches have produced an expanding stem. Cross sections are plano-convex since the ventral surface is unaltered except for minimal edge modification.

Comments: Specimens in this group are similar to the *Morris* type.

References: Bell 1958: 60, Pl. 30; Brown 1976: 93, Figure 18 a-w.

01-01-07C N=4: 1 Complete, 3 Fragmentary (Figure 7.7i)

These expanding stemmed specimens are characterized by narrow side notches which are relatively low placed. The triangular blades have straight edges and the tips are acute. The reworked shoulders are prominent and unbarbed. Maximum width occurs at the bases which are straight. Basal corners are slightly rounded. Cross sections are plano-convex (75%) or biconvex (25%). The plano-convex specimen displays only minimal edge modification of one surface.

Comments: These items resemble the *Reed* point type.

References: Bell 1958: 76, Pl. 38; Brown 1976: 104, Figure 19.

01-01-07G N=1: 1 Fragmentary (Figure 7.7j)

This specimen has a triangular blade with straight edges. The shoulders are reworked and weakly defined. The side notches are relatively narrow and low. The base at which maximum width is attained is slightly concave and basal corners are squared. It is plano-convex in cross section. Flaking incompletely masks the ventral surface.

Comments: This artifact resembles the *Haskell* point type.

References: Brown 1976: 97, Figure 19.

01-01-07H N=2: 1 Complete, 1 Fragmentary (Figure 7.7k)

These artifacts have triangular blades. The tip on the complete specimen is acute. Maximum width occurs at the shoulders which are prominent but unbarbed. They have deep, narrow side notches. Bases are convex with rounded basal corners. The incomplete specimen has convex blade edges. The other artifact has convex and concave blade edges. Cross sections are plano-convex. The ventral surface is unaltered except for minimal edge modification.

Comments: These items are similar to *Keota* points.

References: Perino 1968: 42, Pl. 21; Brown 1976: 100, Figure 18.

01-01-07I N=1: 1 Fragmentary (Figure 7.7l)

This artifact is characterized by broad, shallow side notches. Maximum width occurs at the base which is straight. Basal corners are rounded. It has a triangular blade with straight edges. The weak shoulders are reworked. The distal end has been broken as a result of an impact fracture. The cross section is biconvex.

Comments: This artifact resembles *Schild* points.

References: Brown 1976: 73, Figure 17.

01-01-07J N=3: 3 Fragmentary (Figure 7.7m)

These artifacts have triangular blades with straight edges. They are typified by relatively high placed, narrow side notches. Shoulders are weakly defined. The bases are straight to slightly concave with rounded basal corners. Maximum width is at the base. Cross sections are biconvex.

Comments: These items are similar to the *Toyah* type.

References: Suhm and Jelks 1962: 291, Pl. 146; Brown 1976: 109, Figure 119.

Small Unstemmed Points *(01-01-08)*

01-01-08A N=4: 4 Fragmentary (Figure 7.7n)

These triangular shaped artifacts exhibit straight to slightly convex lateral edges. Tips are broken. Bases are either straight (75%) or concave (25%) and the corners are acute. Cross sections are biconvex.

Comments: These artifacts are comparable to *Fresno* type points.

References: Bell 1960: 44, Pl. 22; Suhm and Jelks 1962: 273, Pl. 137; Brown 1976: 111, Figure 17 c'-d'.

01-01-08D N=2: 2 Complete (Figure 7.7o)

These ovate shaped artifacts lack notches. Distal ends are acute or rounded due to reworking. Bases are unmodified and represent the original flake edge. Cross sections are plano-convex. The ventral surface is unaltered except for minimal edge modification.

Comments: These artifacts resemble the *Young* points.

References: Bell 1960: 100, Pl. 50; Suhm and Jelks 1962: 295, Pl. 148; Brown 1976: 112, Figure 17 e'.

Small Parallel Stemmed/Corner-Notched Points *(01-01-09)*

01-01-09A N=1: 1 Fragmentary (Figure 7.7p)

This item has a triangular blade with one straight and one slightly concave edge. The tip is missing due to an impact fracture. Maximum width occurs at the shoulders which are prominent. Very wide corner notches have produced a short, broad, parallel-sided stem. The base represents the original flake platform and broad corners are acute. The cross section is plano-convex. The ventral surface is unaltered except for minimal edge modification.

Comments: This item most closely resembles *Alba* points.

References: Bell 1958: 8, Pl. 4; Suhm and Jelks 1962: 263, Pl. 132; Brown 1976: 61, Figure 12.

01-01-09B N=1: 1 Complete (Figure 7.7q)

This artifact has a triangular blade with straight, slightly serrated edges. The tip is acute. Maximum width occurs at the reworked shoulders. One shoulder is slightly barbed. Very wide corner notches have produced a narrow parallel sided stem. The base is straight and the basal corners are rounded. It has a biconvex cross section.

Comments: This item is similar to the *Bonham* type.

References: Suhm and Jelks 1962: 269, Pl. 135; Bell 1960: 10, Pl. 5.

DRILLS (02-00)

Shaped Base Drills *(01-02-01)*

01-02-01B N=1: 1 Fragmentary (Figure 7.6o)

This bifacially flaked specimen has a bulbous base and a broken blade element which tapers slightly. Crushing occurs along the lateral edge of the blade element. This item lacks cortex and has a biconvex cross section.

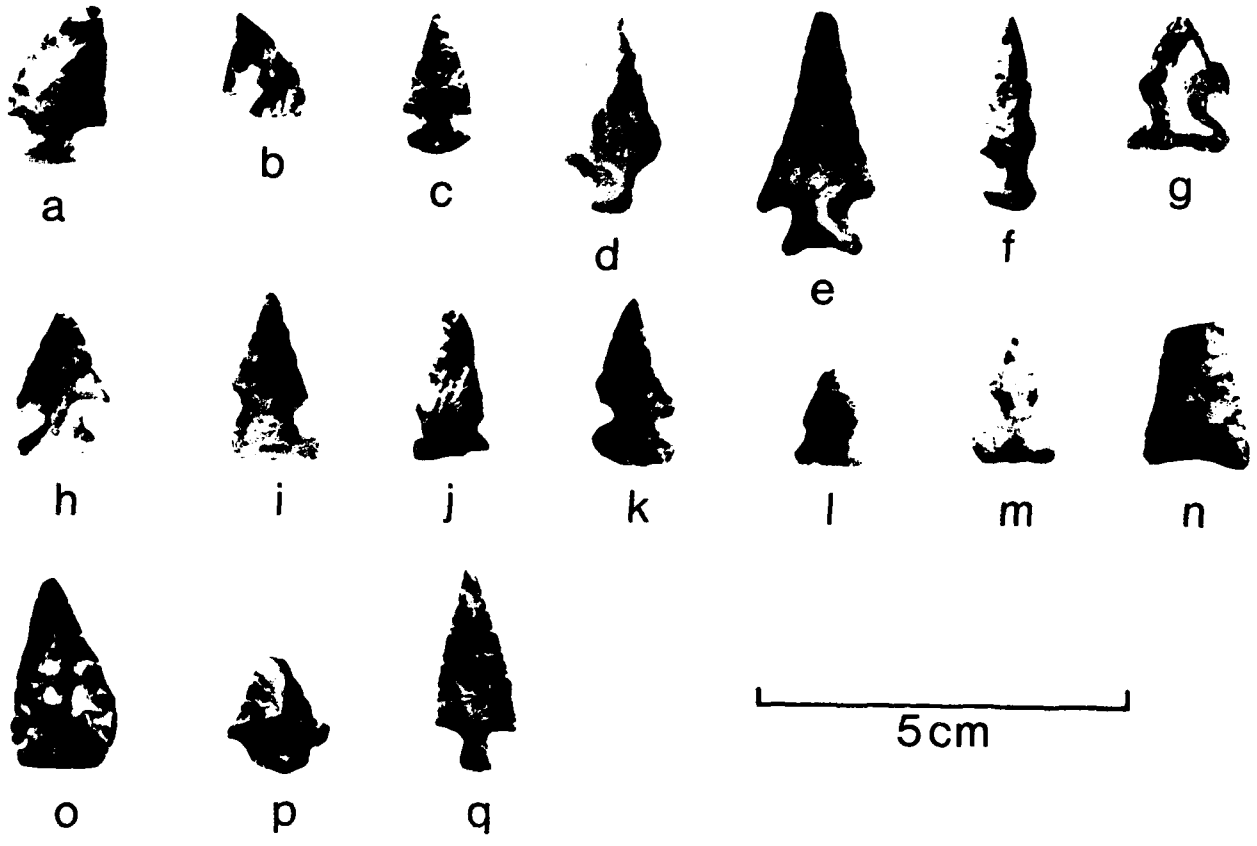


Figure 7.7. Selected chipped stone artifacts from the Arrowhead Hill site (34Pu-105): Phase II.

a: *01-01-06A*

b: *01-01-06C*

c: *01-01-06D*

d: *01-01-06J*

e: *01-01-06K*

f: *01-01-06L*

g: *01-01-06M*

h: *01-01-07A*

i: *01-01-07C*

j: *01-01-07G*

k: *01-01-07H*

l: *01-01-07I*

m: *01-01-07J*

n: *01-01-08A*

o: *01-01-08D*

p: *01-01-09A*

q: *01-01-09B*

WEDGES (03-00)

01-03-01A N=2: 2 Complete (Figure 7.6p)

These bifacially flaked artifacts are wedge shaped in profile. Tiny flake scars are present along the straight, thinned distal edge. These are believed to represent wear damage. Crushing and flaking occur proximally and presumably represent damage from a percussor.

SCRAPERS (05-00)

Flake/Unifacial Scrapers *(01-05-02)*

01-05-02A N=2: 2 Fragmentary (Figure 7.6q)

These artifacts are characterized by continuous relatively steep edge alteration. Retouch occurs along the convex distal edge of one specimen. The other specimen has retouch along a straight lateral edge. Cortex is present on both specimens.

DOUBLE-BITTED AXES (06-00)

01-06-01A N=5: 3 Complete, 2 Fragmentary (Figure 7.8c)

The edges of these bifacially flaked implements are constricted so that they have bilobed outlines. The resulting central notch area represents the hafting locus. Polish and smoothing are present along the hafting area on 60% of the sample. Cross sections are biconvex. The convex bit edges are dulled or crushed presumably from use. Remnants of cortex occur unifacially on 80% of the sample. These artifacts are believed to have been used in chopping or cutting activities.

HOES (07-00)

01-07-01A N=2: 2 Complete (Figure 7.8d-e)

These bifacially flaked artifacts exhibit crushing, polishing, and smoothing along the convex distal edge. On both faces, the flake scar ridges adjacent to the convex working edge are rounded. They are biconvex in cross section, and have oval and tear drop shapes. One specimen has extensive lateral edge rounding presumably from being hafted. These implements are believed to have been used as digging tools.

BIFACES (10-00)

Cobble/Quarried Block Biface I *(01-10-01)*

01-10-01A N=11: 11 Complete (Figure 7.9a)

These unshaped artifacts retain the original shape of the parent specimen due to minimal modification. They have large flake scars and sinuous edges. Cortex occurs bifacially and covers at least 50% of one surface. Cross sections are thick and irregular. Step and hinge fractures are numerous. Evidence of platform preparation occurs on 64% of the sample.

Cobble/Block Biface II/Thick Biface *(01-10-02)*

01-10-02A N=114: 71 Complete, 43 Fragmentary (Figure 7.9b)

These specimens are distinguished by thick irregular cross sections, bifacial removal of large flakes, and slightly sinuous edges. They have been sufficiently modified so that slight shaping occurs. Remnants of cortex occur on 64% of the sample. Platform preparation is evident on many artifacts, and step and hinge fractures are numerous.

Thin Biface I *(01-10-03)*

01-10-03A N=59: 23 Complete, 36 Fragmentary (Figure 7.9c)

These items are characterized by general uniformity in cross section due to attempts at thinning. Shapes range from roughly rectangular to ovate. Bifacial modification is extensive and only 19% have remnants of cortex. Cross sections include plano-convex (51%), biconvex (37%), and irregular (12%). Edges are slightly sinuous to regular. Platform preparation is occasionally observed. Twenty-seven percent of these artifacts are made from flakes. Hinge and step fractures are numerous.

Thin Biface IIa *(01-10-04)*

01-10-04A N=44: 8 Complete, 36 Fragmentary (Figure 7.9d)

These shaped artifacts have uniform cross sections and small flake scars. Only two specimens have tiny remnants of cortex confined to the dorsal surface. Cross sections are biconvex (66%) or plano-convex (34%). Outlines are primarily triangular (63%) although ovate and rectangular specimens occur. When present, the distal ends are slightly rounded. Proximal ends are convex. Edge shapes are regular and include 67% convex, 31% straight, and 2% concave. Discontinuous edge retouch occurs on 77% of this sample. Hinge and step fractures are common.

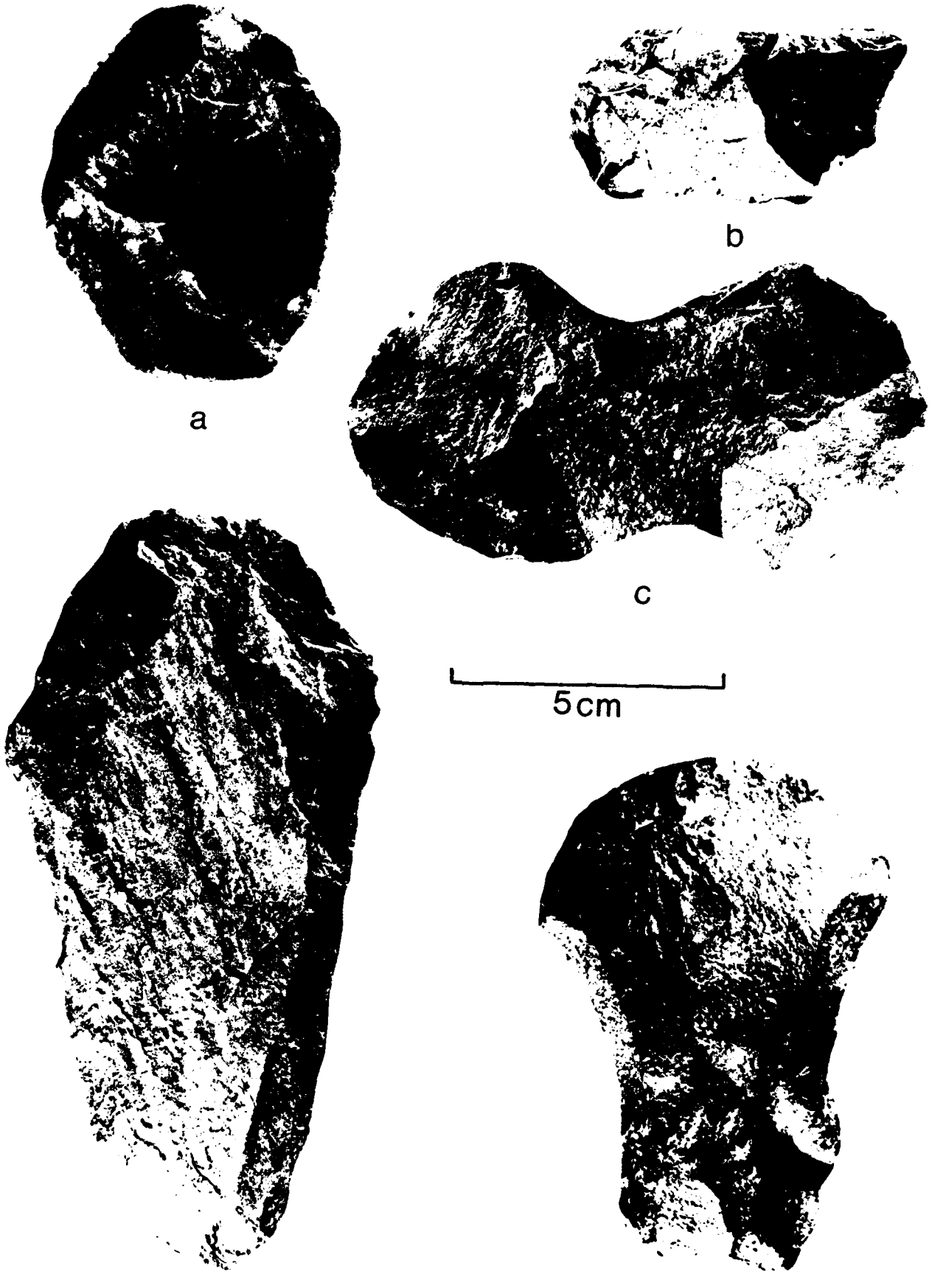
Figure 7.8. Selected chipped stone artifacts from the Arrowhead Hill site (34Pu-105): Phase II.

a: *01-15-01A*

b: *01-15-02A*

c: *01-06-01A*

d-e: *01-07-01A*


a
b
c
5cm
d
e

Thin Biface IIb *(01-10-05)*

01-10-05A N=10: 3 Complete, 7 Fragmentary (Figure 7.9e)

These specimens share many of the characteristics of the preceding variety but are distinguished by indications of a haft element. None have cortex, and all exhibit generally uniform plano-convex (80%) or biconvex (20%) cross sections. All exhibit contracting proximal ends and at least one distinct shoulder. Discontinuous edge retouch generally occurs on the haft element. Step and hinge fractures are common. These artifacts may represent large point *(01-01-01A)* preforms.

01-10-05B N=1: 1 Complete

This triangular artifact may represent a small expanding stemmed point *(01-01-06* or *01-01-07)* preform. It exhibits discontinuous unifacial retouch along the blade edges. The flake platform forms the proximal end. The unmodified distal end is rounded.

Cobble/Block Biface III *(01-10-06)*

01-10-06A N=1: 1 Fragmentary (Figure 7.9f)

This artifact represents a large triangular tabular cobble that has been shaped by bifacially flaking its lateral edges. Cortex is limited to the interior portions of both faces. It has a biplano cross section. This fragment may represent a preform for a digging implement (hoe) or a woodworking tool (adze). No evidence of use wear is present.

MISCELLANEOUS BIFACE IMPLEMENTS (11-00)

Cobble Block Biface II/Thick Biface Tool *(01-11-02)*

01-11-02A N=1: 1 Fragmentary

This specimen exhibits unifacial edge alteration along the straight portion of its break. These tiny flake scars are presumably the result of wear. In terms of lithic reduction, this artifact resembles variety *01-10-02A*. The cross section is plano-convex and cortex occurs on one surface.

Split Cobble Tool *(01-11-08)*

01-11-08A N=1: 1 Complete

This minimally modified artifact is roughly square in outline due to flaking and battering along its edges. Cortex covers over 50% of one surface. This item is similar to variety *01-15-01A* except for the presence of wear on the ventral surface. The most prominent flake scar ridges on this surface are heavily rounded and smoothed.

Table 7.3. Metric attributes for selected chipped stone varieties from the Arrowhead Hill site (34Pu-105): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-01A					
$\bar{x}$	50.1	28.9	7.1	13.0	14.7
s.d.	7.4	4.4	2.2	3.5	3.5
range	40.1-69.0	17.5-42.2	4.7-13.3	7.9-20.6	8.5-26.5
N	19	63	83	72	86
01-01-02F					
$\bar{x}$	35.4	23.8	6.9	10.8	18.4
s.d.	-	3.4	2.5	1.4	-
range	-	22.0-25.7	5.4-8.5	10.7-11.0	-
N	1	2	2	2	1
01-01-02G					
$\bar{x}$	-	30.8	7.2	12.0	18.0
s.d.	-	-	1.8	0.4	0.5
range	-	-	5.9-8.5	11.7-12.3	17.6-18.4
N	-	1	2	2	2
01-01-02H					
$\bar{x}$	53.0	28.5	5.4	7.2	11.6
s.d.	5.4	6.4	1.0	1.4	6.2
range	50.0-56.1	21.7-32.4	4.5-6.7	6.2-9.2	7.2-16.0
N	2	3	4	4	2
01-01-02N					
$\bar{x}$	87.8	41.6	8.9	9.7	23.1
N	1	1	1	1	1
01-01-02O					
$\bar{x}$	39.6	37.8	6.8	6.1	17.0
N	1	1	1	1	1
01-01-02T					
$\bar{x}$	-	49.5	7.8	10.6	-
N	-	1	1	1	-
01-01-02W					
$\bar{x}$	-	-	9.3	14.8	21.8
N	-	-	1	-	-

Table 7.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-02AA					
$\bar{x}$	-	15.7	5.7	11.2	13.8
N	-	-	1	-	-
01-01-04A					
$\bar{x}$	-	25.6	6.4	13.8	13.2
s.d.	-	-	-	-	-
range	-	-	-	12.1-15.4	12.5-13.9
N	-	1	2	2	2
01-01-04G					
$\bar{x}$	-	-	7.2	7.2	8.0
N	-	-	1	1	1
01-01-06A					
$\bar{x}$	24.6	13.4	3.8	6.3	8.9
s.d.	2.7	2.4	0.7	1.1	1.3
range	21.6-27.5	10.0-16.8	3.0-5.0	4.8-8.3	7.6-10.9
N	5	8	11	10	10
01-01-06C					
$\bar{x}$	-	-	2.9	4.8	6.8
s.d.	-	-	.9	2.0	.9
range	-	-	2.4-3.5	3.6-6.1	6.1-7.5
N	-	-	3	2	2
01-01-06D					
$\bar{x}$	20.1	10.1	3.1	5.5	8.7
N	1	1	1	1	1
01-01-06J					
$\bar{x}$	16.2	13.2	3.1	4.9	7.3
s.d.	10.0	-	1.5	2.5	.3
range	9.0-23.3	-	2.6-4.3	3.6-6.0	7.0-7.6
N	2	1	6	6	3
01-01-06K					
$\bar{x}$	26.9	15.5	3.9	6.2	11.1
s.d.	2.9	2.4	.6	1.0	1.5
range	25.4-28.2	14.3-16.8	3.4-4.6	5.3-7.3	10.8-11.5
N	2	2	3	3	2

Table 7.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-06L					
$\bar{x}$	27.1	8.4	4.0	6.2	8.0
N	1	1	1	1	1
01-01-06M					
$\bar{x}$	19.2	13.3	4.5	7.4	15.2
N	1	1	1	1	1
01-01-07A					
$\bar{x}$	20.3	12.6	3.3	5.3	10.6
s.d.	-	1.1	.2	1.6	1.4
range	-	11.6-13.8	3.1-3.5	3.5-6.3	9.6-11.6
N	1	3	3	3	2
01-01-07C					
$\bar{x}$	20.7	11.8	3.2	6.5	13.0
s.d.	4.1	1.2	.8	1.1	3.4
range	18.2-23.3	11.0-12.7	2.4-4.0	5.8-7.3	9.7-15.5
N	2	4	4	4	3
01-01-07G					
$\bar{x}$	-	10.1	3.4	3.4	11.3
N	-	1	1	1	1
01-01-07H					
$\bar{x}$	23.7	13.2	3.6	6.9	11.8
s.d.	-	2.2	.1	1.9	.2
range	-	12.2-14.3	3.6-3.7	5.5-8.3	11.6-12.0
N	1	2	2	2	2
01-01-07I					
$\bar{x}$	-	8.1	3.9	4.5	9.4
N	-	1	1	1	1
01-01-07J					
$\bar{x}$	-	8.1	3.4	6.6	12.0
s.d.	-	1.5	.8	2.5	.4
range	-	7.5-8.8	2.9-4.1	4.3-8.7	11.7-12.3
N	-	2	3	3	2

Table 7.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-08A					
$\bar{x}$	-	12.0	3.1	-	-
s.d.	-	2.2	0.5	-	-
range	-	9.7-15.0	2.3-3.4	-	-
N	-	4	4	-	-
01-01-08D					
$\bar{x}$	24.8	9.8	3.9	-	-
s.d.	3.4	1.4	1.1	-	-
range	23.0-26.7	9.7-10.0	3.1-4.7	-	-
N	2	2	2	-	-
01-01-09A					
$\bar{x}$	-	9.1	3.6	3.9	8.1
N	-	1	1	1	1
01-01-09B					
$\bar{x}$	30.0	12.1	3.3	5.5	5.0
N	1	1	1	1	1
01-02-01B					
$\bar{x}$	-	17.3	5.5	11.5	17.3
N	-	1	1	1	1
01-03-01A					
$\bar{x}$	26.6	20.4	12.7	-	-
s.d.	-	-	-	-	-
range	24.1-29.1	18.1-22.7	11.3-14.1	-	-
N	2	2	2	-	-
01-05-02A					
$\bar{x}$	-	32.4	12.5	-	-
s.d.	-	-	-	-	-
range	-	25.1-39.6	6.8-18.2	-	-
N	-	2	2	-	-
01-06-01A					
$\bar{x}$	96.2	61.7	17.5	-	-
s.d.	17.5	7.6	9.9	-	-
range	76.3-109.3	52.9-73.3	9.8-34.8	-	-
N	3	5	5		

Table 7.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-07-01A					
$\bar{x}$	114.9	65.4	22.4	-	-
s.d.	-	-	-	-	-
range	92.5-137.3	63.7-67.0	15.8-29.0	-	-
N	2	2	2	-	-
01-10-01A					
$\bar{x}$	74.0	54.2	29.9	-	-
s.d.	20.9	11.9	17.1	-	-
range	53.7-117.3	33.2-83.5	10.8-59.5	-	-
N	11	11	11	-	-
01-10-02A					
$\bar{x}$	52.4	36.3	18.4	-	-
s.d.	12.7	8.6	7.1	-	-
range	27.0-89.6	20.3-60.5	9.2-50.7	-	-
N	73	110	114	-	-
01-10-03A					
$\bar{x}$	50.8	32.5	10.7	-	-
s.d.	13.8	10.4	4.2	-	-
range	26.6-79.1	14.7-67.3	3.6-25.9	-	-
N	23	55	59	-	-
01-10-04A					
$\bar{x}$	41.4	25.0	7.1	-	-
s.d.	11.9	8.8	2.0	-	-
range	28.3-63.4	9.6-45.5	2.7-12.6	-	-
N	8	39	44	-	-
01-10-05A					
$\bar{x}$	57.0	30.2	9.3	-	-
s.d.	7.7	9.0	3.2	-	-
range	50.4-65.4	18.9-46.9	5.0-16.3	-	-
N	3	9	10		
01-10-05B					
$\bar{x}$	14.4	10.6	2.8	-	-
N	1	1	1	-	-
01-10-06A					
$\bar{x}$	-	64.5	9.0	-	-
N	-	1	1	-	-

Table 7.3. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-11-02A					
$\bar{x}$	33.8	19.5	8.0	-	-
N	1	1	1	-	-
01-11-08A					
$\bar{x}$	76.1	76.0	25.8	-	-
N	1	1	1	-	-
01-13-01A					
$\bar{x}$	31.1	27.8	10.0	-	-
s.d.	10.5	10.6	4.0	-	-
range	18.2-50.2	9.7-50.2	3.6-18.1	-	-
N	10	13	13	-	-
01-14-01A					
$\bar{x}$	46.6	36.3	29.6	-	-
s.d.	11.5	7.7	7.3	-	-
range	26.1-62.4	25.0-46.5	21.4-43.2	-	-
N	8	8	8	-	-
01-15-01A					
$\bar{x}$	53.5	40.0	23.0	-	-
s.d.	15.4	12.8	7.5	-	-
range	25.8-91.3	21.6-67.7	8.1-46.6	-	-
N	38	38	38	-	-
01-15-02A					
$\bar{x}$	55.4	38.7	23.5	-	-
s.d.	11.0	9.4	8.4	-	-
range	33.3-76.6	22.9-63.5	10.8-39.8	-	-
N	18	18	18	-	-

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)

01-12-01A N=237

This variety consists of proximal, distal, lateral, and medial fragments. These artifacts could not be included in any of the preceding varieties. Cross sections range from biconvex to plano-convex.

Thirty-seven are proximal fragments. All lack cortex, but exhibit edge retouch. Two items represent fragments of small side-notched points *(01-01-07)* and two are small corner-notched specimens *(01-01-06)*. Thirty-three specimens are believed to be large point segments. Of these, 31 resemble large contracting stemmed points *(01-01-01)* and two may be segments of large expanding stemmed/corner-notched points *(01-01-02)*.

Eighty-one are distal end fragments and lack cortex. Eleven exhibit rounded tips while the remainder are acute. Twenty-five represent small point fragments of which three have serrated blade edges. Twenty-one are believed to be large point sections and all exhibit edge retouch.

The remainder (117) represent lateral or medial fragments. Nineteen are large point midsections which exhibit secondary edge retouch. Two are small point medial segments.

MODIFIED FLAKES (13-00)

01-13-01A N=13

These specimens exhibit evidence of wear in the form of small flake scars. The modification is bifacial and occurs at projections along one edge. Three specimens display small projections midway along a lateral edge while six have distal projections. Modification occurs at the projecting corner of a break on four specimens. Cortex occurs on the dorsal surface of five specimens.

01-13-01B N=525

These flakes display edge rounding or tiny flake scars parallel to one or more edges. These are believed to represent wear damage. Modification occurs primarily along lateral edges. Table 7.4 summarizes this category.

CORES (14-00)

01-14-01A N=8: 8 Complete (Figure 7.9g)

These artifacts are distinguished by the systematic removal of flakes. Six specimens exhibit flake detachment from only one direction. Flakes have been removed from two directions on the other two specimens. Cortex occurs on 87% of the items. Platform preparation is evident on 50% of the artifacts. Hinge and step fractures are common.

Figure 7.9. Selected chipped stone artifacts from the Arrowhead Hill site (34Pu-105): Phase II.

a: *01-10-01A*

b: *01-10-02A*

c: *01-10-03A*

d: *01-10-04A*

e: *01-10-05A*

f: *01-10-06A*

g: *01-14-01A*

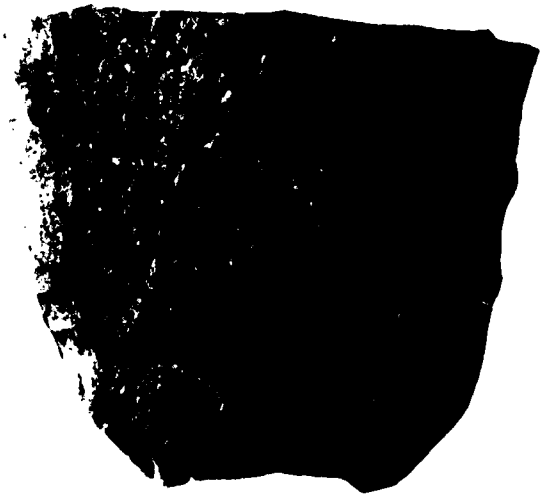
a

b

c

d

e



f

5cm

g

Table 7.4. Summary of modified flake (*01-13-01B*) data by lithic type from the Arrowhead Hill site (34Pu-105): Phase II.

Modified Flakes	Type A N	Type A %	Type B N	Type B %	Type C N	Type C %	Type D N	Type D %	Type E N	Type E %	Type F N	Type F %	Type G N	Type G %	Type H N	Type H %	Type J N	Type J %	Type K N	Type K %	Total
Modified Edge																					
Proximal	7	46.7	7	46.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	6.6	15
Lateral	100	40.8	98	40.0	2	.8	2	.8	3	1.2	3	1.2	6	2.4	5	2.0	24	9.8	2	.8	245
Bilateral	27	43.5	28	45.1	-	-	-	-	2	3.2	-	-	-	-	1	1.6	4	6.4	-	-	67
Distal	41	44.0	35	37.6	1	1.1	2	2.1	-	-	-	-	-	-	2	2.1	12	12.9	-	-	93
Multiple	48	48.0	31	31.0	1	1.0	2	2.0	1	1.0	1	1.0	3	3.0	-	-	13	13.0	-	-	100
Area of Modification																					
Medial	81	43.3	69	36.9	1	.5	3	1.6	-	-	1	.5	3	1.6	5	2.7	22	11.8	2	1.1	187
Proximal	9	34.6	12	46.0	1	3.8	-	-	-	-	-	-	1	3.8	-	-	3	11.5	-	-	26
Distal	26	42.6	23	37.7	-	-	-	-	3	4.9	1	1.6	1	1.6	2	3.3	5	8.2	-	-	61
Entire	58	42.0	64	46.4	-	-	1	.7	-	-	1	.7	2	1.4	1	.7	11	7.9	-	-	138
Multiple	54	47.8	35	31.0	2	1.8	2	1.8	3	2.6	1	.9	2	1.8	-	-	13	11.5	1	.9	113
Modified Surface																					
Dorsal	142	44.4	116	36.2	3	.9	5	1.5	4	1.2	3	.9	7	2.2	3	.9	34	10.6	3	.9	320
Ventral	45	38.5	53	45.3	-	-	1	.8	1	.8	-	-	2	1.7	4	3.4	11	9.4	-	-	117
Combination	38	44.7	34	40.0	1	1.2	-	-	1	1.2	1	1.2	-	-	1	1.2	9	10.5	-	-	85
Edge Outline																					
Convex	84	40.6	86	41.5	3	1.4	1	.5	3	.8	1	.5	5	2.4	2	1.0	22	10.6	-	-	207
Concave	30	42.2	25	35.2	1	1.4	2	2.8	-	-	1	1.4	-	-	3	4.2	8	11.2	1	1.4	71
Straight	80	49.4	56	34.5	-	-	1	.6	1	.6	1	.6	3	1.8	3	1.8	15	9.2	2	1.2	162
Multiple	34	40.0	36	42.3	-	-	2	2.3	2	2.3	1	1.2	1	1.2	-	-	9	10.6	-	-	85
Total Modified Flakes	228	43.4	203	38.6	4	.8	6	1.1	6	1.1	4	.8	9	1.7	8	1.5	54	10.3	3	.6	525

SPLIT/TESTED COBBLES (15-00)

Split Cobbles *(01-15-01)*

01-15-01A N=38: 38 Complete (Figure 7.8a)

These artifacts have cortex covering more than 50% of one surface. Flake scars are large and cross sections are thick and irregular. These unshaped artifacts result from the splitting of cobbles. Hinge and step fractures are common. Platform preparation occurs on one specimen.

Tested Cobbles *(01-15-02)*

01-15-02A N=18: 18 Complete (Figure 7.8b)

Only a few flakes have been detached from these specimens. As a result, the cobble retains its original shape and considerable cortex remains. Flake scars are large and are generally restricted to one area of the cobble. Edges are sinuous. Hinge and step fractures are common.

DEBITAGE (16-00)

01-16-01A N=43,462

This category includes flakes and blocky debris that do not exhibit edge alteration. Decortication and non-decortication flakes are present. This count does not include debitage recovered from the 1 m x 2 m waterscreen unit (N34-W31) but these data are provided in Table 7.5.

Fired Clay *(02)*

CERAMICS (01-00)

Plain Grog, Grit, and Bone Tempered Wares *(02-01-01)*

02-01-01A N=55: 1 Base, 54 Body Sherds

This variety is primarily tempered with grog, minor amounts of grit, and bone. Minor inclusions of hematite (2%) and small quartz particles (5%) are also present. Texture is generally coarse and angular. Vessel walls range between 7.5-16.2 mm in thickness with a mean of 10.3 mm. The flat bottom base sherd is plain and is 13.7 mm thick.

Exterior and interior surfaces are smoothed and uneven. Burnished exterior (4%) and interior (2%) surfaces are evident. Wiping marks and fire clouds are also present. The predominant (65%) exterior colors are brown, dark brown and strong brown. Other colors are variations of yellowish brown or yellowish red. Interior surfaces are primarily (74%)

Table 7.5. Vertical distribution of 5 liter sample materials from control square N34-W31 at the Arrowhead Hill site (34Pu-105): Phase II.

Sample Material	Stratum I		Stratum II				Stratum III				Stratum IV
	0-5 cm	5-10 cm	10-15 cm	15-20 cm	20-25 cm	25-30 cm	30-35 cm	35-40 cm	40-45 cm	45-50 cm	50-55 cm
<1/4-inch mesh flakes											
count	642	366	282	361	620	494	362	375	239	400	264
weight	6.2	8.0	4.7	7.4	7.0	6.7	4.8	4.5	2.8	4.2	3.7
All flakes											
count	651	396	321	388	675	532	386	390	250	405	265
weight	13.4	35.9	31.0	20.9	31.1	16.8	13.7	11.3	7.2	6.2	3.8
Bone (burned)											
weight	0.1	-	-	-	-	-	-	0.1	0.1	-	-
Nutshell											
weight	-	-	-	0.1	0.3	1.2	0.7	0.6	0.2	-	-
Shell											
weight	0.1	-	-	0.1	-	-	-	-	-	-	-
Seeds (unburned)											
weight	1.9	0.1	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	-
Baked Clay											
weight	0.1	0.3	0.2	0.4	2.9	1.2	0.6	0.5	0.6	0.2	0.1
Rock/Gravel											
weight	65.3	216.6	543.7	253.5	448.3	127.0	192.5	124.0	52.5	38.8	5.6
Miscellaneous debris											
weight	76.4	64.5	10.1	21.3	10.8	12.2	3.3	5.2	2.6	4.4	1.2

All weights are in grams.
Miscellaneous debris includes leaves, roots, and grass.

very dark gray, dark brown, dark grayish brown or black. Zoned cores are present in 54% of the sample. The remainder are unzoned and are either very dark gray or black.

Comments: These sherds are similar to *Williams Plain* which is a common utilitarian ware in southeast Oklahoma.

References: Orr 1946: 235; Newkumet 1940; Brown 1971: 42-55; Bell 1972: 252; Galm 1978b: 51; Galm and Flynn 1978: 258-262.

02-01-01B N=47: 5 Rim Sherds, 1 Base, 41 Body Sherds (Figure 7.10a-c)

This variety is characterized by a dark colored gritty paste which is medium in texture. Small amounts of grit and grog are the primary tempering materials. Bone occurs as a minor inclusion in 38% and large pieces of quartz (1.0 mm in size) are present in 13% of the sample. Surfaces are smoothed and uneven. Burnishing is present on 13% of exterior surfaces and 2% of interior surfaces. Wiping marks and fire clouds also occur. Vessel walls, which are generally thinner than the preceding variety, have a mean thickness of 6.3 mm and range between 4.8-9.0 mm. Brown, dark brown, and dark grayish brown are predominant (70%) exterior colors. Interior surface colors are dominated (85%) by very dark gray, brown/dark brown, and dark grayish brown. The distinctive dark core colors are either very dark gray (81%) or dark gray.

A bowl fragment is plain and exhibits a flat bottom base with a rounded, undefined silhouette.

A bottle is represented by a 36.0 mm long constricting neck fragment exhibiting discontinuous striations which parallel or intersect the lip. These striations may be cut marks with portions of the lip resmoothed. As a result, the lip shape resembles Brown's (1971: 23, Figure 2) flat lip form A3. The rim is standing and thinned.

The four remaining rims have a convex lip shape. One is inverted and thinned. Of the three standing rims, two are direct and one is thinned.

Comments: These sherds are similar to *LeFlore Plain* which is a common type in southeast Oklahoma.

References: Brown 1971: 58; Galm and Flynn 1978: 262.

Decorated/Slipped Grog, Grit, and Bone Tempered Wares *(02-01-02)*

02-01-02A N=6: 1 Rim Sherd, 5 Body Sherds

Remnants of a slip occur on the exterior surfaces of these grog and grit tempered sherds. Bone is an occasional inclusion in the paste which is moderate. Surfaces are smoothed and uneven. The interior surface of the rim sherd also displays a slip. The rim is everted with a slightly rolled profile and the lip is convex. One sherd represents a shoulder fragment of a carinated bowl.

These sherds range between 6.0-9.6 mm in thickness with a mean of 7.6 mm. Exterior surface colors are primarily dark red or yellowish red (66%). Interior surfaces are generally black (50%) although brown and reddish brown occur. Core colors are very dark gray or black.

Comments: This ceramic variety is similar to the *Sanders Plain* type.

References: Suhm and Jelks 1962: 139; Brown 1971: 164-169.

02-01-02D N=5: 5 Body Sherds (Figure 7.10d)

This thin ware is characterized by incised lines. The exterior surface incisions are wide (1.2-2.0 mm) and deep (1.0-1.2 mm). Tempering consists of a medium grog tempered paste with occasional grit inclusions. Coil weld breaks are present. Thickness ranges between 4.7-5.7 mm with a mean of 5.2 mm. Exterior colors are dark gray or gray, interior colors are reddish yellow and yellowish brown, and cores are very dark gray or gray.

Surfaces tend to be smoothed and uneven. Exterior surfaces are burnished (60%) and decorations consist of two to four parallel incised lines. No pattern could be determined due to the small size of the sherds.

02-01-02E N=4: 4 Body Sherds

The primary tempering agent for these thin, incised sherds is grog, although grit and bone inclusions also occur. The paste is medium and coil weld breaks occur. The sherds range between 5.7-6.6 mm in thickness with a mean of 6.2 mm. Surfaces are smoothed, uneven, and unburnished. Exterior surfaces are dark brown and interior surfaces are primarily very dark gray (75%). One sherd has a zoned core while the other cores are very dark gray or black.

Decorations are restricted to the exterior surface. One sherd displays two incisions which slightly converge. For the remaining sherds, the decoration consists of a single line. These narrow (0.5-1.0 mm), shallow (0.8 mm) incisions appear to be resmoothed.

02-01-02F N=3: 3 Body Sherds (Figure 7.10e)

This grog and grit tempered category is distinguished by thick vessel walls and wide (2.0-2.8 mm) but shallow (0.6 mm) incisions. Occasional bone inclusions occur in the medium paste. Breaks occur along coil welds. Thickness ranges between 8.1-9.5 mm with a mean of 8.9 mm. Exterior surfaces are brown while interior colors are very dark gray. Cores are black.

The surfaces are smoothed, uneven, and unburnished. Decorations consist of three to five parallel incisions covering the entire exterior surface. The decoration is reminiscent of trailing, but no motif could be determined due to the size of the sherds.

02-01-02H N=2: 1 Rim Sherd, 1 Body Sherd (Figure 7.10f-g)

These engraved sherds display a compact grog and grit tempered paste with occasional bone inclusions. They are 4.1 mm and 4.2 mm thick. The hard surfaces are smoothed and uneven and the exterior is brown and burnished. Interior surfaces and cores are very dark gray.

The rim sherd has an inverted, direct profile with a convex and flat lip, A3 (Brown 1971: 23). This inconsistency is a function of the lip having been cut and partially resmoothed. Decorations consist of linear and curvilinear engravings. A band (9.8 mm wide) of diagonal lines parallels the rim and two horizontal lines (1.1 mm wide) have been engraved through this band. A broad (1.2 mm) curvilinear line occurs below the linear decorations.

The body sherd exhibits two concentric lines which are spaced 8.3 mm apart. A third curvilinear line almost intersects the outer arch. Traces of a red pigment are present in the engraved lines.

Comments: These specimens are similar to a previously described sherd from 34Pu-105. These sherds resemble a number of engraved ceramic wares associated with the Caddoan period.

References: Bobalik 1977: 529; Brown 1971: 106-140.

02-01-02I N=2: 1 Rim Sherd, 1 Body Sherd (Figure 7.10h)

These slipped sherds are characterized by engraved decorations on their exteriors. The paste is compact and grog tempered with grit inclusions. Thickness ranges between 4.8-4.9 mm. Surfaces are smoothed and uneven. Exterior colors are dark reddish gray and light red while interior surface colors are reddish yellow and dark gray. The cores are very dark gray.

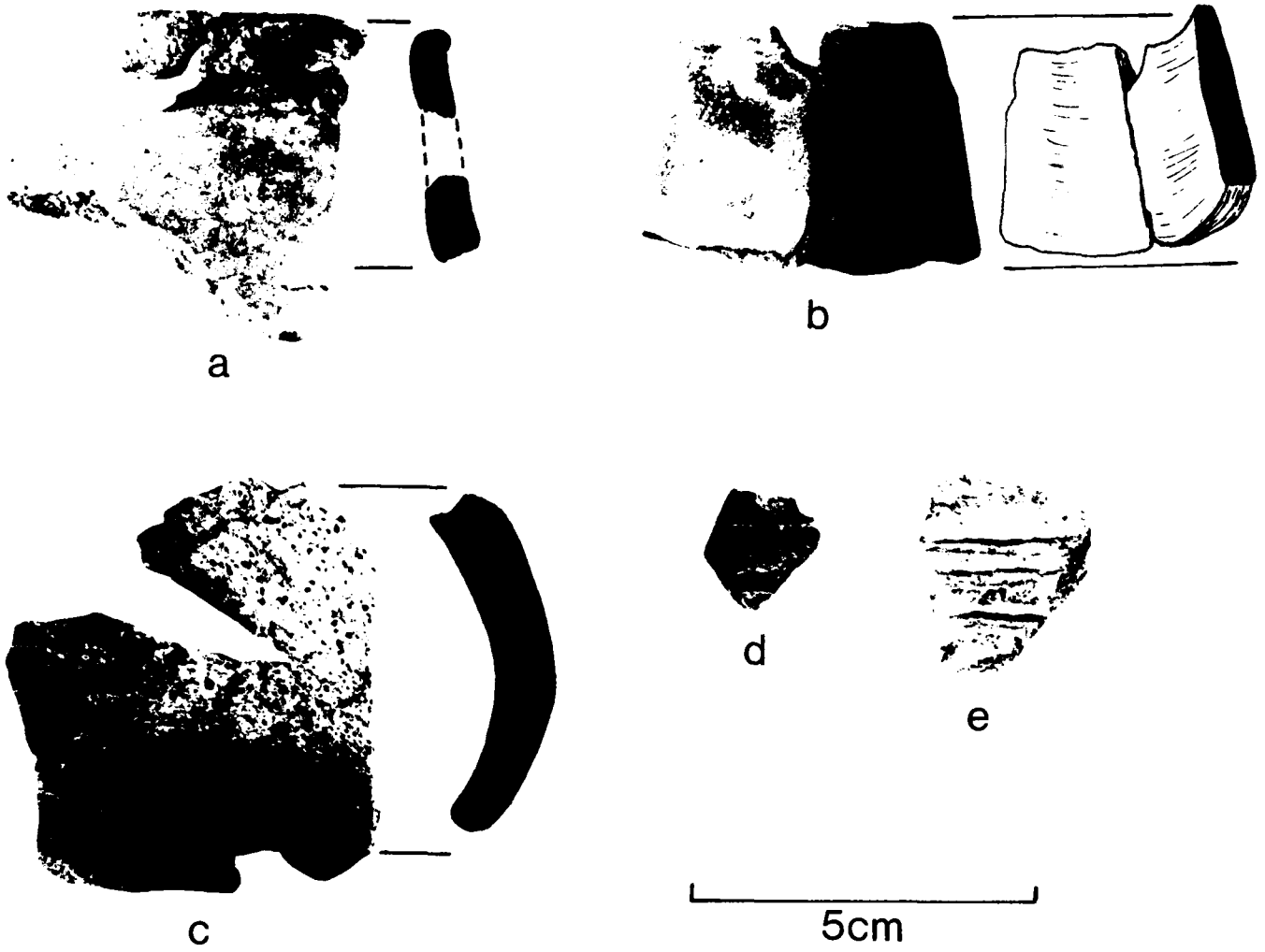
The body sherd displays a single engraved line. Decoration on the rim sherd consists of three engraved lines. Two lines parallel the lip and the third almost intersects the lower tracing. This rim is thinned and the lip is convex.

02-01-02J N=5: 5 Body Sherds (Figure 7.10i)

This grog tempered variety is distinguished by small (3.8-4.4 mm) shallow (0.7-0.9 mm) oval punctations. One to four punctations occur on the exterior surface. The texture of the paste is moderate. Vessel

Figure 7.10. Selected ceramic artifacts from the Arrowhead Hill site (34Pu-105): Phase II.

a-c: *02-01-01B*
d: *02-01-02D*
e: *02-01-02F*
f-g: *02-01-02H*
h: *02-01-02I*
i: *02-01-02J*
j: *02-01-02K*
k: *02-01-02L*
l: *02-01-02M*


a
b
c
d
e
5cm
f
g
h
i
j
k
l

walls range between 4.4-6.3 mm with a mean of 5.5 mm. Surfaces are smoothed, uneven, and unburnished. Exterior and interior surface colors are predominately reddish yellow (60%). Core colors are primarily reddish yellow or very dark gray (80%).

02-01-02K N=1: 1 Rim Sherd (Figure 7.10j)

This sherd is characterized by a grog and bone tempered paste and numerous stick punctations. The texture is moderate. Surfaces are smoothed, uneven, and unburnished. The exterior surface color is brown while the interior surface and core are black. This sherd measures 5.2 mm thick.

Small (2.5-3.6 mm) slit-like punctations cover the rim and shoulder of this sherd. No pattern could be discerned. The everted rim is thinned in profile and the lip is flat.

02-01-02L N=1: 1 Body Sherd (Figure 7.10k)

The exterior surface of this grog tempered sherd is decorated with a single row of fingernail punctations. Bone inclusions also occur in the paste which has a fine texture. Surfaces are smoothed, uneven, and unburnished. Both surfaces are dark brown and the core is very dark brown. It is 6.2 mm thick.

02-01-02M N=1: 1 Body Sherd (Figure 7.10l)

This grog and grit tempered sherd exhibits shallow pinched punctations arranged in three parallel rows. Paste texture is moderate. Both surfaces are unburnished and the interior surface is smoothed and uneven. The exterior surface is dark gray. The interior surface and the core are very dark gray. It is 5.2 mm thick.

Plain Shell Tempered Wares *(02-01-03)*

02-01-03A N=28: 1 Base, 27 Body Sherds (Figure 7.11a)

These sherds have smoothed, uneven, and eroded surfaces. Exterior surfaces are burnished for 18% of the sample. The paste is leached and the coarse to moderate texture is laminated. Grit inclusions are also present.

Exterior colors are primarily strong brown or brown (57%). Interior surfaces are predominately black or very dark gray (96%). Zoned cores occur in 25% and the remainder are solid and black. Vessel walls range between 5.0-10.5 mm with a mean of 7.2 mm. The flat bottom base sherd is plain, measures 7.3 mm, and has a rounded, undefined silhouette.

Comments: This variety is comparable to the *Woodward Plain* type which is associated with the Caddoan period.

References: Hall 1951: Freeman and Buck 1960; Brown 1971: 141-146, 220.

Decorated Shell Tempered Wares *(02-01-04)*

02-01-04A N=4: 4 Body Sherds (Figure 7.11b-c)

This shell tempered ware is distinguished by large (5.1-10.1 mm), deep (1.6-2.6 mm) pinched punctations. Exterior surfaces are burnished. Surfaces are smoothed, uneven, and eroded. The paste is not well mixed and the texture is laminated and coarse. Fine grit and crushed bone are occasional inclusions. The crushed shell is leached in all sherds.

Exterior surfaces are primarily dark gray (75%), interiors are very dark gray (75%), and cores are generally black (75%). Vessel walls range between 5.9-7.2 mm and the mean is 6.5 mm.

Decoration consists of one to three rows of large, oval-shaped punctations. The decoration resembles a chevron design on one sherd.

Comments: These sherds are identical to a sherd previously reported for 34Pu-105.

References: Bobalik 1977: 529.

Plain Shale Tempered Wares *(02-01-05)*

02-01-05A N=1: 1 Body Sherd

This compact sherd is distinguished by shale tempering, but minor amounts of grit and small quartz particles are also present. Exterior and interior surfaces are uneven and gritty. It is 5.6 mm thick. Surface and core colors are dark gray.

Comments: This sherd is comparable to the "Plain Group D" ceramic variety from the Pine Creek Reservoir area of southeastern Oklahoma.

References: Wyckoff 1968: 80, 143.

BAKED CLAY (03-00)

Baked Clay *(02-03-01)*

02-03-01A

This variety includes miscellaneous fragments of fired clay which are primarily associated with Structure 1. None of these are impressed.

02-03-01B

This variety consists of stick or cane impressed daub recovered near the center of Structure 1. The impressions are 7.5-18.1 mm in diameter and are spaced at 3.7-25.7 mm intervals. One specimen exhibits a narrow tracing which is perpendicular to four parallel impressions. This groove cuts into one of the parallel impressions and appears to extend over the remainder. This suggests that the sticks or cane were lashed together in an over-under fashion. Grass impressions range between 1.7-2.6 mm in diameter.

Mud Dauber Nests *(02-03-02)*

02-03-02A N=3

These nests were collected from daub concentrations associated with Structure 1. All but one of the cells are dirt filled. No insect remains were present in the sealed cell.

Ground Stone *(03)*

MANOS (01-00)

Unifacial Manos *(03-01-01)*

03-01-01A N=7: 1 Complete, 6 Fragmentary

One flat surface on these sandstone artifacts has been ground smooth. In addition, tiny pecked areas occur on both surfaces. Seventy-five percent also have pecked margins suggesting deliberate shaping of these implements. The complete artifact is roughly rectangular in outline.

Bifacial Manos *(03-01-02)*

03-01-02A N=6: 6 Fragmentary

These sandstone artifacts are bifacially smoothed and ground. Convex surfaces occur on 50% while the remainder display flat surfaces. Pecked margins and corners suggest that these specimens have been deliberately shaped.

Pitted Manos *(03-01-04)*

03-01-04A N=5: 1 Complete, 4 Fragmentary

These sandstone artifacts are characterized by extensive grinding on both surfaces. Additionally, small, pecked depressions occur on each

surface. The circular U-shaped concavities range between 16.5-28.8 mm in diameter and between 1.5-4.3 mm in depth. The margins and ends of the artifacts have been shaped by pecking. These items are elongated oval in outline.

METATE/GRINDING SLAB (02-00)

Slab *(03-02-01)*

03-02-01A N=4: 4 Fragmentary

These angular fragments are distinguished by extensive unifacial grinding. Three have a flat, smooth surface while the other specimen has a slightly concave surface. In addition, pecking marks cover the modified surface of these sandstone artifacts. Their tabular outline does not appear to be a function of deliberate modification.

GROUND/RUBBED HEMATITE (04-00)

Ground Hematite *(03-04-01)*

03-04-01A N=2: 2 Complete

These tiny pieces display surfaces that have been rubbed smooth. One specimen exhibits striations on multiple surfaces.

Polished Hematite *(03-04-02)*

03-04-02A N=1: 1 Fragmentary

This crescent shaped piece of specular hematite is extensively ground and polished. Numerous striations are present on all surfaces and bifacial flaking occurs along the concave edge.

GORGET (05-00)

03-05-01B N=1: 1 Fragmentary (Figure 7.11d)

Two bifacially drilled perforations occur along the long axis of this slate gorget. These openings are placed 13.5 mm apart and measure 8.7-9.6 mm in diameter. The four concave edges are beveled towards the flat surface and the three complete corners are pointed. Modification is restricted to a flat surface which has numerous striations and is extensively ground. Remnants of a red pigment occur in the striae.

Comments: This item resembles *Reel* type gorgets.

References: Griffin 1952.

Figure 7.11. Selected ceramic, ground stone, and historic artifacts from the Arrowhead Hill site (34Pu-105): Phase II.

a: *02-01-03A*

b-c: *02-01-04A*

d: *03-05-01B*

e: *07-03-011A*

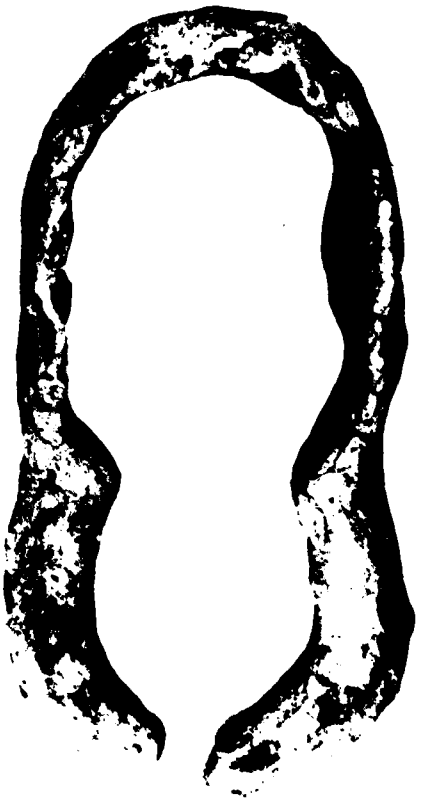
a

b

5cm

c

d



e

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)

Smoothed/Scratched Stones *(03-06-05)*

03-06-05A N=1: 1 Fragmentary

This unshaped slate cobble is distinguished by numerous intersecting unifacial striations. The striations are restricted to a flat area of the specimen and pecking and grinding are adjacent to them.

03-06-05B N=1: 1 Fragmentary

This tabular slate fragment exhibits unifacial parallel striations restricted to the broken edge. Remnants of a red pigment occur in the striations. Stream cortex covers most of this unshaped item.

Pecked/Battered/Unmodified Cobbles *(04)*

PITTED STONES (02-00)

Unifacial *(04-02-01)*

04-02-01A N=9: 2 Complete, 7 Fragmentary

These sandstone artifacts are characterized by a single pecked depression on one surface. The depressions are U-shaped and roughly circular in outline. These concavities range between 16.1-31.6 mm in diameter and between 1.2-4.6 mm in depth. Three items also display small areas with grinding. Four artifacts have pecked and battered margins which suggests deliberate shaping or use.

BIFACIAL (04-02-02)

04-02-02A N=2: 2 Fragmentary

These sandstone artifacts display a single pecked U-shaped concavity on both surfaces. The roughly circular depressions range between 22.7-26.4 mm in diameter and 2.8-4.9 mm in depth. One item has pecked and battered margins.

MISCELLANEOUS PECKED/BATTERED STONE (03-00)

04-03-01A N=6: 1 Complete, 5 Fragmentary

These sandstone specimens exhibit minimal pecking on one surface. Four of the fragments have pecked and battered margins.

Table 7.6. Metric attributes for selected ground stone and pecked/battered stone varieties from the Arrowhead Hill site (34Pu-105): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS
03-01-01A			
$\bar{x}$	79.0	70.5	52.1
s.d.	-	9.9	10.6
range	-	55.7-77.2	40.5-67.4
N	1	4	6
03-01-02A			
$\bar{x}$	-	85.3	36.7
s.d.	-	-	12.6
range	-	70.0-100.6	21.6-54.1
N	-	2	6
03-01-04A			
$\bar{x}$	112.4	89.4	39.9
s.d.	-	4.4	6.4
range	112.1-112.7	85.5-94.2	32.9-50.0
N	2	4	5
03-02-01A			
$\bar{x}$	-	-	46.9
s.d.	-	-	6.9
range	-	-	37.4-54.0
N	-	-	4
03-04-01A			
$\bar{x}$	18.2	11.8	8.1
range	16.5-19.8	9.0-14.6	7.1-9.1
N	2	2	2
03-04-02A			
$\bar{x}$	-	36.4	12.4
N	-	1	1
03-05-01B			
$\bar{x}$	102.0	-	8.5
N	1	-	1

Table 7.6. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS
03-06-05A			
$\bar{x}$	-	-	25.8
N	-	-	1
03-06-05B			
$\bar{x}$	-	-	12.9
N	-	-	1
04-02-01A			
$\bar{x}$	128.4	82.5	45.8
s.d.	-	16.5	9.7
range	114.1-142.7	59.5-100.0	28.0-53.1
N	2	5	6
04-02-02A			
$\bar{x}$	-	101.0	47.6
range	-	-	46.6-48.6
N	-	1	2
04-03-01A			
$\bar{x}$	95.3	71.6	41.1
s.d.	32.4	13.3	-
range	59.2-123.2	59.1-85.5	32.8-49.4
N	3	3	2

UNMODIFIED COBBLES/PEBBLES (04-00)

Unmodified Hematite/Limonite *(04-04-01)*

04-04-01A N=6

This variety consists of five pieces of hematite and one limonite fragment which are unmodified.

Historic Debris *(07)*

GLASS (01-00)

07-01-01A N=9

These are tiny fragments of clear glass.

07-01-01B N=2

These are fragments of blue tint clear glass. One represents a bottle neck.

07-01-01C N=2

These translucent items are "purpled" glass.

07-01-01H N=2

These are small amorphous fragments of cobalt blue glass which may be segments of a jar. One specimen is a rim fragment.

METAL (03-00)

Nails *(07-03-01)*

07-03-01A N=13

These are heavily corroded nails. Complete nails range from 40.4-103.6 mm in length and have round heads.

07-03-01B N=1

This is a horseshoe nail fragment. The narrow head is rectangular.

Fence Staple *(07-03-04)*

07-03-04A N=1

This heavily corroded fence staple measures 31.4 mm in length.

Slugs *(07-03-07)*

07-03-07A N=1

This specimen represents a slug from a .22 caliber cartridge.

Metal Button *(07-03-10)*

07-03-10A N=1

This corroded button exhibits a flat exterior surface. It measures 16.3 mm in diameter and is only 1.3 mm thick. It may represent a mattress button.

Wagon Hardware *(07-03-11)*

07-03-11A N=1 (Figure 7.11e)

This corroded specimen is probably a wagon singletree.

Faunal *(08)*

BONE/HORN/TEETH (01-00)

08-01-01A

Preservation of the faunal material was extremely poor. No worked bone was observed, and all but a few fragments were associated with Structure 1. Identifiable bone from the structure is presented in Table 7.7. A minimum of two white-tailed deer (*Odocoileus virginianus*) are indicated.

SHELL (02-00)

Mollusc *(08-02-01)*

08-02-01A

Small unidentifiable freshwater mussel fragments were recovered from the waterscreened levels and the matrix of pit features.

Table 7.7. Identified faunal remains by arbitrary level at the Arrowhead Hill site (34Pu-105): Phase II

Faunal Remains	Arbitrary Levels (10 cm)			
	1	2	3	4
MAMMALS				
Odocoileus virginianus (white-tailed deer)	1 right, metatarsal (1^1) 1 right, 2nd phalanx (1^1)	2 metapodial (1^1, 1^2) 1 molar (1^2) 1 right, patella (1^1)	2 metapodial (1^1, 1^2) 1 left, calcaneus (1^2) 1 femur (1^2) 2 right, astragalus (2^2) 1 molar (1^2) 1 radius (1^2) 1 right, metacarpal (1^2)	
large indeterminate		5 (1^1, 4^2)	5 (5^2)	4 (1^1, 3^2)
REPTILES				
Terrapene carolina (common box turtle)	1 (1^1)	2 (1^1, 1^2)	4 (2^1, 2^2)	
indeterminate turtle		1 (1^1)		
BIRDS				
large indeterminate	1 (1^1)		1 (1^2)	
medium indeterminate	1 (1^1)	2 (2^1)	1 (1^2)	

[1]Burned
[2]Unburned

Floral *(09)*

This class contains burned nut fragments, charcoal, and unburned seeds. The seeds are primarily restricted to the upper 10 cm of the site and are believed to represent modern intrusions. Small pieces of charcoal and burned nuts are scattered throughout the site. However, the vast majority consisting of two burned logs (211.9 g) are associated with Structure 1.

DISCUSSION AND INTERPRETATION

Results of earlier investigations have indicated three horizontal concentrations of cultural material at 34Pu-105. Therefore, Phase II excavations focused on the central and southern areas although work was also conducted at the northern mound area. To facilitate intrasite discussions, the artifact categories are presented according to arbitrary 10 cm levels for each excavation area (Tables 7.8, 7.9, and 7.10). Artifacts from the 5 cm waterscreen levels are combined into 10 cm levels for comparability.

Lithic artifacts are dominant. Excluding debitage, chipped stone comprises 83% of the artifact sample (12% are points). Artifacts indicative of various activity sets associated with a lithic reduction sequence (Bobalik 1977: 32-41) are also common. Ceramics (11%), ground stone (3%), and historic debris (2%) are minor constituents.

Components

Concentration Indices (CI) representing density per level have been tabulated for lithic debitage (Table 7.11). These are computed for each 10 cm level by dividing the quantity of debitage by the number of excavated levels. For comparability, materials from the unscreened levels and the waterscreen unit were not included in these calculations.

A break in debitage densities occurs at depths of 30 cm below surface in the south mound, 20 cm in the north mound, and 10 cm in the central area (Table 7.11). Additionally, CI values for Level 5 (40-50 cm) at the apex of the north mound increase slightly. Flotation analysis of the 5 liter waterscreen sample also reflect this distributional change (Table 7.6). These materials generally decrease in quantity below 10 cm although a slight increase is observed in Level 5 (20-25 cm), Level 6 (25-30 cm), and Level 10 (45-50 cm).

Based on these data and the vertical distribution of point *(01-01-00)* and ceramic *(02-01-00)* categories, two prehistoric components are posited. Artifact frequencies and stratigraphic position are used to define the components although the distinctive character of each component is supported

Table 7.8. Vertical distribution of cultural material from the south mound area at the Arrowhead Hill site (34Pu-105): Phase II.

Artifact Variety	Arbitrary Levels (10 cm)										
	1	2	3	4	5	6	0-20 cm	20-40 cm	0-30 cm	Surface	Total
01-01-01A	9	12	20	9	4	-	1	-	3	1	59
01-01-01D	-	-	-	-	-	-	-	-	-	-	-
01-01-02F	1	-	-	-	1	-	-	-	-	-	2
01-01-02G	-	1	-	1	-	-	-	-	-	-	2
01-01-02H	-	-	1	1	1	-	-	-	-	-	3
01-01-02N	-	-	-	-	-	-	-	-	-	-	-
01-01-02O	-	-	-	1	-	-	-	-	-	-	1
01-01-02T	-	-	-	-	-	-	-	-	-	-	-
01-01-02W	-	1	-	-	-	-	-	-	-	-	1
01-01-02AA	-	-	-	-	-	-	-	-	-	-	-
01-01-04A	1	-	1	-	-	-	-	-	-	-	2
01-01-04G	-	-	-	-	1	-	-	-	-	-	1
01-01-06A	2	3	1	-	-	-	-	-	-	-	6
01-01-06C	1	-	-	-	-	-	-	-	-	-	1
01-01-06D	-	-	-	-	-	-	-	-	1	-	1
01-01-06J	2	1	2	-	-	-	-	-	-	-	5
01-01-06K	1	1	-	-	-	-	-	-	-	-	2
01-01-06L	-	-	-	-	-	-	-	-	-	-	-
01-01-06M	-	-	-	-	-	-	-	-	-	-	-
01-01-07A	1	-	-	-	-	-	-	-	-	-	1
01-01-07C	-	2	-	-	-	-	-	-	-	-	2
01-01-07G	-	-	-	-	-	-	-	-	-	-	-
01-01-07H	-	-	1	-	-	-	1	-	-	-	2
01-01-07I	-	-	-	-	-	-	-	-	-	-	-
01-01-07J	2	-	-	-	-	-	-	-	-	-	2
01-01-08A	2	2	-	-	-	-	-	-	-	-	4
01-01-08D	1	1	-	-	-	-	-	-	-	-	2
01-01-09A	-	-	-	-	-	-	-	-	-	-	-
01-01-09B	-	-	-	-	-	-	-	-	-	-	-
01-02-01B	-	1	-	-	-	-	-	-	-	-	1
01-03-01A	1	-	-	1	-	-	-	-	-	-	2
01-05-02A	-	-	-	-	-	-	-	-	1	-	1
01-06-01A	-	-	-	2	-	-	-	-	-	-	2
01-07-01A	-	-	1	1	-	-	-	-	-	-	2
01-10-01A	3	2	2	1	-	-	-	-	-	-	8
01-10-02A	21	22	17	9	4	-	1	-	6	1	81
01-10-03A	9	11	12	2	5	1	-	-	2	1	43
01-10-04A	8	11	6	1	-	1	-	-	2	-	29
01-10-05A	2	2	1	1	1	-	-	-	-	-	7
01-10-05B	-	1	-	-	-	-	-	-	-	-	1
01-10-06A	-	-	-	1	-	-	-	-	-	-	1
01-11-02A	-	-	-	-	-	-	-	-	-	-	-
01-11-08A	1	-	-	-	-	-	-	-	-	-	1
01-12-01A	54	56	21	27	4	1	1	-	3	-	167
01-13-01A	3	4	2	-	-	-	-	-	1	-	10
01-13-01B	115	120	69	46	11	1	1	-	-	1	364
01-14-01A	3	-	3	1	-	-	-	-	1	-	8
01-15-01A	9	6	7	5	-	-	-	-	-	-	27
01-15-02A	2	1	8	1	-	-	-	-	-	-	12

Table 7.8. Continued

Artifact Variety	Arbitrary Levels (10 cm)										
	1	2	3	4	5	6	0-20 cm	20-40 cm	0-30 cm	Surface	Total
02-01-01A	23	14	10	5	1	-	-	-	-	-	53
02-01-01B	20	13	7	1	2	-	-	-	2	-	45
02-01-02A	1	3	-	-	-	-	-	-	1	-	5
02-01-02D	3	2	-	-	-	-	-	-	-	-	5
02-01-02E	3	-	1	-	-	-	-	-	-	-	4
02-01-02F	3	-	-	-	-	-	-	-	-	-	3
02-01-02H	-	1	-	1	-	-	-	-	-	-	2
02-01-02I	-	1	1	-	-	-	-	-	-	-	2
02-01-02J	4	-	-	-	1	-	-	-	-	-	5
02-01-02K	1	-	-	-	-	-	-	-	-	-	1
02-01-02L	-	1	-	-	-	-	-	-	-	-	1
02-01-02M	1	-	-	-	-	-	-	-	-	-	1
02-01-03A	5	7	11	3	1	-	-	-	1	-	28
02-01-04A	-	1	1	2	-	-	-	-	-	-	4
02-01-05A	-	-	-	-	-	-	-	-	-	-	-
02-03-01A	+	+	+	+	+	+	-	-	+	-	+
02-03-01B	5	5	13	-	-	-	-	1	-	-	24
02-03-02A	-	3	-	-	-	-	-	-	-	-	3
03-01-01A	-	-	1	1	-	-	-	-	-	-	2
03-01-02A	-	1	2	-	-	-	-	-	-	-	3
03-01-04A	-	1	-	4	-	-	-	-	-	-	5
03-02-01A	-	-	2	-	-	-	-	-	-	-	2
03-04-01A	-	-	-	1	-	-	-	-	-	-	1
03-04-02A	-	-	-	-	-	-	-	-	-	-	-
03-05-01B	-	-	-	-	-	-	-	-	-	-	-
03-06-05A	-	1	-	-	-	-	-	-	-	-	1
03-06-05B	1	-	-	-	-	-	-	-	-	-	1
04-02-01A	-	-	1	3	-	-	-	-	-	-	4
04-02-02A	-	1	-	1	-	-	-	-	-	-	2
04-03-01A	1	1	1	2	-	-	-	-	-	-	5
04-04-01A	-	1	-	-	1	-	-	-	-	-	2
07-01-01A	-	1	-	-	-	-	-	-	-	-	1
07-01-01B	-	-	-	-	-	-	-	-	-	-	-
07-01-01C	-	-	-	-	-	-	-	-	-	-	-
07-01-01H	-	-	-	-	-	-	-	-	-	-	-
07-03-01A	1	-	-	-	-	-	-	-	-	-	1
07-03-01B	-	-	-	-	-	-	-	-	-	-	-
07-03-04A	-	-	-	-	-	-	-	-	-	-	-
07-03-07A	-	-	-	-	-	-	-	-	-	-	-
07-03-10A	-	-	-	-	-	-	-	-	-	-	-
07-03-11A	-	-	-	-	-	-	-	-	-	-	-
08-01-01A	+	+	+	+	+	-	+	+	+	-	+
02-02-01A	-	-	-	-	-	-	-	-	-	-	-
09-	+	+	+	+	+	-	+	+	+	-	+
Total	326	319	226	135	38	4	5	1	24	4	1,082
01-16-01A	8454	9396	7048	3991	1030	61	2	27	39	-	30,048

Table 7.9. Vertical distribution of cultural material from the central area at the Arrowhead Hill site (34Pu-105): Phase II.

Artifact Variety	Arbitrary Levels (10 cm)							Total
	1	2	3	4	5	0-20 cm	0-30 cm	
01-01-01A	4	10	2	-	-	-	-	16
01-01-01D	-	-	1	-	-	-	-	1
01-01-02F	-	-	-	-	-	-	-	-
01-01-02G	-	-	-	-	-	-	-	-
01-01-02H	-	-	1	-	-	-	-	1
01-01-02N	-	-	1	-	-	-	-	1
01-01-02O	-	-	-	-	-	-	-	-
01-01-02T	1	-	-	-	-	-	-	1
01-01-02W	-	-	-	-	-	-	-	-
01-01-02AA	-	-	-	-	-	-	-	-
01-01-04A	-	-	-	-	-	-	-	-
01-01-04G	-	-	-	-	-	-	-	-
01-01-06A	3	-	-	-	-	-	-	3
01-01-06C	2	-	-	-	-	-	-	2
01-01-06D	-	-	-	-	-	-	-	-
01-01-06J	1	-	-	-	-	-	-	1
01-01-06K	-	-	-	-	-	-	-	-
01-01-06L	1	-	-	-	-	-	-	1
01-01-06M	-	-	-	-	-	1	-	1
01-01-07A	-	1	-	-	-	-	-	1
01-01-07C	-	1	-	-	-	-	-	1
01-01-07G	-	1	-	-	-	-	-	1
01-01-07H	-	-	-	-	-	-	-	-
01-01-07I	1	-	-	-	-	-	-	1
01-01-07J	1	-	-	-	-	-	-	1
01-01-08A	-	-	-	-	-	-	-	-
01-01-08D	-	-	-	-	-	-	-	-
01-01-09A	1	-	-	-	-	-	-	1
01-01-09B	-	-	-	-	-	-	-	-
01-02-01B	-	-	-	-	-	-	-	-
01-03-01A	-	-	-	-	-	-	-	-
01-05-02A	-	1	-	-	-	-	-	1
01-06-01A	-	3	-	-	-	-	-	3
01-07-01A	-	-	-	-	-	-	-	-
01-10-01A	1	1	-	-	-	-	-	2
01-10-02A	4	3	3	-	-	-	-	10
01-10-03A	3	2	4	-	-	-	-	9
01-10-04A	5	3	-	-	-	-	-	8
01-10-05A	1	-	1	-	-	-	-	2
01-10-05B	-	-	-	-	-	-	-	-
01-10-06A	-	-	-	-	-	-	-	-
01-11-02A	-	-	1	-	-	-	-	1
01-11-08A	-	-	-	-	-	-	-	-
01-12-01A	19	11	3	1	-	-	-	34
01-13-01A	1	-	-	-	-	-	-	1
01-13-01B	60	35	11	4	1	-	-	111
01-14-01A	-	-	-	-	-	-	-	-
01-15-01A	3	3	3	-	-	-	-	9
01-15-02A	2	2	1	1	-	-	-	6

Table 7.9. Continued

Artifact Variety	Arbitrary Levels (10 cm)							
	1	2	3	4	5	0-20 cm	0-30 cm	Total
02-01-01A	-	1	-	-	-	-	-	1
02-01-01B	-	2	-	-	-	-	-	2
02-01-02A	-	-	-	-	-	-	-	-
02-01-02D	-	-	-	-	-	-	-	-
02-01-02E	-	-	-	-	-	-	-	-
02-01-02F	-	-	-	-	-	-	-	-
02-01-02H	-	-	-	-	-	-	-	-
02-01-02I	-	-	-	-	-	-	-	-
02-01-02J	-	-	-	-	-	-	-	-
02-01-02K	-	-	-	-	-	-	-	-
02-01-02L	-	-	-	-	-	-	-	-
02-01-02M	-	-	-	-	-	-	-	-
02-01-03A	-	-	-	-	-	-	-	-
02-01-04A	-	-	-	-	-	-	-	-
02-01-05A	1	-	-	-	-	-	-	1
02-03-01A	-	+	+	-	-	-	-	+
02-03-01B	-	-	-	-	-	-	-	-
02-03-02A	-	-	-	-	-	-	-	-
03-01-01A	-	3	-	-	-	-	-	3
03-01-02A	1	-	2	-	-	-	-	3
03-01-04A	-	-	-	-	-	-	-	-
03-02-01A	-	1	1	-	-	-	-	2
03-04-01A	-	-	1	-	-	-	-	1
03-04-01A	-	-	-	-	-	-	-	-
03-05-01B	-	1	-	-	-	-	-	1
03-06-05A	-	-	-	-	-	-	-	-
03-06-05B	-	-	-	-	-	-	-	-
04-02-01A	-	5	-	-	-	-	-	5
04-02-02A	-	-	-	-	-	-	-	-
04-03-01A	-	1	-	-	-	-	-	1
04-04-01A	-	1	1	-	-	-	1	3
07-01-01A	7	1	-	-	-	-	-	8
07-01-01B	2	-	-	-	-	-	-	2
07-01-01C	2	-	-	-	-	-	-	2
07-01-01H	2	-	-	-	-	-	-	2
07-03-01A	9	1	-	-	-	-	-	10
07-03-01B	-	1	-	-	-	-	-	1
07-03-04A	-	-	-	-	-	-	-	-
07-03-07A	1	-	-	-	-	-	-	1
07-03-10A	1	-	-	-	-	-	-	1
07-03-11A	-	-	-	-	-	-	-	-
08-01-01A	-	-	-	-	-	-	-	-
08-02-01A	-	-	-	-	-	-	-	-
09-	+	+	+	+	-	-	-	+
Total	140	95	37	6	1	1	1	281
01-16-01A	3588	2714	2170	260	6	39	34	8,811

Table 7.10. Vertical distribution of cultural material from the north mound area at the Arrowhead Hill site (34Pu-105): Phase II.

Artifact Variety	Arbitrary Levels (10 cm)								
	1	2	3	4	5	6	7	Code 4	Total
01-01-01A	2	6	1	1	-	-	-	-	10
01-01-01D	-	-	-	-	-	-	-	-	-
01-01-02F	-	-	-	-	-	-	-	-	-
01-01-02G	-	-	-	-	-	-	-	-	-
01-01-02H	-	-	-	-	-	-	-	-	-
01-01-02N	-	-	-	-	-	-	-	-	-
01-01-02O	-	-	-	-	-	-	-	-	-
01-01-02T	-	-	-	-	-	-	-	-	-
01-01-02W	-	-	-	-	-	-	-	-	-
01-01-02AA	1	-	-	-	-	-	-	-	1
01-01-04A	-	-	-	-	-	-	-	-	-
01-01-04G	-	-	-	-	-	-	-	-	-
01-01-06A	1	1	-	-	-	-	-	-	2
01-01-06C	-	-	-	-	-	-	-	-	-
01-01-06D	-	-	-	-	-	-	-	-	-
01-01-06J	-	-	-	-	-	-	-	-	-
01-01-06K	1	-	-	-	-	-	-	-	1
01-01-06L	-	-	-	-	-	-	-	-	-
01-01-06M	-	-	-	-	-	-	-	-	-
01-01-07A	-	1	-	-	-	-	-	-	1
01-01-07C	-	1	-	-	-	-	-	-	1
01-01-07G	-	-	-	-	-	-	-	-	-
01-01-07H	-	-	-	-	-	-	-	-	-
01-01-07I	-	-	-	-	-	-	-	-	-
01-01-07J	-	-	-	-	-	-	-	-	-
01-01-08A	-	-	-	-	-	-	-	-	-
01-01-08D	-	-	-	-	-	-	-	-	-
01-01-09A	-	-	-	-	-	-	-	-	-
01-01-09B	-	1	-	-	-	-	-	-	1
01-02-01B	-	-	-	-	-	-	-	-	-
01-03-01A	-	-	-	-	-	-	-	-	-
01-05-02A	-	-	-	-	-	-	-	-	-
01-06-01A	-	-	-	-	-	-	-	-	-
01-07-01A	-	-	-	-	-	-	-	-	-
01-10-01A	-	-	-	-	-	1	-	-	1
01-10-02A	6	9	2	5	1	-	-	-	23
01-10-03A	1	3	2	1	-	-	-	-	7
01-10-04A	1	-	3	2	1	-	-	-	7
01-10-05A	1	-	-	-	-	-	-	-	1
01-10-05B	-	-	-	-	-	-	-	-	-
01-10-06A	-	-	-	-	-	-	-	-	-
01-11-02A	-	-	-	-	-	-	-	-	-
01-11-08A	-	-	-	-	-	-	-	-	-
01-12-01A	7	8	12	5	2	1	-	1	36
01-13-01A	1	-	1	-	-	-	-	-	2
01-13-01B	10	15	9	8	6	2	-	-	50
01-14-01A	-	-	-	-	-	-	-	-	-
01-15-01A	-	1	1	-	-	-	-	-	2
01-15-02A	-	-	-	-	-	-	-	-	-

Table 7.10. Continued

Artifact Variety	Arbitrary Levels (10 cm)								
	1	2	3	4	5	6	7	Code 4	Total
02-01-01A	-	-	1	-	-	-	-	-	1
02-01-01B	-	-	-	-	-	-	-	-	-
02-01-02A	-	-	1	-	-	-	-	-	1
02-01-02D	-	-	-	-	-	-	-	-	-
02-01-02E	-	-	-	-	-	-	-	-	-
02-01-02F	-	-	-	-	-	-	-	-	-
02-01-02H	-	-	-	-	-	-	-	-	-
02-01-02I	-	-	-	-	-	-	-	-	-
02-01-02J	-	-	-	-	-	-	-	-	-
02-01-02K	-	-	-	-	-	-	-	-	-
02-01-02L	-	-	-	-	-	-	-	-	-
02-01-02M	-	-	-	-	-	-	-	-	-
02-01-03A	-	-	-	-	-	-	-	-	-
02-01-04A	-	-	-	-	-	-	-	-	-
02-01-05A	-	-	-	-	-	-	-	-	-
02-03-01A	-	+	-	-	-	-	-	-	+
02-03-01B	-	-	-	-	-	-	-	-	-
02-03-02A	-	-	-	-	-	-	-	-	-
03-01-01A	-	1	1	-	-	-	-	-	2
03-01-02A	-	-	-	-	-	-	-	-	-
03-01-04A	-	-	-	-	-	-	-	-	-
03-02-01A	-	-	-	-	-	-	-	-	-
03-04-01A	-	-	-	-	-	-	-	-	-
03-04-02A	1	-	-	-	-	-	-	-	-
03-05-01B	-	-	-	-	-	-	-	-	-
03-06-05A	-	-	-	-	-	-	-	-	-
03-06-05B	-	-	-	-	-	-	-	-	-
04-02-01A	-	-	-	-	-	-	-	-	-
04-02-02A	-	-	-	-	-	-	-	-	-
04-03-01A	-	-	-	-	-	-	-	-	-
04-04-01A	-	-	-	1	-	-	-	-	1
07-01-01A	-	-	-	-	-	-	-	-	-
07-01-01B	-	-	-	-	-	-	-	-	-
07-01-01C	-	-	-	-	-	-	-	-	-
07-01-01H	-	-	-	-	-	-	-	-	-
07-03-01A	2	-	-	-	-	-	-	-	2
07-03-01B	-	-	-	-	-	-	-	-	-
07-03-04A	1	-	-	-	-	-	-	-	1
07-03-07A	-	-	-	-	-	-	-	-	-
07-03-10A	-	-	-	-	-	-	-	-	-
07-03-11A	1	-	-	-	-	-	-	-	1
08-01-01A	+	+	+	+	+	-	-	-	+
08-02-01A	+	+	+	+	+	+	-	-	+
09-	+	+	+	+	+	+	-	-	+
Total	37	47	34	23	10	4	-	1	156
01-16-01A	845	1614	1005	558	449	116	16	-	4,603

by other artifact categories. Bioturbation, cultivation, stratigraphic unconformities, and the excavation of arbitrary levels are some of the factors which have complicated the identification of components.

Component 1 is characterized by a lack of small point forms, a limited quantity of ceramics (N=21), and a predominance (78%) of large contracting stemmed points *(01-01-01A)*. Large expanding stemmed/corner-notched forms *(01-01-02)*, which include *Marcos, Williams, Summerfield, Ellis,* and *Snyders,* comprise 19% of the point sample. Large straight stemmed points *(01-01-04)* are minimally (3%) represented. The presence of three small expanding stemmed/side-notched points *(01-01-07)* is believed to be a function of bioturbation.

Plain grog and grit tempered wares, *Williams Plain (02-01-01A)* and *LeFlore Plain (02-01-01B)*, are dominant. The few decorated and shell tempered sherds from this assemblage are presumably intrusive from the overlying deposits.

Materials representing Component 1 are restricted to Strata III, IV, and V of the north mound (Levels 3-7 at the mound apex and Levels 2-7 at the periphery), Strata IV and V (Levels 4-6) of the south mound, and Strata II, IV, and V (Levels 2-5) of the central area.

Table 7.11. Concentration indices of debitage from the Arrowhead Hill site (34Pu-105): Phase II.

Area	Arbitrary Levels (10 cm)						
	1	2	3	4	5	6	7
South Mound Area							
Number of Levels	38	37	35	30	18	4	-
Concentration Index	222.5	253.9	201.2	131.4	52.2	15.2	-
Central Area							
Number of Levels	8	17	25	22	1	-	-
Concentration Index	309.7	139.6	86.8	11.8	6.0	-	-
North Mound Area							
Number of Levels	3	3	3	3	2	1	1
Concentration Index	205.7	372.0	206.3	95.0	146.5	71.0	16.0

Large expanding stemmed/corner-notched *(01-01-02)* and large straight stemmed *(01-01-04)* points are commonly found in Late Archaic and Woodland assemblages (Wyckoff 1970a: 92-93; Rohrbaugh 1972; Galm 1978b: 73-76; Galm and Flynn 1978: 155-156). However, the presence of pottery and the dominance of large contracting stemmed points *(01-01-01A)* suggests that Component 1 is best related to the Woodland period. Several Wister Valley sites have yielded components suggestive of this period which have been assigned to the Fourche Maline phase (Galm and Flynn 1978: 156). This phase has been dated between *ca.* A.D. 1 and A.D. 800-1000. Large contracting stemmed points and *Williams Plain* pottery are considered hallmark artifacts (Galm 1978b: 74).

Four radiocarbon determinations from the north mound area are believed related to Component 1. Two of these are from samples collected from the 1978 test square A58-10 at the mound apex. The first, A.D. 616 ±55 (UGa-2545), is from 25-30 cm below surface and corresponds to the center of Stratum III (Vehik 1979f: 404). An earlier date of A.D. 243 ±54 (SMU-703) was determined from charcoal collected between 35-40 cm at the bottom of Stratum III. A third date of A.D. 302 ±55 (UGa-2544) was obtained from charcoal recovered between 10-20 cm below surface in A44-10 located near the mound periphery (Vehik 1979f: 403-404). This unit is approximately 15 cm lower in elevation than A58-10 so that the stratigraphic position of this date is more pertinent than the actual depth. The depth (10-20 cm) is believed to be equivalent to Stratum IV which occurs at a depth of 49 cm at the center of this mound. A fourth charcoal sample collected between 50-55 cm from the 1979 waterscreen unit (N34-W31) has yielded a date of A.D. 302 ±85 (WSU-2353) for Stratum IV. This unit is near the mound apex, downslope from A58-10.

The second component defined for 34Pu-105 is characterized by a variety of small point *(01-01-06, 01-01-07, 01-01-08,* and *01-01-09)* and ceramic categories *(02-01-00)*. Small points constitute 41% and large contracting stemmed points *(01-01-01A)* represent 51% of the sample. The infrequent occurrence of large expanding stemmed/corner-notched *(01-01-02)* points (6%) and large straight stemmed *(01-01-04)* points (2%) suggests they represent intrusive artifacts or minor items in the assemblage.

Twenty-three percent of the points are small expanding stemmed/corner-notched *(01-01-06)* forms *(Scallorn, Massard, Agee, Pocola brazil, Sequoyah,* and *Homan)*. Small expanding stemmed/side-notched *(01-01-07)* types which include *Reed, Toyah, Morris, Keota,* and *Schild* comprise 10% of the points. Small unstemmed *(01-01-08)* points *(Fresno* and *Young)* occur infrequently (6%). Small parallel stemmed/corner-notched *(01-01-09)* point types *(Alba* and *Bonham)* represent only 2% of the sample. The dominance of small expanding stemmed/corner-notched *(01-01-06)* types along with the low frequency of small unstemmed *(01-01-08)* and small expanding stemmed/side-notched *(01-01-07)* forms are characteristic of Harlan and Spiro phase occupations in the Arkansas River area (Brown 1976; Galm 1978a; 1978b) and Hochatown and Sanders phase components from the Red River drainage (Rohrbaugh 1973; Wyckoff 1970a; Gettys 1975). Large contracting stemmed points *(01-01-01A)* have also been noted in similar late prehistoric contexts (Bell 1972: 224; Rohrbaugh 1973: 112, 199).

Component 2 ceramics are dominated (81%) by *Williams Plain (02-01-01A)* and *LeFlore Plain (02-01-01B)*. However, the presence of a wide variety of decorated (19%) and shell tempered (17%) wares suggests a late occupation which may correlate with the Harlan and Spiro phases (Brown 1971; Bell 1972). Radiocarbon dates from the Harlan site suggest an occupation *ca.* A.D. 700-1250 although the majority of these dates range between A.D. 900-1200 (Bell 1972: 258). Evidence from the Spiro Mounds indicates that the Spiro phase extends from A.D. 1200-1250 to A.D. 1300-1400 (Brown 1971: 220).

Materials relating to Component 2 are restricted to Strata I and II of the north (Levels 1-2) and south (Levels 1-3) mound areas and to Stratum I (Level 1) of the central area.

Component 2 materials are consistent with three radiocarbon dates obtained from Structure I in the south mound. Charcoal believed to represent wall and roof fall at a depth of 20-30 cm (Bobalik 1977: 523) has been dated at A.D. 1100 ±75 (UGa-1519). A second date of A.D. 1013 ±90 (WSU-2354) is based on charcoal obtained from an interior pit (F79-11). The last date of A.D. 1126 ±90 (WSU-2355) was determined from charcoal collected from Postmold 5 (F79-14).

Evidence of a historic component (Component 3) is limited to a few fragments of glass *(07-01-00)*, nails *(07-03-01)*, a fence staple *(07-03-04A)*, a cartridge slug *(07-03-07A)*, a metal button *(07-03-10A)* and wagon hardware *(07-03-11A)*. Similar materials were recovered during Phase I (Vehik 1979f: 432). The ephemeral character of this assemblage precludes any statements regarding the nature and chronological placement of this occupation. Although historic items are limited to the upper 20 cm of the deposit, 85% are from Level 1 which corresponds to Stratum I.

Lithic Reduction Sequence and Lithic Resource Utilization

An examination of the artifacts indicate that all stages of lithic reduction are present. A core/flake technology is also evident. The first activity set relates to procurement, testing, and initial modification of lithic resources (Bobalik 1977: 32-41). Artifacts suggestive of this set include cobble/quarried block biface I's *(01-10-01A)*, cores *(01-14-01A)*, split cobbles *(01-15-01A)*, and tested cobbles *(01-15-02A)*. Three reduction strategies are indicated by these artifacts: the bifacial reduction of cobbles, the splitting of cobbles for bifacial modification, and a core/flake technology. Excluding debitage, this activity set comprises 16% of Component 1 and 19% of Component 2 chipped stone artifacts. Although a core/flake technology is minimally represented in both components, cores (*01-14-01A*) are more common in Component 2.

Cobble/block biface II/thick bifaces *(01-10-02A)* and thin biface I's *(01-10-03A)* reflect primary modification activities (Bobalik 1977: 32-41). These artifacts are numerous throughout the occupation of this site. Thirty-five percent of Component 1 and 37% of Component 2 chipped stone artifacts represent this second activity set.

The third set relates to secondary shaping and thinning activities (Bobalik 1977: 32-41). Artifacts indicative of these activities include thin biface IIa's *(01-10-04A)*, thin biface IIb's *(01-10-05)*, and cobble/block biface III's *(01-10-06A)*. These items constitute 12% of the chipped stone artifacts in each component.

The last activity set indicates finished implements and/or artifact maintenance (Bobalik 1977: 32-41), and is characterized by points *(01-01-00)*, drills *(01-02-01B)*, wedges *(01-03-01A)*, double-bitted axes *(01-06-01A)*, hoes *(01-07-01A)*, thick biface tools *(01-11-02A)* and split cobble tools *(01-11-08A)*. Thirty-seven percent of Component 1 and 34% of Component 2 chipped stone artifacts relate to this activity set.

A contingency table was prepared to test for significant differences between the lithic reduction activity sets represented in the two assemblages (Table 7.12). The null hypothesis states that there are no significant differences between the two samples. Using three degrees of freedom, the null hypothesis cannot be rejected at the .05 level of confidence. These data contrast with the Phase I interpretation which argued that there was less emphasis on procurement and initial modification during the Archaic/Woodland component (Vehik 1979f: 442, 451). This difference in interpretation is presumably a function of the limited sampling of the south mound and central areas in 1978.

Table 7.12. Chi-square analysis comparing lithic reduction activity sets for the prehistoric components at the Arrowhead Hill site (34Pu-105): Phase II.

Lithic Reduction Activity Sets	Component 1 (Woodland)	Component 2 (Caddoan)	Total
Initial Modification	53 (52.8)	21 (21.8)	74
Primary Modification	118 (115.7)	44 (46.3)	162
Secondary Modification	39 (38.6)	15 (15.5)	54
Finished Implements	107 (110.0)	47 (44.1)	154
Total	317	127	444
x^2 - .4623 D.F. - 3			

Numbers in parentheses are expected values.

Although 86% of the points are broken, impact fractures are rarely (9%) present. Reworking of large points (72%) is generally restricted to lateral margins or distal ends. Seventy percent of the large contracting stemmed points *(01-01-01A)*, 85% of the large expanding stemmed/corner-notched forms *(01-01-02)*, and all of the large straight stemmed varieties *(01-01-04)* exhibit evidence of reworking or resharpening. Small points *(01-01-06, 01-01-07, 01-01-08,* and *01-01-09)* display less frequent (12%) evidence of reworking.

This dominance of broken and reworked points is suggestive of on site utilization and maintenance of these implements. A high percentage of the points recovered from Wister Valley sites are broken and exhibit evidence of reworking/resharpening (Galm and Flynn 1978: 137). Many of these large reworked points were interpreted as having been utilized in a variety of processing activities such as scraping and cutting rather than as hunting projectiles. It is suggested that the large point varieties *(01-01-01, 01-01-02,* and *01-01-04)* associated with both components at 34Pu-105 reflect this pattern, and many of these implements were multipurpose tools such as knives or scrapers.

Material type frequencies are provided for select artifact categories in Table 7.13. These frequencies resemble Phase I results (Vehik 1979f: 447) and indicate that the use of local resources (especially Type A) are the most prevalent. Based on debitage from S7-W8 and all of the 1979 chipped stone artifacts, material type percentages are also provided for each component (Table 7.14). These data also indicate the use of locally available materials throughout the occupation of the site. Type A predominates in both components and Types B, J, H, and G are the next most frequent materials. Boone chert is the only identified nonlocal material. The presence of water worn cortex on many of the artifacts and debitage suggests that most of the lithic materials were procured from nearby stream gravels.

Activities and Site Function

An examination of the artifacts indicates that lithic reduction is a major activity for both prehistoric components. Activity sets associated with the components suggest that implements and later reduction stage artifacts are more numerous. A core/flake reduction strategy appears to be better represented in Component 2. This pattern has been observed at several Wister Valley sites (Galm and Flynn 1978: 101; Galm 1978a: 189, 214).

Hunting related activities are usually inferred by the presence of points. This probably is a valid interpretation for the small point forms *(01-01-06, 01-01-07, 01-01-08,* and *01-01-09)* associated with the early Caddoan component (2). As mentioned earlier, many of the large points included in Component 2 may have been employed in processing activities involving cutting, scraping, or sawing (Ahler 1971; Galm and Flynn 1978). Additional chipped stone implements in Component 2 include a drill

Table 7.13. Lithic material type frequencies for selected artifacts at the Arrowhead Hill site (34Pu-105): Phase II.

Artifact Number	Percentage											Total Number
	A	B	C	D	E	F	G	H	I	J	K	
01-01-01	41	30	1	1	3	-	10	1	-	12	-	86
01-01-02	61	23	-	-	-	-	-	-	-	8	8	13
01-01-04	100	-	-	-	-	-	-	-	-	-	-	3
01-01-06	61	23	4	-	-	-	8	-	-	4	-	26
01-01-07	71	7	7	-	-	-	-	-	-	14	-	14
01-01-08	67	33	-	-	-	-	-	-	-	-	-	6
01-01-09	50	-	50	-	-	-	-	-	-	-	-	2
01-02-01B	100	-	-	-	-	-	-	-	-	-	-	1
01-03-01A	100	-	-	-	-	-	-	-	-	-	-	2
01-05-02A	100	-	-	-	-	-	-	-	-	-	-	2
01-06-01A	-	-	-	-	-	-	-	100	-	-	-	5
01-07-01A	-	-	-	-	-	-	-	100	-	-	-	2
01-10-01A	9	27	-	-	-	18	18	-	-	27	-	11
01-10-02A	53	32	-	-	-	-	5	1	-	8	-	114
01-10-03A	49	30	-	-	3	-	10	-	-	7	-	59
01-10-04A	48	32	2	-	-	-	2	4	-	11	-	44
01-10-05A	60	30	-	-	10	-	-	-	-	-	-	10
01-10-05B	-	-	-	-	-	-	100	-	-	-	-	1
01-10-06A	-	-	-	-	-	-	100	-	-	-	-	1
01-11-02A	-	100	-	-	-	-	-	-	-	-	-	1
01-11-08A	-	-	-	-	-	-	100	-	-	-	-	1
01-12-01A	48	23	1	1	1	-	6	7	1	13	-	237
01-13-01A	46	54	-	-	-	-	-	-	-	-	-	13
01-14-01A	50	50	-	-	-	-	-	-	-	-	-	8
01-15-01A	42	37	5	-	-	-	3	5	-	8	-	38
01-15-02A	33	28	-	5	5	-	5	5	-	17	-	18
Total	345	199	9	3	10	2	45	30	2	72	1	718
Percent	48.0	27.7	1.2	.4	1.4	.3	6.3	4.2	.3	10.0	.1	

Table 7.14. Lithic material type frequencies for the prehistoric components at the Arrowhead Hill site (34Pu-105): Phase II.

Lithic Type	Woodland Component (1)				Early Caddoan Component (2)			
	Artifacts		Debitage		Artifacts		Debitage	
	N	%	N	%	N	%	N	%
A	84	42.8	183	62.7	248	50.3	330	62.4
B	56	28.6	55	18.8	131	26.6	98	18.5
C	2	1.0	1	.3	7	1.4	4	.7
D	-	-	-	-	3	.6	2	.4
E	1	.5	4	1.4	9	1.8	4	.7
F	1	.5	-	-	1	.2	-	-
G	12	6.1	19	6.5	33	6.7	27	5.1
H	16	8.2	4	1.4	13	2.6	25	4.7
I	-	-	-	-	2	.4	-	-
J	23	11.7	26	8.9	46	9.3	38	7.2
K	1	.5	-	-	-	-	1	.2
Total	196		292		493		529	

(01-02-01B), a wedge *(01-03-01A)*, a split cobble tool *(01-11-08A)*, a unifacial scraper *(01-05-02A)*, 12 modified flakes with projections *(01-13-01A)*, and 389 modified flakes *(01-13-01B)*. Several modified flakes (56) may have functioned as spokeshaves for working bone or wood since the modification is restricted to concave edges.

Excluding debitage, ceramics comprise 16% of Component 2 artifacts. Vessel forms include jars, carinated bowls, and bottles. Decorations consist of incisions, engravings, slips, and punctations. These items presumably served as containers for storage and/or cooking. The majority of the ceramics are from the south mound area, and are mostly associated with Structure 1. Sherds have also been recovered from pits (F78-2, F79-1, and F79-10).

A variety of ground *(03)* and pecked/battered *(04)* stone artifacts are present in Component 2. These include seven manos *(03-01-00)*, two grinding slabs *(03-02-01A)*, a polished hematite specimen *(03-04-02A)*, two scratched stones *(03-06-05)*, two pitted stones *(04-02-00)*, and three miscellaneous pecked/battered fragments *(04-03-01A)*. Many of these are believed to represent processing tools, possibly for crushing and grinding vegetal resources. The small depressions on three specimens *(03-01-04A* and *04-02-00)* suggest they were utilized as a base during some pounding activity. Honea (1965) indicates that similar items were employed in a bipolar flaking technique. In contrast, it has been suggested that these implements were used in the processing of hardshell nuts (Caldwell 1958: 12; Fowler 1959). Wear similar to that observed on the 34Pu-105 specimens has been experimentally produced on cobbles while cracking nuts on anvils (Spears 1975).

Floral remains consist of uncarbonized seeds which are believed to represent contaminants and charred nutshells, primarily *Carya* spp. Nutshells are scattered throughout deposits associated with the early Caddoan component and are present in the fill of all pit features. Identified faunal remains (Table 7.7) include a minimum of two white-tailed deer *(Odocoileus virginianus)* and a common box turtle *(Terrapene carolina)*. These specimens and a striped skunk *(Mephitis mephitis)* were identified from previous excavations at the site (Bobalik 1977: 527). This suggests that forest and forest-edge habitats were being exploited. Based on the nutshell at least a fall occupation may be posited for Component 2 although the remaining portion of the seasonal cycle cannot be excluded. The stemmed hoe *(01-07-01A)* is interpreted as a general digging tool for the extraction of vegetal resources, however there is no evidence of horticulture.

During the early Caddoan occupation of 34Pu-105, activities appear to be more intensive in the south mound area. At least one structure and six pits are associated with this component. Three pits (F79-5, F79-11, and F79-13) are within two series of postmolds associated with Structure 1. Two pits (F79-9 and F79-12) are west of the major daub concentrations delineating Structure 1 and may represent exterior features (Figure 7.3). A partially excavated pit (F79-10) is 12 m east of the structure and may reflect an additional activity area. Three pits (F78-2, F79-1, and F79-3)

from the central area are also associated with Component 2, and may represent activity areas since no structural remains were encountered. Features relating to Component 2 are lacking from the north mound area.

In an attempt to discern discrete activity areas associated with Structure 1, the horizontal distribution of selected artifact categories recovered from the analytical floor (20-30 cm) was examined. Generally, cultural remains are more concentrated in the northeast and southwest areas of the structure. This pattern continues even when the overlying materials are included. Ground *(03)* and pecked/battered *(04)* stones are randomly distributed. Ceramics and relatively large quantities of unburned bone are more restricted to the northeast quarter of the structure area. However, tiny fragments of burned bone are dispersed across the presumed occupational surface. Artifacts associated with the various lithic reduction activities tend to be concentrated in the northeast and southwest quarters of the structure area. Points and items reflective of initial reduction and primary modification are well represented and generally limited to these areas. These artifact concentrations complement the distribution of roof and wall fall associated with Structure 1.

It is possible that this distributional pattern is a function of activities occurring after Structure 1 burned rather than during its utilization. The aboriginal deposition of refuse around and overlying the concentration of roof and wall debris which resulted from the collapse of Structure 1 could have produced this distributional pattern. In general, discrete activity areas could not be directly associated with the structure.

Given the wide range of activities indicated for Component 2 and the presence of several pits and one structure, 34Pu-105 is believed to represent a major base camp during the early Caddoan period. Seasonality is hard to determine based on the limited floral remains, but the presence of at least one structure may have provided sufficient shelter for year-round habitation. Since the entire lithic reduction continuum is represented, it appears that on site manufacture and maintenance of various tool kits was undertaken using locally available resources. Hunting, woodworking, processing, and extractive activities are suggested by the artifact assemblage.

Although similar activities occur during both components, there appear to be some differences in emphasis, technologies, and intensity of occupation. Small point forms are lacking in the Woodland component (Component 1). It is likely that some of the large points were utilized as hunting projectiles since a few exhibit impact fractures. However, the large number of broken and reworked specimens suggests they were commonly used in processing or extractive activities. Large contracting stemmed points *(01-01-01A)* are clearly the dominant implement form.

Additional processing tools associated with Component 1 are a wedge *(01-03-01A)*, a thick biface tool *(01-11-02A)*, a unifacial scraper *(01-05-02A)*, a modified flake with projection *(01-13-01A)*, and 134 modified flakes *(01-13-01B)*. Fifteen modified flakes display modification along a concave edge and may have been used as spokeshaves. A stemmed hoe *(01-07-01A)*,

five double-bitted axes *(01-06-01A)*, and a cobble/block biface III *(01-10-06A)*, presumably a digging tool preform, are considered to be related to vegetal extraction.

Ten percent of artifacts associated with Component 1 are ground *(03)* and pecked/battered *(04)* stones. These include 11 manos *(03-01-00)*, two grinding slabs *(03-02-01A)*, ground and unmodified hematite *(03-04-01A* and *04-04-01A)*, a gorget *(03-05-01B)*, nine pitted stones *(04-02-00)*, and three miscellaneous pecked/battered fragments *(04-03-01A)*. In order to test for significant differences between the two components a contingency table was prepared (Table 7.15). The null hypothesis states that there is no significant difference between the components in terms of ground and pecked/battered stone artifacts. At one degree of freedom, the null hypothesis is rejected at the .05 confidence level. These artifact classes are significantly more frequent in Component 1. The majority of these items are believed to reflect vegetal processing activities. Thirteen specimens *(03-01-04A* and *04-01-00)* exhibit depressions which resemble those produced experimentally from cracking hardshell nuts (Spears 1975).

Ceramics make up 7% of the total artifact sample in Component 1 and were apparently used in domestic activities as containers for storage and/or cooking. Small quantities of pottery were recovered from all excavation areas associated with this component.

Table 7.15. Chi-square analysis comparing chipped stone and ground and pecked/battered stone from the prehistoric components at the Arrowhead Hill site (34Pu-105): Phase II.

Artifact Classes	Component 1 (Woodland)	Component 2 (Caddoan)	Total
Chipped Stone	127 (142.9)	317 (301.1)	444
Ground, Pecked/Battered Stone	32 (16.1)	18 (33.9)	50
Total	159	335	494

x^2 - 25.8 D.F. - 1

Numbers in parenthesis are expected values.

Small amounts of floral and faunal remains are associated with Component 1. Tiny fragments of burned and unburned bone and shell are also scattered throughout the deposits but specific identification is not possible. Charred nutshell (primarily *Carya* spp) have been recovered from pit features associated with this component.

Five cultural features are assigned to Component 1. Three are rock clusters (F78-1, F78-3 and F79-2) uncovered in the north mound area. It is believed these features represent short-term burning episodes or secondary depositions. Feature 79-2 is believed to represent a continuation of Feature 78-1 due to its proximity, stratigraphic position, and similarities in sorting, arrangement, and associations. Features 78-4 and 79-6 were recorded from the central and south mound areas respectively. These pits exhibit similar dimensions and content although rocks were stacked inside Feature 79-6. Structural remains are lacking for this component, and no patterns in the horizontal distribution of artifacts and features could be recognized.

The Woodland component at the site is believed to represent a base camp. Based on the available data, it could not be determined if the occupation was seasonally restricted or occurred during portions of several seasons. Proposed activities include hunting and possibly butchering, manufacture and maintenance of varied tool kits, vegetal resource extraction and processing, woodworking, and unknown resource processing. Items indicative of personal adornment or decoration include a gorget and ground hematite presumably used for pigment.

SUMMARY

Component 1 represents the earliest occupation of 34Pu-105 and is related to the Woodland period. Stratigraphic dates ranging from A.D. 243 ±54 to A.D. 616 ±55 and a distinctive artifact assemblage are the basis for this assignment. Component 1 is characterized by a dominance of large contracting stemmed points, a lack of small point forms, and a limited quantity of ceramics dominated by grit and grog tempered plainwares. In the Jackfork Basin, a similar occupation during this time period is reported at 34Pu-111 (Flynn, Earman, and Vehik 1979). Component 1 resembles Woodland manifestations in the Wister Valley which are assigned to the Fourche Maline phase (Galm and Flynn 1978: 156). Materials associated with this component are restricted to Strata III, IV and V across the site in addition to Stratum II from the central area. Pits and rock concentrations are the only features attributed to this component.

Radiocarbon determinations ranging between A.D. 1013 ±90 and A.D. 1126 ±90 have been obtained from the south mound area (Structure 1) and together with cultural remains suggest an early Caddoan date for the second prehistoric component. Component 2 is distinguished by a variety of small corner-notched, side-notched, and unstemmed points and a diverse ceramic sample. Ceramics include decorated and undecorated grog, grit, shell, and shale tempered wares. These artifact categories are reminiscent of Harlan and Spiro phase occupations from the Arkansas River drainage

(Brown 1976; Bell 1972) and Hochatown and Sanders phase components from the Red River basin (Rohrbaugh 1973; Wyckoff 1970a). In addition to Structure 1, nine pit features have been assigned to this component.

There appears to be a general similarity in activities conducted during each prehistoric component. Chipped stone technologies oriented toward on site tool maintenance and manufacture dominate both components. Although artifacts representing the latest stages of the reduction continuum are the most frequent, several specimens indicate that initial modification is also common. Even though similar reduction strategies are related to the components, it appears that the flake core strategy was utilized more often during the early Caddoan period. Local lithic resources are almost exclusively utilized during both components. Ground stone and ceramic technologies are represented in both assemblages. However, ground stone appears to be emphasized during the Woodland occupations while ceramic technology is predominant in the early Caddoan component. The processing and extraction of resources are important concerns to the inhabitants of both components. The scarcity of floral and faunal remains makes it difficult to determine the seasonality of the occupations. However, the presence of charred nutshells may suggest fall occupation. Given the presence of a structure and numerous pit features, it is proposed that the early Caddoan component represents a more intensive and possibly more permanent occupation than the Woodland component. The nature of the historic occupation could not be determined.

CHAPTER 8

THE BUFFALO BEND SITE (34Pu-111)

Rain Vehik

INTRODUCTION

The Buffalo Bend site has an approximate area of 110 m x 98 m in the direct impact area of the proposed Clayton Lake. The site is on a low terrace, about 171 m (560 ft) m.s.l., along the east side of Buffalo Creek (Figure 8.1). It is approximately 805 m northeast of 34Pu-74 (Bobalik, Lintz, and Vehik 1978: 1-5; Lintz 1979e) and about 20 m west of 34Pu-112. The site is bounded on the north and west by intermittent streams flowing into Buffalo Creek. Originally, this area was covered with grass and oak trees and a small farm may have been nearby.

In all probability, the site will be destroyed due to lake related construction activities. Large portions of the site, in fact, have already been disturbed or altered (Figure 3.1a-b). This locale was found in 1978 because of stripping activities designed to remove vegetation. At least 10-20 cm of the topsoil was removed, exposing numerous cultural remains. As a result, the site was visited by collectors and eventually it was reported to members of the Clayton Archaeological Project. Preliminary test excavations (seven 1 m x 1 m squares) were conducted during the winter of 1978 (Vehik 1979a). Because of the high probability of the presence of structures, a request was made to restrict the site area from further construction activities until mitigative actions could be initiated during Phase II of the Clayton Archaeological Project.

Prior to the beginning of Phase II investigations, the site was again subjected to numerous surface collections by amateurs and was disturbed by the placement of several short backhoe trenches into the site area proper. The latter was presumably done to test the nature of impervious materials. Before beginning excavations, a large part of the site was cleared of recent vegetation with a brushhog by the field crew and excavation units were established. However, additional parts of the site were destroyed by the removal of fill along the southern, eastern, and western boundaries of the site. Interestingly, the demarcation point of the disturbance was identical to the termination of our brushhog line. These disturbances were reported to the Corps of Engineers offices in Tulsa and Clayton, and the site limits were flagged. Following this, most of the rebar stakes, used in placing grid lines and excavation units, were removed by members of the Southwest Construction Company. Efforts to begin excavations were further hampered when our access to the site was denied until September 10.

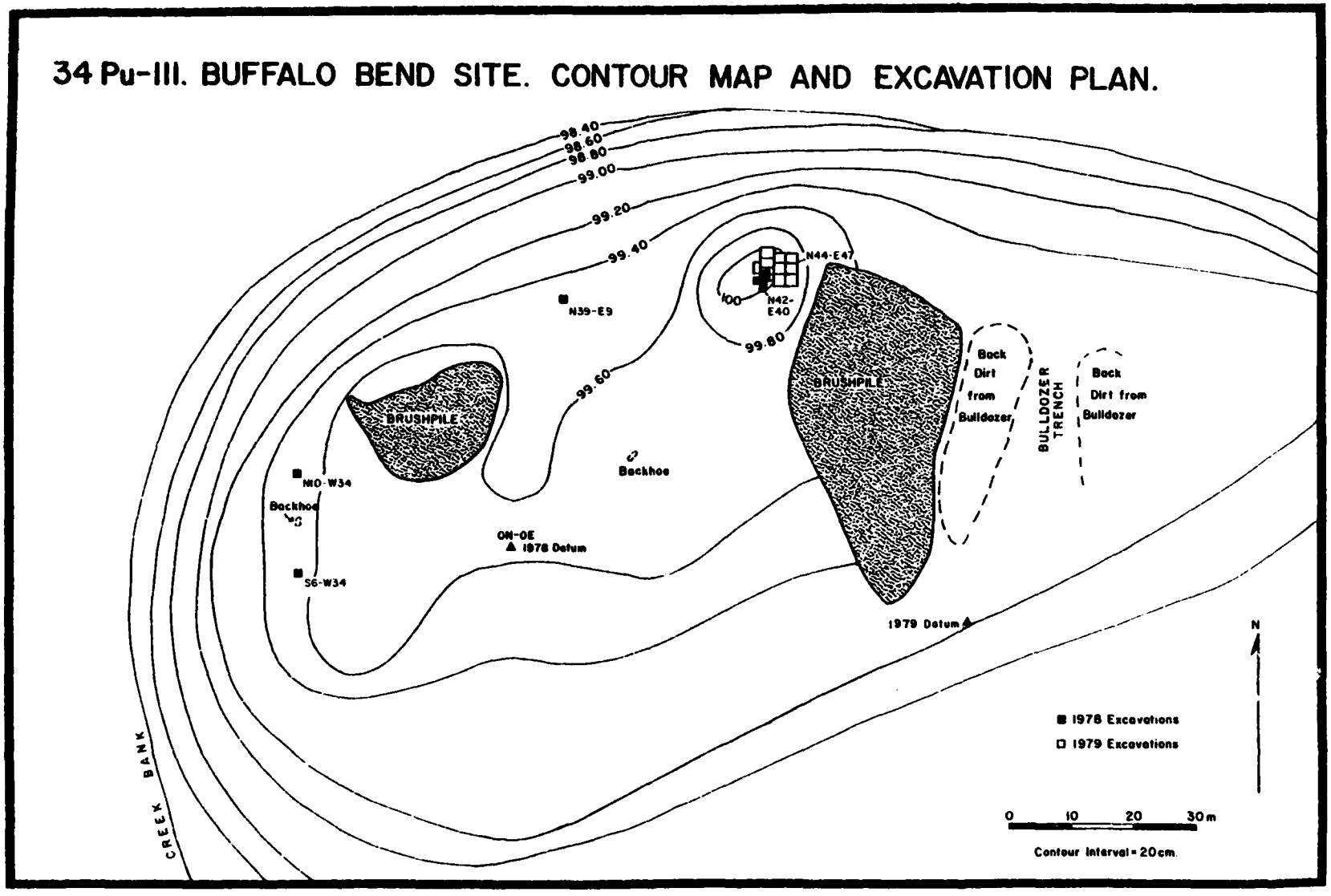


Figure 8.1. Contour map of the Buffalo Bend site (34Pu-111) showing location of excavation units: Phase II.

As a result of the problems enumerated above, a revision of the research design was necessary, and the amount of work scheduled at the site was reduced by 10 work days.

PREVIOUS INVESTIGATIONS

The 1978 test excavations involved seven 1 m x 1 m squares (Vehik 1979a; Flynn, Earman, and Vehik 1979). Three widely spaced units were excavated in order to determine the nature of cultural deposits. Four other squares were placed on a low rise where baked clay and burned earth had been observed on the surface. Excavations in this area revealed the presence of baked clay (daub) and large amounts of charcoal occurring at depths of 30-40 cm. The charcoal was oriented north-south, and in combination with the baked clay indicated either part of a structure or a fire related feature. Even though no cultural material was in direct association with the feature, the majority of the artifacts recovered from the site came from this area. In addition, radiocarbon determinations of A.D. 580 ±80 and A.D. 601 ±75 were obtained from charcoal associated with the feature. These dates, as well as the relative uniformity of cultural remains (contracting stemmed points, grog, grit, and bone tempered pottery, chipped stone hoes and axes, bifaces, and groundstone implements), indicate that this was probably a single component site occupied during the Fourche Maline phase (Flynn, Earman, and Vehik 1979: 486). On the basis of additional data such as the predominant use of local lithic resources, a core/flake technology and bifacial reduction sequence, ground stone implements, and high organic matter counts it was suggested that the site represents a Woodland base camp with an emphasis on gathering and attendant processing activities (Flynn, Earman, and Vehik 1979: 485).

PHASE II RESEARCH DESIGN

The original research design, based on the 1978 test excavations, was to emphasize: 1) definition of site boundaries, 2) clarification and interpretation of site stratigraphy, 3) determination and/or modification of the nature and number of components at the site, 4) obtaining suitable materials for absolute dating, and 5) determination of the nature and relationship of Feature 78-1.

Due to the problems outlined earlier, many of the research objectives had to be modified and at least the first two could not be achieved because of site alterations. As a result, the primary excavation emphases were placed on obtaining data regarding the nature of Feature 78-1. Secondary emphasis was placed on obtaining stratigraphic information, the nature and number of components, and absolute dating. These data, instead of representing entire site coverage, were obtained from excavations adjacent to Feature 78-1. In addition, waterscreen sampling was limited since the 1978 analyses suggested that organic remains were extremely scarce, and ongoing construction activities limited our access to an available source

of water (Galm 1979a: 518-519). As a result, waterscreen/flotation samples were collected only from possible features (Table 8.1).

EXCAVATION STRATEGIES

The excavation techniques during the two phases of work at the site were similar. The primary difference was the size of excavation units and the amount of sediments that were screened through 1/4-in mesh hardware cloth. The horizontal grid system established during Phase I was used to determine the placement of the 1979 excavation units. Essentially, north-south and east-west baselines were established from an arbitrary datum designated S0-E0. However, because the baseline stakes had been removed before excavations could begin, the 1979 excavation units do not correspond to the four squares excavated earlier. They are skewed approximately 50 cm too far north and 1 m too far west (Figure 8.1).

The 1979 excavation units consisted of 2 m x 2 m squares and are referred to by the southeast corner stake. Thus, the first square, 40 m north of the east-west base line and 45 m east of the north-south base line is referred to as N40-E45. Ten 2 m x 2 m squares and two 1 m x 2 m units were excavated. Also 20 cm of deposits were additionally excavated from two of the 1978 test units (N42-E40 and N43-E40).

Table 8.1. Flotation results of selected features at the Buffalo Bend site (34Pu-111): Phase II.

Material	Feature 79-3 (N40-E45, 70-80 cm)				Feature 79-4 (N40-E47, 60-70 cm)
	Postmold				Postmold
	1	3	5	6	3
Rock	808.9	646.5	103.7	674.9	1003.6
Flakes	15.7	6.2	1.8	42.3	21.6
Charcoal	0.4	0.3	0.1	0.3	0.3
Baked Clay	0.2	1.3	0.7	1.8	2.0
Grass	5.1	2.8	1.8	2.7	3.7
Shell	-	<0.1	-	-	-
Seeds	<0.1	-	-	-	-
Burned Nutshell	0.3	-	-	0.3	-
Bone	-	-	-	-	<0.1

All weights are in grams.

Excavations were conducted with conventional hand tools. Arbitrary 10 cm levels were used since natural strata were difficult to discern. An effort was made to locate artifacts *in situ*. Horizontal coordinates were plotted using distances north and west of the south and east walls in each square. All vertical measurements were taken from the surface at the southeast corner of each square. Artifacts, including chipped stone tools, were placed in individual plastic bags with an identifying tag in order to minimize field and lab induced edge damage. All squares were mechanically backfilled when the excavations were completed.

The amount of sediments dry screened through 1/4-in mesh hardware cloth varied from square to square (Table 8.2). Sediments from each arbitrary level in four squares were dry screened. It is believed that these combined with the 1978 data provide a reasonable estimate of the vertical placement of cultural materials. Many levels were not dry screened since the primary objective was to determine the relationship of various features located throughout the deposits, and excavation time at the site was limited. Essentially, following the excavation and screening of materials from four squares, the decision was made to concentrate on the definition of features. Consequently, many levels were removed without the benefit of screening until levels were reached in which we expected features to occur (Table 8.2). These levels were then dry screened. Admittedly, this technique is far from ideal, but a concentrated effort was made to record artifacts *in situ*.

Table 8.2. Screened and unscreened arbitrary 10 cm levels at the Buffalo Bend site (34Pu-111): Phase II.

Excavation Units	Arbitrary Levels								
	1	2	3	4	5	6	7	8	9
N40-E45	S	S	S	S	S	S	S	S	S
N40-E47	S	S	S	S	S	S	S	S	NE
N41-E43	U	U	S	NE	NE	NE	NE	NE	NE
N42-E40	P-I	P-I	P-I	S	U	NE	NE	NE	NE
N42-E41 (E½)	U	U	S	NE	NE	NE	NE	NE	NE
N42-E42 (N½)	U	U	U	S	U	NE	NE	NE	NE
N42-E43	U	U	U	U	NE	NE	NE	NE	NE
N42-E45	S	S	S	S	NE	NE	NE	NE	NE
N42-E47	S	S	S	S	S	S	S	S	NE
N43-E40	P-I	P-I	P-I	S	U	NE	NE	NE	NE
N44-E45	U	U	S	S	U	U	NE	NE	NE
N44-E47	U	U	U	U	U	NE	NE	NE	NE
N45-E43	U	U	S	NE	NE	NE	NE	NE	NE

S=Screened, U=Unscreened, NE=Not Excavated, and P-I=1978 Excavation.

STRATIGRAPHY

Four natural strata were identified in the excavated squares despite the removal of at least 10 cm of the upper deposits at the site (Figure 8.2). The texture of the sediments varied from a fine sandy loam to loam with the upper deposits being soft when dry and becoming harder as their depth increased. Color designations were derived from moist samples and determined using Munsell Soil Color Charts (1975). Depth measurements are combined averages of the strata in the excavated squares.

These strata correspond approximately to the stratigraphic profiles of the other areas of the site described earlier (Flynn, Earman, Vehik 1979: 453-458). Strata I and II correspond to the previously described Stratum I. Stratum III corresponds to Stratum II, and Stratum IV is similar to Stratum III in other areas of the site. In addition to modern disturbances of the site surface and tree roots, the subsurface deposits have also been affected by several large krotovinas. These hampered the complete definition of several strata and in many cases affected an adequate assessment of cultural features.

Stratum I

This stratum is composed of dark reddish brown (5YR 3/2) fine sandy loam. It has a depth of 0-10 cm, and probably has been disturbed. These sediments tend to be structureless with a granular to crumb form, and a soft, friable, and slightly sticky and nonplastic consistency. Numerous small roots and a few angular to subangular rocks are present. Cultural materials are moderately abundant (approximately 18%). This stratum has an abrupt wavy boundary to:

Stratum II

Sediments in this stratum vary from 11-37 cm in depth and are composed of dark brown (7.5YR 3/2) fine sandy loam. They have a moderate, medium, angular blocky structure and a soft, friable, or slightly sticky and slightly plastic consistency. Thin clay films are evident on ped surfaces. There are more angular to subangular rocks as well as many small to medium roots interspersed throughout. In addition to the common occurrence of charcoal and small pieces of baked clay, this stratum contains the greatest proportion of cultural material (approximately 57%). It has a clear wavy boundary to:

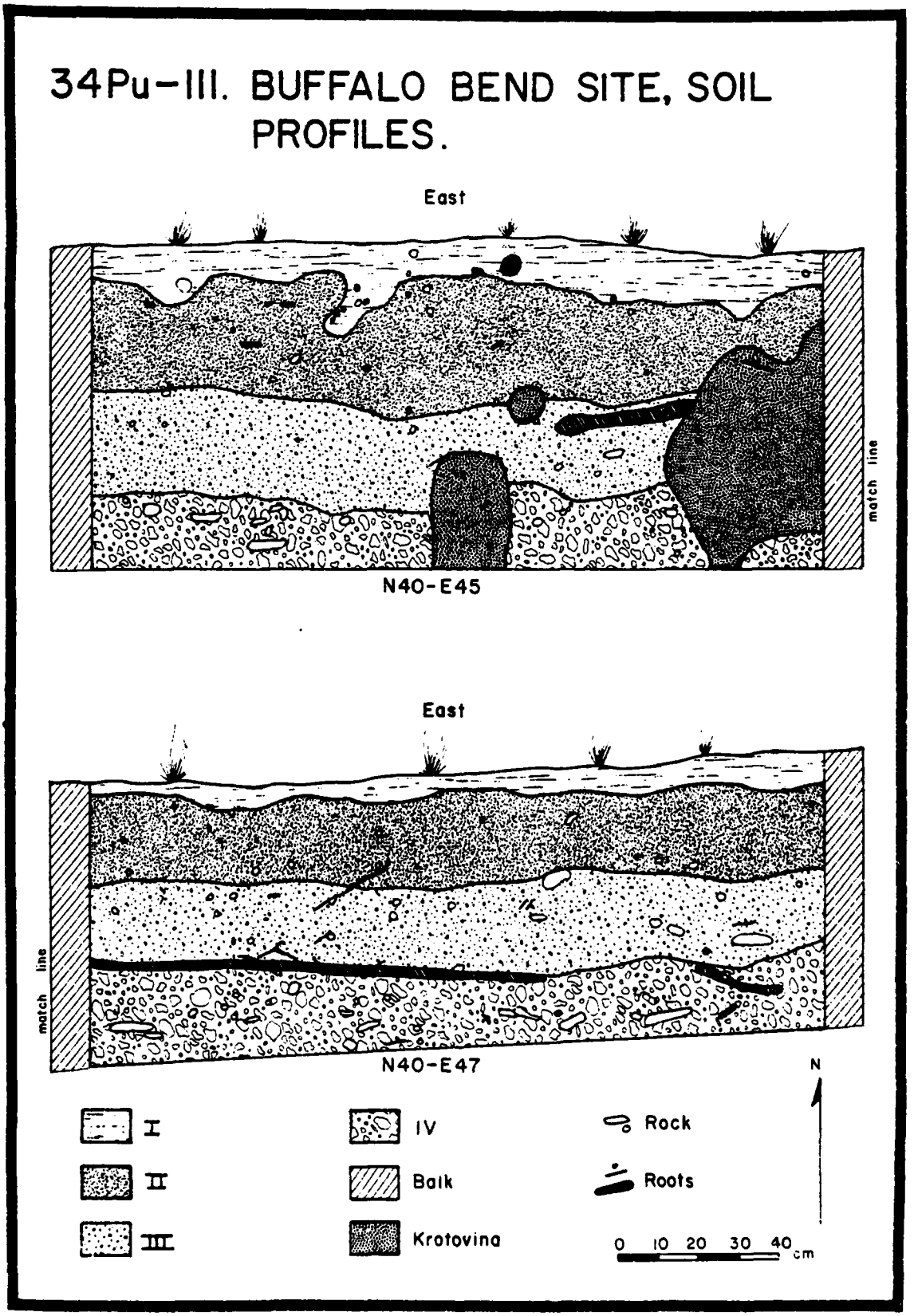


Figure 8.2. Stratigraphic profile of excavation units N40-E45 and N40-E47 at the Buffalo Bend site (34Pu-111): Phase II.

Stratum III

This stratum is made up of dark reddish brown (5YR 3/2) sandy loam to loam. These sediments tend to have a moderate, medium, angular blocky structure; dry, friable, or slightly sticky and slightly plastic consistency; and a few thin clay films on ped surfaces. Depth varies from 38-60 cm. Larger angular and rectangular rocks are common. A few fine roots are present, but the majority tend to be medium to coarse and are oriented horizontally and vertically. Small amounts of charcoal and baked clay as well as moderate amounts of cultural material are present (about 18%). This stratum has an abrupt wavy boundary to:

Stratum IV

This stratum constitutes the basal strata defined during the excavations and has a depth of 61-70 cm to 90 cm. It is composed of a dark brown (10YR 3/3) silt loam and has a moderate, medium, angular blocky structure with a hard, firm, slightly sticky and slightly plastic consistency. A few thin clay films are apparent on ped surfaces. Large angular and rectangular rocks are very common and a few fine roots occur in this stratum. Cultural materials decline rapidly (approximately 6%) in these deposits.

FEATURES

Eight feature numbers were assigned. They include postmolds and rock concentrations, pits, and concentrations of baked clay and charcoal (Figure 8.3). The concentrations appear to be related to Feature 78-1, and may represent a structural unit. The postmolds may indicate an earlier structural unit, but the evidence for this is tenuous.

Baked Clay and Charcoal Concentrations

Feature 79-1

This feature in the north half of N40-E45 is approximately 1.5 m east of Feature 78-1. Part of the feature occurs 16 cm below ground surface, but the majority is 25 cm deep. The feature is comp.ɔed of large pieces of charcoal (2-6 cm in length) and baked clay in yellowish brown sandy loam sediments. The charcoal is oriented primarily in an east-west direction but some pieces are also oriented north-south. Baked clay, consolidated ash, a biface *(01-10-00)*, a groundstone fragment *(03-06-03A)*, and a *Williams Plain* sherd *(02-01-01A)* were in association with the feature. One piece of baked clay has a 10.2 mm wide and 1.4 mm deep U-shaped stick impression in it.

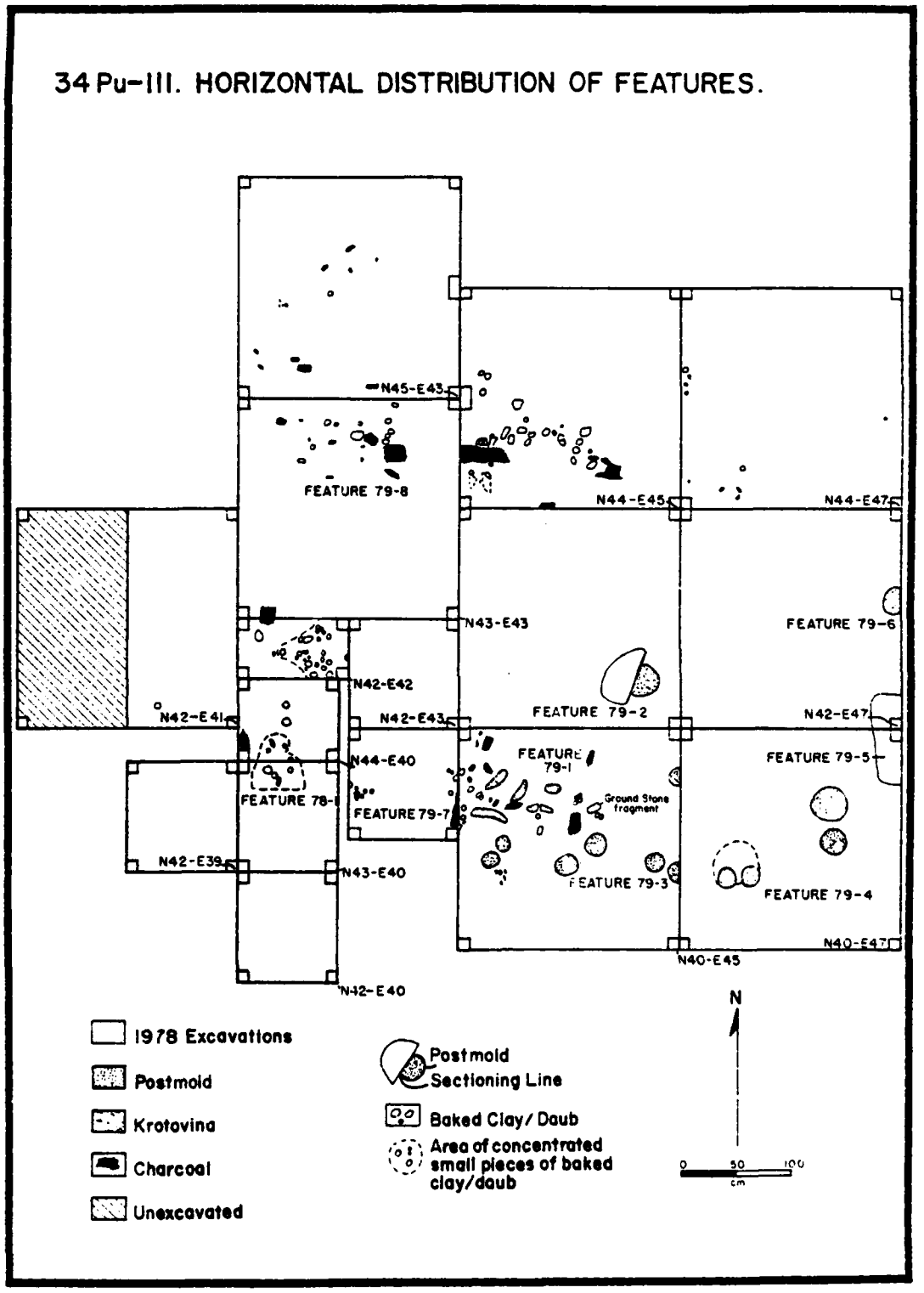


Figure 8.3. Plan outline of features at the Buffalo Bend site (34Pu-111): Phase II.

Feature 79-7

This feature is in the south half of N41-E43, and was initially recorded at a depth of 18 cm. It is directly west of Feature 79-1 and is probably related to it. Feature 79-7 consists of baked clay and charcoal. The charcoal is oriented in approximate cardinal directions. The feature lies within Level 3 (20-30 cm) and material associated with this level consists of a contracting stemmed point *(01-01-01A)*, a biface fragment *(01-12-01A)*, modified flakes *(01-13-00)*, and lithic debitage *(01-16-01A)*.

Feature 79-8

This concentration of baked clay and east-west oriented charcoal was in the north half of N43-E43. An additional large north-south oriented piece of charcoal occurs in the southwest corner of the square. The feature was encountered at a depth of 20 cm and corresponds to Level 3 (20-30 cm). Three pieces of baked clay are stick impressed. These impressions range from 11.4-12.9 mm in width and are 1.7-5.5 mm deep. One piece of baked clay exhibits grass impressions. These are 1.5 mm wide and 1.8 mm deep. Cultural material associated with Level 3 includes a small corner-notched point *(01-06-00)*, a biface *(01-10-00)*, biface fragments *(01-12-00)*, modified flakes *(01-13-00)*, unmodified flakes *(01-16-00)*, a grit tempered body sherd *(02-01-00)*, and several pieces of bone *(08-01-01A)*.

An additional large concentration of east-west oriented charcoal, baked clay, and consolidated ash was recovered in the south half of N44-E45, but no feature number was assigned. This appears to be directly associated with Feature 79-8 since the largest pieces of east-west oriented charcoal in both squares are believed to be part of one log. Small, scattered pieces of charcoal also occur in N45-E43 and N44-E47. In general, the concentrations of charcoal and baked clay occur at depths of 18-34 cm below ground surface with an average depth of 26 cm.

Postmolds and Rock Concentrations

Feature 79-2

This postmold was recorded in N42-E45 at a depth of 40 cm and extends to almost 60 cm in depth. It is characterized by an irregular, semicircle of dark brown soil, and the surrounding matrix in Level 4 (30-40 cm) is reddish brown. The diameter of the stain is 29 cm. The interior portion of the feature contains small pieces of vertically and horizontally oriented charcoal. However, this area has been fairly extensively disturbed through bioturbation. Sediments adjacent to the postmold are more compact and a darker reddish brown than the soil in the rest of the square. It is possible that these sediments were removed when the postmold was prepared since flakes and small rocks (5-8 cm in diameter) were present. At least one rock and one flake were on edge indicating that they had been moved.

Feature 79-3

This feature, consisting of seven dark reddish brown stains in a yellowish red matrix, was noted at a depth of 75 cm in N40-E45. For clarification, the stains are labeled by letter and are described alphabetically. Stains A and B are in the west central portion of the square, and have diameters of 16 cm and 12 cm. The depth of the first stain is 20 cm and it has a pointed bottom while the other stain is 15 cm deep with a rounded bottom. Stains C and D are in the central portion of the square and are connected to a large krotovina. Stain C is about 55 cm east of Stain A. It has a diameter of 12 cm, a depth of 20 cm, and the bottom is tapered and slightly rounded. Stain D has a diameter of 18 cm, a depth of 25 cm, and the bottom is tapered and flat. Stain E is in the east central part of the square and has a diameter of 20 cm, depth of 18 cm, and has a tapered, flat bottom. Stains F and G are in the east wall of the square. Both are characterized by having straight sides and slightly irregular flat bottoms. Stain F has a diameter of 14 cm and is 36 cm deep. Stain G has a diameter of 16 cm and is 38 cm deep.

Stains A and E may be considered to be postmolds since very small amounts of charcoal occur in each, the sides taper, and their bottoms are unbroken by krotovinas. A small amount of charred nutshell also occurs in Stain A. Stain C may also be a postmold, but its association with a large krotovina argues against it. The remainder of the stains are directly associated with krotovinas and are probably not postmolds even though the shape and outline of Stains B and D are tapered with straight to slightly rounded bottoms.

Feature 79-4

This number was assigned to four dark stains and a rock concentration 52 cm below ground surface in N40-E47. The stains contain small amounts of charcoal and are considerably darker than the surrounding sediments. Stains A and B are considered together because they are adjacent to each other in the west central part of the square. They have a diameter of 40 cm and a depth of 29 cm. They contain several unmodified flakes *(01-16-00)*, a large corner-notched/expanding stemmed point *(01-02-00)*, and several rocks. Their bottom configuration is irregular. This taken in conjunction with the recovered materials may indicate a pit rather than postmolds. Stain C has a diameter of 16 cm and extends from 57 cm below ground surface to 95 cm. The sides are slightly tapered and the bottom is rounded. The last stain, D, has a diameter of 16 cm and a depth of 19 cm. It is slightly tapered and has a rounded bottom.

The rock feature is scattered throughout, but the greatest concentration occurs in the southwest corner of the square. These are angular fragments of sandstone with diameters ranging from 2-15 cm. There is no evidence of burning and no artifacts are in direct association with the rocks. It is possible that the probable postmolds and pit like feature were excavated through the rock concentration. This may account for the disperse nature of the rocks except in the southwest corner.

Feature 79-6

This feature, encountered at a depth of 60 cm in N42-E47, consists of two dark stains and a small rock concentration. One dark stain (A) is in the south central part of the square and is associated with a large semicircular area of flakes, baked clay, and charcoal west of a pit like feature (79-5). The stain has a 17 cm diameter and a depth of 5-8 cm. The bottom is very irregular. This stain is probably the result of a krotovina. The other stain (B) also has an irregular bottom and may be the result of a krotovina. It is adjacent to the wall in the east central part of the square. It has a diameter of 33 cm and a depth of 22 cm.

A small, tight cluster of angular sandstone rocks occurs in the northeast corner of the square. The rocks vary in size from about 4-12 cm. None of the rocks appear to be burned and no artifacts are in direct association with them.

Pit-Like Features

Feature 79-5

This is a small basin shaped pit. It was first encountered at a depth of 41 cm below ground surface, and is correlated to the 60-70 cm arbitrary level in the northeast corner of N40-E47, extending into N42-E47. The dark brown pit matrix contrasts with lighter yellowish brown sediments surrounding it. The feature has a diameter of 82 cm, but its depth is uncertain because the bottom could not be adequately defined in N42-E47. The maximum depth in N40-E47 is 42 cm. The bottom of the feature is irregularly concave and may be disturbed by krotovina. No artifacts are directly associated, but the pit fill contains charcoal flecks and small amounts of burned bone and baked clay. A small darker stain, 12 cm wide and 7 cm deep, occurring at the top of the feature may be a small postmold or krotovina disturbance.

RADIOCARBON DATES

Charcoal samples from Features 79-3 and 79-7 were submitted for radiometric dating to Beta Analytic Inc. in Coral Gables, Florida. The results are presented below. Corrected dates, obtained by following Ralph, Michael, and Han (1973) and Damon, Ferguson, Long, and Wallick (1974) are also presented. The latter TRC dates were calculated according to a formula provided by Rippeteau (1974). However, only the uncorrected calendrical dates based on a half life of 5730 will be referred to in this report.

Beta-1206 (Sample No. 34Pu-111-RC3):

Half Life 5568 = 1230 ±65 B.P.
Half Life 5730 = 1267 ±65 B.P.
Calendar Date = A.D. 683 ±65 (uncorrected)
Corrected Date = A.D. 730 ±75 (Ralph et al. 1973)
Corrected Date = A.D. 740 ±82 (Damon et al. 1974)
Provenience = N42-E45 (Feature 79-2); 40-58 cm below surface.
Material = 24.3 g of charcoal from a suspected postmold (Feature 79-2).
Comments = The surrounding matrix is a dark brown sandy loam. Bioturbation may have disturbed the feature.

Beta-1207 (Sample No. 34Pu-111-RC4):

Half Life 5568 = 945 ±60 B.P.
Half Life 5730 = 973 ±60 B.P.
Calendar Date = A.D. 977 ±60 (uncorrected)
Corrected Date = A.D. 1020 ±70 (Ralph et al. 1973)
Corrected Date = A.D. 941 ±68 (Damon et al. 1974)
Provenience = N41-E43 (Feature 79-7); This feature was first encountered at a depth of 18 cm which corresponds to arbitrary Level 3 (20-30 cm).
Material = 27.2 g of charcoal hand picked from a log associated with Feature 79-7.
Comments = Associated materials include a large amount of charcoal, baked clay, and consolidated ash. The surrounding matrix is a dark brown sandy loam.

One radiocarbon determination from these samples does not correspond closely to two dates derived during the Phase I investigations. These uncorrected determinations ranged from A.D. 580 ±80 to A.D. 601 ±75 (Flynn, Earman, Vehik 1978: 486). One of the samples (Beta-1206) derived during Phase II falls well within the range of these dates, and may be considered to date the Woodland occupation at the site. The other determination (Beta-1207) is approximately 300-400 years more recent and was derived from Feature 79-7, which is related to Feature 78-1 from which the two earlier determinations were obtained. It is possible that this sample (Beta-1207) was contaminated by either rootlets or modern tree burning which resulted in an ash fallout while excavations were in progress. Conversely, this determination may correspond to a later component represented by small corner-notched and unnotched projectile points at the site.

CULTURAL REMAINS

A variety of cultural remains were recovered during Phase II investigations. Table 8.3 provides a breakdown of the artifact classes, categories, and varieties used to describe these materials. Point attributes and lithic nomenclature were derived from Binford (1963) and White (1963). References to existing typological designations have been made whenever possible (especially regarding point categories).

Table 8.3. Summary of artifact categories and varieties from the Buffalo Bend site (34Pu-111): Phase II.

Chipped Stone *(01)*

POINTS (01-00)
- Large Contracting Stemmed Points *(01-01)*
  - *01-01A*
- Large Expanding Stemmed/Corner-Notched Points *(01-02)*
  - *01-02F*
  - *01-02J*
  - *01-02L*
  - *01-02Z*
- Large Expanding/Stemmed Side-Notched Points *(01-03)*
  - *01-03A*
- Large Straight Stemmed Points *(01-04)*
  - *01-04A*
  - *01-04E*
- Small Expanding Stemmed/Corner-Notched Points *(01-06)*
  - *01-06A*
  - *01-06B*
  - *01-06C*
  - *01-06D*
  - *01-06J*
- Small Unstemmed Points *(01-08)*
  - *01-08A*
  - *01-08B*

DRILLS (02-00)
- Shaped Base Drills *(02-01)*
  - *02-01B*
- Flake Base Drills *(02-02)*
  - *02-02A*
- Drill Fragments and Segments *(02-03)*
  - *02-03A*

SCRAPERS (05-00)
- Bifacial Scrapers *(05-01)*
  - *05-01A*
- Flake/Unifacial Drills *(05-02)*
  - *05-02A*

HOES (07-00)
  - *07-01A*

BIFACES (10-00)
- Cobble/Quarried Block Biface I *(10-01)*
  - *10-01A*
- Cobble/Block Biface II/Thick Biface *(10-02)*
  - *10-02A*

Table 8.3. Continued

Thin Biface I *(10-03)*
10-03A
Thin Biface IIa *(10-04)*
10-04A
Thin Biface IIb *(10-05)*
10-05A
10-05B
Cobble/Block Biface III *(10-06)*
10-06A

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)
12-01A

MODIFIED FLAKES (13-00)
13-01A
13-01B

CORES (14-00)
14-01A

SPLIT/TESTED COBBLES (15-00)
Split Cobbles *(15-01)*
15-01A
Tested Cobbles *(15-02)*
15-02A

DEBITAGE (16-00)
16-01A

Fired Clay *(02)*

CERAMICS (01-00)
Plain Grog, Grit, and Bone Tempered Wares *(01-01)*
01-01A
01-01B
Plain Shale Tempered Wares *(01-05)*
01-05A

BAKED Clay (03-00)
03-01A
03-01B

Ground Stone *(03)*

MANOS (01-00)
Unifacial Manos *(01-01)*
01-01A
Bifacial Manos *(01-02)*
01-02A

Table 8.3. Continued

METATES/GRINDING SLABS (02-00)
Slab *(02-01)*
02-01A

GROUND HEMATITE (04-00)
Faceted Soft Hematite *(04-01)*
04-01A

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)
Ground Stone Fragments *(06-03)*
06-03A
Ground Stone Pipe *(06-07)*
06-07A
Ground Discoidal *(06-08)*
06-08A

Pecked/Battered/Unmodified Cobbles *(04)*

HAMMERSTONES (01-00)
01-01A

PITTED STONES (02-00)
Unifacial *(02-01)*
02-01A
Bifacial *(02-02)*
02-02A

MISCELLANEOUS PECKED/BATTERED STONE (03-00)
Miscellaneous Pecked Stone *(03-01)*
03-01A

UNMODIFIED COBBLES/PEBBLES (04-00)
Limonite/Hematite *(04-01)*
04-01A
Unmodified Nodules - Special Context *(04-04)*
04-04A

Historic Debris *(07)*

GLASS (01-00)
01-01A
01-01E

CROCKERY/CERAMICS (02-00)
Crockery *(02-01)*
02-01B
Ironstone/Porcelain *(02-02)*
02-02B

Table 8.3. Continued

Faunal *(08)*
BONE/HORN/TEETH (01-00)
01-01A
SHELL (02-00)
Gastropod *(02-02)*
Floral *(09)*

Summary metric data for selected chipped and ground stone varieties are in Table 8.4 and Table 8.7. Individual artifact measurements and attribute data are on file at the Archaeological Research and Management Center in Norman.

Chipped Stone *(01)*

POINTS (01-00)

Large Contracting Stemmed Points *(01-01-01)*

01-01-01A N=55: 15 Complete, 40 Fragmentary (Figure 8.4a-d)

These artifacts have triangular blades with predominantly straight edges (two specimens have excurvate edges) and contracting stems. Maximum width occurs at the shoulders which are well-defined and mostly angular (82%) or round (7%). A single specimen (11%) has one angular and one round shoulder. Where present, tips are rounded (3), or acute (18). Base shapes are primarily convex (29) and straight (10). Cross sections include biconvex (45), biplano (7), and plano-convex (3). Cortex is present on the blade of three specimens and along the proximal edge of the stem of nine. Primary flaking is massive and bifacial, and secondary retouch varies from diminutive and discontinuous to fairly large and continuous. A number of specimens exhibit other types of modification such as rounding along the lateral edges (11%) or crushing on the lateral edges or stems (15%). Breakage patterns of the fragmentary specimens consist of tip breaks (30%), mid-blade breaks (28%), base-blade juncture breaks (20%), base or stem fractures (13%), and burin blows along lateral edges (10%).

Comments: These specimens are very similar to the *Gary* type.

References: Bell 1958: 28, Pl. 14; Suhm and Jelks 1962: 197, Pl. 99.

Large Expanding Stemmed/Corner-Notched Points *(01-01-02)*

01-01-02F N=1: 1 Complete (Figure 8.4e)

This specimen has a triangular blade with straight edges, an acute tip, and relatively deep corner notches. The shoulders, where maximum width occurs, are pronounced and the stem is expanding with a straight base. It has a biconvex cross section. Primary flaking is massive and bifacial and secondary retouch is diminutive. No cortex is present.

Comments: This specimen is similar to the *Ellis* type.

References: Bell 1960: 32, Pl. 16; Suhm and Jelks 1962: 187, Pl. 94.

01-01-02J N=1: 1 Complete (Figure 8.4f)

This specimen is characterized by weakly developed shoulders where maximum width occurs, shallow corner notches, an expanding stem, and a convex base. It has a triangular blade outline, rounded tip, and an asymmetrically biconvex cross section. Primary flaking is massive and bifacial. Small, discontinuous secondary retouch is evident along the blade edges. No cortex is present.

Comments: Similar specimens have been assigned to the *Yarbrough* type.

References: Bell 1960: 98, Pl. 49; Suhm and Jelks 1962: 261, Pl. 131.

01-01-02L N=1: 1 Fragmentary (Figure 8.4g)

Part of the tip and one lateral edge of this artifact are broken. It is distinguished by a triangular blade outline, expanding stem, shallow corner notches, and a deeply concave base giving it an eared appearance. Maximum width is at the poorly developed shoulders. It has a biconvex cross section and no cortex is present. Primary flaking is bifacial and massive. Small amounts of secondary retouch are present along one edge and the stem.

Comments: It resembles the *Fairland* type.

References: Bell 1960: 38, Pl. 19; Suhm and Jelks 1962: 191, Pl. 96.

01-01-02Z N=3: 3 Fragmentary (Figure 8.4h)

One specimen lacks the tip and most of the stem, and the tips and part of the bases are missing on the other two. The stems appear to be expanding with straight bases, and the blades may be triangular. The shoulders, where maximum width occurs, are well developed. These specimens have biconvex cross sections and small, well developed corner notches. Large, primary, bifacial flaking is evident and small discontinuous secondary flaking occurs bilaterally on two specimens. None have cortex.

Large Expanding/Stemmed Side-Notched Points *(01-01-03)*

01-01-03A N=1: 1 Fragmentary (Figure 8.4i)

The majority of the blade and distal end of this specimen are missing. It has a deeply concave base, well developed side notches, and a biplano cross section. The shoulders and base are almost the same width. Primary flaking is massive and bifacial, and there is a heat spall on the ventral surface. There is no secondary retouch or cortex.

Comments: The basal configuration of this specimen most closely resembles the *Big Sandy* type.

References: Bell 1960: 8, Pl. 4.

Large Straight Stemmed Points *(01-01-04)*

01-01-04A N=3: 1 Complete, 2 Fragmentary (Figure 8.4j-k)

These specimens have well pronounced shoulders and long, straight stems which taper from the blade juncture to straight bases. The complete specimen has a triangular blade outline and a rounded tip which has been broken and reworked. Cross sections are biconvex and maximum width is at the shoulders. A small amount of cortex is present along the basal edge of two specimens. Primary flaking is massive and bifacial while secondary retouch is discontinuous and bilateral. A slight amount of edge rounding is evident on one artifact.

Comments: These specimens most closely resemble the *Bulverde* type.

References: Bell 1960: 12, Pl. 6; Suhm and Jelks 1962: 169, Pl. 85.

01-01-04E N=1: 1 Complete (Figure 8.4l)

This artifact has an acute tip, triangular blade outline, and well developed shoulders, at which the maximum width occurs. The base is convex giving the straight stem a bulbous appearance. The cross section is convexo-triangular and cortex is absent. Primary flaking is massive, deep, and bilateral. A small amount of secondary retouch is evident along the distal edge. Heat spalling is present on the dorsal surface.

Comments: This specimen is similar to the *Palmillas* type.

References: Bell 1960: 74, Pl. 37; Suhm and Jelks 1962: 299, Pl. 115.

Small Expanding Stemmed/Corner-Notched Points *(01-01-06)*

01-01-06A N=4: 1 Complete, 3 Fragmentary (Figure 8.4m-n)

Two specimens are lacking tips and one specimen is missing a large part of the blade and tip due to an impact fracture. The complete specimen is heat spalled on the ventral surface. Attributes common to these artifacts are biconvex cross sections, well developed shoulders and corner notches, straight bases, and lack of cortex. Three specimens have triangular blade outlines and the complete artifact has an acute tip. Two artifacts have small serrations along lateral edges. Primary flaking is bifacial, secondary retouch is discontinuous along the edges, and maximum width is at the shoulders. Distal fractures on two specimens appear to be transverse breaks.

Comments: These specimens most closely resemble the *Scallorn* type.

References: Bell 1960: 84, Pl. 42; Suhm and Jelks 1962: 285, Pl. 143.

01-01-06B N=7: 4 Complete, 3 Fragmentary (Figure 8.4o-p)

These specimens are characterized by narrow triangular blades, well developed shoulders, at which maximum width occurs, corner notches, and acute tips. Six have biconvex cross sections and one is asymmetrically biconvex. One broken artifact has a slight amount of cortex on the dorsal surface. One specimen has a concave basal configuration while the remainder are straight. Bifacial heat spalling is evident on two specimens. Primary flaking is bifacial and small amounts of secondary retouch occur along the edges. Blade edges on one artifact are serrated.

Comments: These specimens are similar to *Bonham* variety *Tahlequah* points.

References: Brown 1976: 65, Figure 17: t-x.

01-01-06C N=4: 1 Complete, 3 Fragmentary (Figure 8.4q-r)

These specimens have relatively broad triangular blades with acute tips, well developed shoulders, at which maximum width is attained, corner notches, expanding stems, and biconvex cross sections. The base is straight on the one complete specimen. Cortex is absent. Primary flaking is bifacial and secondary retouch is diminutive and continuous along the edges. Slight serrations are present along the lateral edges of two artifacts. The broken specimens are commonly missing one tang and the majority of the stem and base. The complete specimen may have been reworked and used as a drilling implement since the distal end is extremely narrow and tapers to a relatively sharp point.

Comments: These are similar to *Agee* points.

References: Brown 1976: 73, Figure 14: a-r.

01-01-06D N=1: 1 Fragmentary (Figure 8.4s)

One lateral edge and the distal end of this specimen are broken. The corner notches are broad and shallow resulting in an expanding stem. The base is straight and the single lateral edge is excurvate. It has a biconvex cross section and primary flaking is bifacial. There is no cortex or secondary retouch.

Comments: This variety is similar to *Homan* points.

References: Brown 1976: 92-93, Figure 17: i-n.

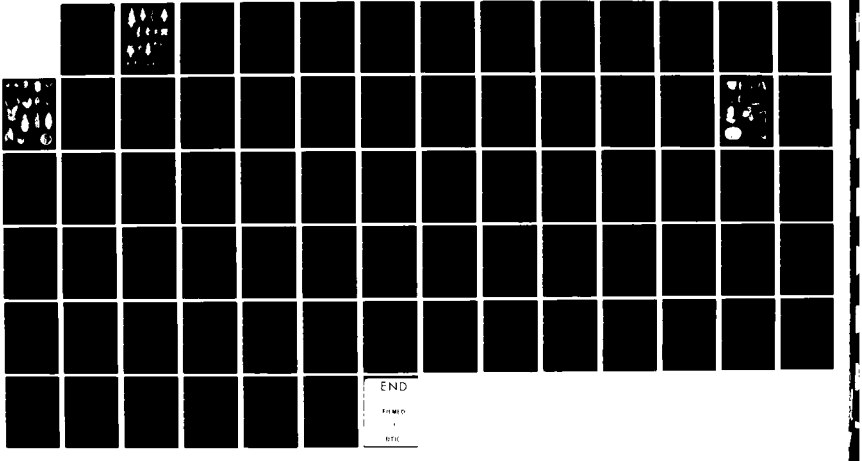
01-01-06J N=1: 1 Complete (Figure 8.4t)

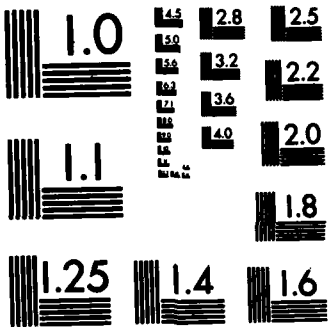
This specimen has an acute tip, triangular blade outline, and well pronounced flaring shoulders at which maximum width occurs. The corner notches are broad and form an expanding stem which has a convex base. The cross section is biconvex. No cortex is present. Primary flaking is bifacial and secondary flaking is discontinuous and diminutive.

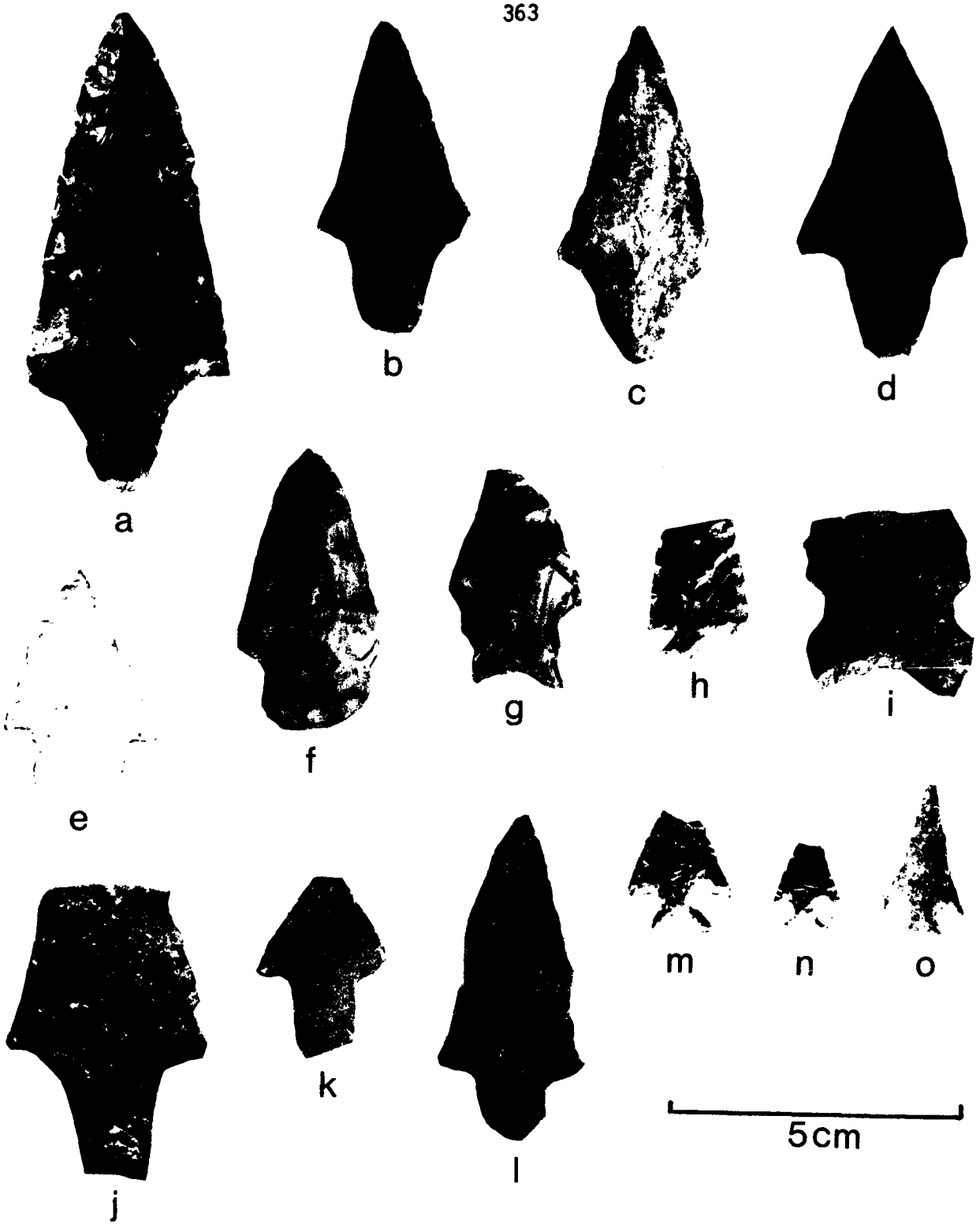
Figure 8.4. Selected chipped stone artifacts from the Buffalo Bend site (34Pu-111): Phase II.

a-d: *01-01-01A*
e: *01-01-02F*
f: *01-01-02J*
g: *01-01-02L*
h: *01-01-02Z*
i: *01-01-03A*
j-k: *01-01-04A*
l: *01-01-04E*
m-n: *01-01-06A*
o-p: *01-01-06B*
q-r: *01-01-06C*
s: *01-01-06D*
t: *01-01-06J*
u: *01-01-08A*
v: *01-01-08B*

AD-A122 361 ARCHAEOLOGICAL INVESTIGATIONS AT CLAYTON LAKE SOUTHEAST 5/5
OKLAHOMA PHASE II(U) OKLAHOMA UNIV NORMAN ARCHAEOLOGICAL
RESEARCH AND MANAGEMENT CE.. R VEHIK ET AL. 1982
UNCLASSIFIED DACW56-78-C-0212 F/G 5/6 NL



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Comments: This point is most similar to the *Alba* type.

References: Bell 1958: 8, Pl. 4; Suhm and Jelks 1962: 263, Pl. 132.

Small Unstemmed Points *(01-01-08)*

01-01-08A N=1: 1 Complete (Figure 8.4u)

This small point has an acute tip, triangular outline, biconvex cross section, and a straight base. Flaking is bifacial and small amounts of secondary retouch are evident along the edges. Maximum width is at the base. No cortex is present.

Comments: This specimen resembles the *Fresno* type.

References: Bell 1960: 44, Pl. 22; Suhm and Jelks 1962: 273, Pl. 137.

01-01-08B N=3: 3 Complete (Figure 8.4v)

These specimens have biconvex cross sections, acute tips, triangular blade outlines, deeply convex flaring bases, and lack cortex. Maximum width is at the base. Two of these points appear to have been reworked. Both have narrow, tapered distal ends with sharp tips. One appears to have been impact fractured and then reworked. The specimen which was not reworked is moderately serrated along the lateral edges. Primary flaking is diminutive and bifacial. Secondary retouch occurs discontinuously along all edges.

Comments: These specimens are similar to the *Maud* type.

References: Bell 1958: 48, Pl. 24; Suhm and Jelks 1962: 281, Pl. 141.

DRILLS (02-00)

Shaped Base Drills *(01-02-01)*

01-02-01B N=1: 1 Fragmentary (Figure 8.5a)

The distal end of this specimen is broken but apparently tapered into a long, narrow shaft. The convex base has an oval outline and is 14.1 mm long, 18.7 mm wide, and 6.5 mm thick. It is characterized by numerous large and small hinge fractures on both surfaces. This specimen has a biconvex cross section and no cortex is present. A slight amount of retouch occurs along a small portion of the shaft.

Flake Base Drills *(01-02-02)*

01-02-02A N=2: 2 Fragmentary (Figure 8.5b)

These specimens have broken distal ends which probably were long, narrow shafts. The expanding base of one specimen is asymmetrically convex and has a striking platform along one edge and a retouch projection along the other margin. The base is 13.0 mm long, 24.8 mm wide, and 4.5 mm thick. Discontinuous retouch occurs along the edges of the base and shaft. The other specimen also has an expanding base (13.5 mm long, 25.5 mm wide, and 8.2 mm thick) but there is no evidence of retouch. Cortex is absent on both specimens and cross sections are biconvex.

Drill Fragments and Segments *(01-02-03)*

01-02-03A N=2

These bifacially flaked specimens are distal fragments. The tips are acute and a slight amount of retouch occurs along one edge of the tips. Heat spalling is present on the side of one specimen. There is no cortex and both have biconvex cross sections.

SCRAPERS (05-00)

Bifacial Scrapers *(01-05-01)*

01-05-01A N=1: 1 Complete (Figure 8.5c)

This specimen has a rectangular outline with a rounded distal end and straight base. Flake removal is bifacial but is more extensive on the dorsal surface, where continuous secondary retouch occurs along one lateral edge, with steep retouch on the distal end. The ventral surface has continuous retouch along part of one lateral margin and discontinuous retouch along the proximal edges. It has a plano-convex cross section and lacks cortex.

Flake/Unifacial Scrapers *(01-05-02)*

01-05-02A N=13: 9 Complete, 4 Fragmentary (Figure 8.5d-e)

Ten specimens in this variety are unifacially flaked and exhibit steep continuous retouch along a rounded distal edge. Four artifacts also have continuous retouch along one lateral edge in addition to distal retouch. One complete specimen is characterized by two long dorsal ridge scars, and one broken artifact has been flaked along the distal edge in such a manner as to produce small projections or denticulates. One specimen appears to be heat treated and 46% exhibit well rounded cortex on their dorsal surfaces. The roundness of the cortex possibly indicates the use of water rolled cobbles. Cross sections are plano-convex.

The remaining three specimens are made on thin flakes and exhibit steep continuous retouch along one lateral edge. One artifact has bilateral retouch, and one broken specimen has been retouched along the edge in such a manner as to produce small denticulates which results in a serrated appearance. Cortex is absent and cross sections are biplano.

HOES (07-00)

01-07-01A N=3: 1 Complete, 2 Fragmentary (Figure 8.5f)

The complete specimen is characterized by a narrow rounded proximal end and a broad rounded distal end. There is a constriction toward the proximal end which exhibits minimal edge rounding. Some edge rounding is also present along the distal margin. Primary flaking is massive and bifacial and there are numerous hinge fractures on the ventral surface. This specimen has a biconvex cross section and the dorsal surface has less than 10% cortex on it.

One broken specimen, represented by a broad round distal end is bifacially worked and has less than 10% cortex on both faces. No edge alteration or modification is apparent. It has a plano-convex cross section.

The other broken specimen has a flat appearance due to a biplano cross section. More than 75% cortex is present on the dorsal surface. It has a broad, asymmetrically rounded end and a constricting middle like the previous specimens, and there is a slight amount of edge rounding along part of the constriction. Flaking is bifacial, with a relatively high incidence of hinge fractures.

BIFACES (10-00)

Cobble/Quarried Block Biface I *(01-10-01)*

01-10-01A N=1: 1 Complete

This specimen has a thick, irregular biconvex cross section, well rounded cortex (80% on the dorsal surface and 10% on the ventral surface) suggestive of water rolling, sinuous edges, and massive flaking. Approximately 20% of the dorsal surface has been flaked, but there is no evidence of edge retouch or alteration. This specimen is believed to represent initial modification activities and probably reflects the shape of the parent material.

Cobble/Block Biface II/Thick Biface *(01-10-02)*

01-10-02A N=30: 30 Complete (Figure 8.5g)

These specimens represent primary modification activities and exhibit minimal shaping. They have thick, irregular biconvex (40%) or plano-convex (60%) cross sections, sinuous edges, and large, massive flakes have been

bifacially removed. Cortex is present on 83% of the specimens and ranges from less than 5% to 95%. In most cases, the cortex is well rounded which is probably the result of stream action on the original cobbles. Hinge and step fractures are common, and about 21% of the specimens exhibit slight amounts of discontinuous retouch along the edges. One specimen has been heat spalled.

Thin Biface I *(01-10-03)*

01-10-03A N=14: 14 Complete (Figure 8.5h-i)

These artifacts are also believed to reflect primary modification activities. However, they exhibit more modification, less sinuous edges, and more uniform, thin cross sections. Flake scars, occurring bifacially, are still relatively large but appear to be more regular. Cortex, covering from 2-10% of the entire surface, is present on 66% of the sample. Cross sections are plano-convex (2), biplano (4), and biconvex (8). Three artifacts have a slight amount of small, continuous retouch along the lateral (1) or distal (2) edges.

Thin Biface IIa *(01-10-04)*

01-10-04A N=12: 12 Complete (Figure 8.5j-k)

In contrast to the preceding variety, cortex is present on only one specimen (less than 1% of the dorsal surface), edges are regular, and flake scars tend to be relatively small and bifacial. Six specimens have ovate outlines, four are triangular, and two are rectangular. Base shapes include three straight and nine convex, and tips are divided evenly between acute and round. Edge retouch is present on one specimen and one artifact is heat spalled. Cross sections include plano-convex (1), biplano (1), and biconvex (10). Specimens in this variety are believed to represent secondary modification activities such as final bifacial thinning and edge trimming.

Thin Biface IIb *(01-10-05)*

01-10-05A N=5: 4 Complete, 1 Fragmentary (Figure 8.5l-m)

These artifacts also represent secondary modification but are distinguished from the preceding variety by indications of a haft element and a lack of cortex. Cross sections are thin and biconvex. Blade outlines are slightly ovate to triangular and tips are acute (2) or rounded (2). Maximum width occurs at the shoulders. Stems are contracting, and bases are convex (4) and straight (1). Primary flaking is relatively small and bifacial. Minimal discontinuous and continuous retouch is present along the edges of 80% of the sample. These specimens may represent a preform stage of large contracting stemmed points *(01-01-01A)*.

Table 8.4. Metric attributes for selected chipped stone varieties from the Buffalo Bend site (34Pu-111): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-01A					
$\bar{x}$	50.8	25.4	7.5	14.5	14.2
s.d.	11.5	5.8	1.5	2.5	2.9
range	39.0-83.0	16.4-44.9	5.0-12.4	10.5-23.0	7.6-19.6
N	16	52	55	43	55
01-01-02F					
$\bar{x}$	38.4	26.1	7.1	10.7	16.0
N	1	1	1	1	1
01-01-02J					
$\bar{x}$	49.1	24.8	8.8	14.0	19.6
N	1	1	1	1	1
01-01-02L					
$\bar{x}$	-	23.4	7.2	14.8	16.8
N	-	1	1	1	1
01-01-02Z					
$\bar{x}$	-	17.5	3.7	6.9	8.5
s.d.	-	0.9	0.4	0.4	0.9
range	-	16.7-18.4	3.5-4.1	6.6-7.2	7.9-9.1
N	-	3	3	2	2
01-01-03A					
$\bar{x}$	-	29.4	7.0	19.3	29.0
N	-	1	1	1	1
01-01-04A					
$\bar{x}$	31.8	27.4	6.4	16.1	13.6
s.d.	-	6.9	0.6	3.2	3.3
range	-	22.2-35.3	5.9-7.0	14.0-19.8	10.8-17.2
N	1	3	3	3	3
01-01-04E					
$\bar{x}$	57.3	25.1	8.3	9.7	12.2
N	1	1	1	1	1

Table 8.4. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-01-06A					
$\bar{x}$	15.1	13.9	3.0	5.5	9.4
s.d.	-	3.3	0.9	0.7	1.8
range	-	10.1-18.1	2.1-3.9	4.7-6.3	7.6-11.3
N	1	4	4	4	4
01-01-06B					
$\bar{x}$	23.8	12.5	3.7	5.4	7.0
s.d.	2.7	2.1	0.9	1.0	1.2
range	22.1-27-4	10.6-16.2	2.9-5.2	4.2-6.9	5.5-8.4
N	5	7	7	6	4
01-01-06C					
$\bar{x}$	22.5	14.0	2.9	4.1	7.4
s.d.	-	2.7	0.6	-	-
range	-	11.6-17.3	2.4-3.8	-	-
N	1	4	4	1	1
01-01-06D					
$\bar{x}$	-	-	4.4	7.5	10.8
N	-	-	1	1	1
01-01-06J					
$\bar{x}$	18.2	13.1	2.8	4.0	5.5
N	1	1	1	1	1
01-01-08A					
$\bar{x}$	18.4	10.4	2.4	-	-
N	1	1	1	-	-
01-01-08B					
$\bar{x}$	19.7	12.0	2.6	-	-
s.d.	2.0	3.0	0.2	-	-
range	17.4-20.8	9.8-15.4	2.5-2.8	-	-
N	3	3	3	-	-
01-02-01B					
$\bar{x}$	-	18.7	6.5	-	-
N	-	1	1	-	-

Table 8.4. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-02-02A					
$\bar{x}$	-	25.2	6.4	-	-
s.d.	-	0.5	2.6	-	-
range	-	24.8-25.5	4.5-8.2	-	-
N	-	2	2	-	-
01-02-03A					
$\bar{x}$	-	-	3.5	-	-
s.d.	-	-	0.1	-	-
range	-	-	3.4-3.6	-	-
N	-	-	2	-	-
01-05-01A					
$\bar{x}$	31.2	21.3	9.2	-	-
N	1	1	1	-	-
01-05-02A					
$\bar{x}$	50.9	37.4	13.2	-	-
s.d.	6.5	17.2	8.2	-	-
range	40.2-58.4	19.3-65.9	4.6-29.2	-	-
N	7	10	13	-	-
01-07-01A					
$\bar{x}$	103.5	61.5	18.1	-	-
s.d.	-	5.8	7.5	-	-
range	-	55.3-66.8	9.5-23.1	-	-
N	1	3	3	-	-
01-10-01A					
$\bar{x}$	78.9	61.2	33.1	-	-
N	1	1	1	-	-
01-10-02A					
$\bar{x}$	50.8	40.8	20.6	-	-
s.d.	13.8	11.8	5.8	-	-
range	29.5-89.8	24.4-73.1	13.9-39.3	-	-
N	30	30	30	-	-
01-10-03A					
$\bar{x}$	43.8	36.1	13.0	-	-
s.d.	7.9	14.8	4.1	-	-
range	34.0-60.9	22.6-82.0	7.9-22.1	-	-
N	14	14	14	-	-

Table 8.4. Continued

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS	STEM LENGTH	STEM WIDTH
01-10-04A					
$\bar{x}$	45.6	23.5	8.6	-	-
s.d.	16.4	8.7	3.6	-	-
range	23.2-82.7	14.4-38.1	4.3-17.6	-	-
N	12	12	12	-	-
01-10-05A					
$\bar{x}$	58.1	27.3	8.2	-	-
s.d.	15.9	8.6	0.7	-	-
range	40.7-73.1	17.4-37.9	7.6-9.3	-	-
N	4	5	5	-	-
01-10-05B					
$\bar{x}$	20.0	13.1	2.5	-	-
N	1	1	1	-	-
01-10-06A					
$\bar{x}$	-	115.3	31.2	-	-
N	-	1	1	-	-
01-13-01A					
$\bar{x}$	32.7	26.2	7.6	-	-
s.d.	9.7	6.6	2.3	-	-
range	22.6-50.2	23.5-39.2	4.0-12.2	-	-
N	9	11	17	-	-
01-14-01A					
$\bar{x}$	60.9	48.7	35.6	-	-
s.d.	37.5	29.9	18.8	-	-
range	33.6-147.3	25.4-120.7	22.4-75.3	-	-
N	8	8	8	-	-
01-15-01A					
$\bar{x}$	51.8	39.6	23.2	-	-
s.d.	12.6	17.6	7.6	-	-
range	26.6-78.0	21.8-79.1	14.7-42.5	-	-
N	11	11	11	-	-
01-15-02A					
$\bar{x}$	63.0	47.1	27.5	-	-
s.d.	21.1	18.6	10.7	-	-
range	36.8-101.5	24.8-92.2	9.0-50.8	-	-
N	14	14	14	-	-

01-10-05B N=1: 1 Complete

This specimen probably represents a preform of small expanding stemmed/corner-notched points *(01-01-06)*. It has a thin biconvex cross section, no cortex, acute tip, and convex base. Indications of a haft element are also present. Diminutive continuous retouch occurs along one lateral edge.

Cobble/Block Biface III *(01-10-06)*

01-10-06A N=1: 1 Fragmentary

This artifact has been broken in the middle. It has 50% cortex, a thick biplano cross section, and relatively small bifacial flake scars along its edges. Retouch is evident along the distal edge. The overall configuration suggests that this would have been a relatively large artifact and may have been hafted in the center. This variety is believed to reflect activities associated with finished implements and maintenance, and may be a preform stage of either double bitted axes *(01-06-00)* or hoes *(01-07-00)*.

POINT/BIFACE FRAGMENTS AND SEGMENTS (12-00)

01-12-01A N=253

These bifacially flaked specimens are too fragmentary to include in the preceding varieties. They have been divided into proximal, distal, and medial or lateral segments. The greatest majority (151) are comprised of medial or lateral segments. Approximately 15% exhibit cortex on their dorsal surface and 23% have been modified either through retouching (35) or edge rounding. Thermal alteration occurs on eight specimens. Three specimens are believed to be broken large expanding stemmed/corner-notched points *(01-01-02)* and five may be small expanding stemmed/corner-notched point *(01-01-06)* fragments. Two of the latter have serrated edges.

Proximal or basal fragmants comprise 27% of the sample (69). Retouch occurs on 15 specimens, four have been thermally altered, and small amounts of cortex is present on seven artifacts. Base shapes include 47 convex, 19 straight, and three concave. Four specimens are believed to be fragments of large expanding stemmed/corner-notched points *(01-01-02)* and three are fragmentary small expanding stemmed/corner-notched points *(01-01-06)*.

Thirty-three distal fragments are represented in the sample. One specimen has a round tip and 32 have acute tips. Cortex is absent and one artifact has been thermally altered. Edge modification in the form of retouch occurs on 15 specimens, rounding on three, and crushing on one. Two specimens may be fragmentary large expanding stemmed/corner-notched points *(01-01-02)*.

MODIFIED FLAKES (13-00)

01-13-01A N=17: 9 Complete, 8 Fragmentary

This variety is comprised of flakes which exhibit sharp, bifacially retouched projections along one edge. Ten specimens have small projections along the distal edge and seven along a lateral edge. In addition to the projections, seven flakes exhibit continuous retouch on one or more edges. Cortex is present on four flakes. Eleven specimens have plano-convex cross sections and six are biplano. Striking platforms, where present, are plain (7), and faceted (2). Two specimens are heat spalled.

01-13-01B N=662

Items in this variety include flakes or blocky debris which exhibit unifacial edge modification/attrition along one or more margins. Edge modification in the form of small irregular flake scars occurs along either straight or concave distal and lateral edges. Approximately 45% of the specimens exhibit dorsal cortex, and 24 flakes have thermal spalling of which the vast majority (63%) occurs on lithic type B flakes. Table 8.5 provides summary statistics by material type for this variety.

CORES (14-00)

01-14-01A N=8: 8 Complete

These specimens are blocks of chert or quartzitic sandstone of various sizes and shapes from which flakes have been removed in an irregular fashion. Cross sections vary evenly between irregular and plano-convex. Cortex is present on each specimen. One core exhibits a small amount of discontinuous retouch in a small concavity along one lateral edge. One specimen may be a core flake, three exhibit polyhedral outlines and may represent exhausted cores, and the remainder have irregular, sinuous outlines.

SPLIT/TESTED COBBLES (15-00)

Split Cobbles *(01-15-01)*

01-15-01A N=11: 11 Complete

Rounded cortex is present on each artifact, indicating that these specimens were derived from a stream context. Two specimens have tabular, rectangular outlines and one artifact appears to have been thermally altered. Cross sections tend to be irregular and only three specimens have plano-convex cross sections. Retouch is absent on all specimens. These specimens are believed to reflect procurement and initial modification activities.

Figure 8.5. Selected chipped and ground stone artifacts from the Buffalo Bend site (34Pu-111): Phase II.

a: *01-02-01B*

b: *01-02-02A*

c: *01-05-01A*

d-e: *01-05-02A*

f: *01-07-01A*

g: *01-10-02A*

h-i: *01-10-03A*

j-k: *01-10-04A*

l-m: *01-10-05A*

n: *03-06-07A*

o: *03-06-08A*


a
b
c
d
e
f
g
h
i
j
k
l
m
n
5cm
o

Table 8.5. Summary statistics of modified flakes (01-13-01A) at the Buffalo Bend site (34Pu-111): Phase II.

Modified Flakes	Lithic Type A N	A %	B N	B %	C N	C %	D N	D %	E N	E %	F N	F %	G N	G %	H N	H %	I N	I %	J N	J %	Total
Dorsal Cortex	145	49	68	23	3	1	29	10	1	-	14	5	13	4	4	1	-	-	21	7	298
Striking Platforms																					
Plain	149	54	52	19	3	1	29	11	1	-	10	4	10	4	8	3	1	-	12	4	275
Faceted	40	42	23	24	-	-	15	16	1	1	1	1	-	-	3	3	-	-	12	13	95
Missing	139	48	72	25	3	1	36	12	2	1	9	3	8	3	5	2	-	-	18	6	292
Utilized & Retouched Edges																					
Edge Shape																					
Straight	223	50	103	23	5	1	52	12	2	1	12	3	9	2	9	2	1	-	29	7	445
Concave	33	43	19	25	-	-	12	16	2	3	2	3	3	4	1	1	-	-	4	5	76
Convex	71	51	24	17	1	1	16	12	-	-	6	4	6	4	6	4	-	-	8	6	138
Convex-Concave	1	33	1	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	33	3
Modified Edge																					
Bilateral	11	42	3	12	1	4	6	23	-	-	1	4	2	8	1	4	-	-	1	4	26
Lateral	153	51	71	24	-	-	30	10	2	1	8	3	7	2	6	2	1	-	20	7	298
Distal	28	54	5	10	2	4	8	15	-	-	1	2	1	2	3	6	-	-	4	8	52
Proximal	2	22	3	33	-	-	2	22	-	-	1	11	-	-	1	11	-	-	-	-	9
Undetermined	134	48	65	24	3	1	34	12	2	1	9	3	8	3	5	2	-	-	17	6	277
Area of Modification																					
Medial	52	43	28	23	-	-	14	11	2	2	5	4	5	4	4	3	-	-	12	10	122
Distal	36	59	11	18	2	3	2	3	-	-	2	3	2	3	2	3	1	2	3	5	61
Proximal	27	44	16	26	-	-	11	18	-	-	2	3	1	2	-	-	-	-	5	8	62
Entire	74	59	20	16	1	1	17	13	-	-	2	2	2	2	5	4	-	-	5	4	126
Undetermined	139	48	72	25	3	1	36	12	2	1	9	3	8	3	5	2	-	-	17	6	291
Location of Modification																					
Dorsal	269	52	118	23	5	1	56	11	3	1	18	3	14	3	11	2	1	-	26	5	521
Ventral	58	43	28	20	1	1	23	17	1	1	1	1	3	2	5	4	-	-	15	11	135
Multiple	1	20	-	-	-	-	1	20	-	-	1	20	1	20	-	-	-	-	1	20	5
Total Flakes	328	50	147	22	6	1	80	12	4	1	20	3	18	3	16	2	1	-	42	6	662

Tested Cobbles *(01-15-02)*

01-15-02A N=14: 14 Complete

These specimens are also believed to represent procurement and initial modification activities. Cross sections are irregular, but three have rough biplano cross sections. Outlines are sinuous. Discontinuous retouch is evident along a straight lateral edge of one specimen. Well rounded cortex, indicative of water rolling, is present on each specimen.

DEBITAGE (16-00)

01-16-01A N=33,559

This represents unmodified flake debris. Table 8.9 presents lithic types for one square, and their vertical distribution is in Table 8.8. This distribution is not significant since debitage was not recovered from unscreened levels.

Fired Clay *(02)*

The qualitative attributes used to describe these specimens are similar to those discussed by Brown (1971: 19-32) and in a Master's thesis being prepared by Marilee Irvine (1980).

CERAMICS (01-00)

Plain Grog, Grit, and Bone Tempered Wares *(02-01-01)*

02-01-01A N=79 (Figure 8.6a-e)

This variety is subdivided on the basis of tempering. Grog and grit tempering is present in 81% (64) of the sample. Two sherds are also tempered with small quantities of hematite. The paste varies from coarse (61%) to very coarse (39%) and has a porous quality. In addition, these sherds have a sparkly appearance, probably due to an abundance of grit and quartz particles in the temper. Fifteen sherds (19%) are predominantly grog, grit, and bone tempered, but small amounts of hematite are also present in one sherd.

Rim Sherds: N=4

Three rim sherds are represented in the grog and grit tempered sample. One specimen (9.1 mm thick) has a thinned rim with a vertical orientation and a flat lip (A2). The exterior and interior surfaces of this sherd are very dark gray and have been burnished and smoothed. Grog particles are visible on the interior surface. The core is solid and very dark gray.

Another rim, which is 13.5 mm thick, exhibits burnishing and visible grog particles on the interior and exterior surfaces. The exterior is smoother than the interior surface. The rim is rolled, slightly everted, and has a rounded lip (B2). The exterior is reddish brown, the interior is light red, and the core is solid and very dark gray.

A third grit and grog tempered rim is 10.4 mm thick and exhibits interior and exterior burnishing and smoothing. The rim is direct with a vertical orientation and a rounded lip. The interior and exterior surfaces are very dark gray and the core is solid and very dark gray.

One rim sherd is 9.2 mm thick and has a grog, grit, and bone temper. The exterior and interior surfaces are very smooth and exhibit wiping marks with visible grog particles on both surfaces. The rim is rolled, slightly everted, and has a rounded lip (B2). The exterior is dark reddish gray, the interior is light brown, and the core is solid and very dark gray.

Body Sherds: N=72

Sixty-five body sherds are tempered with grog and grit. Many of these sherds are broken along coil lines which suggests that coiling was a common method of manufacture. Surface attributes could not be determined on the interior of two sherds and exteriors of 12 sherds. The following attributes were observed on sherd exteriors: burnished (69%), unburnished (31%), wiping marks (6%), eroded surfaces (8%), fire clouds (7%), smooth (24%), rough (1%), fine smoothing (64%), and visible grog (60%). Interior attributes include: burnished (64%), unburnished (36%), fire clouds (6%), smooth (44%), rough (6%), fine smoothing (49%), and visible grog particles (43%). Variations of very dark gray to dark gray are the most common interior colors. Other interior color variations are reddish yellow, reddish brown, pink, and light brown. The predominant exterior color is reddish brown. Other variations include brown, dark gray, pink, and reddish yellow. Cores vary between solid (56%) and zoned (44%). The most common colors are shades of very dark gray to dark gray. Other colors include reddish yellow, reddish brown, and light red. Thickness ranges from 7.0-14.5 mm with an average of 10.7 mm.

Fourteen grog, grit, and bone tempered sherds are in the sample. Coiling again is the most common method of manufacture. The exterior surfaces present on 13 specimens are burnished (54%), unburnished (46%), smoothed (23%), fine smoothed (77%), and exhibit visible grog particles (69%). Interior surfaces are present on all sherds and are burnished (57%), unburnished (43%), fire clouded (7%), smoothed (43%), and fine smoothed (57%), with grog particles visible on 71%. The most common exterior colors fall within the range of dark reddish gray to light reddish brown. Three sherds have dark gray exteriors. Interior colors consist mostly of dark gray, and also include light red, brown, and dark reddish gray. Cores are commonly solid (92%) but one specimen has a zoned core. Very dark gray to dark gray colors are the most common, but two sherds have light red cores and one has a dark reddish gray core. These specimens are 9.2-13.7 mm thick and have an average thickness of 10.7 mm.

Basal Sherds: N=2

One specimen has a stilted exterior and rounded interior. The exterior is reddish brown, unburnished, rough, and has visible grog particles. The interior is very dark gray, burnished, smooth, and has visible grog particles. The core is solid and has the same color as the interior surface. This specimen is 13.4 mm thick.

The other base is 17.6 mm thick, but is more fragmentary. The exterior is unburnished and very smooth, and the interior is unburnished and rough. Both surfaces have a reddish yellow color, and the core is solid and light red.

Comments: This variety is similar to the defined *Williams Plain* type described by Newkumet (1940) and refined by Brown (1971). It is also similar to pottery described previously for this site (Flynn, Earman, and Vehik 1979: 474-476).

02-01-02B N=8: 8 Body Sherds (Figure 8.6f)

These specimens are predominantly grit and grog tempered with secondary inclusions of hematite and in one instance quartz. The texture of the paste is well mixed, medium, and compact. In two specimens the paste is medium to coarse. Coiling appears to be the method of manufacture. Exterior attributes could be discerned on seven specimens. They include burnished (14%), unburnished (86%), wiping marks (14%), eroded surfaces (14%), and fire clouds (57%). All are fine smoothed and exhibit visible grog particles. Colors are almost evenly divided between variations of brown and gray. Interior attributes present on seven specimens consist of burnished (71%), unburnished (29%), wiping marks (14%), fire clouds (57%), fine smoothed (43%), and visible grog (14%). Predominant colors are very dark gray to reddish brown. Core colors are primarily dark gray with 57% being solid and 43% zoned. These specimens range from 6.0-7.7 mm in thickness with an average of 7.0 mm.

Comments: This variety is similar to *LeFLore Plain.*

References: Brown 1971: 58; Flynn, Earman, and Vehik 1979: 476-477).

Plain Shale Tempered Wares *(02-01-05)*

02-01-05A N=2: 2 Body Sherds

The primary tempering agent in this variety of coiled pottery is shale but grog and grit inclusions also occur. The paste is laminated porous and has a medium to coarse texture. Surface treatment of the interior and exterior consists of unburnished, rough , and visible grog particles. The surfaces are brown, and the core is solid and dark gray. Both are 6.6 mm thick.

Comments: Shale tempered ceramics have been described from the Pine Creek Reservoir area (Wyckoff 1968: 74) and from the Arrowhead Hill site, 34Pu-105 (Bobalik, this report).

Baked Clay *(02-03-00)*

02-03-01A

This variety includes 772 (4322.7 g) pieces of baked clay and 397 pieces (1221.3 g) of consolidated ash. None of these have been impressed. The baked clay is commonly light red, reddish yellow, dark gray, or a combination of these colors. The consolidated ash is predominantly light gray. Table 8.6 presents the horizontal and vertical distribution of these specimens. It is apparent that the greatest majority occur in Levels 3 and 4 (20-40 cm).

02-03-01B

Eleven pieces of baked clay exhibiting U-shaped stick (10) or grass (1) impressions constitute this variety. One piece has two U-shaped stick impressions. The stick impressions range from 5.2-14.3 mm in width with an average of 10.5 mm, and in depth from 0.7-5.5 mm with an average of 2.8 mm. The grass impressions have a width of 1.5 mm and are 1.8 mm deep.

Ground Stone *(03)*

Summary measurements for selected varieties in this class are in Table 8.7.

MANOS (01-00)

Unifacial Manos *(03-01-01)*

03-01-01A N=1: 1 Fragmentary

This sandstone specimen has been ground on three edges and one side. The other side is unaltered. A small, circular pecked area (28.3 mm) is present on the dorsal surface.

Bifacial Manos *(03-01-02)*

03-01-02A N=5: 5 Fragmentary (Figure 8.6g)

Three specimens have been broken laterally and two are represented by single longitudinal edges. All are sandstone cobbles which have been bifacially ground, but one specimen is also extensively faceted along the edges and one end. Pecking occurs on three specimens: along the lateral edges or ends (2) and on a single surface (1).

Table 8.6. Horizontal and vertical distribution of charcoal, baked clay, consolidated ash, and bone from the Buffalo Bend site (34Pu-111): Phase II.

Provenience (Square:Level) (10 cm)	Charcoal Wt.	Baked Clay Ct.	Baked Clay Wt.	Consolidated Ash Ct.	Consolidated Ash Wt.	Bone Ct.	Bone Wt.
N40-E45							
1	0.7	-	-	-	-	2	4.3
2	4.3	10	10.0	2	0.7	3	0.3
3	411.3	76	132.1	40	168.1	1	0.1
4	75.6	10	8.7	37	33.2	-	-
5	-	-	-	-	-	-	-
6	0.4	1	0.2	-	-	-	-
7	0.5	-	-	-	-	-	-
8	<0.1	-	-	-	-	1	2.5
9	-	-	-	-	-	-	-
N40-E47							
1	0.8	-	-	2	0.4	8	1.1
2	1.8	5	3.5	-	-	4	0.2
3	3.6	16	43.1	1	1.1	-	-
4	1.8	7	5.2	-	-	-	-
5	1.7	-	-	1	2.2	-	-
6	0.2	-	-	-	-	-	-
7	0.7	-	-	-	-	2	0.3
N41-E43							
1	0.1	-	-	-	-	-	-
2	0.2	-	-	-	-	-	-
3	18.2	96	286.8	23	163.6	-	-
4	98.7	-	-	21	50.3	-	-
N42-E41							
1	-	-	-	-	-	-	-
2	0.2	-	-	-	-	-	-
3	0.5	-	-	-	-	1	0.1
N42-E42							
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	2.9	-	-	205	752.4	-	-
4	460.2	-	-	54	66.2	-	-
N42-E43							
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	2	2.3
4	0.5	-	-	-	-	-	-
N42-E45							
1	6.7	-	-	-	-	1	0.3
2	20.6	7	6.2	-	-	2	0.9
3	10.2	17	19.5	1	0.2	-	-
4	73.9	16	24.3	1	0.7	12	0.5

Table 8.6. Continued

Provenience (Square:Level) (10 cm)	Charcoal Wt.	Baked Clay Ct.	Baked Clay Wt.	Consolidated Ash Ct.	Consolidated Ash Wt.	Bone Ct.	Bone Wt.
N42-E47							
1	0.4	-	-	-	-	1	0.7
2	2.8	-	-	-	-	1	0.2
3	-	-	-	-	-	1	2.3
4	0.6	3	0.6	-	-	12	0.2
5	0.4	4	2.6	-	-	12	0.1
6	0.8	-	-	-	-	-	-
7	0.3	-	-	-	-	-	-
N42-E40							
4	44.6	64	212.5	4	4.6	-	-
5	-	1	18.5	-	-	-	-
N43-E43							
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	30.6	135	1614.3	3	8.5	-	-
4	683.1	120	1480.5	2	5.1	1	0.2
N44-E45							
1	1.1	-	-	-	-	-	-
2	-	1	6.5	-	-	-	-
3	54.3	77	271.2	-	-	-	-
4	717.8	200	1578.7	-	-	2	0.3
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
N44-E47							
2	-	-	-	-	-	-	-
3	6.4	2	28.6	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
N45-E43							
1	0.2	-	-	-	-	-	-
2	1.1	-	-	-	-	-	-
3	14.4	4	4.8	-	-	8	<0.1
N43-E40							
4	-	20	44.8	2	69.1	-	-
5	-	-	-	-	-	-	-

All weights are in grams.

Table 8.7. Metric attributes for selected ground stone and pecked/battered stone varieties from the Buffalo Bend site (34Pu-111): Phase II.

ARTIFACT VARIETY	LENGTH	WIDTH	THICKNESS
03-01-01A			
$\bar{x}$	72.8	82.5	47.4
N	1	1	1
03-01-02A			
$\bar{x}$	77.7	80.0	44.4
s.d.	8.8	22.3	7.9
range	62.6-96.1	49.9-105.4	34.4-52.8
N	5	5	5
03-02-01A			
$\bar{x}$	135.5	107.4	53.2
N	1	1	1
03-06-07A			
$\bar{x}$	26.3	30.3	30.3
N	1	1	1
03-06-08A			
$\bar{x}$	46.1	46.0	20.7
N	1	1	1
04-01-01A			
$\bar{x}$	129.7	96.3	62.0
s.d.	-	-	1.1
range	-	-	61.2-62.8
N	1	1	2
04-02-01A			
$\bar{x}$	-	-	31.3
s.d.	-	-	0.4
range	-	-	31.0-31.8
N	-	-	3
04-02-02A			
$\bar{x}$	-	-	32.7
N	-	-	1
04-03-01A			
$\bar{x}$	131.9	105.4	52.3
N	1	1	1

METATE/GRINDING SLABS (02-00)

Slab *(03-02-01)*

03-02-01A N=1: 1 Fragmentary

The edges of this sandstone artifact are broken and unaltered. On one side it has a flat, ground and slightly pecked area and the other side is unaltered.

GROUND HEMATITE (04-00)

Faceted Soft Hematite *(03-04-01)*

03-04-01A N=1

This is a small (11.0 mm) piece of soft, rubbed hematite. No grinding marks are evident. It leaves a dark reddish brown (2.5YR 3/4) streak.

MISCELLANEOUS GROUND STONE IMPLEMENTS (06-00)

Ground Stone Fragments *(03-06-03)*

03-06-03A N=6

These specimens could not be assigned to any of the preceding varieties, but possibly represent mano fragments (*03-01-00*). All are made from sandstone cobbles and have been ground unifacially (3) or bifacially (3). One specimen has been pecked along one edge.

Ground Stone Pipe *(03-06-07)*

03-06-07A N=1: 1 Complete (Figure 8.5n)

This sandstone specimen has a wedge shaped appearance. The front has been circularly ground, the back is ground flat, and there is also evidence of grinding on the top. On the top is a concave pecked area, with a diameter of 15.7 mm and a depth of 1.6 mm, in the center of which a circular hole has been drilled. This has a diameter of 7.8 mm and is 6.3 mm deep. Another asymmetrically circular hole, 12.0 mm long, 9.6 mm wide, and 11.1 mm deep, is present at the base of the flat back. Neither hole has been completely drilled through, which suggests that this is a pipe preform.

Ground Discoidal *(03-06-08)*

03-06-08A N=1: 1 Complete (Figure 8.5o)

This specimen is made of slate, is circular in shape, and has been extensively ground on all sides. The dorsal and ventral surfaces are flat, but the edges are slightly convex.

Pecked/Battered/Unmodified Cobbles *(04)*

HAMMERSTONES (01-00)

04-01-01A N=2: 1 Complete, 1 Fragmentary (Figure 8.6h)

These artifacts are made from sandstone. The broken specimen consists of part of one edge and end. The dorsal surface of this artifact is slightly ground and the end is extensively battered. The ventral surface is unaltered. The complete specimen is loaf shaped and is extensively battered. In addition, large, shallow concave areas occur in the center of the dorsal and ventral surfaces.

PITTED STONES (02-00)

Unifacial *(04-02-01)*

04-02-01A N=3: 3 Fragmentary

These specimens are made from sandstone and exhibit relatively shallow (1.9-2.7 mm deep) U-shaped depressions on one surface. The average diameter of the depressions is 24.6 mm. The only other alteration is grinding adjacent to the pecked depression on one artifact.

Bifacial *(04-02-02)*

04-02-02A N=1: 1 Fragmentary (Figure 8.6i)

This sandstone specimen may be a mano fragment *(03-01-00)* since both sides and the edges have been ground. Only one end of the artifact is present, but shallow, U-shaped pecked depressions are apparent on the dorsal and ventral surfaces. These have an average diameter of 18.0 mm and are approximately 1.6 mm deep.

Figure 8.6. Selected ceramics, ground stone, and pecked/battered artifacts from the Buffalo Bend site (34Pu-111): Phase II.

a-e: *02-01-01A*

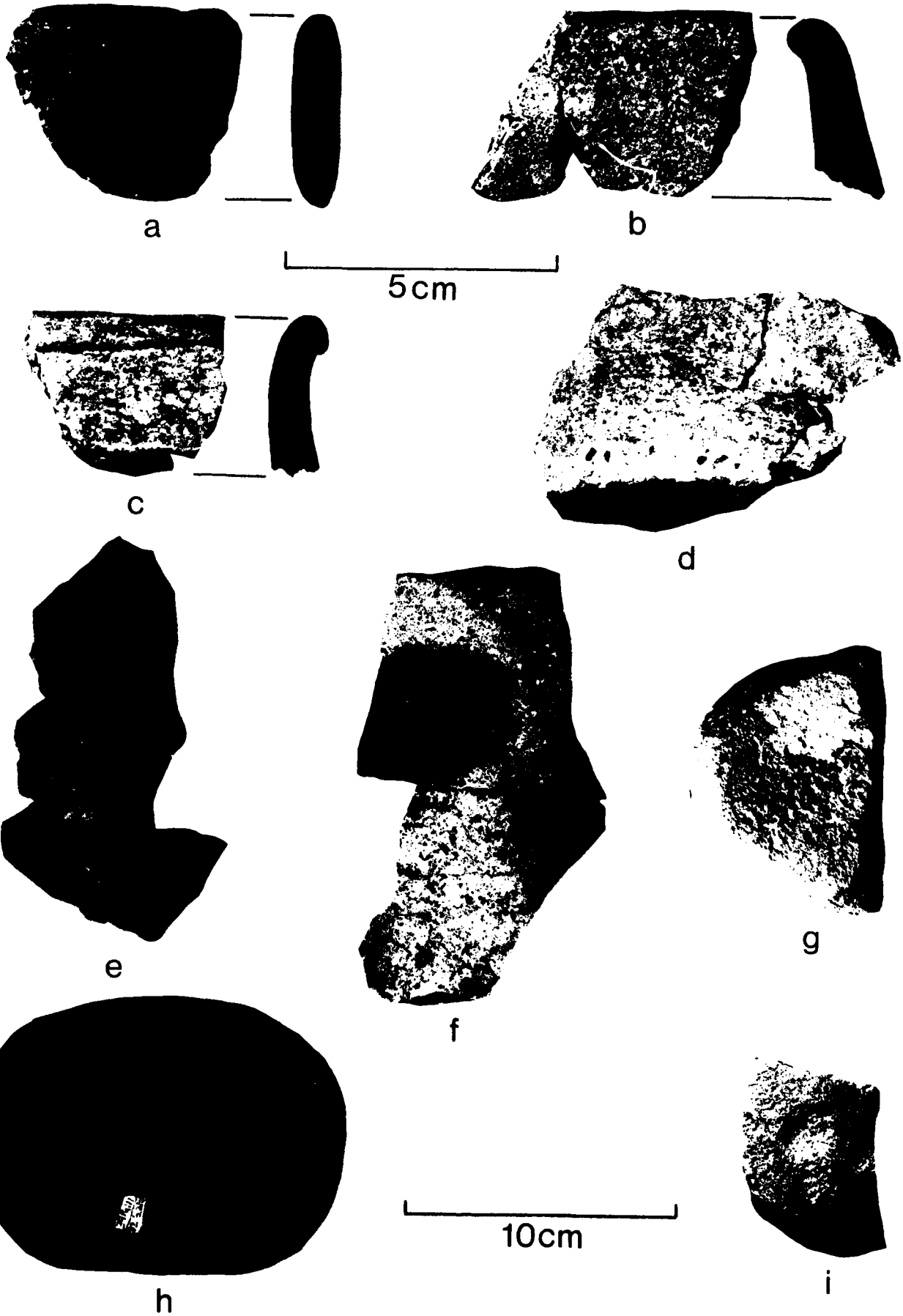
f: *02-01-02B*

g: *03-01-02A*

h: *04-01-01A*

i: *04-02-02A*

Note: Artifacts a-d shown at 5 cm scale.
Artifacts e-i shown at 10 cm scale.


a
b
5cm
c
d
e
f
g
h
10cm
i

MISCELLANEOUS PECKED/BATTERED STONE (03-00)

Miscellaneous Pecked Stone *(04-03-01)*

04-03-01A N=1: 1 Complete

This specimen is made from well consolidated sandstone. A minimal amount of pecking is present along the edges, and a shallow pecked concavity occurs on the dorsal surface. The ventral surface is unaltered.

UNMODIFIED COBBLES/PEBBLES (04-00)

Limonite/Hematite *(04-04-01)*

04-04-01A N=2

Two irregularly shaped hematite pieces were recovered. Neither have any evidence of modification.

Unmodified Nodules-Special Context *(04-04-04)*

04-04-04A N=2

Neither of these sandstone specimens are modified, but the dorsal surfaces have large U-shaped concavities. They range from 30.6 mm to 32.5 mm in diameter and are 8.0 mm deep. Neither depression has been modified. These specimens may represent the outer casing of a concretion, or their intended purpose may have been similar to that of pitted stones *(04-02-00)*.

Historic Debris *(07)*

Six pieces of historic material were recovered from the surface of the site.

GLASS (01-00)

07-01-01A N=1

This is a small 4.0 mm thick piece of clear glass which is probably the base of a bowl. It has two concentric lines and a grape like cluster decoration on it.

07-01-01E N=2

This variety consists of opaque, milk white glass fragments. One appears to be a circular basal fragment, 4.5 mm thick, and has the words "FOR" and "MAS" imprinted on it. The other specimen, 3.8 mm thick, may be the base of a bowl. It has a small ridge on the exterior and a light green and purple floral design on the interior.

CROCKERY/CERAMICS (02-00)

Crockery *(07-02-01)*

07-02-01B N=2

One specimen is a fragment of light gray stoneware. No decorative elements are present. It is 8.9 mm thick. The other specimen has a dusky red color and is 9.7 mm thick.

Ironstone/Porcelain *(07-02-02)*

07-02-02B N=1

This is a small white ceramic rim fragment. It is straight and the rim has a rolled lip. It is 3.5 mm thick.

Faunal *(08)*

BONE/HORN/TEETH (01-00)

08-01-01A N=75: 56 Unburned, 16 Burned, 3 Teeth

These are, for the most part, fragments of unidentifiable faunal specimens, and in many cases possibly represent fragments of a single bone. The weight of unburned bone is 12.3 g, and only mammals and turtle carapaces (probably *Terrapene carolina*) could be identified. None of the teeth are burned. They have a weight of 2.7 g. These all appear to be teeth of herbivores (probably deer). The 17.6 g of bone in the unburned sample could not be identified.

SHELL (02-00)

Gastropod *(08-02-02)*

Two modern specimens were recovered from Level 1 (0-10 cm). One has been identified as *Stenotrema leai aliciae* and the other is *Angiuspura alternata*.

Floral *(09)*

This class includes 2754.8 g of charcoal. None has been identified, but concentrations throughout the excavations indicate fragments of logs. The distribution of charcoal (Table 8.7) corresponds very closely to the baked clay and ash consolidations *(02-03-01)* and the vast majority was recovered in Levels 3 and 4 (20-40 cm).

DISCUSSION AND INTERPRETATIONS

A discussion of significant spatial relationships at the Buffalo Bend site is all but precluded by the nature of the excavations undertaken. However, it appears that the cultural materials recovered during Phase II investigations correspond very closely to materials recovered during Phase I testing.

Features

The most significant aspect of the Phase II excavations were the horizontally oriented charcoal and baked clay concentrations at a depth of 20-40 cm, which may represent the remains of a structure. The lack of postmolds and other associated features such as fire hearths and pits makes it difficult to interpret the concentrations. However, several pieces of baked clay are stick and grass impressed which indicates that they were derived from a constructed feature. If this is a structure, it measures approximately 3.0 m x 3.5 m, and appears to be three sided with an open end toward the east. It is possible that the charcoal concentrations represent an arbor-like structure which was seasonally utilized.

The remainder of the baked clay and consolidated ash are concentrated between 10-40 cm in squares associated with the charcoal concentrations (Table 8.6). One explanation for the large amounts of these materials is that they are the remains of short term clay hearths which were destroyed after use.

Several postmolds, small rock concentrations, and a basin shaped pit were also excavated. However, with the exception of the basin shaped pit (Feature 79-5) and one postmold (Feature 79-2), these features tend to occur below the concentrations of charcoal and baked clay, or are horizontally separate. Their nature and function is ambiguous since associated cultural materials are scarce, and association with the structure-like feature is extremely tenuous.

The single postmold (Feature 79-2) occurs along the east end of the structure and has been radiocarbon dated at A.D. 683 ±65. The range of this determination is within the range of two earlier radiocarbon dates derived from the west portion of the structure (Feature 78-1) during Phase I testing. These dates were A.D. 580 ±80 (UGa-2684) and A.D. 601 ±75 (UGa-2685).

The basin shaped pit (Feature 79-5) is approximately 2.5 m east of the charcoal concentrations, and the fill contains charcoal flecks, small amounts of burned bone, and baked clay. The function of the pit is uncertain, but it could have been used for storage.

It appears that Feature 79-4 (a small pit-like feature and several postmolds) was dug through a rock cluster. This suggests that it was constructed after the rock concentration, and may occur later in time.

Vertical Distributions

Overall, the vertical distribution of cultural remains is biased because not all levels were screened. However, an effort was made to record *in situ* (Code 1 and 2) artifacts, and the vertical distribution of these categories are believed to be accurately reflected.

Table 8.8 presents distributional data for each artifact variety at the site by arbitrary level. From this table, it is apparent that the majority of the materials (74%) occur in the upper five levels with the heaviest concentration in Level 2 (10-20 cm). Exluding lithic debitage *(01-16-01A)*, 20% and 18% of the materials occur in Levels 3-4 (20-40 cm) respectively, and decline to 8% in Level 5. There is a slight increase of material in Level 6 (10%).

There is some vertical separation of materials, especially among point categories. Large contracting stemmed points *(01-01-01A)* occur predominantly in Levels 3-4 (44%), but they are also found in every level to a depth of 70 cm. The greatest separation is the one observed between the large point *(01-01-01-, 01-01-02, 01-01-03,* and *01-01-04)* and small point categories *(01-01-06* and *01-01-08)*. The small point categories are restricted to the upper three levels (0-30 cm) with single occurrences in Level 4 (30-40 cm). Excluding large contracting stemmed points, the other large points are almost evenly divided between the upper four levels and Levels 5, 6, and 7.

Drills/perforators *(01-02-00)* are confined to Levels 3 and 4. Scrapers *(01-05-00)* are more dispersed with five occurring in Levels 1-3 and four in Levels 5-6. Chipped stone hoes *(01-07-00)* are limited in number but one occurs in Level 3 and one in Level 5.

Cores *(01-14-01A)* associated with a core/flake technology, are concentrated in Levels 2-3 (75%). Biface categories *(01-10-00* through *01-10-06)*, split and tested cobbles *(01-15-00)*, and the point categories *(01-01-00)* are associated with the lithic reduction sequence posited by Bobalik (1977: 31-44). Procurement and initial modification activities are reflected by a single cobble/quarried block biface I *(01-10-01A)* and split/tested cobbles *(01-15-01)*. The majority, approximately 20%, occur in Levels 3 and 5 respectively, and 15% are in Level 1, 12% in Level 2, 15% in Level 4, 8% in Level 6, and 4% are from Levels 7-8 and the surface. Primary modification

Table 8.8. Vertical distribution of cultural remains from the Buffalo Bend site (34Pu-111): Phase II.

Artifact Varieties	Arbitrary Levels (10 cm)									
	Surface	1	2	3	4	5	6	7	8	9
01-01-01A	6	9	7	12	12	5	3	1	-	-
01-01-02F	-	-	-	-	-	-	-	1	-	-
01-01-02J	-	-	-	-	-	-	-	1	-	-
01-01-02L	-	-	-	-	-	-	1	-	-	-
01-01-02Z	-	-	1	-	-	2	-	-	-	-
01-01-03A	-	-	-	-	-	-	1	-	-	-
01-01-04A	-	-	-	2	1	-	-	-	-	-
01-01-04E	-	-	-	-	1	-	-	-	-	-
01-01-06A	-	2	1	-	1	-	-	-	-	-
01-01-06B	-	1	2	3	1	-	-	-	-	-
01-01-06C	-	2	-	2	-	-	-	-	-	-
01-01-06D	-	-	-	-	1	-	-	-	-	-
01-01-06J	-	-	-	-	1	-	-	-	-	-
01-01-08A	-	-	1	-	-	-	-	-	-	-
01-01-08B	-	2	1	-	-	-	-	-	-	-
01-02-01B	1	-	-	-	-	-	-	-	-	-
01-02-02A	-	-	-	-	2	-	-	-	-	-
01-02-03A	-	-	-	1	1	-	-	-	-	-
01-05-01A	-	1	-	-	-	-	-	-	-	-
01-05-02A	3	2	2	1	-	2	2	-	-	-
01-07-01A	1	-	-	1	-	1	-	-	-	-
01-10-01A	-	-	-	-	-	1	-	-	-	-
01-10-02A	6	1	9	4	3	3	2	-	1	-
01-10-03A	1	3	2	2	3	1	-	1	-	-
01-10-04A	1	-	-	4	2	1	1	2	1	-
01-10-05A	-	1	1	2	1	-	-	-	-	-
01-10-05B	-	-	1	-	-	-	-	-	-	-
01-10-06A	1	-	-	-	-	-	-	-	-	-
01-12-01A	11	51	35	51	41	13	24	13	15	-
01-13-01A	-	3	6	7	1	-	-	-	-	-
01-13-01B	14	129	104	137	92	49	83	34	18	2
01-14-01A	1	-	3	3	1	-	-	-	-	-
01-15-01A	-	1	1	3	1	3	1	1	-	-
01-15-01B	1	3	2	2	3	1	1	-	1	-
01-16-01A	43	5883	6576	7802	5873	3172	2108	1731	364	57
02-01-01A	1	3	15	14	34	7	5	-	-	-
02-01-01B	-	-	-	1	1	2	4	-	-	-
02-01-05A	-	-	-	-	-	2	-	-	-	-
03-01-01A	1	-	-	-	-	-	-	-	-	-
03-01-02A	1	-	-	-	-	2	1	1	-	-
03-02-01A	-	-	-	-	-	-	1	-	-	-
03-04-01A	-	1	-	-	-	-	-	-	-	-
03-06-03A	1	-	1	4	-	-	-	-	-	-
03-06-07A	-	-	-	-	1	-	-	-	-	-
03-06-08A	1	-	-	-	-	-	-	-	-	-
04-01-01A	-	-	-	1	-	-	-	1	-	-
04-02-01A	1	-	-	-	1	-	1	-	-	-
04-02-02A	-	-	-	-	-	1	-	-	-	-
04-03-01A	-	-	-	-	-	1	-	-	-	-
04-04-01A	-	1	-	-	1	-	-	-	-	-
04-04-04A	-	-	2	-	-	-	-	-	-	-
07-01-01A	1	-	-	-	-	-	-	-	-	-
07-01-01E	2	-	-	-	-	-	-	-	-	-
07-02-01B	1	-	-	-	-	-	-	-	-	-
07-02-02B	3	-	-	-	-	-	-	-	-	-
08-01-01A	-	11	10	13	26	12	-	2	1	-
08-02-02A	-	2	-	-	-	-	-	-	-	-
Total*	60	227	202	268	233	109	125	55	36	-

*excluding debitage (01-16-01A)

activities are represented by cobble/block biface II/thick bifaces *(01-10-02A)* and thin biface I's *(01-10-03A)*. Eight (19%) are from unassigned context (surface and wall scrapings) but 9% are from Level 1, 26% from Level 2, 14% from Levels 3-4, 9% from Level 5, 5% from Level 6, and 2% each from Levels 7 and 8. Secondary modification activities represented by thin biface IIa's *(01-10-04A)*, thin biface IIb's *(01-10-05)*, and cobble/block biface III's *(01-10-06A)* are reflected by two specimens (11%) from the surface, 5% in Level 1, 11% in Level 2, 32% in Level 3, 16% in Level 4, 5% each in Levels 5-6, 11% in Level 7, and 5% in Level 8. Final modification and maintenance activities are represented by point categories *(01-01-00)* and chipped stone hoes *(01-07-01A)*. Eight percent are from the surface, 18% from Level 1, 14% from Level 2, 22% from Level 3, 20% from Level 4, 9% from Level 5, 6% from Level 6, and 3% from Level 7.

Point/biface fragments *(01-12-01A)* are most common (70%) in Levels 1-4, with an additional increase in Level 6 (9%). Modified flakes *(01-13-00)* are concentrated in the upper four levels (70%), but there is also a significant increase in Level 6 (11%). All of the projections *(01-13-01A)* are from the first four levels, but 77% of these occur in Levels 2 and 3. Lithic debitage percentages are biased to a greater degree than the preceding categories because many levels were unscreened. The majority are from Level 3.

Ceramic varieties probably best reflect the overall vertical distribution of cultural materials. *Williams Plain* pottery *(02-01-01A)* occurs from the surface through Level 6. The greatest majority (43%) is in Level 4, and 80% of this variety occurs in Levels 2-4. *LeFlore Plain* ceramics *(02-01-01B)* occur in Levels 3-6 with 50% in Level 6. Shale and grit tempered ceramics *(02-01-05A)* are confined to Level 5.

The vertical distribution of ground and pecked stone artifacts *(03* and *04)* is relatively disperse. All the ground stone implements were either recovered on the surface or in Levels 5-7. Rubbed hematite *(03-04-01A)* and ground stone fragments *(03-06-03A)* occurred on the surface and in Levels 1-3. One possible ground stone pipe *(03-06-07A)* is from Level 4. The pecked stone artifacts *(04)* are much more scattered, but pitted stones *(04-02-00)* occur mostly between Levels 4-6.

Historic materials are confined to the surface and extremely fragmentary faunal remains are concentrated in Levels 3-5.

Cultural features such as the baked clay and charcoal concentrations (Features 79-1, 79-7, and 79-8) are confined to the upper 30 cm of the deposits. The majority of these occur in Levels 2-3. Postmolds and rock concentrations (Features 79-2, 79-3, 79-4, and 79-6) range in depth from 40-60 cm below ground surface with an average depth of 56 cm. The single well-defined pit (Feature 79-5) was encountered at a surface depth of 41 cm, but is correlated with arbitrary Level 6 (60-70 cm).

Chronology of Site Occupations

The vertical distribution of cultural remains is rather general, but there is some separation in terms of point categories suggesting that two components are present. Small point categories *(01-01-06* and *01-01-08)* are confined to the upper 30-40 cm, and are associated with late components in southeast Oklahoma (Brown 1976; Galm 1978b: 76; Galm and Flynn 1978: 157). Bobalik (1977: 551-552), Lintz (1979e), and Vehik (1979f) also suggest a similar association for the Clayton Lake area. These small projectile point varieties *(Scallorn, Bonham, Agee, Homan, Alba, Fresno,* and *Maud)* may be correlated with the Harlan and Spiro phases (Brown 1976). No late varieties of ceramics have been recovered from the Buffalo Bend site, but *Williams* and *LeFlore Plain* pottery have also been associated with the Harlan and Spiro phases. It is difficult to correlate many of the other cultural remains with this component due to the dispersion of the vertical distributions, but some *Gary* points may be associated with this component. One radiocarbon determination (A.D. 977 ±60) derived from Feature 79-7 may be associated with this component, even though there is a possibility of contamination of the sample. If it is accepted, it places this component well within the early Caddoan period.

An earlier component is posited on the basis of large contracting stemmed *(01-01-01A)*, expanding stemmed/corner-notched *(01-02-00)*, expanding stemmed/side-notched *(01-02-00)*, and straight stemmed points *(01-04-00)*. In addition, the majority of the *Williams Plain, LeFlore Plain*, and plain, shale and grit tempered ceramics are associated with this component. These point and ceramic varieties are common in the Fourche Maline phase (Galm and Flynn 1978). Radiocarbon determinations of A.D. 580 ±80 and A.D. 601 ±75 (Flynn, Earman, Vehik 1979: 486) and A.D. 683 ±65 (Beta-1206) place this component well within the range of the Fourche Maline phase. The arbor-like structure and material reamins occurring between 20-70 cm, and possibly deeper, correlate with the dates for this component.

Another prehistoric component may be present between 70-90 cm as reflected by deeply buried rock concentrations and postmolds. However, there are no diagnostic artifacts, and supportive evidence for this manifestation is extremely tenuous.

The historic material (glass and ceramic fragments) from the surface of the site indicate that a historic structure was present or that this material was deposited when the site area was cultivated. The removal of 10-20 cm of deposits makes the evaluation of this material difficult.

In summary, two prehistoric components are present. The earlier component is related to the Fourche Maline phase and is dated between A.D. 580 ±80 and A.D. 683 ±65. Another component, associated with the Harlan and Spiro phases of the early Caddoan period, is based on small projectile point styles and may be dated at A.D. 977 ±60.

Lithic Reduction Sequence and Lithic Reduction Utilization

Table 8.9 presents the distribution of lithic material types for debitage from one 2 m x 2 m excavation unit (N40-E45). This square represents the deepest excavation unit at the site. Type A chert is the most predominant followed by Type B, Type G, and Type H. These lithic types are locally available resources, and were probably collected from nearby streams since the majority of the bifaces *(01-10-00)*, tested/split cobbles *(01-15-00)*, and cores *(01-14-01A)* are characterized by stream rounded cortex. Table 8.10 provides the distribution of material type for selected chipped stone artifact varieties, excluding lithic debitage *(01-16-01A)*. The percentages are very similar to those presented for the lithic debitage in Table 8.9. The only major differences are an increase in artifacts made from Type D chert and a decrease in quartzite (Type H) artifacts. These data do not contrast greatly from distributions based on the Phase I work (Flynn, Earman, Vehik 1979: 468, Table 81; 475, Table 83). The greatest difference occurs in the percentage of quartzite flakes (2% during Phase I and 7% in Phase II).

All stages of the bifacial lithic reduction sequence are present in both components. Procurement/initial modification activities constitute 14% of the sample. Primary modification activities make up 24%, secondary modification activities are the least frequent (11%), and finished implements are the most common (51%). These data do not correspond with the Phase I results in which initial and secondary modification activities constituted 66% of the sample while only 33% reflected finished implements (Flynn, Earman, Vehik 1979: 483). The most economical explanation for this difference is that 73% of the finished implements in Phase I were surface collected while only 4.6% of the finished implements in Phase II were from the surface. Therefore, it appears that the majority of the procurement/initial, primary, and secondary modification activites took place off the site, but bifacial thinning, final tool manufacturing, and maintenance occurred on the site.

A core/flake technology is also apparent, predominantly in Levels 2-3 (10-30 cm). It is possible that this technology is more related to the early Caddoan occupation of the site, and the bifacial reduction technology is related to the earlier Woodland (Fourche Maline phase) component.

Functional Interpretations

It has been pointed out that the determination of artifact functions should be conducted through formal functional analyses (Vehik 1979f: 445). However, due to the time consuming nature of these studies, macroscopic observations and inferential data were used to help determine artifact functions (cf. Winters 1969; McMillan 1971; House 1975: 55-74).

Table 8.9. Vertical distribution of lithic debitage by material type from N40-E45 at the Buffalo Bend site (34Pu-111): Phase II.

Arbitrary Levels (10 cm)	Lithic Type										
	A	B	C	D	E	F	G	H	I	J	Total
1	371	100	8	26	8	1	94	25	-	38	671
2	921	198	18	28	33	7	167	108	-	69	1,549
3	756	176	6	11	16	-	107	101	1	29	1,203
4	430	179	6	10	10	2	76	26	-	19	758
5	478	194	1	1	26	-	96	58	-	97	951
6	522	241	10	16	14	4	80	80	-	20	987
7	380	103	8	19	3	1	40	45	-	11	610
8	196	87	1	17	8	1	17	20	-	11	358
9	34	17	-	-	-	-	-	3	-	2	56
Total	4,088	1,295	58	128	118	16	677	466	1	296	7,143
Percentage	57	18	1	2	2	-	10	7	-	4	101

Table 8.10. Lithic material types for selected chipped stone artifact varieties from the Buffalo Bend site (34Pu-111): Phase II.

Artifact Varieties	Lithic Type A	B	C	D	E	F	G	H	I	J	Total
01-01-01A	29	8	1	6	2	-	1	5	-	3	55
01-01-02F	-	-	-	1	-	-	-	-	-	-	1
01-01-02J	-	-	-	-	-	1	-	-	-	-	1
01-01-02L	-	-	-	-	-	1	-	-	-	-	1
01-01-02Z	3	-	-	-	-	-	-	-	-	-	3
01-01-03A	-	-	-	-	-	-	-	1	-	-	1
01-01-04A	-	-	1	-	-	-	-	1	-	1	3
01-01-04E	-	-	-	-	-	-	-	1	-	-	1
01-01-06A	4	-	-	-	-	-	-	-	-	-	4
01-01-06B	4	2	-	-	-	-	-	1	-	-	7
01-01-06C	1	2	-	1	-	-	-	-	-	-	4
01-01-06D	1	-	-	-	-	-	-	-	-	-	1
01-01-06J	-	-	-	1	-	-	-	-	-	-	1
01-01-08A	1	-	-	-	-	-	-	-	-	-	1
01-01-08B	2	-	1	-	-	-	-	-	-	-	3
01-02-01B	1	-	-	-	-	-	-	-	-	-	1
01-02-02A	-	1	-	-	-	-	-	-	-	1	2
01-02-03A	1	1	-	-	-	-	-	-	-	-	2
01-05-01A	1	-	-	-	-	-	-	-	-	-	1
01-05-02A	5	3	-	1	-	-	-	1	-	3	13
01-07-01A	-	-	-	-	-	-	1	2	-	-	3
01-10-01A	1	-	-	-	-	-	-	-	-	-	1
01-10-02A	10	1	1	5	7	5	-	-	-	1	30
01-10-03A	8	1	-	3	-	1	-	-	-	1	14
01-10-04A	6	3	-	1	-	-	-	1	-	1	12
01-10-05A	1	3	-	-	-	-	-	1	-	-	5
01-10-05B	-	1	-	-	-	-	-	-	-	-	1
01-10-06A	-	-	-	-	-	-	1	-	-	-	1
01-12-01A	156	29	3	20	5	-	3	10	-	27	253
01-12-01A	10	3	-	3	-	-	-	-	-	1	17
01-13-01B	328	147	6	80	4	20	19	15	1	42	662
01-14-01A	2	1	-	2	-	1	-	1	-	1	8
01-15-01A	4	4	-	2	-	1	-	-	-	-	11
01-15-02A	4	2	-	3	-	-	2	2	-	1	14
Total	583	212	13	129	18	30	27	42	1	83	1,138
Percentage	51	19	1	11	2	3	2	4	-	7	

CHIPPED STONE ASSEMBLAGE

Based on their weight and size, the small point categories *(01-01-06* and *01-01-08)* associated with the early Caddoan component could have potentially been used as arrow points (Fenenga 1953: 302-323; House 1975). The large point categories *(01-01-01, 01-01-02,* and *01-01-03)* may have been used as projectile points or as generalized hafted cutting/scraping tools (Ahler 1971; Ahler and McMillan 1976). Several of the proximal and distal point/biface fragments *(01-12-01A)* may be included here. In addition, several of the bifaces *(01-10-00)* and modified flakes *(01-13-01A* and *01-13-01B)* may have been used as cutting, sawing, or scraping implements. Lynott (1975: 121-128) has suggested that modified flakes with projections *(01-13-01A)* functioned as generalized cutting or drilling tools. Perforating activities are reflected in three varieties of drills *(01-02-00),* one reworked projectile point *(01-01-06C),* and projections *(01-13-01A).* Several scrapers *(01-05-00)* are additionally indicative of a variety of generalized scraping activities. Digging activities may be reflected by the presence of chipped stone hoes *(01-07-01A).*

The majority of the remaining chipped stone artifacts *(01-10-00, 01-14-00, 01-15-00,* and *01-16-00)* may have been used in the above mentioned functions, but for the most part, they do not exhibit evidence of intentional modification or retouch. It is most likely that they represent materials necessary for the manufacture of chipped stone tools or by-products of these activities.

CERAMIC ASSEMBLAGE

The ceramic assemblage *(02-01-00)* consists of entirely undecorated, presumably utilitarian ware. Based on the thickness of the sherds, it appears that most of the pottery represents large, thick walled vessels. They are believed to have been used as containers and may be considered to represent domestic equipment (Winters 1969: 64).

GROUND AND PECKED/BATTERED STONE ASSEMBLAGES

Three items within these classes may be considered to represent ceremonial or special uses. These are the rubbed hematite *(03-04-01A)* which may have been used for obtaining pigment, the partially completed ground stone pipe bowl *(03-06-07A)* which could have been used in ceremonial or leisure activities, and the small ground discodial *(03-06-08A)* which may have been used as a gaming stone.

The remainder of the ground and pecked/battered stone classes are considered to be processing tools and are believed to reflect domestic equipment (Winters 1969: 61-64). Manos *(03-01-01A* and *03-01-02A),* metates/grinding slabs *(03-02-01A),* and several ground stone fragments

(03-06-03A) may represent grinding/crushing, possibly of vegetal materials (Ahler and McMillan 1976: 195; House 1975: 72). Several of the manos as well as the pitted stones *(04-02-00)* are characterized by small concentric U-shaped depressions. Similar items are believed to have been used as platforms for pounding or hammering activities (Ahler and McMillan 1976: 185). It has also been demonstrated that U-shaped depressions will develop on sandstone artifacts which have been used to crack nuts or to break smooth cortex covered cobbles (Spears 1975: 83-116).

Many of the manos *(03-01-00)*, hammerstones *(04-01-01A)*, and miscellaneous pecked stone *(04-03-01A)* are characterized by extensive battering and crushing along the lateral edges. These specimens may represent generalized hammering activities which could have been used in processing vegetal materials or in pecking and shaping softer stone implements (Ahler and McMillan 1976: 195).

Additional activities may also be suggested, but the evidence for these is much more tenuous. Hunting is suggested by the presence of extremely small fragmentary faunal remains. Gathering is suggested by the presence of small amounts of charred organic materials. Fire maintenance may be posited if the baked clay fragments are assumed to be fragments of clay hearths. Constructional activities may be argued for if the presence of an arbor-like structure is accepted, and by the occurrence of grass and twig impressed baked clay. The presence of some of these activities is further strengthened by soils data collected during Phase I (Galm 1979a: 514-517, Table 85). Organic matter counts vary between 1.1-1.7% and may indicate the deposition of organic remains such as floral and faunal materials produced during extractive activities.

Site Functions and Nature of Site Significance

It is difficult to discuss differences between components in terms of site function because of the limited amount of material related to the early Caddoan component. Overall, there do not seem to be many differences in the types of activities conducted. Lithic reduction, especially the manufacture and maintenance of finished implements, is a significant activity in both components. The primary difference seems to be the introduction of or added emphasis on a core/flake technology during the early Caddoan component. In contrast, during the Woodland component, the lithic technology seems to be based more on a bifacial reduction sequence.

Hunting seems to be a primary activity at the site during the early Caddoan period. Additional activities such as generalized cutting and scraping, digging, lithic manufacture, storage, or cooking and possibly small amounts of vegetal procurement and processing may also have been conducted.

The general nature of these activities suggests that the site was used as a special purpose extractive camp during this time. Gibson (1974: 72) defines a special purpose site (camp) as "a small locus of short-lived

activity, usually restricted to a single dominant task." This definition does not differ greatly from one provided by Bobalik (1977). This type of site may be characterized by a limited tool kit as well as restricted occurrences of certain technological by-products in a small area (Gibson 1974: 72). Gibson (1974: 72) also suggests that the activities conducted at special purpose sites (camps) may be sex-specific, but not always. In the case of the Buffalo Bend site, if ceramics can be used to indicate female oriented tasks then both sexes are represented during the early Caddoan component.

It is difficult to ascertain where these populations came from. However, Bobalik (1977: 557-558, Table 281) has identified early Caddoan components at 22 (56%) sites within the project area. This, in conjunction with two structures at 34Pu-74 (Lintz 1979e), suggests an intensive use of the Jackfork Valley during the early Caddoan period. It is possible that these were resident populations having contact with similar groups in the Arkansas and Red River valleys.

The Woodland (Fourche Maline phase) component is believed to reflect a base camp type occupation of the site. Base camps are residential sites of variable size which have evidence of stationary facilities. They are also the loci of domestic activities in a seasonally shifting settlement and economic system, and should have evidence of tool manufacture and repair as well as hearths, structures, earth ovens, and so forth (Gibson 1974: 72). In addition, if base camps are near lithic resources all stages of lithic reduction will be represented, but evidence of later stages of the reduction sequence and implements and their maintenance should predominate. Base camps may also support special purpose sites, and this should be reflected in a wider range of artifacts (Bobalik 1977: 42).

Activities associated with the Woodland component appear to be more varied. Hunting and/or generalized cutting and scraping predominate. Other activities such as perforating, digging, storage or cooking, possible fire maintenance, construction, vegetal procurement and processing (the majority of the ground and pecked stone assemblages are associated with this component), and lithic manufacturing and maintenance are also represented. In addition, it is possible that ceremonial or leisure activities may also have taken place as indicated by the unfinished ground stone pipe bowl *(03-06-07A)* in Level 4 (30-40 cm). Emphasis on later stages of the lithic reduction sequence, especially the manufacture and/or maintenance of finished implements, is apparent. The presence of utilitarian, undecorated ceramics suggest that the site was not used year round, but may indicate that both sexes are represented.

It is also believed that a stationary structure is associated with this component. It may represent an arbor-like structure which was used seasonally. Unfortunately, seasonality cannot be determined, but the wide range of activities indicate an intensified occupation of the site possibly for a longer period of time and by a larger population than that represented by the later early Caddoan component.

Woodland components are represented at 19 (49%) of the sites in the project area. During Phase I, it was argued that Woodland populations may have been transitory and not resident populations in the Jackfork Valley. This was based on the fact that most of Woodland components represented special purpose extractive sites. However, data recovered during Phase II from 34Pu-102, 34Pu-105, and 34Pu-111 indicate that these Woodland components represent base camps. The location of two large middens (34Pu-114 and 34Pu-116) also suggest a long term intensive occupation of the Jackfork Valley during the Woodland period. These sites are very similar to the Scott and Wann sites in the Wister Valley (Galm and Flynn 1978).

SUMMARY

The Buffalo Bend site (34Pu-111) is adjacent to Buffalo Creek and upon completion of the lake will either be destroyed by construction activities or inundated. The site has already been altered by the removal of at least 10-20 cm of deposits during land clearing activities and several areas of the site have been destroyed.

This report presents the results of the analysis of materials from Phase II excavations, which were concentrated toward the northeast part of the site next to Feature 78-1, uncovered during Phase I work. The report is primarily descriptive but attempts have been made to functionally interpret the site.

The earliest well-defined use of the site is during the Woodland period. Radiocarbon determinations of A.D. 580 ±80 (UGa-2684), A.D. 601 ±75 (UGa-2685), and A.D. 683 ±65 (Beta-1206) are well within the range of the Woodland period. These dates were obtained from a rectangular concentration of horizontally oriented charcoal and baked clay which may represent an arbor-like structure. The concentration is spatially restricted, and measures 3.0 m x 3.5 m. Several other features such as rock concentrations and post-molds and/or pits may be associated with this component or an earlier undefined component.

Cultural remains associated with this component include large projectile points, bifaces, drills, scrapers, perforators, projections, modified flakes, undecorated grit, grog, and bone tempered ceramics *(Williams Plain)*, undecorated grit and grog ceramics *(LeFlore Plain)*, plain shale and grit tempered ceramics, manos, grinding basins, pitted stones, an unfinished ground stone pipe bowl, chipped stone hoes, and the majority of the faunal remains. Based on these data, as well as the baked clay and charcoal concentrations, a number of activities have been inferred. These include hunting, generalized cutting/scraping, lithic manufacture and maintenance, perforating, digging, fire maintenance, storage and/or cooking, vegetal and faunal procurement and processing, and possibly some ceremonial or leisure activities. The variety of activities and presence of features suggest the site was used as a base camp during this period. The occurrence of large contracting stemmed and expanding stemmed points *(01-01-01A* and *01-01-02)*, plain undecorated ceramics *(02-01-00)*, chipped stone hoes

(01-07-01A), and the variety of ground and pecked stone *(03-01-00* and *04-01-00)* as well as the radiocarbon dates suggest that this component may be assigned to the Fourche Maline phase as defined in the Wister Valley (Galm and Flynn 1978). The Fourche Maline phase has been dated between 200 B.C.-A.D. 800 (Galm and Flynn 1978: 156). The closest parallels in the Jackfork Valley may be to 34Pu-105, 34Pu-102, 34Pu-116, and 34Pu-114.

A later occupation of the site is believed to have occurred during the early Caddoan period which may be dated A.D. 977 ±60 (Beta-1207). Information regarding this component is scanty because much of the upper part of the site was removed during land clearing activities related to dam construction. The primary basis for positing this component is the presence of small projectile points predominantly in Levels 1-3 (0-30 cm) and single occurrences in Level 4 (30-40 cm). Similar point types are associated with the Harlan and Spiro phases (Brown 1976; Galm 1978a: 133), but some of these varieties may also occur during the latter part of the Woodland pariod. The only ceramics recovered are an undecorated variety *(Williams Plain)* which has been reported from Caddoan and Woodland contexts (Brown 1976; Galm 1978a; 1978b; Galm and Flynn 1978).

Cultural remains associated with this component include small projectile points, large contracting stemmed points, scrapers, drills, bifaces, cores, chipped stone hoe, grit, grog, and bone tempered ceramics *(Williams Plain)*, a ground stone discoidal, rubbed hematite, and ground stone fragments. Hunting appears to be the dominant activity. Other inferred activities include generalized cutting/scraping, possibly digging, and minimal amounts of vegetal procurement and processing, lithic manufacture and maintanance, and storage and/or cooking. The general nature of these activities (with hunting being predominant) and lack of features argues that the site during this time was used primarily as a special purpose (extractive) camp.

Other early Caddoan components at 34Pu-74, 34Pu-100, and 34Pu-105 may be related. As indicated earlier, a number of early Caddoan components have been identified in the Jackfork Valley and these may also be related to the site.

In conclusion, the work conducted at the Buffalo Bend site during both phases has demonstrated that the site was occupied during the Woodland and early Caddoan periods. Initially, the site was used as a base camp probably on a seasonal basis by permanent Woodland populations in the Jackfork Valley. Subsequently, during the early Caddoan period, the site was used as an extractive seasonal camp. It is believed that these were local populations who may have been in contact with similar groups in the Arkansas and Red River valleys.

CHAPTER 9

SUMMARY OF THE MITIGATION PROGRAM IN THE PROPOSED CLAYTON LAKE AREA

Rain Vehik

This report details the results of excavations at five sites during 1979 in the proposed Clayton Lake area in Pushmataha County, Oklahoma. The sites (34Pu-74, 34Pu-100, 34Pu-102, 34Pu-105, and 34Pu-111) will be impacted either by inundation or construction activities resulting from the completion of Clayton Lake. Three sites (34Pu-74, 34Pu-105, and 34Pu-111) were initially investigated during Phase I (Vehik and Galm 1979). Additional work was recommended because each site had potential to yield architectural information. Lintz (1979e) uncovered two house structures at 34Pu-74, and there was the possibility that other structures would be found. In addition, there were several questions regarding the Archaic component underlying the structures at this site.

Test excavations at 34Pu-105 in 1976 suggested that at least one structure was present (Bobalik 1977). The Phase I investigations in 1978 concentrated on the central and northern part of the site (Vehik 1979f). As a result, additional investigations were recommended to excavate the area in which evidence for a structure was noted. Also the Archaic/ Woodland component posited by Vehik (1979f) needed to be better understood, and part of the Phase II investigations were designed to obtain information which would help segregate this component.

The final site, 34Pu-111, was tested in an one week period (Vehik 1979a; Flynn, Earman, and Vehik 1979). This yielded evidence of material related to the Fourche Maline phase, and the remains of a possible structure were encountered. Phase II investigations centered on the area in which the potential structure was located.

The other sites, 34Pu-100 and 34Pu-102, were excavated because they occurred in areas of the proposed lake which had not been tested. The Turtle Luck site (34Pu-100) is along the central part of Anderson Creek and was believed to have at least a Woodland and early Caddoan component. The Wheeler Lee site (34Pu-102) was excavated because of its location toward the western end of the project along Jackfork Creek and the fact that it may represent a permanent camp related to the Woodland/early Caddoan period. A Late Archaic component was also posited at this site.

One additional site, the Bug Hill site (34Pu-116), was added as a replacement for excavations at 34Lt-32. The Bug Hill site is a dark accretional midden mound not unlike those along the Fourche Maline Creek to the north. Even though the excavation results of this site are not included in this report, they are used in the following summary. Data from the Bug Hill site are presented in a separate report (Vehik 1982).

The Phase II investigations of these sites has added to our understanding the prehistory of the Jackfork Valley. Specifically, as will be discussed more fully in the sections to follow, we have been able to establish an absolutely dated chronological sequence of prehistoric developments which are closely related to similar occurrences in the Wister Lake area to the north. Cultural relationships to the south (Red River Valley) are not as well demonstrated, and it appears that the primary influences affecting the Jackfork Valley are from the Arkansas River Basin. During the Archaic and lasting into the Woodland period, the presence of copper and marine shell items at the Bug Hill site imply contact or trade with populations more closely related to the Gulf Coast (Vehik 1982). The same may be true for the introduction of ceramics *(Williams Plain)*, but evidence for this is scarce and the mechanisms of interaction are unknown. The remaining material attributes are present in components affiliated with the Archaic, Woodland, and early Caddoan periods throughout southeast Oklahoma. However, as indicated earlier, these appear to be more closely associated with prehistoric developments in the Arkansas River Valley rather than the Red River Valley.

CULTURE HISTORY AND CHRONOLOGY

Based on the excavations and survey work conducted in the Clayton Lake area, it appears that the Jackfork Valley was most intensively utilized during the Late Archaic (Wister phase), Woodland (Fourche Maline phase), and early Caddoan periods. There is little direct evidence to argue for Paleo-Indian or Early Archaic occupations. Indirect evidence for these occupations occurs as projectile point styles found at later sites (especially early Caddoan sites). Early Archaic point types such as *Dalton (01-01-05A)*, *Plainview/Meserve (01-01-05B)*, and untyped specimens were recovered from 34Pu-71, 34Pu-73, 34Pu-74, and 34Pu-102. Specimens from 34Pu-73 and 34Pu-102 are associated with later Archaic components, but the remainder are affiliated with early Caddoan components. In almost every instance, these points have been resharpened after initial breakage and could have been used by later populations. This is the case at the George C. Davis site in Texas where it is argued that Caddoan occupants of the site were picking up early projectile points during lithic procurement forays, and were used as recycled tools by later populations (Shafer 1978: 185-186). It is likely that Early Archaic and Paleo-Indian sites occur either on higher terraces which are generally not affected by lake construction or that they are deeply buried.

Middle Archaic Period

Potential Middle Archaic components have been identified at 34Pu-72 (Lintz 1979d). However, this component is poorly defined and its identification is dependent on projectile point styles spanning a 3600 year period from Archaic through early Caddoan. Generalized activities such as stonetool manufacture and maintenance, scraping, cutting, and processing

of faunal and floral materials are posited, but this site is believed to have been used either as a specialized activity site or short term base camp.

Middle Archaic components have been identified along the southern edge of the Ouachita Mountains (Wyckoff 1965, 1966, 1968) and from the northern Ouachita Mountains province. The former components have been reported from the Broken Bow and Pine Creek reservoirs and are characterized by projectile point types such as *Williams, Yarbrough, Palmillas, Dallas,* and *Carrollton.* Middle Archaic components in the Kiamichi River drainage in the Hugo Reservoir are characterized by *Perdenales, Uvalde, Carrollton, Dallas, Darl,* and *Fairland* points (Rohrbaugh 1972). None of the components associated with the southern portion of the Ouachita Mountains are absolutely dated. In the northern part of the Ouachita Mountains, a Middle Archaic component from the Scott site (34Lf-11) is radiocarbon dated between 1605 ±215 B.C. and 2550 ±270 B.C. (Galm and Flynn 1978: 118). This component is dominated by straight stemmed points *Palmillas, Carrollton,* and *Yarbrough)* even though smaller amounts of expanding stemmed and contracting stemmed points also occur. Galm and Flynn (1978: 160) suggest that forest edge and riverine resources are predominantly exploited.

Late Archaic Period

The Late Archaic period in the Jackfork Valley and throughout eastern Oklahoma is better represented and understood than earlier components. In the Jackfork Valley as in the Wister Lake area, this period is affiliated with the Wister phase (Galm and Flynn 1978; Bell 1980). The best defined Wister phase components in the Jackfork Valley are from the Bug Hill site (34Pu-116) and the Wheeler Lee site (34Pu-102). In addition, Archaic components have been defined at six sites excavated during the Clayton mitigation program and tentatively identified at 24 sites recorded by survey work in the lake area (Bobalik 1977). Archaic components from the Bug Hill site range from 1605 ±120 B.C. to 298 ±60 B.C. with the majority of dates clustering around 1451 B.C. (Vehik 1982: 27-31). Dates from the Wheeler Lee site are 1727 ±70 B.C. and 1284 ±60 B.C. It is possible that the 1605 B.C. and 1727 B.C. dates represent Middle Archaic components, but the artifact assemblages and other data are more similar to the Wister phase.

The Wheeler Lee Late Archaic component is characterized by large contracting stemmed points *(01-01-01A),* large expanding stemmed/corner-notched varieties *(01-01-02),* and large unstemmed points *(01-01-05).* Other chipped stone materials include scrapers *(01-05-02),* bifaces *(01-10-00),* modified flakes *(01-13-00),* cores *(01-14-00),* and split and tested cobbles *(01-15-00).* Ground and pecked stone categories are present and include manos *(03-01-00),* grinding slabs *(03-02-00),* ground hematite *(03-04-00),* gorgets *(03-05-00),* hammerstones *(04-01-00),* pitted stones *(04-02-00),* and miscellaneous pecked stone *(04-03-00).* A multiple burial and burned rock concentrations are also associated with this component. Major activities are chipped and ground stone manufacturing and maintenance and faunal and floral procurement and processing.

The Bug Hill site is approximately 2 km west of the Wheeler Lee site. The artifact assemblage and activities are similar to the Wheeler Lee site, but there are some differences. Large contracting stemmed points diminish in quantity and large expanding stemmed/corner-notched points predominate the assemblage. Also the occurrence of a rolled copper tube in the upper levels of the site, the presence of marine shell pendants and beads, decorated and undecorated bone artifacts, and an apparent emphasis on riverine resources (mussels) are the main differences. Faunal analysis indicates that white-tail deer, turtle, and rabbit were also commonly procured and utilized. The absence of these traits from the Wheeler Lee site is probably the result of differential preservation. Several flexed burials and a cremation from 34Pu-116 are also associated with the Late Archaic component. In addition, postmolds and large ash/clay concentrations suggest several Late Archaic occupational surfaces (Vehik 1982).

Both sites are characterized by an absence of small points and ceramics, and the Late Archaic components represent base camp type occupations. Archaic components at other sites in the Jackfork Valley represent either base camps or special purpose sites with activities similar to those posited for the Wheeler Lee and Bug Hill sites. The seasonality of these occupations as well as later occupations is hard to determine. Most of the sites contain varying amounts of charred nutshell which may indicate a late summer or fall occuation, but these items could also be stored. The large amounts of deer and mussels from the Bug Hill site also may indicate a late summer or fall occupation. However, the intensity of activities at this site argues for a longer term occupation (Vehik 1982).

On a wider perspective, Late Archaic components are identified from several areas of the Ouachita Mountains. The Lamas Branch complex incorporates several sites from the southern Ouachita Mountains, specifically the Broken Bow and Pine Creek reservoirs (Wyckoff 1967). Another Late Archaic component is identified from the McKensie site (34Ch-89) in the Hugo Reservoir (Rohrbaugh 1972). None of these are absolutely dated, but many attributes from the Clayton Lake area are similar to those associated with the Lamas Branch complex which may fall between 1500 B.C.-A.D. 1 (Wyckoff 1967: 155).

Many of the same attributes may also be correlated with the Wister phase as it is identified from the Scott and Wann sites in the Wister Lake area. This has been absolutely dated with the earliest dates being 1500-1000 B.C. and ending around 200 B.C.-A.D. 1 (Galm and Flynn 1978: 155-156).

Thus, the Late Archaic material from the Jackfork Valley is comparable to similar material in southeast Oklahoma. On a broader basis they are similar to various portions of the LaHarpe aspect (Johnson 1962: 141-284). However, the materials in the Jackfork Valley are placed in the Wister phase on the basis of artifact style, site type (especially 34Pu-116), and chronological similarities. The wide distribution of Archaic sites in the Clayton Lake area suggest that these occupations were fairly intensive with similar activities being conducted. The location of dark, accretional midden mounds

such as the Bug Hill site and the Dink site (34Pu-114) along Jackfork Creek enlarge the geographical distribution of an intensive adaptation style best characterized along the Fourche Maline Creek in LeFlore and Latimer counties.

Woodland Period

Woodland components are identified from 19 sites in the Jackfork Valley (Bobalik 1977: 557-558). Excavations at several sites during Phase II investigations were a continuation of excavations started during Phase I. The reason for this was to better explicate these Woodland occupations. Several radiocarbon dates from sites in the project area indicate that this period ranges from A.D. 243 ±54 to A.D. 683 ±65. There appears to be a slight gap between A.D. 380 and A.D. 580. This may represent a sampling error, but it may also be a cultural hiatus for which no reasonable explanation exists at the present time.

One of the major problems with the Woodland period in eastern Oklahoma is that it cannot be segregated into finer chronological periods. With the exception of the introduction of pottery *(Williams Plain)* as early as 200 B.C. or A.D. 1 (Galm and Flynn 1978) and a predominance of large contracting stemmed points *(01-01-01A)*, the remainder of the artifact inventory is similar to items associated with either the Late Archaic or early Caddoan periods. The lack of artifact segregation within the Woodland period has hindered attempts in discriminating Woodland components.

Several well defined Woodland components are identified in the Jackfork Valley, and it appears that Woodland occupations were relatively intense. As suggested earlier, Woodland manifestations are characterized by the presence of ceramics and large contracting stemmed points. Small corner-notched *(01-01-07)* and sometimes small unstemmed points *(01-01-10)* occur late in the Woodland period. Large expanding stemmed/corner-notched points *(01-01-02)* are not as common as in the Archaic period. Drills *(01-02-00)*, scrapers *(01-05-00)*, all varieties of bifaces *(01-10-00)*, double-bitted axes *(01-06-00)*, hoes *(01-07-00)*, modified flakes *(01-13-00)*, and split/tested cobbles *(01-15-00)* are all common lithic elements associated with the Woodland period. Manos *(03-01-00)*, metates/grinding slabs *(03-02-00)*, hematite *(03-04-00)*, pitted stones *(04-02-00)*, hammerstones *(04-01-00)*, and generalized pecked/battered stones are also common in these components.

Data from the Bug Hill site indicate that groundstone celts, boatstones, and gorgets may be added to this inventory. In addition, worked bone and antler (awls, flakers, fishhook debris, beamers, spatulates, engraved and cut bone, antler flakers, and antler handles) as well as shell artifacts (a marine shell pendant and bead and miscellaneous worked freshwater shell objects) are associated with the Woodland component from the Bug Hill site. From the same site, there is evidence for the utilization of a variety of faunal and floral remains. White-tail deer, rabbit, and turtle are the most common, but there is also evidence for mollusc utilization. Charred nutshell and charcoal are common floral remains (Vehik 1982).

The predominant pottery is a thick, grog and grit tempered ceramic type *(Williams Plain)*. *LeFlore Plain* is also relatively common as is a generalized shale tempered ceramic variety. Several *Williams Plain* sherds exhibit basketry impressions on the bases.

Data recovered from the Buffalo Bend site (34Pu-111) indicate that a temporary structure may be associated with the Woodland component. There are no directly associated postmolds, but the orientation of large pieces of charred wood and baked clay are suggestive of a three-sided rectangular structure, perhaps an arbor or lean-to type structure. Most features from other sites are rock concentrations, but a large pit-like feature occurs at 34Pu-100. In addition, there is evidence from 34Pu-116 of single, primary flexed burials and ash/clay concentrations which are associated with the Woodland period. Unfortunately, because of the dark soils at 34Pu-116, the burials may be associated with a later component even though there is not much evidence for this.

The inferred activities and site significance associated with Woodland components are similar to those described for the Archaic period. Base camps and special purpose sites have been defined. Lithic procurement, manufacture, and maintenance as well as faunal and floral acquisition and processing are the predominant activities. Cooking, storage, fire maintenance, and possibly construction are also evident.

Very few Woodland occupations are documented from the southern margins of the Ouachita Mountains province. However, artifact assemblages from several sites in the Wister Lake area are suggestive of the Woodland period (Galm 1978b; Galm and Flynn 1978: 156). These assemblages are similar to those described above and are assigned to the Fourche Maline phase (ca. A.D. 1 to A.D. 800-1000). Woodland materials from the Jackfork Valley are also placed in the Fourche Maline phase. However, radiometric determinations from the Jackfork Valley suggest that the terminal dates for the Fourche Maline phase are approximately A.D. 700-775. In comparing radiocarbon dates from the Wister area, only the Wann site has a date which is intermediate between A.D. 775 and A.D. 1000 (Galm and Flynn 1978: 77-82, Tables 9 and 10). Also at the McCutchan-McLaughlin site in Latimer County a date of A.D. 783 ±90 is stratigraphically lower than a date of A.D. 658 ±90 (Clark 1980: 29, Table 2). The lack of radiocarbon dates between A.D. 700 or 775 to A.D. 1000 may merely reflect sampling error, but this gap seems to be fairly widespread in eastern Oklahoma (at least in the Jackfork and Wister areas) and may be related to a cultural or environmental cause.

Further east in Arkansas, several manifestations are associated with the Woodland period. These are identified from the Mid-Ouachita region, the Little River drainage, and the central Arkansas River drainage (Schambach 1970). On a broad level, there are several similarities such as the presence of *Williams Plain* pottery and large contracting stemmed points *(Gary)*. However, there are also specific differences. The Arkansas pottery tend to be sand tempered while *Williams Plain* in Oklahoma is grog, grit, and bone tempered (Bell 1980). *Poole* pipes are common in Arkansas Woodland components but virtually absent in eastern Oklahoma sites.

Another difference is in the interment of individuals. The Arkansas sites are characterized by primary, extended burials and the eastern Oklahoma sites have single, flexed burials and sometimes multiple burials with very few burial associations (Bell 1980). Bell (1980) suggests that the Gober complex identified by Hoffman (1969) may be the most closely related to Woodland components in eastern Oklahoma. This complex is characterized by *Williams Plain* pottery, large contracting stemmed points *(Gary)*, choppers and hoes, milling stones, and extensive midden sites (Bell 1980).

In summary, Woodland components at several sites in the Jackfork Valley are placed in the Fourche Maline phase which ranges from A.D. 243 ±54 to A.D. 683 ±65. Site occupations are characterized as base camps and special purpose locales with similar types of activities being conducted. The number of posited Woodland components and the intensified level of activities at the Bug Hill site argue for localized populations. However, these populations and similar groups to the north along the Fourche Maline Creek appear to be generally related. Similar manifestations (Gober complex) may also occur in western Arkansas, but these for the most part are undated.

Early Caddoan Period

Manifestations reflecting early Caddoan occupations represent the Mississippian period in the Jackfork Valley and eastern Oklahoma. Early Caddoan components were identified at 15 sites during archaeological testing (Bobalik 1977: 557-558). Only one site appears to be a single component. Excavations during Phase I and II of the mitigation program resulted in identifying early Caddoan components at 34Lt-32, 34Pu-71, 34Pu-73, 34Pu-74, 34Pu-100, 34Pu-105, 34Pu-111, and 34Pu-116. Radiometric determinations from 34Pu-74 and 34Pu-105 indicate a calendrical range between A.D. 1013 ±90 to A.D. 1221 ±34. A questionable date of A.D. 997 ±60 from 34Pu-111 and a determination of A.D. 859 ±60 from 34Pu-116 also fall within the range acceptable for early Caddoan. These dated components as well as manifestations from other sites indicate small corner-notched, side-notched, and unstemmed points *(01-01-07, 01-01-08,* and *01-01-10)* are common in conjunction with large contracting stemmed points *(01-01-01A)*. Large expanding stemmed/corner-notched points *(01-01-02)* as well as other large point varieties occur, but their numbers are diminshed. Drills *(01-02-00)*, all types of bifaces *(01-10-00)*, scrapers *(01-05-00)*, modified flakes *(01-13-00)*, and split/tested cobbles *(01-15-00)* are also common lithic items. Ground and pecked/battered stone tools such as manos *(03-01-00)*, metates/grinding slabs *(03-02-00)*, ground hematite *03-04-00)*, hammerstones *(04-01-00)*, and pitted stones *(04-02-00)* are present in varying numbers.

Associated ceramics include types such as *Williams* and *LeFlore Plain, Sanders Plain, Woodward Plain,* and miscellaneous plain grit and shell tempered varieities. Also several decorated varieties are present. A *Red River* type pipe *(02-02-01A)* from 34Pu-74 and a *Poole* pipe fragment from 34Pu-116 are associated with early Caddoan components. Bone artifacts from 34Pu-116 include awls, pins, fishhooks, beamers, and antler flakers (Vehik 1982).

One reason for continuing excavations at the Blessingame site (34Pu-74) was to discern whether additional Caddoan structures were present. Unfortunately, no more structures were located. According to Lintz (this report), an extended entryway and quadrilateral roof support posts are associated with Structure 1. Comparisons between Structures 1 and 2 indicate a number of similarities. Both are subrectangular with central hearths and a north-south longitudinal axis. Structure 1 measures 5.35 m x 4.20 m and Structure 2 is 5.85 m x 4.95 m. A pit was identified west of the hearth in Structure 1 and possibly in Structure 2. The similarity of artifacts between the structures also indicates they may have been used for closely related activties. Tool manufacturing and processing appear to have been conducted outside the structures, but many artifacts are concentrated in the southwest and southeast quadrants of each structure and suggest that tool manufacturing, processing, and storage activities were conducted in these areas. Large points and burned bone fragments are common in the northeast part of each structure and may be related to meat processing and cooking activities. The lack of artifacts along the west wall and in the northwest quadrant suggest nonprocessing areas, perhaps sleeping or storage areas. The generalized artifacts, activities, and scarcity of decorated ceramics indicate these structures had a domestic or secular function dating around A.D. 1169 ±39 and A.D. 1221 ±34 (Lintz, this report).

Another early Caddoan structure-like feature is present at the Arrowhead Hill site (34Pu-105). Radiocarbon dates of A.D. 1100 ±75, A.D. 1013 ±90, and A.D. 1126 ±90 confirm this placement (Bobalik, this report). This structure is less well defined than those associated with 34Pu-74. The north and south walls are defined by seven postmolds which are about 4.2 m apart, but the east and west walls could not be discerned. The postmolds along with stick and grass impressed daub, charcoal, and burned logs indicate the presence of the structure.

The majority of the associated cultural remains were in the northeast and southwest areas of the structure. Ceramics and unburned bone are more heavily concentrated in the northeast while artifacts associated with lithic manufacturing and maintenance occur in both areas. Ground and pecked/battered stone artifacts are randomly distributed. An apparent difference between 34Pu-105 and 34Pu-74 is that more decorated varieties of pottery are present at 34Pu-105.

The generalized nature of artifact assemblages, features such as rock concentrations and possibly pits, and the structures at 34Pu-74 and 34Pu-105 indicate base camps, special purpose sites, and small hamlets as being characteristic of the early Caddoan period in the Jackfork Valley. The available evidence suggests that lithic manufacture and maintenance, floral and faunal procurement and processing, storage, construction, and cooking were the major activities. Faunal data from the Bug Hill site implies that white-tail deer was a preferred animal. However, there appears to be very little evidence for mollusc utilization. There is no indication for horticulture or agriculture in any component in the project area.

One problem that still persists is the relationship of early Caddoan components to neighboring areas. The cultural assemblage is similar to late Hochatown and early Sanders foci in the Red River Basin and to the Harlan and Spiro in the Arkansas River Valley. The presence of relatively permanent structures (similar to both the Red and Arkansas River areas) suggest that early Caddoan populations were utilizing the Jackfork Valley for relatively long periods of time. The use of nonlocal lithic resources (Boone chert) is more evident during this period. There is also evidence for the use of Kay County chert (one scraper) from one of the structures at 34Pu-74 (Lintz, this report). Boone chert is available north of the Arkansas River Valley and at about this time period Caddoan populations along the Arkansas River were utilizing Kay County chert tools (Susan Vehik, personal communication). This implies a stronger relationship to populations in the Arkansas River Valley, and it is possible that utilization of the Clayton Lake area is part of a larger Caddoan settlement pattern as posited by Brown, Bell, and Wyckoff (1978).

Late Caddoan and/or Protohistoric Period

Only one component dating either A.D. 1405 ±50 or A.D. 1640 ±110 from the Blessingame site (34Pu-74) is placed in this period. The dates are from the same feature. Most of the associated artifact varieties occur in the early Caddoan component at the site, but small side-notched points *(01-01-07A* and *01-01-07B)* overlie Structure 1 in the south part of the site. In addition, a small rock concentration overlies this same structure and two rock hearths crosscut the early Caddoan component along the north terrace of the site. The limited artifact inventory and possibility of minimal activities such as hunting and processing imply a relatively short term occupation.

Historic Period

A light scattering of historic material is present at nearly every excavated site in the Clayton Lake area. For the most part, these can be associated with Euro-American or historic Choctaw farming and land utilization practices. They may date to the 19th or 20th centuries. Temporally diagnostic material from 34Pu-74 place this historic occupation between 1830-1860. A historic Choctaw component has been defined by Bobalik (1978) at the Sallee G. site (34Pu-99). A historic Choctaw component is also suggested to occur in the upper levels of the Bug Hill site (Vehik 1982).

SETTLEMENT-SUBSISTENCE PATTERNS

During Phase I investigations (Vehik 1979g: 495-498), a number of interpretations regarding settlement subsistence patterns were offered on the basis of seven excavated sites. These include:

1. The vast majority of sites are located in the lowland forest zone corresponding to a 6-9 m terrace (T-1). The modern floodplain (T-0) appears to be too active to have retained evidence of prehistoric occupations.

2. The location of prehistoric sites in the Jackfork Valley reflect the availability of natural resources.

3. Site occupations are relatively stable, the majority of sites are characterized by repeated occupation through time.

4. During the three major time periods represented (Archaic, Woodland, and early Caddoan), site occupations represent either long- or short-term base camps or special purpose (extractive) sites.

5. Activities associated with the major time periods are very similar. These include maintenance and manufacture of chipped stone tools, hunting, generalized floral and faunal processing, and so forth. Similarities in artifact styles are also apparent through time. The primary differences are the introduction of ceramics during the Woodland period and a greater number of small projectile points during the latter part of the Woodland period. These increase in frequency during the early Caddoan, and decorated ceramics become more common. Additionally, there is evidence of permanent structures at one site (34Pu-74). The overall similarity of artifact assemblages and activities implies an additive nature, rather than changes resulting from major cultural replacement.

6. It is suggested that during the Archaic and early Caddoan periods resident populations were intensively utilizing the Jackfork Valley. However, it is argued that Woodland use of the Valley was more ephemeral and many sites may represent special purpose camps.

7. Subsistence factors such as faunal and floral data are extremely scarce due to poor preservation. A variety of resources, as indicated by tool assemblage inferences and in some cases samll amounts of charred nuts, charcoal, and bone fragments, were utilized. Even though deer appears to be the major faunal resource, various other resources were also being used, and a diffuse mode of economic adaptation is posited.

8. There is very little evidence to sugges a major diffusion of materials and ideas into the Jackfork Valley. There is no evidence of horticulture or agriculture, and the majority of the tool assemblages are dominated by locally available resources. A small percentage of items such as nonlocal lithics, decorated ceramics, and a ceramic pipe may have been obtained from other areas either through direct interaction or trade.

9. Historic components, relating to either the Choctaw Settlement period (1820-1907) or Statehood period (1907-present) are evident in the upper zone at most sites.

Data recovered during Phase II has provided additional information about settlement-subsistence patterns in the project area. In most cases, they are similar to the interpretations based on the Phase I work, but several interpretations have been altered.

Paleo-Indian/Early and Middle Archaic sites are relatively unknown in the project area. Nine sites are assigned to these periods (Bobalik 1977). These are all special purpose sites of which 78% occur on tributary streams to the Jackfork, Buffalo, and Anderson creeks. Three sites (33%) are on ridges, four (44%) are on terraces, and two (22%) are in floodplain and ridge settings. None are strictly confined to floodplain locales.

Archaic components are defined from 24 sites of which 46% occur on tributary streams. The remainder are near Anderson, Buffalo, and Jackfork creeks (Bobalik 1977). The primary difference in site location is that ridge settings diminish (five sites, 21%) while sites situated in floodplains increase (six sites, 25%). Terrace locations (10 sites, 42%) are predominant. One site is located on a terrace/floodplain settings.

Bobalik (1977) identifies 19 Woodland components. Nine sites (47%) are along tributary streams, three are near Anderson and Jackfork creeks respectively, and four are located near Buffalo Creek. The majority of sites are in terrace settings (47%), five (26%) are in floodplains, three (16%) are on ridges, and one each (5%) are in ridge/floodplain and ridge/terrace locales.

Fifteen Caddoan components are posited by Bobalik (1977), and of these 47% are on tributary streams. Four sites are along Buffalo Creek, two on Anderson Creek, and two are on Jackfork Creek. Six sites (40%) are in terrace settings, five (33%) are in floodlplain locations, two sites (13%) are on ridges, and one each occurs in floodplain/ridge or floodplain/terrace settings.

Based on these data, it is apparent that the location of sites changes through time. The majority of sites are situated on terraces, but there is a shift toward floodplain locations. Nials (1979: 525) suggests that floodplain sites tend to be temporary locations and are usually eroded. On the other hand, Bobalik (1977) indicates that, of 16 floodplain sites, nine (56%) are base camps while seven are special purpose sites. This suggests that floodplain usage, during the Archaic, Woodland, and especially the early Caddoan periods, became increasingly popular.

The location of sites in primarily lowland forest environments may be a reflection of survey bias. Areas above the flood pool elevation (607 feet, 185 m) may not have been surveyed in a systematic manner. However, resource availability is another important aspect of site location. Nials (1979: 525) indicates that most sites are along a 6-9 m terrace escarpment near the confluence of major stream and tributary. This would minimize flooding and maximize the availability of riparian resources surrounding the site. Vehik (1979d) has indicated that a large number of economically usuable floral and faunal resources occur within the project area. Nineteen species of

mammals have been identified from the Bug Hill site (Vehik 1982: 152-157, Tables 12-14). All of these are represented in the modern population, and the majority are associated with woodland, riparian, and prairie environments. Aquatic resources are represented by two mammalian species, fish, and several reptiles.

The availability of lithic resources along master streams and tributaries is also important for site locations. There are no major quarry sites in the project area. However, the large amounts of lithic material recovered from nearly every site implies that lithic manufacturing and maintenance were important activities. The vast majority of the lithics are locally available from stream beds in the project area, and criteria such as cortex roundness and smoothness indicates that cobbles were being derived from stream bed contexts.

Sites in the Clayton Lake Project area are multicomponent and relatively large. Three sites are considered to be single component, and the average depth of sites is 47 cm and the average areal extent is 15,288 sq m (Bobalik 1977). This information lends support to the notion of site stability and occupation re-use through time.

Even though sites were intensively utilized during the Archaic, Woodland and early Caddoan periods, there is not much evidence for villages or hamlets. Two early Caddoan house structures from 34Pu-74, a probable early Caddoan structure from 34Pu-105, and a Woodland, arbor-like structure from 34Pu-111 are identified. Archaic living surfaces and random postmold patterns are present at 34Pu-116 (Vehik 1982). With the exception of the early Caddoan occupation at 34Pu-74 possibly representing a small hamlet, the remainder of the occupations are considered to be either base camps or special purpose sites.

Other features associated with Late Archaic occupations are rock concentrations from the Wheeler Lee (34Pu-102) and Blessingame (34Pu-74) sites, a possible postmold from 34Pu-74, and a multiple burial (two individuals) from 34Pu-102. At the Bug Hill site (34Pu-116), Late Archaic features include ash/clay concentrations, pits, burials, and postmolds (Vehik 1982: 192). These occupations represent base camps, but the Blessingame component is believed to be the result of several noncontemporaneous occupations.

Features associated with the Woodland period are rock concentrations from the Buffalo Bend site (34Pu-111) and a basin-shaped pit from the Turtle Luck site (34Pu-100). At 34Pu-116, possibly rock concentrations, an ash/clay concentration with an associated postmold, and a burial occur in a Woodland context. With the exception of the Turtle Luck site, these occupations are considered to be base camps. The scarcity of materials and a lack of nontechnoexploitative artifacts at the Turtle Luck site suggest a special purpose or processing activity locus.

Except for the Wheeler Lee site, Caddoan components occur at all sites investigated during Phase II. Other than the structures associated with the Blessingame and Arrowhead Hill sites, feature identification consists

of a rock concentration and basin-shaped pit at the Blessingame site and rock concentrations at the Turtle Luck and Bug Hill sites. Data recovered from the Blessingame site structures suggest they had a secular function, were sequentially occupied, and represent a small hamelt. Base camp occupations are posited for the Turtle Luck and Arrowhead Hill sites, but the Buffalo Bend and Bug Hill sites were used as special purpose (extractive) sites during the early Caddoan period.

A late prehistoric occupation representing a short term hunting and processing camp is identified at the Blessingame site. Two burned rock hearths and small side-notched points are associated.

Historic artifacts are evident at almost every site. However, structures and features are not present. These sites reflect either early Choctaw use of the area, lumbering activities, or farming activities.

With the exception of the addition of ceramics and small projectile point styles during the Woodland and early Caddoan periods, the generalized nature of activities and similarity of artifact assemblages (Table A, in the Appendix) indicate that the Jackfork Valley was utilized in a similar manner through time. It was suggested, on the basis of Phase I investigations, that Woodland populations may not have used the valley on a permanent basis. The primary reason for this assumption was that extensively utilized dark midden mounds characteristioc of the Fourche Maline Creek area to the north are absent in the Clayton Lake area. It was also suggested that many Woodland occupations represented special purpose camps. Data recovered during the Phase II investigations negate both these assumptions. Two dark midden mounds and possibly a third have been recorded toward the west end of the project area. One, the Bug Hill site, was excavated, and the results of these investigations indicate the site is similar to the dark midden mounds along Fourche Maline Creek (Vehik 1982). A series of radiocarbon dates from four sites (34Pu-100, 34Pu-105, 34Pu-111, and 34Pu-116) indicate a range between A.D. 243 and A.D. 683. Also the possible structure associated with the Buffalo Bend site and ash/clay concentrations from the Bug Hill site reflect more permanent habitations. Unfortunately, data regarding seasonality or longevity of any prehistoric occupation in the Jackfork Valley is scarce. Therefore, it is now suggested that both Archaic and Woodland populations were utilizing this area very intensively and represent resident groups. The same may be true for the early Caddoan period as indicated by the structures at 34Pu-74 and 34Pu-105. However, the general nature of the early Caddoan components seem to reflect a temporary use of large portions of the Jackfork Valley.

The nature of the sites investigated during Phase I and II suggests that prehistoric populations were maximizing their utilization of locally available resources. A wide range of food resources were being exploited of which deer, rabbit, and turtle are the most important. There is also evidence of fishing and fowling. Mollusc utilization is also important, but appears to decline through time. Direct evidence such as charred nutshell and charcoal and indirect evidence (manos, metates, pitted stones, and rock concentrations which may have served in processing activities)

indicate that vegetal resources played an important role in the subsistence economy. There is no evidence of agriculture or horticulture. All of the utilized subsistence resources and the majority of the lithic resources are locally available.

The wide array of resources, with an emphasis on hunting and gathering, and dichotomy between base camps and special purpose sites suggests that economic adaptations were flexible and adaptable. As implied during the Phase I investigations (Vehik 1979g: 497), this may reflect a diffuse economic adaptation characterized by the utilization of a variety of resources. Cleland (1976: 59-76) outlines several criteria necessary for the identification of diffuse economies. These include ecological diversity, a wide array of tool functions, permanent and transportable reusable tools, occupational intensity and site size variation, stable base camps, and territorialism. Ample evidence for the first six criteria are present at most sites in the Clayton area. However, data regarding territorialism is scanty. Cleland (1976) argues that territorialism leads to the development of exchange systems across boundaries which could result in a rapid diffusion of materials, manufactured objects, and innovations.

There is some information regarding exchange systems but it does not appear to result in a rapid diffusion of materials, manufactured objects, or innovations. During Phase I investigations, the primary evidence of exchanges systems were nonlocal lithic resources. This is also true for most Phase II sites. The major lithic resources obtained from nonlocal areas are varieties of Boone chert. These occur in varying amounts as artifacts and debitage at seven sites (34Lt-32, 34Pu-73, 34Pu-74, 34Pu-79, 34Pu-100, 34Pu-105, and 34Pu-111). Temporally, 60% occur in early Caddoan, 12% in Woodland, and 27% in Archaic contexts. One Kay County chert scraper (which has been subsequently lost) was recovered from a house at 34Pu-74.

Additional information regarding exchange systems is obtained from the Bug Hill site (Vehik 1982). This consists of marine shell beads and pendants and a rolled copper bead recovered in Archaic and Woodland zones. These are nontechnoexploitative items and there is no evidence they were manufactured at the site. One marine shell pendant (as well as a freshwater shell pendant) are associated with a child burial. Presently, the mechanisms of exchange are unknown, but evidence for marine shell and copper items do occur in central Texas (Prewitt 1981) and suggest that the direction of trade during the Archaic and Woodland is to the southeast.

Presently, there is no evidence of copper or marine shell items associated with early Caddoan components in the Clayton Lake area, but decorated/slipped pottery found in the Clayton Lake area occurs in the Arkansas and Red River basins. However, the fact that the majority of nonlocal lithics are derived from Boone chert (available in the Arkansas River Valley) implies that these early Caddoan populations were in contact with similar groups to the north. Another tenuous piece of evidence to support this contention is the Kay County chert scraper from 34Pu-74. Kay County chert outcrops

in north-central Oklahoma, but it occurs in small amounts in early Caddoan assemblages along the Arkansas River Valley (Susan Vehik, personal communication). Thus, it is possible that this scraper was either obtained from groups along the Arkansas River or that these populations were utilizing the Jackfork Valley. If the latter proposition is accepted, it is probable that early Caddoan use of this area is part of the larger Arkansas River Valley settlement pattern as posited by Brown, Bell, and Wyckoff (1978: 169-200).

SUMMARY AND CONCLUSIONS

Phase II investigations in the Clayton Lake project area concentrated on the excavation of six sites. Five sites are discussed in this report. A detailed report of the sixth site, the Bug Hill site (34Pu-116), is presented in a subsequent volume (Vehik 1982). All aspects of the scope of work have been completed.

Our investigations have fulfilled the goals set forth by the research design. We were primarily interested in understanding settlement-subsistence patterns of the project area and correlating these with adjacent areas. We were also interested in establishing an adequate chronological framework for this part of southeast Oklahoma. Finally, we were interested in understanding the nature or type of site occupations.

A summary of important conclusions are enumerated below:

1. Our research in the Jackfork Valley has demonstrated that prehistoric populations were utilizing this area fairly extensively. The earliest well defined occupation is during the Late Archaic (Wister phase) beginning as early as 1727 B.C. or 1605 B.C. and lasting to 298 B.C. The next major occupation, characterized by the introduction of ceramics, is during the Woodland period (Fourche Maline phase). This is dated between A.D. 243 and A.D. 683. Subsequently, the Jackfork Valley was utilized by early Caddoan populations beginning as early as A.D. 859 and lasting at least until A.D. 1221. Finally, there is evidence for a late prehistoric component dating at either A.D. 1405 or A.D. 1640.

2. It is suggested that the Jackfork Valley was intensively utilized during the Wister and Fourche Maline phases. During the early Caddoan period, occupations represent more special purpose sites, and it appears that the area was not as permanently occupied.

3. Even though many Fourche Maline phase components are identified, early components (prior to A.D. 200) are missing. The reasons for this are unknown.

4. Based on artifact assemblages, features, and functional interpretations, components associated with each period represent either base camps or special purpose (extractive) sites. Two house structures at 34Pu-74

indicate the site was used as a hamlet during the early Caddoan period. Architectural evidence from 34Pu-105 also suggests an early Caddoan house-like structure. An arbor-like structure is posited for the Woodland period at 34Pu-111, and postmolds and ash/clay concentrations suggest Archaic and Woodland living surfaces at 34Pu-116.

5. Settlement-subsistence data suggest a pattern of base camps from which resource exploitation in riparian, forest-edge, prairie, and aquatic habitats was conducted. Terrace locations near the confluence of a tributary and master stream are preferred, but floodplain locales become more popular, particularly during the early Caddoan period.

6. The subsistence data suggest a hunting-gathering type of system with very little change through time. Evidence regarding horticultural and agricultural practices is missing. A variety of mammalian species (with white-tail deer being predominant), turtles, and molluscan species documented from the Bug Hill site and charred nutshells from several sites suggests that a diffuse economic mode of adaptation was in operation.

7. The similarity of artifact assemblages indicates that alterations in the cultural inventory consisted of adding elements to the pre-existing inventory (cf. Table A). This in conjunction with the similar nature of features, functional interpretations, and utilization of local resources suggests a continuity in life styles. There is some evidence of obtaining nonlocal resources during the Archaic (Wister phase) and Woodland (Fourche Maline phase) periods. These are nonutilitarian objects such as marine shell beads and pendants and a piece of rolled copper. Ceramics were also added to the cultural inventory during the Fourche Maline phase, and small projectile points become more numerous toward the end of this phase and during the early Caddoan period. The only evidence for obtaining raw resources from surrounding areas consists of nonlocal lithic materials. Even though these are present in small numbers during all periods, the majority are found in early Caddoan contexts. The primary nonlocal material is Boone chert which outcrops in areas north of the Jackfork Valley. The marine shell and copper items are presumed to be derived from the Gulf Coast area. Evidence for other types of diffusion and innovations are absent.

8. Cultural relationships with other areas appear to be more closely related to prehistoric developments in the Arkansas River Valley rather than the Red River Valley.

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APPENDIX

SUMMARY OF ARTIFACT CLASSES, GROUPS, CATEGORIES, AND VARIETIES

Table A. Summary of artifact classes, groups, categories, and varieties from Phase II sites in the Clayton Lake area.

Artifact class, group, category, and variety	34Pu-74	34Pu-100	34Pu-102	34Pu-105	34Pu-111
CHIPPED STONE (01)					
Points (01-01-00)					
Large contracting stemmed points (01-01-01)					
01-01-01A (Gary)	14	18	31	86	55
01-01-01D	-	1	-	-	-
Large expanding stemmed/corner-notched points (01-01-02)					
01-01-02A (Lange)	1	-	1	-	-
01-01-02B (Ensor)	2	1	-	-	-
01-01-02D (Frio)	3	1	-	-	-
01-01-02E (Trinity)	1	1	-	-	-
01-01-02F (Ellis)	-	-	-	2	1
01-01-02G (Summerfield)	-	-	1	2	-
01-01-02H (Marcos)	4	2	1	4	-
01-01-02I (Marshall)	5	-	-	-	-
01-01-02J (Yarbrough)	-	-	-	-	1
01-01-02K (Martindale)	-	-	1	-	-
01-01-02L (Fairland/Edgewood)	4	3	-	-	1
01-01-02M (Darl/Uvalde)	4	-	-	-	-
01-01-02N (Williams)	1	1	-	1	-
01-01-02O (Snyders)	-	-	-	1	-
01-01-02Q	2	-	-	-	-
01-01-02S (Johnson)	2	2	-	-	-
01-01-02T (Castroville)	-	-	-	1	-
01-01-02W	-	-	-	1	-
01-01-02X	-	-	1	-	-
01-01-02Z	-	-	-	-	3
01-01-02AA (Darl)	1	-	-	1	-
Large expanding stemmed/side notched points (01-01-03)					
01-01-03A (Big Sandy)	-	-	-	-	1
01-01-03B	-	1	-	-	-
01-01-03C	2	-	-	-	-
Large straight stemmed points (01-01-04)					
01-01-04A (Carrollton/Bulverde)	-	-	-	2	3
01-01-04D (Bulverde)	3	-	1	-	-
01-01-04E (Palmillas)	-	-	-	-	1
01-01-04F	-	-	1	-	-
01-01-04G	-	-	-	1	-
Large unstemmed points (01-01-05)					
01-01-05B (Meserve/Plainview)	4	-	1	-	-
01-01-05C	-	3	1	-	-
01-01-05D (Tortugas)	1	-	1	-	-
01-01-05E	1	-	-	-	-
Small expanding stemmed corner-notched points (01-01-06)					
01-01-06A (Scallorn)	1	4	7	11	4
01-01-06B (Bonham)	-	-	-	-	7
01-01-06C (Agee)	-	1	-	3	4
01-01-06D (Homan)	-	-	-	1	1
01-01-06E	-	1	-	-	-
01-01-06J (Massard/Alba)	1	4	-	6	1
01-01-06K (Pocola)	-	-	-	3	-
01-01-06L (Sequoyah)	-	-	-	1	-
01-01-06M	-	-	-	1	-
01-01-06N	-	1	-	-	-
Small expanding stemmed/side notched points (01-01-07)					
01-01-07A (Morris)	-	-	-	3	-
01-01-07B (Washita)	3	1	-	-	-
01-01-07C (Reed)	2	-	-	4	-
01-01-07G (Haskell)	-	-	-	1	-
01-01-07H (Keota)	-	1	-	2	-
01-01-07I (Schild)	-	1	-	1	-
01-01-07J (Toyah)	-	-	-	3	-
01-01-07K (Pocola)	-	1	-	-	-
01-01-07L	-	1	-	-	-
Small unstemmed points (01-01-08)					
01-01-08A (Fresno)	-	-	-	4	1
01-01-08B (Maud)	-	-	-	-	3
01-01-08D (Young)	-	-	-	2	-
Small parallel stemmed/corner-notched points (01-01-09)					
01-01-09A (Alba)	-	-	-	1	-
01-01-09B (Bonham)	-	-	-	1	-

Table A. Continued

Artifact class, group, category, and variety	34Pu-74	34Pu-100	34Pu-102	34Pu-105	34Pu-111
Drills (01-02-00)					
Shaped base drills (01-02-01)					
01-02-01A	1	-	-	-	-
01-02-01B	-	-	-	1	1
01-02-02D	2	-	-	-	-
Flake drills (01-02-02)					
01-02-02A	-	-	-	-	2
Drill fragments (01-02-03)					
01-02-03A	-	-	-	-	2
Wedges (01-03-00)					
01-03-02A	-	-	-	2	-
Scrapers (01-05-00)					
Bifacial scrapers (01-05-01)					
01-05-01A	-	-	-	-	1
Flake/unifacial scrapers (010-05-02)					
01-05-02A	1	-	2	2	13
Double bitted axes (01-06-00)					
01-06-01A	-	-	1	5	-
Hoes (01-07-00)					
01-07-01A	-	-	-	2	3
Bifaces (01-10-00)					
Cobble quarried block biface I (01-10-01)					
01-10-01A	58	66	19	11	1
Cobble block biface II/thick biface (01-10-02)					
01-10-02A	144	121	49	114	30
Thin biface I (01-10-03)					
01-10-03A	106	107	39	59	14
Thin biface IIa (01-10-04)					
01-10-04A	25	26	8	44	12
Thin biface IIb (01-10-05)					
01-10-05A	8	10	8	10	5
01-10-05B	-	-	-	1	1
Thin biface III (01-10-06)					
01-10-06A	-	1	-	1	1
Biface implements (01-11-00)					
Cobble quarried block biface I tool (01-11-01)					
01-11-01A	7	-	1	-	-
Cobble block biface II/thick biface tool (01-11-02)					
01-11-02A	8	-	1	1	-
Thin biface I tool (01-11-03)					
01-11-03A	3	-	1	-	-
Cobble block biface III tool (01-11-06)					
01-11-06A	-	-	1	-	-
Core tool (01-11-07)					
01-11-07A	1	-	-	-	-
Split cobble tool (01-11-08)					
01-11-08A	2	4	-	1	-
Tested cobble tool (01-11-09)					
01-11-09A	3	-	-	-	-
Point/biface fragments and segments (01-12-00)					
01-12-01A	120	84	67	237	253
Modified flakes (01-13-00)					
01-13-01A	7	7	6	13	17
01-13-01B	992	440	180	525	662
01-13-01C	14	23	24	-	-
Cores (01-14-00)					
01-14-01A	8	5	5	8	8

Table A. Continued

Artifact class, group, category, and variety	34Pu-74	34Pu-100	34Pu-102	34Pu-105	34Pu-111
Split/tested cobbles (01-15-00)					
Split cobbles (01-15-01)					
01-15-01A	14	12	4	38	11
Tested cobbles (01-15-02)					
01-15-02A	34	21	12	18	14
Debitage (01-16-00)					
Flakes (01-16-01)					
01-16-01A	33,755	38,539	19,204	43,462	33,559
FIRED CLAY (02)					
Ceramics (02-01-00)					
Plain grog, grit, bone tempered wares (02-01-01)					
02-01-01A (Williams Plain)	1	16	-	55	79
02-01-01B (LeFlore Plain)	11	11	-	47	8
Decorated grog, grit, bone tempered wares (02-01-02)					
02-01-02A (Sanders Plain)	-	-	-	6	-
02-01-02D	-	-	-	5	-
02-01-02E	-	-	-	4	-
02-01-02F	-	-	-	3	-
02-01-02H	-	-	-	2	-
02-01-02I	-	-	-	2	-
02-01-02J	-	-	-	5	-
01-02-02K	-	1	-	1	-
01-02-02L	-	-	-	1	-
01-02-02M	-	-	-	1	-
Plain shell tempered wares (02-01-03)					
02-01-03A (Woodward Plain)	-	12	-	28	-
Decorated shell tempered wares (02-01-04)					
02-01-04A	-	-	-	4	-
Plain shale tempered wares (02-01-05)					
02-01-05A	-	-	-	1	2
Baked clay (02-03-00)					
Plain/impressed (02-03-01)					
02-03-01A	871.3 g	68.1 g	26.3 g	+	5544.0 g
02-03-01B	-	4.1 g	-	+	+
Mud dauber nests (02-03-02)					
02-03-02A	-	-	-	3	-
GROUND STONE (03)					
Manos (03-01-00)					
Unifacial (03-01-01)					
03-01-01A	8	6	9	7	1
Bifacial (03-01-02)					
03-01-02A	2	1	9	6	5
Faceted (03-01-03)					
03-01-03A	-	1	-	-	-
Pitted (03-01-04)					
03-01-04A	1	4	-	4	-
Metates/grinding slabs (03-02-00)					
Slab (03-02-01)					
03-02-01A	2	4	7	4	1
Abraders (03-03-00)					
03-03-01A	1	-	-	-	-
Ground hematite (03-04-00)					
Faceted soft hematite (03-04-01)					
03-04-01A	-	-	4	2	1
Polished hematite (03-04-02)					
03-04-02A	-	-	1	1	-
Gorgets (03-05-00)					
03-05-01A	-	-	2	-	-
03-05-01B	-	-	-	1	-

Table A. Continued

Artifact class, group, category, and variety	34Pu-74	34Pu-100	34Pu-102	34Pu-105	34Pu-111
Miscellaneous ground stone implements (03-06-00)					
Mano blanks (03-06-02)					
03-06-02A	-	3	3	-	-
Ground stone fragments (03-06-03)					
03-06-03A	-	-	-	-	6
Smooth stone - scratched surfaces (03-06-05)					
03-06-05A	1	-	2	1	-
03-06-05B	-	-	-	1	-
Smooth stone - shaped (03-06-06)					
03-06-06A	-	-	1	-	-
Ground stone pipe (03-06-07)					
03-06-07A	-	-	-	-	1
Ground discoidal (03-06-08)					
03-06-08A	-	-	-	-	1
PECKED/BATTERED/UNMODIFIED COBBLES (04)					
Hammerstones (04-01-00)					
04-01-01A	3	1	3	-	2
Pitted stones (04-02-00)					
Unifacial (04-02-01)					
04-02-01A	5	-	5	9	3
Bifacial (04-02-02)					
04-02-02A	-	-	3	2	1
Miscellaneous pecked/battered stones (04-03-00)					
Miscellaneous (04-03-01)					
04-03-01A	4	2	10	6	1
Unmodified cobbles/pebbles (04-04-00)					
Limonite/hematite (04-04-01)					
04-04-01A	4	2	2	6	2
Concretions (04-04-03)					
04-04-03A	-	1	1	-	-
Unmodified nodules - special context (04-04-04)					
04-04-04A	-	1	-	-	1
HISTORIC (07)					
Glass (07-01-00)					
07-01-01A	1	1	7	9	1
07-01-01B	-	-	-	2	-
07-01-01C	-	2	4	2	-
07-01-01D	-	-	3	-	-
07-01-01E	-	-	-	-	2
07-01-01F	21	-	-	-	-
07-01-01H	-	-	-	1	-
Crockery/ceramics (07-02-00)					
Crockery/stoneware (07-02-01)					
07-02-01B	-	-	4	-	2
Ironstone/porcelain (07-02-02)					
07-02-02A	5	-	-	-	-
07-02-02B	7	-	8	-	1
07-02-02C	4	-	-	-	-
07-02-02D	13	-	-	-	-
07-02-02E	2	-	-	-	-
Figurines (07-02-03)					
07-02-03A	-	-	1	-	-
Metal (07-03-00)					
Nails (07-03-01)					
07-03-01A	7	-	4	13	-
07-03-01B	-	-	-	1	-
Fence staples (07-03-04)					
07-03-04A	-	-	-	1	-

Table A. Continued

Artifact class, group, category, and variety	34Pu-74	34Pu-100	34Pu-102	34Pu-105	34Pu-111
Cartridges (07-03-06)					
07-03-06A	-	1	-	-	-
Slugs (07-03-07)					
07-03-07A	-	-	-	1	-
Miscellaneous metal (07-03-09)					
07-03-09A	-	-	2	-	-
Metal button (07-03-10)					
07-03-10A	-	-	-	1	-
Wagon hardware (07-03-11)					
07-03-11A	-	-	-	1	-
Stone (07-05-00)					
Gun flint (07-05-01)					
07-05-01A	1	-	-	-	-
FAUNAL (08)					
Bone-horn-teeth (08-01-00)					
08-01-01A	13.5 g	1.0 g	46.0 g	+	32.6 g
Shell (08-02-00)					
Mollusc (08-02-01)					
08-02-01A	-	-	-	+	-
Gastropods (08-02-02)					
08-02-02A	2	-	-	-	2
FLORAL (09)					
Charred materials/nuts/seeds (09-01-00)	311.4 g	101.7 g	38.4 g	+	2754.8 g

+ denotes presence.

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