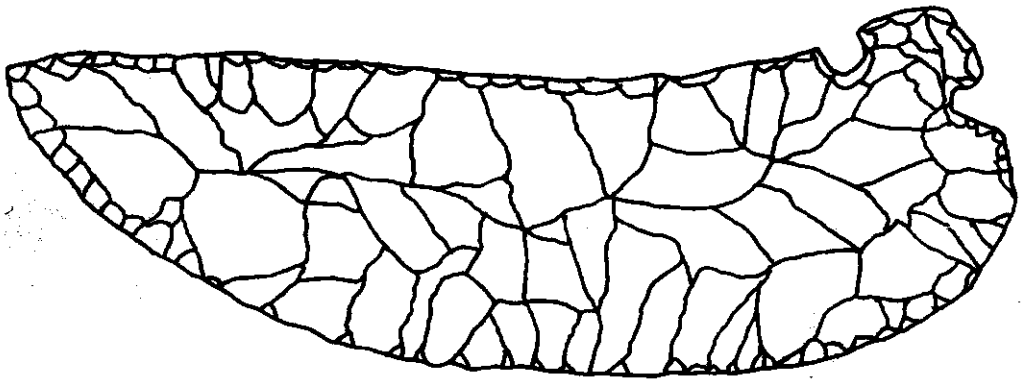
ADDITIONAL EXCAVATIONS AT THE BOWSER SITE 41FB3, FORT BEND COUNTY, TEXAS, PART 1: ARCHEOLOGY

Leland W. Patterson
Joe D. Hudgins
Sheldon M. Kindall
William L. McClure
Marianne Marek
Tom Nuckols
Richard L. Gregg



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INTRODUCTION

This report gives the results of additional excavations at the Bowser site, 41FB3, in Fort Bend County, Texas by the Houston Archeological Society and the Fort Bend Archeological Society. This work was made possible through the courtesy of the landowners, Mr. and Mrs. Larry Bass.

This is a joint project of the Houston and Fort Bend Archeological Societies. Several participants belong to both societies. This site was visited by hundreds of people, many of whom helped with the excavations. There were several university and high school groups who, with their teachers, helped for short periods of time. Many members of the Houston Archeological Society, the Fort Bend Archeological Society, and the Brazosport Archaeological Society also participated for short periods of time. But those who were there day after day, hot and cold, wet and dry were: Charles Boyle, Bill Csanyi, Richey Ebersole, Dick Gregg, Sue Hamblin, Joe Hudgins, Bill Just, Sheldon Kindall, Dick Lane, Melissa May, Marianne Marek, Beverly Mendenhall, Tom Nuckols, Lee Patterson, Gary Ryman, Shirley Selleh, Stephanie Selleh, Bob Shelby, Paul Spana, Mitzi Wheeless, and Roy Whitney.

Field work was directed by Joe Hudgins. Removal of human remains was directed by Marianne Marek, who is also doing the skeletal analyses. Sheldon Kindall was in charge of site excavation records, soil profiles, and mapping. Tommy Nuckols produced final map versions. Bill McClure did the analyses of seed beads and faunal remains. Lee Patterson processed and analyzed the excavated artifacts.

This report is in two parts. Part 1 covers site archeology. Part 2 will cover details of individual burials and skeletal analysis by Marianne Marek. A major portion of this report is concerned with details of the Late Archaic Mortuary Tradition, found at several sites in the western part of inland Southeast Texas. This mortuary tradition represents an increase in hunter-gatherer social complexity with higher complexity lasting about 900 years.

LATE ARCHAIC MORTUARY TRADITION

Site 41FB3 is one of thirteen sites that have components of the Late Archaic Mortuary Tradition found in the western part of Southeast Texas. Sites having this tradition have been found in Austin, Fort Bend, and Wharton Counties, as shown in Table 1 and Figure 1. The type site for this tradition is the Ernest Witte site, 41AU36, in Austin County, where Group 2 burials represent this tradition (Hall 1981). Site 41AU36 is the type site because it has the largest number of burials and the largest amount and variety of grave goods. In terms of number of burials and amounts of grave goods, site 41FB3 is most comparable to the Crestmont site (41WH39) in Wharton County.

The Late Archaic Mortuary Tradition of western Southeast Texas has a time period of about nine hundred years, from 600 BC to AD 300. There are radiocarbon dates for this mortuary tradition of 2460 +/-70 BP (510 BC) and 1650 +/-70 BP (AD 300) at 41AU36 (Hall 1981:Table 2), and 2580 +/- 130 BP (630 BC) at 41FB3 (Patterson et al. 1993a:6). The time period for the Late Archaic in Southeast Texas has been given as 1500 BC to AD 100 (Patterson 1995a, 1996a), with this period ending with the start of use of pottery. The date of AD 300 at site 41FB3 for the end of the Late Archaic Mortuary Tradition is not inconsistent, however, since pottery started slightly later in the western part of Southeast Texas by at least AD 300 (Aten 1983:297).

This mortuary tradition is characterized by organized burial practices and use of many types of locally made and exotic grave goods. It should be noted that this tradition occurred in a geographic area with a high degree of mixing of technological and cultural traditions from the Southern Plains (Central Texas) and the Southeast Woodlands. A comparison of the thirteen sites of this mortuary tradition gives the impression that this mortuary tradition represents a loosely-held belief system. There is much variation at various sites in number of burials, and quantities and types of grave goods. Also, while burial head directions tend to be the same at a given site, there is much variation in head direction from site to site.

The use of exotic grave goods at sites of this mortuary tradition shows participation in long-distance trade networks (Hall 1981), and is discussed below in more detail for 41FB3. There is not much evidence for long-distance trade by hunter-gatherers in Southeast Texas either before or after the last half of the Late Archaic period.

There is evidence of the development of organized burial practices, but not use of many grave goods, before the Late Archaic Mortuary Tradition reached full development after 600 BC. There is a Middle and early Late Archaic burial group of 68 individuals at 41AU36 (Group 1) with radiocarbon dates of 4120 +/-100 BP (2170 BC) and 3270 +/-70 BP (1320 BC). There is a Lower Burial Group at 41FB3 of 5 individuals with radiocarbon dates of 3230 +/-170 BP (1280 BC) and 3160 +/-95 BP (1210 BC). Only a few grave goods were used with Group 1 burials at 41AU36, and there were no grave goods with the Lower Burial Group at 41FB3.

ENVIRONMENTAL SETTING OF 41FB3

Site 41FB3 is located in the western part of inland Southeast Texas. The general area is a mixture of woodlands and coastal prairie. The specific location of this site is at the eastern edge of the broad Brazos River flood plain. A wide variety of faunal and floral resources would have been available for prehistoric hunter-gatherers. This area is especially known for native nut trees. There are native pecan groves both east and west of 41FB3. Pecans would have been a prime food resource when seasonally available. Large animals available would have included deer and occasionally bison. Smaller animals included rabbit, squirrel, raccoon, opossum, and rat. The variety of faunal resources utilized by Indians in the immediate area of site 41FB3 is shown in this report, the original excavation report for 41FB3 (Patterson et al. 1993a), and by faunal remains at nearby site 41FB95 (McClure 1987).

The ecological variety, including woodlands, coastal prairie, and the presence of a major river flood plain, contributed to an abundant food supply for Indians of this area. A plentiful food supply may have allowed a somewhat more sedentary lifestyle, which in turn favored development of greater social complexity, with organized burial and trade practices during the Late Archaic period. It should be noted, however, that campsites in the area of this mortuary tradition (Austin, Fort Bend, Wharton Counties) do not have evidence of a less mobile lifestyle than the adjacent area of the central part of Southeast Texas, where there was no apparent mortuary tradition. The development of greater social complexity is discussed in a later section of this report.

The Late Archaic may have been a period of high rainfall (Story 1990:244), which would have enhanced faunal and floral resources. There are not many data on prehistoric climates in Southeast Texas, however.

LOCATION OF 41FB3

Site 41FB3 is located on the south end of Pool Hill, at the edge of the Brazos River flood plain. Pool Hill is the now detached southern extremity of a somewhat anomalous north-south remnant of the main eastern terrace of the Brazos River. It is cut off from the main terrace on the north by Bessies Creek, a near dormant and rectified stream with many oxbows and meanders between Pool Hill and south of Pool Hill and the town of Fulshear. Bessies Creek was an ancient channel of the Brazos River northwest of Pool Hill.

Pool Hill is about 2 km (1.25 miles) long in a north-south direction, and is about 1 km (0.6 miles) wide. This hill truncates abruptly to the south into the Brazos River bottom lands. Site 41FB3 is located on the southern end of Pool Hill, near sites 41FB95 (Patterson and Hudgins 1987) and 41FB90 (Patterson and Black 1991). Site 41FB198 (Patterson and Hudgins 1991) is located farther to the north on Pool Hill. Pool Hill is known historically to have been used as a refuge from Brazos River floods. Interviews with local residents by Marshall Black indicate that 50 years ago Indian artifacts could be found almost anywhere on Pool Hill where land was tilled for gardens.

The present channel of the Brazos River is about 4.3 km (2.7 miles) west of Pool Hill, but the channel takes an east-west meander and passes downstream about 2.4 km (1.5 miles) south of Pool Hill. It is difficult to surmise where the Brazos River channel was located 3000-2000 years ago when site 41FB3 was occupied. West of Pool Hill, the eastern and western terraces of the Brazos River are about 7 miles apart.

Pool Hill was largely abandoned after the Late Archaic period. There are only traces of later occupations at the four published sites on Pool Hill. At site 41FB3, two potsherds of the O'Neal Plain, variety Conway type from the Early Ceramic (AD 100-600) period (Aten 1983:Figure 14.1) were found on the surface in 1997. A projectile point tentatively classified as an Ellis dart point was found in Pit AI (10-20 cm) as shown in Table 3 and Figure 3L. This specimen weighs 2.3 gm and could be classified as either an Ellis dart point or a Scallorn arrow point, because the weight is at the breakpoint between large arrow points and small dart points (Patterson 1985). If this specimen is a Scallorn arow point, it represents the Late Prehistoric period (AD 600-1500), and is probably intrusive to this depth due to modern disturbance.

LOCAL SITE TOPOGRAPHY

Pool Hill is indented with an opening to the southwest onto the Brazos River flood plain. Situated in this indentation is a ridge of compacted sand which contains 41FB3. This ridge is still prominent even though it has eroded from a higher elevation due to natural forces and agricultural activities. Abandoned channels of Bessies Creek to the east and south of Pool Hill would have been nearby water sources. There is also a natural water catchment area 0.3 km northwest of site 41FB3, with water sometimes available.

A contour map of the ridge that contains 41FB3 has been given in the previous site report (Patterson et al. 1993a). The ridge has a wide eliptical shape, measuring 186 m (600 feet) by 87 m (280 feet). The long axis is NW-SE along a bearing of 300 degrees magnetic or N60W.

SITE GEOLOGY

The ridge that contains 41FB3 is of sandy composition. Generally, there is brown sandy loam from 0 to 60 cm depth, red sandy loam from 60 to 95 cm, and light loose sand below 95 cm. Bone preservation is good at this site because of high alkaline (carbonate) content of the soil. There are many hard caliche (carbonate) pieces, and many chunks of a semi-hard mixture of sand and carbonates. Caliche in this area of Pool Hill is common according to Martin Keoning, who has farmed this area. The soil of site 41FB3 is easily dug when moist, but becomes very hard when dry. Modern soil disturbance has been caused by farming and gopher activity.

There are lenses of clay randomly disbursed in the sandy soil. No burials were found in clay layers, probably because it was too difficult to dig in this type of soil. Soil profiles are discussed in more detail below.

PREVIOUS WORK AT 41FB3

A history of research at 41FB3 before 1990 has been given in the original site report (Patterson et al. 1993a). Marshall Black did test pits in 1941 and 1987, with the discovery of some human bones, two marine shell pendants, and a bead made from a lightning whelk columella.

Excavations were done in 1990-91 by the Houston Archeological Society (Patterson et al. 1993a). Lower and Upper Burial Groups were found. The Lower Burial Group consisted of two articulated skeletons, both in extended, prone position, with head direction almost due magnetic east (N80E). No grave goods were found with the Lower Burial Group. A radiocarbon date on human bone of 3230 +/-170 BP, 1280 BC (I-17333) was obtained for the lower group.

The Upper Burial Group consisted of an estimated 14 individuals, including 2 complete skeletons. The articulated skeletons were in extended, supine position, with head direction to magnetic north. Powdered red ochre was commonly used with the Upper Burial Group. A radiocarbon date of 2580 +/-130 BP, 630 BC (I-16513) was obtained from human bone for the Upper Burial Group.

Only a modest amount of grave goods were found by the 1990-91 excavations. A marine shell pendant was found near a bundle burial. One articulated burial (Burial 1) had pieces of three long-bone implements (Patterson et al. 1993a:Figure 5). Two pieces of another long-bone implement were found, not associated with a burial. Two miscellaneous bone artifacts were also found.

Five dart points, 4 dart point fragments, and 2 dart point preforms were found. Identified dart points included 1 Marshall, 1 Pedernales, 2 Gary, and 1 Kent. None of the dart points were associated with burials, but instead represent campsite activities at the site.

Many sandstone abrading tools were found, some with red ochre still adhering to surfaces. There were 1111 lithic flakes and a few small chert cores found, which indicate use of this site as a campsite as well as a cemetery.

When additional excavations began in 1997, it was soon determined that results of the 1990-91 excavations represented only the "tip of the iceberg." Additional excavations show that 41FB3 is a major site in the Late Archaic Mortuary Tradition of western inland Southeast Texas.

ADDITIONAL EXCAVATIONS AT 41FB3

EXCAVATION DETAILS

Additional excavations at 41FB3 were started in the summer of 1997 and ended in the summer of 1998. An area of 62 square meters was excavated in a period of 44 weekends. A layout of excavation pits is shown in Figure 2A. Except for Pits BB, J, K, and F, all excavation pits were one-meter square. Excavations were done in 10 cm levels in the absence of natural stratigraphy. All soil was put through 1/4-inch (6 mm) mesh screens. In addition, Bill McClure did fine screening on selected soil samples.

SOIL PROFILES

A typical soil profile for additional excavations at 41FB3 is shown in Figure 2B. The top 55 cm of depth is compacted sand with humus, with a gradual change in color from 0 to 55 cm depth. There are intermittent clay lenses which do not contain burials. There is a color change below 55 cm depth with the soil becoming lighter in color with depth. As noted above, excavations were done in arbitrary 10 cm levels because changes in natural stratigraphy were too gradual to use as a guide for excavations.

MODERN MATERIALS

The land occupied by site 41FB3 has been used for cotton farming, as a pig farm, and for vegetables. There is also evidence of trash dumping. In addition, there is soil disturbance from gophers in the upper strata. A summary of modern materials found by excavations is given in Table 2. In general, there has been much soil disturbance on the site to a depth of 30 cm, and even deeper in a few places. There has been very deep soil disturbance in Pits K and X, where a modern calf burial (Burial 4) bisected Burial 2 of The Lower Burial Group. This is similar to a modern dog burial that bisected one of the Lower Group burials in the original 1990-91 excavations.

As a result of soil erosion, the original soil surface of this site was somewhat higher than after disturbance by modern farming. Most of the Upper Group of burials is below a depth of 40 cm, and these burials have not generally been subject to modern soil disturbance. However, there are scattered human bones in strata from 0-30 cm. Disturbance of burials below 40 cm appears to have been caused by other burials.

BURIAL GROUPS

As with the original excavations, additional excavations at 41FB3 have the same Upper and Lower Burial Groups. Burials 1, 2, and 37 of the additional excavations are of the Lower Burial Group, with tops of burials below 60 cm depth. Like the two burials in the Lower Burial Group of the original excavations, all of the additional Lower Group burials are extended, prone, with head direction to the east. There is an old radiocarbon date of 3230 +/-170 BP, 1280 BC (I-17333) for human bone from the Lower Burial Group, and a new radiocarbon date of 3160 +/-95 BP, 1210 BC (I-18946) for Burial 1 of the Lower Burial Group. There is an Oxidizable Carbon Ratio (OCR) date of 4027 BP, 2077 BC (ACT 2897) on soil from 50 cm depth of Pit B, without apparent soil disturbance in this

pit. This OCR date could indicate site occupation before the Lower Burial Group, but the accuracy of OCR dating compared to radiocarbon dating has not been determined for this location. There are no grave goods with the Lower Burial Group of five individuals.

The Upper Burial Group, that contains all of the burials with grave goods, has a radiocarbon date of 2580 +/-130 BP, 630 BC (I-16513) from human bone of a bundle burial from the original excavations. It is planned to obtain four additional radiocarbon dates for the Upper Burial Group, as soon as bone can be made available after skeletal analysis. Burials of the Upper Burial Group are commonly extended, supine, with head direction to the north. There are also some bundle burials, flexed burials, and mixed bone piles.

All of the Upper Burial Group human remains from the 1990-91 excavations at 41FB3 were left in place. Burial 29 of the additional excavations corresponds to Burial 2 (Pits B, BX) of the original excavations. Burial 19 of the additional excavations corresponds to Burial 8 (Pits F, FX) of the original excavations. None of the other intact burials from additional excavations corresponds to skeletons uncovered during the original 1990-91 excavations. There are more than 35 burials in the Upper Burial Group. A more exact count will be obtained from skeletal analysis. About 60% of burials of the Upper Burial Group had grave goods.

In the following report sections, only projectile points, sandstone, and other lithic materials are discussed for both the Upper and Lower Burial Groups. Other types of artifacts were used as grave goods with the Upper Burial Group.

PROJECTILE POINTS

A summary of projectile points from original and additional excavations at 41FB3 is given in Table 3. Projectile points from additional excavations are illustrated in Figure 3. It is judged that points below a depth of 50 cm are associated with site occupations before the Upper Burial Group. The only projectile points that can be classified as grave goods are five Ellis dart points from Burial 35. All other projectile points are probably associated with campsite subsistence activities.

Various types of dart points at 41FB3 represent the mixing of technological traditions from different geographic regions. Traditions of the Southern Plains (Central Texas) are represented by Pedernales, Marshall, and Ensor points (Turner and Hester 1993). Traditions of the Southeast Woodlands are represented by Gary and Kent dart points. Morhiss points represent a technological tradition of the central coast of South Texas. Ellis points represent both East and Central Texas (Turner and Hester 1993:113).

The five Ellis points from Burial 35 are very well made, and thin enough to be arrow points. All of these specimens weigh 3.0 gm or more, and thus can easily be classified as dart points (Patterson 1985). The largest specimen is made of translucent petrified wood, and other specimens are made of chert. As noted above, there is a projectile point found in Pit AI (10-20 cm) that could be classified as a small Ellis dart point or a large Scallorn arrow point, because the weight of 2.3 gm puts the specimen at the breakpoint between arrow and dart points (Patterson 1985). This specimen is tentatively classified as a small Ellis dart point, because it is similar to the five Ellis points with Burial 35.

All other point specimens are made of chert. It is likely that points over 50 mm in length are made of chert from the Colorado River basin, rather than from nearby chert sources at

the Brazos River. Only small chert cobbles can be found at the Brazos River, while large chert cobbles occur in the Colorado River basin at Eagle Lake and upstream.

Dart point preform fragments were found in Pits AW (40-50 cm), H (20-30 cm), K (40 cm), M (50-60 cm), B (40-50 cm), BB (30-40 cm), and BK (60-70 cm). All specimens are made of chert. A thermally damaged point or preform fragment was also found in Pit BB (30-40 cm).

GENERAL CHIPPED STONE LITHICS

Unifacial flake tools are summarized in Table 4. There are two combination tools, including a scraper-graver (Figure 5B) and a scraper-perforator (Figure 5D). A drill bit was found (Figure 5A) which has the same wear pattern as obtained by Patterson (1996b) from experimental drilling of holes in shell. The wear pattern observed with a stereo microscope at 60x consists of a rounded and polished bit tip, rounded and polished lateral edges, and fine microfractures and striations in the direction of tool rotation. The drill bit was probably used with a bow drill, because shell is too hard for use of a hand-held perforator. This indicates some manufacturing of shell ornaments at this site. Four perforators were found, and two unmodified flakes have perforator use-wear. Six scrapers were found, and one unmodified flake with scraping use-wear. There were 19 gravers recovered and 1 notched tool. Some of the unifacial tools are shown in Figure 5. It should be noted that formal unifacial tools were made with minimal retouch. This indicates that formal unifacial tools were used as expedient tools in the same manner as unmodified flakes.

A total of 3113 lithic flakes were recovered by additional excavations at 41FB3. Flake size distributions are given in Table 5 and Figure 4, with a group for flakes found above 30 cm depth, where there was most soil disturbance, and a group for flakes below 30 cm depth. It should be noted, however, that there was much stratigraphic disturbance below 30 cm due to prehistoric digging of burial pits.

Flake size distributions for bifacial reduction, such as projectile point manufacture, tends to give a straight line for plots where percent of flakes has a logarithmic scale and flake size has a linear scale (Patterson 1990). Flake size distributions for 41FB3, shown in Figure 4, approximate straight lines, which probably indicates that a high proportion of flakes are from the manufacture of bifacial dart points. Deviation from linearity is due to the flaking of small chert cobbles at this site to make flake tools.

As a representative sample, flakes over 15 mm square from Pit AA to AZ had 4.6% primary flakes (covered with cortex, 21.6% secondary flakes (partially covered with cortex), and 73.8% interior flakes (no remaining cortex). The high percentage of flakes without remaining cortex indicates that a high proportion of the lithic raw material was brought to this site in the form of flake blanks made at lithic sources. Flake blanks were used mainly to manufacture bifacial projectile points. This pattern of lithic raw material procurement is consistent with most other sites in Southeast Texas.

Sixteen small amorphous chert cores were found, as shown in Table 6. These cores appear to be made from small chert cobbles that are available at the nearby Brazos River. Most of the cores still have remaining cortex from the original cobble surfaces. Most of the cores have not been used to produce flake blanks for dart point manufacture. Large flake blanks would have been obtained from Colorado River sources. A chert core from Burial 29 may have been used as a grave good. Some cores are shown in Figure 5.

Two whole chert cobbles with maximum dimensions of 58 mm (Pit AT, 30-40 cm) and 60 mm (Pit A, 40-50 cm) were found, which are typical of small chert cobbles from the nearby Brazos River. A small split chert cobble was found with Burial 3 that may have been a grave good. Another small chert conbble was found in Pit N (10-20 cm). A quartzite hammerstone with a diameter of 60 mm was found in Pit U (10-20 cm), which is further evidence of lithic manufacturing at this site.

PRISMATIC BLADES

The manufacture of small prismatic blades, with widths under 18 mm, was an important type of lithic technology of inland Southeast Texas, from the Middle Archaic (3000-1500 BC) through the Late Prehistoric (AD 600-1500) periods (Patterson 1980, 1996a, n.d.). A prismatic blade is a special type of lithic flake, defined as having a length at least twice the width, parallel lateral edges, and at least one ridge on the dorsal surface parallel to the lateral edges (Sollberger and Patterson 1976). Because small prismatic blades are occasionally produced by other types of lithic manufacturing, it is important to determine that prismatic blades were being purposefully made at a site. Site 41FB3 has all of the criteria for the purposeful manufacture of prismatic blades. A total of 92 small prismatic blades were found by additional excavations at 41FB3. Blades are 2.9% of total flakes. Patterson has found that fortuitous production of prismatic blades is well under 1% of total flakes during bifacial reduction in the manufacturing of dart points.

The purposeful manufacture of prismatic blades produces polyhedral cores with parallel flake scars. No whole blade cores were found at 41FB3, but 11 blade core trim flakes and 1 other blade core fragment were found. The lack of complete blade cores is due to blade cores being finally expended to produce other types of flakes. After the last blade is produced, the initial flakes removed are trim flakes with parallel scars on the dorsal surface. This type of trim flake represents blade core fragments.

A characteristic of purposeful prismatic blade manufacture is that width distribution will be in the form of a bell-shaped curve (Sollberger and Patterson 1976). Prismatic blade widths from 41FB3 are given in Table 7 and plotted in Figure 6. As may be seen, the width distribution of prismatic blades at 41FB3 is a bell-shaped curve.

Some prismatic blades and blade core trim flakes from this site are shown in Figure 7. Prismatic blade quantities by excavation level are shown in Table 8. The occurrence of prismatic blades at all excavation levels shows that blades were produced throughout various site occupations in the Late Archaic period. A complete blade core was found at nearby Late Archaic site 41FB90 in a 1997 surface collection (Patterson field notes).

UNIFACIAL ARROW POINTS

Unifacial arrow points started in Southeast Texas in the Middle Archaic (3000-1500 BC) period (Patterson 1980, 1992; Patterson et al. 1994), well before the start of standardized bifacial arrow point types at about AD 600 (Aten 1983:306). Unifacial arrow points were used in Southeast Texas from the Middle Archaic through the Late Prehistoric periods. As shown in Table 10, there were 18 unifacial arrow points found at 41FB3, which can be placed in the Late Archaic period (1500 BC-AD 100). Unifacial arrow points usually have retouch on one lateral edge to form the point tip. Three specimens from 41FB3 have impact tip damage. All specimens are made from chert flakes. Criteria for the identification of unifacial arrow points have been previously given (Patterson 1994). Some unifacial arrow points from 41FB3 are shown in Figure 7.

Early use of the bow and arrow may have contributed to the rapid population increase of the Late Archaic and Early Ceramic periods in this region (Patterson 1996:Figure 10).

CORNER-TANG KNIFE

A large bifacial corner-tang knife was found in the north wall of Pit AC at a depth of 17 cm, shown in Figures 8A and 8B. This specimen has a length of 17.1 cm, a width of 5.1 cm, and a thickness of 1.0 cm. It is made from black Central Texas chert. Patterson (1936:Table 1) shows Bell County and some surrounding counties of Central Texas as the center of geographic distribution for this artifact type. This area appears to be the source of the specimen that was imported to 41FB3. The form of the corner-tang knife from 41FB3 is described by Patterson (1936:Plates 4,5) as a curved diagonal corner-tang knife.

This specimen does not have an edge-wear pattern that would indicate previous use for cutting. This type of corner-tang knife was hafted with a handle at an oblique angle to the longitudinal axis of the blade (Patterson 1936:Text-Figure 2).

The corner-tang knife from 41FB3 was not found with an intact burial. This specimen, however, may have been an item of grave goods for a burial that had been highly disturbed.

GENERAL COMMENTS ON SHELL ARTIFACTS

A variety of marine shell ornaments were found as grave goods. There are 66 shell ornaments and 8 tubular beads made of lightning whelk (*Busycon contrarium*) shell. Two artifacts made of lightning whelk columella were found, with both ends ground to points. Five small beads of Olivella marine shell were found. A few burials had a complete valve of a freshwater mussel shell. As discussed below in the section on manufacturing of marine shell artifacts, there is a possibility that some of the marine shell artifacts at 41FB3 are made of shell from species other than lightning whelk.

There are 64 marine shell ornaments that have been classified here classified by type, and 2 shell ornaments that are too fragmentary to classify. Three marine shell ornaments were also found by the original excavations at 41FB3 (Patterson et al. 1993a:Figure 4). The five marine shell ornaments from Pit AS shown in Tables 11, 13, 14 are probably a set from a highly disturbed burial.

Tubular shell beads and many shell ornaments have drilled holes. In both of these artifact types, hole diameters range from 3 mm to 5 mm. The starting point of a drilled hole will sometimes be tapered from the surface. However, holes drilled in the tubular shell bead specimens at 41FB3 have little taper. Therefore, it is not possible to determine if holes in these beads were drilled from both ends, or straight through from one end.

Taper of holes in shell pendant specimens from 41FB3 is quite variable. Some pendant specimens have holes with no taper, some have holes with taper from both concave and convex surfaces, and some have holes with taper only from the concave surface. Where a hole has taper only from the concave surface, the hole was completed by drilling only from the concave surface. Where a hole has taper at both surfaces, the hole was partially completed by drilling from one surface, and then reamed to desired diameter from the other surface.

Type 1 Shell Ornaments

Type 1 lightning whelk shell ornaments have very large surface areas, and oval or pear-shaped outlines. Four specimens of this type shown in Table 11 were found by additional excavations at 41FB3. This type of artifact was used as a head ornament with burials.

Specimens were found fitted to skulls of Burial 5 (Figure 9A) and Burial 9 (Figure 10A). The Type 1 specimen from Pit AS (Figure 10B) was not associated with an intact burial, but had a piece of skull bone adhering to the concave surface. One specimen was found between the skulls of Burials 5 and 7 (Figure 9B). This specimen may have been on the skull of Burial 7, and was then disturbed when Burial 5 was placed over Burial 7.

The specimen from Burial 9 has 20 drilled holes that are randomly placed. The specimen from Burial 5 has three holes at the narrow top part and three other randomly placed holes. The randomly placed holes may have been used for attachment of perishable materials, such as feathers.

A shell ornament of this type was found at 41AU36 (Hall 1981:Figure 20, Form 6) near the skull of Group 2 Burial 111.

Type 2 Shell Ornaments

Thirty-two Type 2 lightning whelk shell ornaments were found by additional excavations at 41FB3, summarized in Table 12. Some examples are illustrated in Figures 11 and 12. This type is elongated, with both ends rounded, and tapered to one end. Type 2 shell ornaments can be classified as pendants. There is a wide range of lengths, from 17.8 cm to 5.1 cm. A miniature specimen was found with Burial 35, with a length of 2.2 cm. Most specimens have two drilled holes, and a few have three drilled holes. Two specimens of this type were also found by the original excavations (Patterson et al. 1993a:Figure 4).

This is the most common type of shell ornament at 41FB3. This type corresponds to Forms 1, 2, and 3 at 41AU36 (Hall 1981:Figures 45,46). At site 41FB3, some Type 2 shell ornaments were placed in nested position with burials, such as Burial 10 and Burial 21. A very large lightning whelk shell would have been required for manufacture of the largest specimens of this type. Two Type 2 shell ornaments were found in Pit AN (20-30 cm) in nested position, which may be from a highly disturbed burial.

Type 3 Shell Ornaments

A total of 17 Type 3 lightning whelk shell ornaments were found by additional excavations at 41FB3, summarized in Table 13. Some examples are illustrated in Figure 13 and 14. This type is oval to circular in outline, with widely varying sizes. Maximum dimensions range from 2.8 to 10.4 cm. Type 3 shell ornaments can be classified as pendants, similar to Form 8 at 41AU36 (Hall 1981:Figure 47). Most specimens of this type have two drilled holes that are centered in the middle of the specimen, A few specimens have 1, 2, or 3 holes near an edge.

Type 4 Shell Ornaments

A total of 11 Type 4 lightning whelk shell ornaments were found by additional excavations at 41FB3; they are summarized in Table 14. Some examples are illustrated in Figures 15 and 16. This type is roughly rectangular in outline, with widely varying sizes. Maximum dimensions range from 2.7 cm to 8.7 cm. Type 4 shell ornaments can be classified as pendants. Specimens have one or two holes at the center or at an edge. One specimen has a hole at each end.

Lightning Whelk Columella Artifacts

Two artifacts made of lightning whelk columella were found with Burial 39 (Figure 17). Both specimens have ground surfaces, with both ends ground to points. One specimen, Burial 39(4), has a length of 99.4 mm and a diameter of 14.3 mm. The other specimen, Burial 39(5), has a length of 105.1 mm and a diameter of 14.6 mm. It is not known if this type of artifact had a functional use as well as being used as grave goods.

Tubular Shell Beads

A total of eight tubular shell beads were found by additional excavations at 41FB3, made of ground pieces of lightning whelk columella. Tubular shell beads are summarized in Table 15 and illustrated in Figure 17. Tubular shell beads have been classified here as two types. There are seven Type 1 tubular beads with a hole drilled longitudinally through each specimen. Type 1 tubular shell beads correspond to Form 1 shell beads at 41AU36 (Hall 1981:Figure 48). There is one Type 2 tubular shell bead with holes drilled partially through from each end. The holes drilled from the ends are met by transverse holes drilled from the side. Type 2 tubular beads correspond to Form 2 shell beads at 41AU36 (Hall 1981:Figure 48). Most of the tubular shell beads were found with burials, as shown in Table 15. However, there were not enough tubular shell beads with any burial to represent a necklace. A tubular shell bead was also found by earlier excavations at 41FB3 (Patterson et al. 1993a:Figure 4).

Olivella Shell Beads

Five beads were found with Burial 10 made of small Olivella marine shell. These specimens are classified here as Type 3 shell beads in Table 15, and are illustrated in Figure 18. This type of bead was made by making a hole at the closed end of the shell, which, along with the natural opening at the other end of the shell, would allow stringing of beads with a cord. Olivella shell beads are designated as Form 7 at site 41AU36 (Hall 1981:Figure 48).

Manufacturing of Marine Shell Artifacts

Hall (1981:294) has proposed that the marine shell artifacts at site 41AU36 were imported from manufacturing sites at unidentified locations on the Gulf coastal margin. There is new evidence, however, that lightning whelk shell was obtained by direct procurement or trade from the coastal margin, and some shell artifacts were then manufactured at inland locations in the area of sites having components of the Late Archaic Mortuary Tradition. The distance of site 41FB3 from the Gulf shoreline is 66 miles (106 km).

Evidence for some manufacturing of shell artifacts at 41FB3 includes a cut lightning whelk shell (Figure 19), Lightning Welk shell debris (Figure 20), and a chert drill bit (Figure 5A).

Hudgins (n.d.) has surface collections from five inland sites that have evidence of marine shell artifact manufacture, including 41WH32, 41WH80, and 41WH83 in Wharton County, and 41MG50 and 41MG52 in Matagorda County. The various sites have specimens of worked lightning whelk (*Busycon contrarium*), horse conch (*Pleuroploca gigantea*), and giant Atlantic cockle (*Dinocardium robustum*) shell. Specimen types

include partially finished pendants, shell debris, body whorl pieces, a columella bead blank, and a finished columella bead.

Freshwater Mussel Shell as Grave Goods

McClure has summarized freshwater mussel shell at 41FB3 in the report section on faunal remains. In addition, unbroken valves of mussel shell were found with Burials 22, 30, 35, 36, and 37 that appear to represent grave goods.

GENERAL COMMENTS ON BONE ARTIFACTS

Bone artifacts found by additional excavations at 41FB3 include 39 long-bone implements, 21 bone pins, 2 bone beads, a finished bone projectile point, an unfinished bone projectile point, 15 short bone artifacts, and two miscellaneous pieces of worked bone. There were pieces of 4 long-bone implements found by the original excavations (Patterson et al. 1993a:Figure 5).

No unbroken specimens of long-bone implements or bone pins were found at 41FB3. There is evidence that these two type of bone artifacts were purposely broken during burial ceremonies. Burial 10 has a compact cluster of pieces of 5 bone pins and 5 long-bone implements which cannot be attributed to natural breakage. Burials 7 and 10 had pieces of bone pins that were found in linear alignment. Linear alignment of pieces of bone pins is not likely from breakage by natural forces. Also, pieces of bone pins and long-bone implements have fairly uniform lengths, which would not be an attribute of breakage by natural forces.

Long-bone Implements

Long-bone implements are common at mortuary sites in western inland Southeast Texas (Hall 1981, 1988a). Long-bone implements have been classified here as two types. A total of 39 long-bone implements were found by additional excavations at 41FB3, including 34 Type 1 and 5 Type 2 (Table 16). Long-bone implements have flat cross sections, compared to bone pins with round cross sections. Type 1 long-bone implements are defined as having one pointed end and one blunt end, often with a drilled hole. Type 2 long-bone implements have both ends pointed. Some examples are shown in Figure 22. A few specimens have incised patterns as shown in Figure 23.

Hall (1988a) has given some possible functional uses for long-bone implements. At 41FB3, not enough pieces of long-bone implements were found to refit any complete specimen. Pieces of 4 long-bone implements were found by the original excavations at 41FB3 (Patterson et al. 1993a:Figure 5). This type of artifact was probably made of deer bone.

Bone Pins

A total of 21 bone pins with round cross sections were found by additional excavation at 41FB3 (Table 17). No bone pins were found by the original excavations. As shown in Table 17, it was possible to refit seven complete specimens, which had a range of lengths from 135 mm to 163 mm. Some refitted bone pins are illustrated in Figure 24. Bone pins were probably made from deer bone.

The function of bone pins has not been determined, other than use as grave goods. A possible use would be as hairpins, but none of the specimens were found at skulls. Burials 10 and 7 had pieces of bone pins placed in a linear manner on the ribs, and Burial 7 had pieces of a bone pin placed in a linear manner on a shoulder. Perhaps some bone pins were used as clothing fasteners.

Short Bone Artifacts

A total of 15 short bone artifacts were found by additional excavations at 41FB3, and none by the original excavations. Short bone artifacts are shown in Table 18 and Figure 25. Short bone artifacts have been classified here as three types. Three specimens have linear incised patterns. Type 1 short bone artifacts are rectangular, Type 2 have one tapered end with a rounded tip, and Type 3 have one tapered end with a sharp tip. Specimens from 41FB3 are similar to Forms 1, 2, and 4 at site 41AU36 (Hall 1981:Figure 50). There is little evidence that this type of artifact had any use other than as grave goods.

Other Bone Artifacts

A bone projectile point was found with Burial 13. This specimen has a length of 100 mm, a diameter of 21 mm at the base, and is coated with asphaltum on the interior surface (Figure 26 upper). Asphaltum was used as an adhesive for hafting onto a spear shaft. An unfinished bone point was found in Pit W (20-30 cm), with a length of 90 mm and a diameter of 17 mm (Figure 26 lower). The bone joint had not yet been removed. Bone projectile points have been found at a few other inland sites in Southeast Texas, but are more common at lithic-poor sites on the coastal margin (Aten 1983).

Two small pieces of bird bone were found in Pit V (20-30 cm) that were possibly used as beads. One specimen has a length of 16 mm and a diameter of 12 mm. The other specimen has a diameter of 3.3 mm and both ends are broken.

COPPER PIN OR AWL

A copper pin or awl was found under the left hip of Burial 21, a teenage female. This specimen has a length of 141 mm and a diameter of 6.0 mm (Figure 27). The cross section of this specimen is round, with both ends tapered. One end is pointed and the other end is rounded. There is a short section in the middle with a square cross section. Perhaps this specimen was pounded to a square cross section and then rounded. Artifacts of this type have been classified as awls for the Old Copper Culture of the Upper Great Lakes (Gibbon 1998:Figure 5B).

This is the first copper artifact found in western Southeast Texas. The origin of this specimen is discussed in the report section on long-distance trade.

RED OCHRE

Red ochre (hematite) was used extensively for burial at 41FB3, as previously noted for the original excavations (Patterson et al. 1993a:9). Data on red ochre occurrences from additional excavations at this site are shown in Table 19. Red ochre powder was prepared

at the site, using sandstone grinding tools. Several sandstone grinding tools have red ochre on surfaces.

The use of red ochre with burials is one of the characteristics of the Late Archaic Mortuary Tradition of Southeast Texas. For example, extensive use of red ochre was found at sites 41AU36 (Hall 1981:60) and 41WH39 (Vernon 1989:22).

SANDSTONE

A significant amount of sandstone has been found at 41FB3. Sandstone is not found naturally at this site. Sandstone does not occur at the surface in this area, but only in deep deposits. Hall (1981:188) places sandstone in the Montgomery Formation of the Early Pleistocene period. Indians would have been able to find sandstone outcrops in deeply cut stream banks.

At 41FB3, there were 253 pieces of sandstone with a total weight of 6803 gm found by the original excavations (Patterson et al. 1993a:Table 6). There were 758 pieces of sandstone with a total weight of 19,889 gm found by additional excavations here (Table 20), not including sandstone items identified as grinding tools, possible grave goods, and heating elements for earth ovens.

Sandstone was used at 41FB3 for grinding tools and as heating elements for earth ovens (see section on earth ovens). Sandstone tools include rounded pieces possibly used as manos and flat pieces used as abraders and metates, some with concave surfaces. There is a direct indication that sandstone tools were used to grind red ochre for burials. Sandstone tools with red ochre on surfaces include 9 specimens from the original excavations (Patterson et al. 1993a:Table 7), and 13 specimens from additional excavations (Table 21). In addition to use for grinding red ochre, sandstone tools may have been used at this site for the manufacture of bone and marine shell artifacts and seed beads. A summary of 48 sandstone tools from the additional excavations is given in Table 21. It is possible that some of the pieces of sandstone in Table 20 may have also been used as tools. Therefore, the number of sandstone tools at this site is probably underestimated. Some sandstone tools are shown in Figure 28.

A large sandstone slab was found in Pit BM at a depth of about 40 cm. This object is roughly triangular, with a length of 50 cm, width of 40 cm, thickness of 6 cm, and weight of 49 lb (22 kg). There is a depression on one face from use as a metate. The depression has a diameter of about 20 cm, and a depth of 4 mm. There is an associated mano with a red ochre stain. This very large metate and smaller mano are shown in Figure 29.

A few sandstone tools shown in Table 21 for Burials 21, 27, 28, 35, and 36 may be intentional grave goods. There are also pieces of sandstone in burial fill that probably do not represent grave goods (Table 22).

There were 23 pieces of sandstone with a total weight of 1430 gm, and a sandstone tool shown in Table 21 for Pit J, found with Burial 2 and Burial 2 fill. Three sandstone pieces were beneath the skull. These sandstone items probably do not represent grave goods, because Burial 2 was bisected and much disturbed by modern calf Burial 4. It is likely that these sandstone items are intrusive to Burial 2 from a higher level.

EARTH OVENS

The use of earth ovens is well known at prehistoric sites of inland Southeast Texas (Patterson 1995b). At many sites, fired clayballs or caliche pieces were used as heating elements for earth ovens, and a few sites have sandstone that was used for heating elements. Sixteen earth oven features were found at site 41FB3, as shown in Table 23, where sandstone was the principal material used for heating elements, with some fired clayballs also used. Fired clayballs not associated with earth oven features are shown in Table 24. These specimens are probably from disturbed earth ovens. Sandstone was not used as heating elements at most sites in Southeast Texas because sandstone was not generally available to prehistoric Indians.

BOATSTONES

Five boatstones were found with burials as shown in Table 25. All specimens are made from fine sandstone. It is common for boatstones to be made of sandstone (Patterson 1937:Table 18). Boatstones from Burial 10 are shown in Figure 30, and boatstones from Burials 11 and 39 are shown in Figure 31. One boatstone from Burial 10 is shaped like a four-sided cowbell (Figure 30B).

All of the boatstones from 41FB3 were found in inverted position with a cluster of small chert and quartzite pebbles in the cavities. The pebbles apparently were selected for uniform size, with diameters of 6-10 mm. The boatstone from Burial 39 also contained 8 small pieces of red ochre. The occurrence of pebbles with boatstones at 41FB3 indicates that boatstones at this site are a ceremonial type of artifact. Pebbles in boatstones at 41FB3 are similar to 22 pebbles (7-10 mm diameters) in a boatstone at the Jonas Short mound at the Angelina River in the far eastern part of Texas (Story 1990:280).

There is no known tradition for the manufacture of ground stone artifacts in Southeast Texas. Therefore, boatstones at cemeteries in this region can be considered as exotic grave goods. The source of boatstones is discussed in the section on long-distance trade.

GROUND STONE OBJECT

An artifact of ground sandstone was found with Burial 5 that seems to be unique, as shown in Figure 32. This specimen has a spherical shape with a diameter of 35 mm. There is a nipple with a base diameter of 14 mm, and a center hole 17 mm deep with a diameter of 4 mm. Other than being used as grave goods, the significance of this object is not known.

SHARK TEETH

A total of 32 shark teeth were found with burials and in other excavation pits, as summarized in Table 26. Shark teeth from Burial 13 fill are illustrated in Figure 33. Shark teeth were probably obtained from the Gulf shoreline, either by trade or direct procurement. Shark teeth are one of several types of items of marine origin that were used as grave goods at 41FB3. None of the shark teeth have been modified, such as by a drilled hole.

Two shark teeth were found at the Ernest Witte site (41AU36) that may have been used as grave goods (Hall 1981:241).

ASPHALTUM

Asphaltum was used as an adhesive for hafting projectile points, as noted for the bone projectile point from Burial 13. This material can be found on the Gulf shoreline, washed up from natural petroleum seeps.

Table 27 shows pieces of asphaltum found at 41FB3. Large pieces of this material appear to have been used as grave goods for Burials 15, 15b, and 24.

PEBBLES

It has been noted that clusters of small pebbles were found with boatstones at this site. Other pebbles were found by the excavations, but it is not known if these pebbles represent natural occurrences at this location, or use with burials. Small pebbles are classified as having diameters under 15 mm, and large pebbles are classified as having diameters of 15-25 mm. There were 387 small pebbles and 34 large pebbles found in excavation pits not associated with burials. Table 28 shows pebbles found in burial fill. In addition, a red jasper pebble with a diameter of 25 mm was found at the head of Burial 36, which probably can be classified as a grave good.

CALICHE

It has been previously noted that caliche (a carbonate mineral) occurs in the soil at 41FB3 (Patterson et al. 1993a:4). Caliche found by additional excavations at this site is summarized in Table 29. The high carbonate content of the soil at 41FB3 has allowed good preservation of human and animal bone.

SEED BEADS

During the excavation of Burial 35 clusters of seed beads were encountered beneath the right radius and ulna, at the right pelvis and elsewhere. These were removed with the soil around them and washed through fine-mesh screens. One cluster included numerous seeds of hackberry (Celtis sp) which were not altered. The smaller seeds are sub-spherical and had been abraded on two sides which exposed the interior so they could be put on a string. They had not been drilled. The diameter of a typical bead is 2.9 mm and the length between abraded ends is 2.75 mm. The two abraded sides are not always parallel. In several instances, two of the seed beads were cohering in position which indicated that they apparently had been strung together. However, some were cohering in positions that were otherwise. Some seed beads from 41FB3 are shown in Figure 34.

The seeds are from baby-blue-eyes (*Nemophila* sp) of the Water-leaf Family (*Hydrophyllaceae*). Seed beads made from puccoon (*Lithospermum* sp) of the Borage Family (*Boraginaceae*) were reported from a burial in the Crestmont site (41WH39), a Late Archaic cemetery in Wharton County, Texas (Vernon 1989:28). These two plant families are both in the Order Boraginales (Porter 1967).

FAUNAL REMAINS

Thousands of land snails, freshwater mussel shell fragments, and bone fragments were recovered during the excavations. There was no apparent stratification in the soil and most excavated soil was disturbed during interments of humans and animals. Because of this condition, no conclusions relative to horizontal or vertical distribution of faunal remains were attempted. Faunal remains recovered during the excavations and on the 1/4 inch-mesh screens were supplemented by material from some soil samples that were subjected to fine-screen analysis. Bags of soil from around parts of several burials, soil from around non-human interments, and soil from each level of one pit were removed and processed away from the site. This soil was dried and then washed through screens as fine as #30 mesh (openings=0.595 mm). The residue was dried and then identified to the extent feasible.

The soil is a very fine sand with more than 99% passing through the #30 mesh sieve. There was only a minor amount of silt and clay. Charcoal fragments, tiny chips of chert, small roots, unburned seeds, and parts of exoskeletons of arthropods were in various levels.

Each of the bags of soil from around Burial 1 contained viable insect pupae. Some of these were allowed to complete metamorphosis and all were stable flies, Stomoxys sp (Jaques 1947). The burial had been partially exposed for at least a week before the soil was removed so the adult flies may have placed eggs which hatched into larvae and pupated during that interval. They could not have been contemporaneous with the human burial activities.

MOLLUSKS

Shells of land snails were ubiquitous throughout the excavations. The species include *Anguispira alternata*, *Euchemotrema leai*, *Gastrocopta contracta*, *Gastrocopta procera*, *Helicodiscus singleyanus*, *Mesodon thyroidus*, *Olygyra orbiculata*, *Polygyra mooreana*, *Praticolella berlanderiana*, *Rabdotus dealbatus*, *Strobilops texasiana*, and *Vertigo ovata*. Snail shell fragments and many immature snail shells were also recovered.

All of these varieties of snails are expected in Fort Bend County today (Cheatum and Fullington 1991,1993,1994). Their habitat requirements are broad enough to be met either in an open area of the site or in the wooded areas nearby. There is no indication that any were used for food or other human activities.

Shells and fragments of shells of freshwater mussels were recovered throughout the excavated areas. There were no concentrations which could be inferred as major food consumption refuse. Very few of the valves are entire. Some of the more complete valves appear to have been used as tools. Some had been battered at the umbo as from impact from use as a hammer. Some showed impact in the area several millimeters from the umbo as from impact while opening the mussel. Others show evidence of use as scrapers with flaking on either interior or exterior. Some apparently had been smoothed along the edge. A quantification of mussel shells was not justified because of the fragmentary nature of a high proportion of specimens, many of which were delaminated.

The three varieties identified are Yellow Sandshell (*Lampsilis teres*), Southern Mapleleaf (*Quadrula apiculata*), and Golden Orb (*Quadrula aurea*). The present ranges of these mussels include Fort Bend County. They prefer moving water with mud to sandy bottoms (Howells et al. 1997).

VERTEBRATES

Vertebrate remains from the earlier report (Patterson at al. 1993a) are combined in this account. Excavations revealed some articulated skeletons of mammals that had been interred in the same areas as human burials. These remains include a neonatal domestic cow (*Bos taurus*), eleven skeletons of neonatal pigs (*Sus scrofa*), and partial skeletons of a domestic dog (*Canis familiaris*) and a spotted skunk (*Spilogale putorius*). These animals appear to have been buried by the occupants of the land sometime during the last 160 years.

More than 12,000 bones of vertebrates were recovered from all levels throughout the site. Very small unidentifiable fragments from the fine screens were not tabulated. Unidentified bones comprise 80% of the total. Identified bones were 450 of fishes, 25 of amphibians, 590 of reptiles, 124 of birds, and 1176 of mammals. Tabulation of the number of identified species is shown in Table 30. Fish species include shark, gar, smallmouth buffalo, catfish, sunfish, and freshwater drum. Amphibians are smallmouth salamander, tree frog, toad, bullfrog, and leopard frog. Reptiles include snapping turtle, mud turtle, slider turtle, box turtle, softshell turtle, green anole, five-lined skink, ground skink, rat snake, hognose snake, water snake, bullsnake, cottonmouth, and rattlesnake. Birds are wigeon, hawk, and turkey. Mammals include Eastern mole, least shrew, swamp rabbit, cottontail, Louisiana pocket gopher, ground squirrel, hispid pocket mouse, beaver, fulvous harvest mouse, pigmy mouse, deer mouse, hispid cotton rat, prairie vole, rice rat, house mouse, weasel, dog, coyote, bobcat, domestic pig, white-tailed deer, pronghorn, and cow or bison.

The shark teeth are probably there as a result of trade or visits to the Gulf of Mexico beach which is 106 km southeast of the site. The wigeon and hawk are migratory and the turkey is a resident of the area. The house mouse and pig are not expected to be contemporaneous with the prehistoric human activities. The cow or bison and dog are probably recent as well. The prairie vole became extinct in Texas during the last 100 years. Pronghorns are not now found anywhere near the site but once ranged much further east than at present. All of the other vertebrates are expected residents of Fort Bend County and could be found in habitat that exists at or near the site today (Hubbs 1982; Dixon 1987; Teres 1980; Davis and Schmidly 1994).

There is no indication that the land snails were of any use to the habitants. The mussels were in sufficient numbers to indicate some use as food and casual use of the shells as tools. The vertebrate bones reveal the use of a wide variety of animals as food. Fish, turtles, rabbits, rodents, and deer were all used frequently, while snakes and birds were less common. Several species of vertebrates would not have been known at this site without the fine screen effort.

This site was in use for an unknown duration of time for residential activities before and perhaps after its use as a cemetery. During historic times deceased animals were also interred there.

SUMMARY OF GRAVE GOODS

A summary of grave goods from various burials is given in Table 31. Red ochre (Table 19) at burials and pebbles in burial fill (Table 28) are covered separately, except for the large red jasper pebble at the head of Burial 36. There are other grave goods for non-intact burials shown in Tables 11 to 18 and 26. In addition, some of the sandstone tools and sandstone in burial fill (Tables 21,22) may be grave goods. It appears that well over 60% of burials at 41FB3 have grave goods, with quite large quantities for some burials.

BURIAL PRACTICES

Details of individual burials are given in Part 2 of this report. Some general burial practices can be noted here.

The five burials of the older Lower Burial Group at 41FB3 are all extended, prone, with head direction to the east. No grave goods were found with the Lower Burial Group.

A high proportion of burials of the Upper Burial Group at 41FB3 are extended, supine, with head direction to the north. As detailed above, many grave goods were found with the Upper Burial Group. Men, women,and children all received grave goods, for example: Burial 5 (adult female), Burial 10 (adult male), and Burial 32 (child).

At site 41FB3, there are both locally made and exotic grave goods. For example, Burial 10 (male) has 35 items of grave goods, including 12 shell pendants, 3 boatstones with pebbles, 5 long-bone implements, 1 short bone artifact, 6 bone pins, 3 tubular shell beads, and 5 Olivella shell beads. Burial 5 (female) has 19 items of grave goods, including 2 short bone artifacts, 1 bone pin, 4 long-bone implements, 1 shell head ornament, and 11 shell pendants. Red ochre was used with many burials.

SOCIAL COMPLEXITY

The Late Archaic Mortuary Tradition of western inland Southeast Texas represents an increase in social complexity by mobile hunter-gatherer groups. Hall (1998) has attributed this increase in social complexity to a resource-rich area with a resulting mortuary tradition used as a territorial marker. There are problems with explaining change in social complexity by a single factor, such as environment. Butzer (1982:301) has stated that there is no archeological case for causally related technological or behavioral readjustments to environmental changes. Butzer (1982:293) has argued that "Adaptive response, however environmentally conditioned and spatially rationalized, is explicitly the result of human perception and decision making."

Brown and Price (1985:439) have observed that "Increased social complexity appears in too many diverse and historically unconnected places to be the result of a single factor." Patterson (1996a:68) has noted that it is probably an over-simplification to attribute increase in social complexity only to an abundance of food resources.

A resource-rich environment is certainly an important factor for development of the Late Archaic Mortuary Tradition of western inland Southeast Texas, but other factors should also be considered. For example, the many major sites with Late Archaic components in the adjacent western part of central Southeast Texas indicate a high degree of prosperity where a mortuary tradition did not develop (Patterson 1980a, 1980b, 1985, 1994). As previously noted (Patterson 1995a:248) for western inland Southeast Texas, there was a

high degree of mixing of technological and cultural traditions of the Southern Plains (Central Texas) and the Southeast Woodlands. Mixing of cultural ideas may have acted as a catalyst to start the development of the Late Archaic Mortuary Tradition in this area. The rapid rate of population increase in the Late Archaic period may have caused greater contact between hunter-gatherer groups.

The end of the Late Archaic Mortuary Tradition in western Southeast Texas represents a decline in social complexity. Soffer (1985:265) has observed that changes in hunter-gatherer complexity were sporadic in Eurasia, and this also seems to be true for various hunter-gatherer cultures in North America. It is as difficult to explain decline in social complexity as it is to explain increase in social complexity. In the case of the Late Archaic Mortuary Tradition in western Southeast Texas, the end of this tradition occurred just before the population level peaked (Patterson 1996:Figure 10) in the Early Ceramic period (AD 100-600). There may have been more subsistence stress due to a higher population density. A drier climate may also have contributed to subsistence stress. The end of major occupation of Poll Hill and Huntington Mound in Fort Bend County (Patterson et al. 1994) at the end of the Late Archaic period might indicate the onset of a drier period, with less available water at these areas. Increased population density may also have contributed to more rapid spread of disease and increased inter-group and intra-group conflict. The explanation of cultural change remains an elusive goal.

In any event, the explanation of change in social complexity is difficult for complex, non-linear systems that represent hunter-gatherer lifeways (Patterson 1997b). The diversity of hunter-gatherer behavior (Kelly 1995) and limitations of archeological data preclude the development of general rules for change in social complexity.

LONG-DISTANCE TRADE

The copper pin or awl, the corner-tang knife, and boatstones found at 41FB3 are exotic items representing long-distance trade. As discussed above, it is not certain whether items from marine sources at the Gulf of Mexico represent direct procurement or trade.

The copper pin with Burial 21 is a long-distance trade item. Sources of copper are the upper Great Lakes and the Southern Appalachian Mountains, with prehistoric inhabitants of the Southeast using copper artifacts from both sources (Johnson 1994:102). The Late Archaic in Southeast Texas is concurrent with the Early Woodland period in the eastern Woodlands. During this period the Adena culture of Ohio, West Virginia, and Kentucky (Webb 1974) and the Tchula culture of the middle Mississippi Valley (Morse and Morse 1983) had copper artifacts, as well as some other cultures in the Southeast (Johnson 1994).

Copper artifacts were found at the Jonas Short mound (Story 1990:Table 65) and the Coral Snake mound (Story 1990:Table 66), both near the Texas-Louisiana border, over 250 km northeast of site 41FB3 (Story 1990:Figure 41). Site 41FB3 may be at least in part contemporaneous with these two mound sites (Story 1990:240). The only radiocarbon date for the 41FB3 Upper Burial Group of 630 BC would place this site somewhat earlier than the two mound sites, however. More planned radiocarbon dates for the Upper Burial Group of 41FB3 may resolve this matter. In any event, the copper pin at 41FB3 represents long-distance trade from the east or northeast.

The large corner-tang knife found at 41FB3 is a long-distance trade item from Central Texas. Patterson (1936:Table 1) has shown Bell County and surrounding counties in Central Texas as the center of geographic distribution of corner-tang knives. Hall

(1981:Figure 55) shows a trade area for corner-tang knives, with Central Texas being the manufacturing area. Lee Patterson has obtained chert from Bell County that is similar to the material used for the corner-tang knife at 41FB3.

Boatstones are another exotic type of artifact at 41FB3. Patterson (1937:Table 18) shows quantities of boatstones from Arkansas, Louisiana, Oklahoma, and Texas, with Arkansas having a high proportion of the boatstones. Hall (1981:Figure 55) shows Southwest Arkansas as the manufacturing area for boatstones, consistent with Patterson's (1937:Text-Figure 1) geographic distribution of boatstones.

Items from marine sources found at 41FB3 include tubular shell beads, shell ornaments, shark teeth, and asphaltum. As discussed above, it is not certain if items found at 41FB3 from marine sources represent direct procurement or trade. It has been noted that there is new evidence for the manufacturing of shell artifacts at inland locations in western Southeast Texas.

One possible method of identifying an artifact type as being obtained by long-distance trade is that an artifact type obtained in this manner should be present in low quantities at local sites. This is true in western Southeast Texas for corner-tang knives, boatstones, stone gorgets, stone beads, and the copper artifact from 41FB3. In contrast, artifacts types made of bone and marine shell are present in large quantities, suggesting that these artifact types were probably made locally. The presence of sandstone tools is possibly another indication of the local manufacture of bone and marine shell artifacts.

All of the above types of exotic items represent long-distance trade to inland Southeast Texas. There is also an indication that locally-made long-bone implements may have been traded from western inland Southeast Texas to remote locations. Hall (1998:6) gives the Morhiss site (Dockall and Dockall 1996a,b) and the West Indies site (Birmingham and Huebner 1991) in Victoria County as possible examples of trade of bone artifacts and perhaps shell artifacts from western Southeast Texas. Morhiss dart points found at 41FB3 may be evidence of contact with Indians of the central Texas coastal plain.

VIOLENCE

At several sites of the Late Archaic Mortuary Tradition, such as the Ernest Witte site (Hall 1981) and the Crestmont site (Vernon 1989), there is evidence of violence in the form of dart points embedded in human bone. There is no evidence of this type of violence at 41FB3. Any evidence for violence at 41FB3 will come from skeletal analysis.

Violence at sites of the Late Archaic Mortuary Tradition could be from inter-group conflict (Hall 1988b) or intra-group conflict (Patterson 1988).

CONCLUSIONS

Additional excavations at site 41FB3 show that this site can now be classified as a major site of the Late Archaic Mortuary Tradition of western inland Southeast Texas. This site has more than 35 burials in the Upper Burial Group of this tradition, many with substantial quantities of locally-made and exotic grave goods.

This mortuary tradition represents a loosely-held belief system, with variations from site to site in burial practices, such as head direction, and types of grave goods. The number of burials is also quite variable.

Types of grave goods at site 41FB3 made of lightning whelk shell include head ornaments, pendants, tubular beads, and pointed artifacts made from columella. Other items of grave goods with marine origin include shark teeth, asphaltum, and Olivella shell beads. Bone artifacts used as grave goods include long-bone implements, pin, and short bone artifacts. Exotic types of grave goods representing long-distance trade include boatstones, a corner-tang knife, and a copper pin. Some freshwater mussel shell was also used as grave goods.

There is evidence for the manufacture of marine shell artifacts at site 41FB3 and some other inland sites, including three sites in Wharton County and two sites in the inland part of Matagorda County.

Red ochre powder was used extensively for burials at this site. The powder was made at the site, using sandstone grinding tools. Some sandstone grinding tools still have a coating of red ochre.

A high proportion of burials at 41FB3 are extended, supine, and with head direction to north. There are a few bundle burials and semi-flexed burials. Men, women, and chilfren all received grave goods. About 60% of burials at this site have grave goods.

The Late Archaic Mortuary Tradition of western Southeast Texas involves sites in Austin, Fort Bend, and Wharton Counties, with a time range of about 600 BC to AD 300. This tradition at site 41FB3 is represented by the Upper Burial Group with a radiocarbon date of 630 BC. There is also an earlier Lower Burial Group at 41FB3, with radiocarbon dates of 1210 BC and 1280 BC, in the early part of the Late Archaic period, which may represent the early development of organized burial practices that developed into the Late Archaic Mortuary Tradition. The Lower Burial Group consists of five skeletons, all extended, prone, with head direction to east. There are no grave goods with the Lower burial Group. Extensive use of grave goods came only with the development of the Late Archaic Mortuary Tradition in the last half of the Late Archaic period.

There is evidence for violence at some sites in the Late Archaic Mortuary Tradition, in the form of projectile points embedded in human bone. There is no evidence for this form of violence at site 41FB3.

A factor in the development of the Late Archaic Mortuary Tradition may be geographic location. The western part of Southeast Texas is an area of high mixing of technological and cultural traditions of the Southern Plains (Central Texas) and the Southeast Woodlands. This mixing may have served as a catalyst for the development of a belief system.

Site 41FB3 was used as a campsite as well as a cemetery. There are dart points and stone tools that represent subsistence activities at this location. Dart points were identified as grave goods with only one burial, with other dart points apparently used in a functional manner. A wide range of faunal remains were found at this site, such as deer, turtle, snake, alligator, turkey, rabbit, antelope, and beaver. There was an industry for the manufacture of small prismatic blades at 41FB3. This site is another example of early use of the bow and arrow, with use of unifacial arrow points earlier than use of standardized types of bifacial arrow points.

Many of the types of grave goods used at site 41FB3 seem to have been manufactured specifically for use as grave goods, because these types of artifacts are usually not found at campsites without burials. Locally-made types of items used as grave goods may also

have been used for long-distance trade. Long-distance trade networks during the Late Archaic period are poorly defined.

Additional excavations at site 41FB3 represent a major effort by a large group of avocational archeologists, with aid from a professional physical anthropologist. There was no outside funding support for this project. It is estimated that a CRM project of this scope would cost several hundred thousand dollars. Much of the archeological data base of Southeast Texas is from contributions of avocational archeologists.

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Table 1

SITES IN THE LATE ARCHAIC MORTUARY TRADITION

site	no. of burials	references
Goebel (41AU1)	42	Duke 1981
Brandes (41AU55)	3	Highley et al. 1988
Ernest Witte (41AU36)	145	Hall 1981
Leonard K. (41AU37)	8	Hall 1981
Albert George (41FB13)	15+	Walley 1955
Big Creek (41FB2)	75+	TARL archives
Peikert (41WH14)	11	Hudgins and Kindall 1984, Copas 1984
Crestmont (41WH39)	31	Vernon 1989
41WH44	2	Black, Patterson, Storey 1992
Bowser (41FB3)	35+	Patterson et al. 1993a, this report
Ferguson (41FB42)	4+	Patterson et al. 1993b
41FB95	ND	Patterson and Hudgins 1987, McClure 1987
41FB250	ND	Patterson 1997a

ND- not determined

Table 2

MODERN MATERIALS FROM EXCAVATIONS

level, cm	material	pits
0-10	metal	F, Q, AX, AF
0-10	wire	N, V, AC, AQ, AZ, AF
0-10	22 rifle shell	W
0-10	clay pigeon	L
0-10	glass	AD
10-20	metal	D, AA, AE, AR, AU
10-20	wire	H, P, U, V, AD, AH, AI, AQ, AW, BB, BE, BM
10-20	bullet	AB
10-20	glass	BF, BG
20-30	metal	K, L, X, AI
20-30	wire	H, AJ, AM, AN, AQ, BA
30-40	metal	R, AL
30-40	wire	K, AW, BL, BE
40-50	metal	K, BB
40-50	wire	K

Burial 19: dime in mouth from 1990 excavations
Burial 29: golf tee, 2 penneys from 1990 excavations
Above Burial 29: nickel in Pit AY (20-23 cm),
penny in Pit AY (30-40 cm)

Table 3

PROJECTILE POINTS

type	pit	depth	dimensions, mm L	W	T	Figure
Gary stem	W	0-10	-	-	-	
Ellis	AI	10-20	37.6	14.1	4.0	3L
Morhiss	AF	10-20	68.5	21.6	8.9	3H
Ensor	AR	10-20	37.4	21.3	6.1	3K
Gary	X	10-20	66.5	25.5	10.2	3E
Kent stem	L	20-30	-	-	-	
Gary stem	G	20-30	-	-	-	
Gary stem	AN	30-40	-	-	-	
Kent	AB	30-40	71.5	23.1	9.9	3F
Kent stem	J	40-50	-	-	-	
Morhiss	B	50-60	56.4	24.4	11.0	3I
Bulverde-like	B	50-60	-	30.3	7.6	3J
Gary	X	60-70	65.1	22.9	10.0	3G
Kent stem	Burial 7 fill		-	-	-	
Gary stem	Burial 13 fill		-	-	-	
Ellis (1)	Burial 35		50.2	19.5	4.5	3A
Ellis (2)	Burial 35		53.5	22.5	4.2	3B
Ellis (3)	Burial 35		49.7	19.4	4.5	3C
Ellis (4)	Burial 35		45.5	15.5	4.1	3D
Ellis (10)	Burial 35		42.9	17.1	3.8	
Pedernales	OE	0-10	67.2	23.1	7.8	
Marshall	OE	20-25	-	40.0	6.4	
Gary	OE	20-25	53.9	24.6	11.1	
Gary	OE	65-70	64.5	24.6	10.7	
Kent-like	OE	65-70	69.2	22.9	12.4	

( )- brackets contain artifact labels
OE- from original excavations

Table 4

UNIFACIAL TOOLS

type	pit	level, cm	dimensions, mm L	W	T	Figure
drill bit	L	40-50	18.7	13.1	2.2	5A
scraper-graver	BG	20-30	29.5	20.7	3.3	5B
scraper-perforator	AI	40	46.5	35.4	5.7	5D
perforator	C	30-40	24.5	11.6	2.6	
perforator	AP	10-20	28.1	24.3	4.9	
perforator use-wear	AH	10-20	26.4	12.2	4.6	
perforator use-wear	AX	30-40	32.4	11.3	2.9	
perforator	K	40-50	25.6	14.4	3.1	5E
perforator	E	40-50	32.4	16.6	4.9	5F
notched tool	A	0-10	34.2	21.8	5.0	5C
scraper use-wear	D	20-30	27.1	24.7	3.6	
scraper	BF	30-40	27.9	17.9	3.0	5H
scraper, Burial 28	fill		25.5	12.2	2.3	
scraper	J	50-60	30.2	24.9	6.3	5G
scraper	L	50-60	27.2	23.3	2.6	
scraper	D	10-20	30.5	27.7	5.2	
scraper	X	50-60	22.7	20.9	4.9	
graver, Burial 28	fill		30.8	19.4	3.4	
graver	AS	20-30	20.7	15.9	2.8	5I
graver	AN	10-20	30.1	19.8	5.7	5J
graver	AN	20-30	20.5	14.3	2.0	
graver	P	20-30	25.7	23.5	4.6	
graver	C	20-30	25.6	21.7	9.4	
graver	AM	10-20	35.5	19.4	3.8	
graver	AL	20-30	23.9	19.0	4.2	
graver, Burial 21	fill		27.4	17.3	3.5	
graver	B	30-40	18.9	12.7	2.0	
graver	AD	10-20	19.5	18.3	3.7	
graver	AD	0-10	24.2	20.3	4.7	
graver	AD	10-20	26.8	15.0	4.4	
graver	W	0-10	23.8	17.6	6.5	
graver	D	0-10	26.0	25.9	9.1	
graver	M	40-50	28.2	20.5	3.0	
graver	AC	10-20	27.3	20.1	4.6	
graver	AD	20-30	26.3	17.2	4.3	
graver	AM	30-40	20.2	17.0	2.9	

Table 5

LITHIC FLAKE SIZE DISTRIBUTIONS

flake size mm sq.	above 30 cm no. of flakes	%	below 30 cm no. of flakes	%
under 15	1124	62.5	725	55.1
15-20	417	23.2	361	27.5
20-25	179	10.0	140	10.6
25-30	53	2.9	56	4.3
30-35	22	1.2	28	2.1
35-40	3	0.2	5	0.4
	1798	100.0	1315	100.0

Table 6

LITHIC CORES

pit	level, cm	maximum dimension, mm	remaining cortex	Figure
AF	0-10	36	yes	
AT	10-20	27	no	
AH	10-20	36	yes	
F	10-20	36	yes	
AD	10-20	27	yes	
BK	10-20	33	yes	5K
V	10-20	58	yes	
AK	20-30	73	yes	5N
AN	30-40	46	yes	
F	30-40	42	no	5L
L	30-40	41	yes	
AT	30-40	35	yes	
AD	30-40	62	yes	
X	50-60	31	yes	
E	60-70	43	yes	5M
Burial	29(3)	55	yes	

Table 7

PRISMATIC BLADE WIDTH DISTRIBUTION

width, mm	no.	%
6	4	4.3
7	8	8.7
8	12	13.0
9	13	14.1
10	14	15.2
11	13	14.2
12	14	15.2
13	9	9.8
14	3	3.3
15	0	0.0
16	2	2.2
	92	100.0

Table 8

PRISMATIC BLADES BY EXCAVATION LEVEL

	blades	
level, cm	no.	%
0-10	5	5.4
10-20	23	25.0
20-30	28	30.4
30-40	9	9.8
40-50	22	23.9
50-60	2	2.2
60-70	2	2.2
70-80	1	1.1
	92	100.0

Table 9

BLADE CORE TRIM FLAKES

pit	level, cm	dimensions, mm L	W	T	Figure	remarks
AF	10-20	-	16.3	4.2		end break
AT	10-20	-	18.9	3.2		end break
AX	20-30	-	15.6	2.8		end break
AH	20-30	-	14.7	1.8		end break
AX	30-40	-	19.3	1.5		end break
D	30-40	-	17.4	2.6		end break
T	30-40	32.1	18.7	4.8	7M	scraper use
BE	40-50	38.8	36.5	7.0		
BC	Burial 28	19.0	22.2	3.5	7L	
BC	Burial 28	31.5	16.0	5.5		
K	60-70	30.0	20.9	4.8	7K	
J	30-40	-	28.5	9.4	7N	thick frag.

Table 10

UNIFACIAL ARROW POINTS

pit	level, mm	dimensions, mm L	W	T	Fig.	remarks
AU	10-20	19.0	16.3	2.2	7R	
G	10-20	19.2	12.2	2.6	7Q	blade segment
AY	10-20	19.4	15.5	3.5		
AK	10-20	-	12.4	2.4		impact damage
X	10-20	18.4	16.8	1.9		impact damage
BM	10-20	20.2	15.1	2.9		impact damage
BB	10-20	19.4	21.0	2.7		
N	20-30	18.0	10.7	1.3		
U	20-30	23.2	17.0	3.0	7S	
T	20-30	21.0	9.6	2.5		
AW	20-30	16.8	11.1	2.0		
AS	20-30	20.0	13.3	2.4		
P	20-30	21.8	15.0	2.9		
AK	20-30	17.0	16.0	1.5		
BF	40-50	20.9	12.7	1.8	7P	
AX	40-50	27.9	13.5	3.5		
Burial 35 fill		31.3	13.9	2.6	7O	
Burial 14 fill		21.2	17.0	2.5		

Table 11

TYPE 1 MARINE SHELL ORNAMENTS

location	dimen., cm		holes	
	L	W	no.	place
Burial 5	13.5	13.5	3	top edge, and 3 random holes
Burial 9	14.5	12.3	20	random
Burials 5,7	13.3	12.5	0	
Pit AS, 20-30 cm	10.2	8.4	1	edge

Table 12

TYPE 2 MARINE SHELL ORNAMENTS

location	dimen., cm		holes	
	L	W	no.	place
Pit AN, 20-30 cm	12.5	4.9	3	center
Pit AN, 20-30 cm	16.5	6.5	3	center
Burial 10(4)	11.3	4.5	2	center
Burial 10(5)	9.5	4.0	2	center
Burial 10(6)	12.6	6.2	3	off-center
Burial 10(8)	15.0	5.3	2	center
Burial 10(9)	15.8	5.8	2	center
Burial 10(10)	14.6	5.4	2	center
Burial 10(11)	12.0	4.8	2	center
Burial 10(12)	8.1	4.1	2	center
Burial 10(13)	9.0	4.1	2	center
Burial 10(14)	6.1	3.6	2	center
Burial 10(15)	5.3	3.1	2	center
Burial 5(3)	5.1	4.2	2	center
Burial 21(1)	15.5	6.4	2	center
Burial 21(2)	15.0	5.2	2	center
Burial 21(3)	15.9	6.2	2	center
Burial 15B(2)	12.5	5.0	2	center
Burial 32(4)	-	3.5	?	broken
Burial 32(5)	10.6	3.5	2	off-center
Burial 32(6)	13.3	5.9	2	center
Burial 32(7)	15.0	6.0	2	off-center
Burial 32(9)	13.8	4.8	2	center
Burial 32(10)	13.9	5.2	2	center
Burial 32(11)	12.0	4.2	2	center
Burial 39(2)	17.8	7.4	2	center
Burial 35(5)	9.6	3.5	2	center
Burial 35(6)	9.2	4.4	2	center
Burial 35(7)	10.6	4.2	2	center
Burial 35(8)	2.2	1.3	2	center
Burial 35(11)	11.1	4.5	2	center
Pit AU, 27 cm	12.4	5.5	2	off-center

( )- brackets contain artifact labels

Table 13

TYPE 3 MARINE SHELL PENDANTS

location	dimen., cm		holes	
	L	W	no.	place
Burial 11(3)	9.0	4.8	0	
Burial 7(5)	8.0	6.2	2	center
Burial 5(4)	-	5.5	2	center
Burial 5(10)	6.0	6.0	2	center
Burial 5(11)	7.5	4.4	2	center
Burial 5(12)	8.5	7.4	2	edge
Burial 5(13)	6.0	5.5	2	center
Burial 5(14)	6.1	5.3	2	center
Burial 5(15)	5.3	5.0	2	center
Burial 5(16)	6.2	6.4	2	center
Pit AS, 20-30 cm	2.8	1.9	2	center
Pit AS, 20-30 cm	3.0	2.3	1	center
Burial 17(1)	6.9	6.6	2	center
Burial 32(8)	6.0	3.4	2	center
Burial 32(12)	9.0	7.4	3	off-center
Burial 39(1)	10.4	9.5	1	edge
Burial 10(21)	5.6	3.8	2	center

( )- brackets contain artifact labels

Table 14

TYPE 4 MARINE SHELL ORNAMENTS

location	dimen., cm		holes	
	L	W	no.	place
Burial 9(3)	4.2	2.2	1	off-center
Burial 9(4)	4.0	2.3	2	center
Burial 9(5)	3.1	2.2	1	off-center
Burial 9(6)	4.2	2.4	1	off-center
Burial 9(7)	3.0	2.7	1	off-center
Burial 9(8)	3.3	2.5	1	center
Burial 9(9)	3.5	1.8	1	off-center
Burial 5(2)	8.7	3.5	2	off-center
Burial 12(1)	3.4	2.3	2	at ends
Pit AS, 10-20 cm	2.7	1.6	2	center
Pit AS, 20-30 cm	3.6	2.7	2	center

( )- brackets contain artifact labels

Table 15

MARINE SHELL BEADS

location	type	dimensions, mm L	W
Burial 11(1)	1	30.9	9.8
Burial 11(4)	1	22.8	6.2
Pit J, 50-60 cm	1	42.7	7.6
Burial 7(21)	1	40.8	12.1
Burial 7	1	21.7	7.3
Burial 10(16)	1	26.7	9.2
Burial 10(20)	1	24.8	11.6
Burial 10(7)	2	34.7	10.6
Burial 10	3	11.9	5.1
Burial 10	3	12.6	6.7
Burial 10	3	13.8	6.7
Burial 10	3	11.8	5.4
Burial 10	3	10.1	6.9

( )- brackets contain artifact labels

Table 16

LONG-BONE IMPLEMENTS

location	no. of pieces	refit	dimensions, mm L	W	T	remarks
Pit AH, 10-20 cm	1	no	-	11.2	3.7	
Pit U, 0-10 cm	1	no	-	8.3	4.5	
Pit C, 20-25 cm	1	no	-	11.8	3.9	
Pit AE, 10-20 cm	1	no	-	11.6	4.0	
Pit AC, 10-20 cm	3	yes	-	14.8	3.2	
Pit S, 40-50 cm	1	no	-	-	-	tip frag.
Pit V, 30-40 cm	1	no	-	-	-	tip frag.
Pit AF, 10-20 cm	1	no	-	14.0	3.6	
Pit AM, 20-30 cm	1	no	-	15.3	3.6	
Pit R, 20-30 cm	3	no	-	7.9	2.9	hole in end
Pit V, 30-40	3	no	-	7.2	3.1	
Pit V. 30-40	3	no	-	5.9	2.8	
Pit Q, 30-40 cm	2	yes	-	13.4	3.1	
Pit Q, 30-40 cm	4	yes	-	13.8	3.7	
Burial 15	2	yes	-	12.8	2.5	
Burial 3	2	no	-	18.1	4.4	
Burial 9 (1a)	3	yes	-	9.1	3.3	
Burial 9(1b)	3	yes	-	16.9	3.8	hole in end
Burial 5	2	no	-	5.5	2.4	
Burial 5	1	no	-	9.0	4.2	incised
Burial 5(17a)	1	no	-	21.7	4.8	hole in end
Burial 5(17b)	3	yes	-	16.5	3.0	
Burial 5	1	no	-	10.8	3.5	
Burial 5	1	no	-	13.2	8.4	
Burial 7	3	yes	-	7.8	4.8	incised
Burial 7	4	no	-	8.2	5.8	
Burial 7(20)	8	no	-	11.0	5.6	incised
Burial 7(8)	6	yes	-	8.2	4.4	
Pit V,40-50 cm	9	yes	-	7.3	3.0	
Pit W, 20-30	1	no	-	8.7	3.5	
Burial 10(18b)	4	part	-	9.8	3.5	Type 2
Burial 10(18c)	6	part	-	6.8	3.9	Type 2
Burial 10(18d)	4	yes	-	7.6	3.2	Type 2
Burial 10(18e)	6	yes	-	7.0	3.5	Type 2
Burial 10(18j)	1	no	-	4.6	1.7	Type 2
Pit AF, 20-30 cm	1	no	-	-	4.1	incised
Pit AT, 40-50 cm	1	no	-	9.8	2.5	
Burial 8(1)	2	yes	-	15.7	4.2	
Burial 35(9)	1	no	-	11.5	4.0	hole in end

( )- brackets contain artifact labels

Table 17

BONE PINS

location	pieces	refit	dimensions, mm L	W
Pit V, 40-50 cm	1	no	-	6.6
Pit V, 40-50 cm	6	yes	157	4.3
Burial 7(18)	1	no	-	8.0
Burial 7(7)	5	yes	-	7.4
Burial 5	4	yes	-	4.2
Pit Q, 30-40 cm	3	yes	-	3.8
Pit AB, 30-40 cm	1	no	-	3.8
Pit N, 30-40 cm	2	yes	-	3.5
Pit BB, 40-50 cm	1	no	-	4.1
Pit AS, 20-30 cm	1	no	-	8.2
Pit AS, 20-30 cm	1	no	-	5.2
Pit AS, 20-30 cm	5	yes	163	6.2
Pit AS, 20-30 cm	4	yes	152	6.6
Burial 10(17)	5	yes	143	4.4
Burial 10(18a)	5	yes	156	4.9
Burial 10(18f)	8	yes	135	3.2
Burial 10(18g)	5	yes	138	4.4
Burial 10(18h)	1	no	-	6.5
Burial 10(18i)	1	no	-	tip
Pit W, 20-30 cm	1	no	-	5.4
Burial 23 fill	1	no	-	5.3

( )- brackets contain artifact labels

Table 18

SHORT BONE ARTIFACTS

location	type	dimensions, mm L	W	T	remarks
Burial 7	1	40.5	15.0	3.4	
Burial 7	2	41.2	16.7	5.2	
Pit AR, 30-40 cm	2	56.8	12.5	4.2	incised
Pit V, 40-50 cm	2	39.1	15.7	4.0	
Burial 5 fill	2	33.2	16.3	2.6	
Burial 5 fill	2	45.0	15.4	3.5	
Pit N, 30-40 cm	2	42.3	-	4.1	incised, edge break
Pit M, 30-40 cm	2	50.2	15.1	3.4	
Pit V, 40-50 cm	3	35.7	14.3	3.2	
Burial 10	3	33.0	16.3	2.9	
Burial 21(4)	2	44.0	20.1	5.1	
Burial 26 (1)	3	55.4	18.0	3.1	
Burial 26(2)	1	38.7	17.9	3.5	incised
Burial 39(3)	3	34.5	16.1	3.7	
Burial 29 fill	3	28.0	14.1	4.2	

Table 19

RED OCHRE

location	level, cm
Pit N	30-40
Pit N	40-50
Pit Q	30-40
Pit S	30-40
Pit S	40-50
Pit U	0-10
Pit V	10-20
Pit V	40-50
Pit AF	20-30
Pit AL	50-60
Pit AL	20-30
Pit AN	30-40
Pit AS	30-40
Pit BA	20-30
Burial 5	
Burial 7	
Burial 8	
Burial 10	
Burial 13	
Burial 15B	
Burial 17	
Burial 23	
Burial 26	
Burial 28	
Burial 39	

Table 20

SANDSTONE PIECES
(not associated with site features)

level, cm	pieces	wt., gm
0-10	43	1184
10-20	170	4311
20-30	194	5477
30-40	148	3640
40-50	73	1881
50-60	90	1586
below 60	40	1810
	758	19889

Table 21

SANDSTONE TOOLS

location	dimensions, mm L	W	T	remarks
AL, 50-60 cm	48	37	31	mano
AH, 10-20 cm	45	29	23	red ochre stain
AH, 10-20 cm	47	41	26	red ochre stain
AH, 10-20 cm	54	48	28	red ochre stain
AX, 40-50 cm	37	33	21	red ochre stain
AR, 20-30 cm	21	19	9	red ochre stain
B, 20-30 cm	35	19	6	flat slab
B, 50 cm	110	95	36	metate
BF, 40-50 cm	118	80	51	large mano
BK, 50-60 cm	88	60	24	flat slab
AH, 20-30 cm	90	65	17	flat slab
BD, 0-10 cm	70	55	13	flat slab
H, 30-40 cm	40	20	8	rounded
AC, 0-10 cm	40	25	11	rounded
B, 30-40 cm	32	19	6	flat slab
A, 80-90 cm	38	32	12	flat slab
A, 80-90 cm	35	30	13	flat slab
BB, 20-30 cm	78	68	33	red ochre stain
BB, 20-30 cm	68	53	19	flat slab
BB, 20-30 cm	80	65	26	flat slab
BB, 20-30 cm	73	55	27	rounded
BB, 20-30 cm	60	30	18	rounded
AE, 20-30 cm	73	45	27	mano of set
AE, 20-30 cm	145	120	48	metate of set
P, 0-10 cm	120	75	39	metate
B, 30-40 cm	85	60	18	slab, red ochre stain
B, 30-40 cm	97	40	24	rounded
B, 30-40 cm	48	46	18	flat slab
B, 30-40 cm	75	50	18	flat slab
J, 40-50 cm	40	34	15	rounded, red ochre stain
T, 20-30 cm	90	35	16	rounded, red ochre stain
X, 50-60 cm	80	65	25	rounded
V, 10-20 cm	55	48	22	rounded
V, 10-20 cm	33	30	17	rounded, red ochre stain
J, 50-60 cm	75	50	21	rounded
M, 30-40 cm	140	92	31	flat slab
AU, 20-30 cm	115	78	13	flat slab
Burial 21 fill	57	34	12	rounded
Burial 27 fill	60	45	20	flat slab
Burial 27	90	75	28	under right scapula
Burial 28(1)	50	50	30	red ochre stain
Burial 28(1)	55	35	25	red ochre stain
Burial 28(1)	74	30	22	red ochre stain
Burial 35	145	80	29	flat slab
Burial 35	87	57	35	beneath skull
Burial 35	60	42	29	beneath skull
Burial 36(2)	80	45	22	
Burial 36 fill	65	45	36	

( )- brackets contain artifact labels

Table 22

SANDSTONE IN BURIAL FILL

location	no. of pieces	wt., gm	remarks
Burial 6	5	368	Pit P
Burial 8	1	14	
Burial 9	7	71	
Burial 10	4	30	
Burial 11	6	42	
Burial 13	1	85	
Burial 15B	4	934	1 with red ochre
Burial 19	5	28	
Burial 21	19	226	
Burial 24	2	14	
Burial 28	9	280	
Burial 29	3	30	
Burial 30	3	280	
Burial 31	8	311	
Burial 32	1	57	
Burial 33	2	28	
Burial 37	1	14	
Burial 39	4	85	

Table 23

EARTH OVEN FEATURES

location	sandstone		clayballs	
	pieces	wt, gm	no.	wt, gm
AH, 30-40 cm	6	2349		
AI, 10-20 cm	13	622		
AI, 20-30 cm	17	2264	36	1132
AU, 20-30 cm	53	2009		
AU, 30-40 cm	49	1613	2	170
Feature 21	6	2094		
BB, 40-50 cm	16	849		
AN, 10-20 cm	12	679		
AB, 40-50 cm	10	396		
AT, 10-20 cm	5	1075		
BI, 30-40 cm	96	3905		
BH, 40-50 cm	12	340		
AH, 10-20 cm	7	113	7	170
BI, 10-20 cm	10	311		
BK, 40-50 cm	4	269	3	127
V, 20-30 cm	28	1783		
AB, 30-40 cm	8	255	4	42
U, 20-30 cm	8	1372		

Table 24

CLAYBALLS NOT WITH FEATURES

location	no.	wt., gm
BM, 20-30 cm	1	57
AK, 30-30 cm	2	14
AA, 0-10 cm	1	14
BK, 30-40 cm	1	14
AL, 10-20 cm	2	14
AI, 30-40 cm	3	42
AM, 60-70 cm	3	28
AF, 10-20 cm	1	7
E, 50-60 cm	1	5
AV, 40-50 cm	2	28
AV, 10-20 cm	2	14
BK, 10-20 cm	2	14
B, 80-90 cm	3	14
G, 40-50 cm	2	10
BE, 50-60 cm	2	10
AR, 20-30 cm	1	7
A, 60-70 cm	2	14
Burial 7 fill	2	71
Burial 10 fill	1	10
Burial 15B fill	1	57
Burial 37 fill	1	15

Table 25

BOATSTONES

location	dimensions, cm L	W	T	no. of pebbles
Burial 39(7)	11.0	4.1	3.4	7
Burial 11(2)	5.8	4.2	1.8	10
Burial 10(1)	9.4	4.2	3.4	28
Burial 10(2)	5.2	4.8	3.8	17
Burial 10(3)	7.4	3.5	2.9	10

( )- brackets show artifact labels

Table 26

SHARK TEETH

location	no.	remarks
Pit Q backdirt	1	
Pit AL, 20-30 cm	1	
Burial 7, leg area	6	Pit N, 40-50 cm
Burial 5 fill	2	
Burial 26	1	pelvic area
Burial 13 fill	17	
Pit N, 20-30 cm	1	above Burial 7
Pit AF, 0-10 cm	1	
Pit AF, 20-30 cm	1	
Pit AI, 10-20 cm	1	
	32	

Table 27

ASPHALTUM

location	no. of pieces	remarks
BE, 10-20 cm	1	
AW, 10-20 cm	1	
AZ, 20-30 cm	1	
P, 20-30 cm	1	
BH, 20-30 cm	1	
BD, 10-20 cm	1	
BK, 40-50 cm	1	
BF, 50-60 cm	1	
Burial 15B	1	large piece
Burial 15	12	under burial
Burial 24(1)	2	large piece
Burial 24 fill	1	large piece
BL, 10-20 cm	2	
BL, 20-30 cm	1	

Table 28

PEBBLES WITH BURIAL FILL

burial	small (A)	large (B)
2	2	
3	3	
5	13	
7	2	
9	2	
10	1	
11	4	
15	2	
19	7	
21	4	1
22	1	
24	1	1
26	1	
29	1	
30	2	
33	1	
36	7	
37	1	

A- under 15 mm diameter
B- 15-25 mm diameter

Table 29

CALICHE

location	no. of pieces	wt., gm
BK, 30-40 cm	2	14
AL, 30-40 cm	1	5
AY, 10-20 cm	1	14
AE, 20-30 cm	1	5
BG, 20-30 cm	3	10
K, 10-20 cm	2	10
A, 80-90 cm	4	42
R, 20-30 cm	2	28
N, 30-40 cm	3	28
AR, 30-40 cm	2	10
J, 50-60 cm	10	57
AZ, 0-10 cm	1	5
C, 40-50 cm	11	42
BG, 30-40 cm	1	20
M, 40-50 cm	1	10
A, 80-85	22	170
J, 50 cm	9	42
C, 50-60 cm	10	28
U, 30-40 cm	10	28
A, 60-70 cm	5	42
A, 70-80 cm	16	28
C, 20-30 cm	17	255
C, 30-40 cm	23	240
J, 60-70 cm	10	71
Burial 3 fill	2	28
Burial 15 fill	1	10
Burial 35 fill	14	42

Table 30

Tabulation of Vertebrate Remains

Excavation Season	1997 1/4 " screen	1997 fine screen	1990	Total
Taxon	NISP	NISP	NISP	NISP
Unidentified vertebrate (Vertebrata)	6813	NA	2875	9688
Identified taxon (Vertebrata)	1063	692	605	2360
Unidentified fish (Teleostei)	5	120	29	159
Shark (Carcharhinidae)	32			32
Gar (*Lepisosteus* sp)	25	161	35	220
Small-mouth buffalo (*Ictiobus bubalus*)		1		1
Catfish (*Ictalurus* sp)	2	8		10
Sunfish (*Lepomis* sp)		2	2	4
Freshwater drum (*Aplodinotus grunniens*)	12	4	8	24
Smallmouth salamander (*Ambystoma texanum*)		2		2
Tree frog (Hylidae)	1	15		16
Toad (*Bufo* sp)	1	1	3	5
Bullfrog (*Rana catesbeiana*)	1			1
Leopard frog (*Rana sphenocephala*)			1	1
Alligator (*Alligator mississippiensis*)	1			1
Unidentified turtle (Testudinata)	138	3	79	220
Snapping turtle (*Chelydra serpentina*)	1			1
Mud turtle (*Kinosternon* sp)	28		16	44
Slider turtle (*Chrysemys* sp)	9		11	20
Box turtle (*Terrapene* sp)	36		20	56
Softshell turtle (*Trionyx* sp)	4		2	6
Unidentified lizard (Lacertilia)	1	6	3	10
Green anole (*Anolis carolinensis*)		5		5
Five-lined skink (*Eumeces fasciatus*)		3		3
Ground skink (*Scincella lateralis*)		3		3
Non-poisonous snake (Colubridae)	101	36	43	180
Rat snake (*Elaphe* sp)	1		7	8
Hognose snake (*Hetrodon* sp)			1	1
Water snake (*Nerodia* sp)	4		5	9
Bullsnake (cf *Pituophis* sp)			1	1
Pit viper (Viperidae)	11		3	14
Cottonmouth (*Agkistrodon piscivorous*)			6	6
Rattlesnake (*Crotalus atrox*)	1		1	2

Table 30 (continued)

Excavation Season	1997 1/4 " screen	1997 fine screen	1990	Total
Taxon	NISP	NISP	NISP	NISP
Unidentified bird (Aves)	48	6	40	94
Wigeon (*Anas* cf *americana)*	2			2
Hawk (*Buteo* cf *jamaicensis*)			1	1
Turkey (*Meleagris gallopavo*)	9		18	27
Unidentified mammals <deer (Mammalia)	87	181	36	304
Unidentified deer-size mammal (Mammalia)	249		41	290
Unidentified mammal >deer (Mammalia)	3			3
Eastern mole (*Scalopus aquaticus*)	2		1	3
Least shrew (*Cryptotis parva*)		5		5
Jackrabbit (*Lepus californicus*)	2			2
Rabbit (*Sylvilagus* sp)	8	1	8	17
Swamp rabbit (*Sylvilagus aquaticus*)	2		12	14
Eastern cottontail (*Sylvilagus floridanus*)	4		3	7
Unidentified rodent (Rodentia)	23	82	5	110
Ground squirrel (*Spermophilus* cf *tridecemlineatus*)			2	2
Louisiana pocket gopher (*Geomys breviceps*)	40	2	70	112
Hispid pocket mouse (*Chaetodipus hispidus*)		1		1
Beaver (*Castor canadensis*)	1			1
Fulvous harvest mouse (*Reithrodontomys fulvescens)*		3		3
Pigmy mouse (*Baiomys taylori*)		11		11
Deer mouse (*Peromyscus* sp)			4	4
Hispid cotton rat (*Sigmodon hispidus*)	3	25	36	64
Prairie vole (*Microtus ochrogaster*)		1		1
Rice rat (*Oryzomys palustris*)		1		1
House mouse (*Mus musculus*)		1		1
Weasel (*Mustela* sp)			2	2
Dog (*Canis* cf *familiaris*)	1		5	6
Coyote (*Canis latrans*)	3			3
Bobcat (*Lynx rufus*)	2			2
Domestic pig (*Sus scrofa*)	2			2
White-tailed deer (*Odocoileus virginianus*)	158		45	203
Pronghorn (*Antilocapra americana*)	1			1
Cow or bison (*Bos* sp)	1			1
Total	7,878	692 +	3,490	12,060

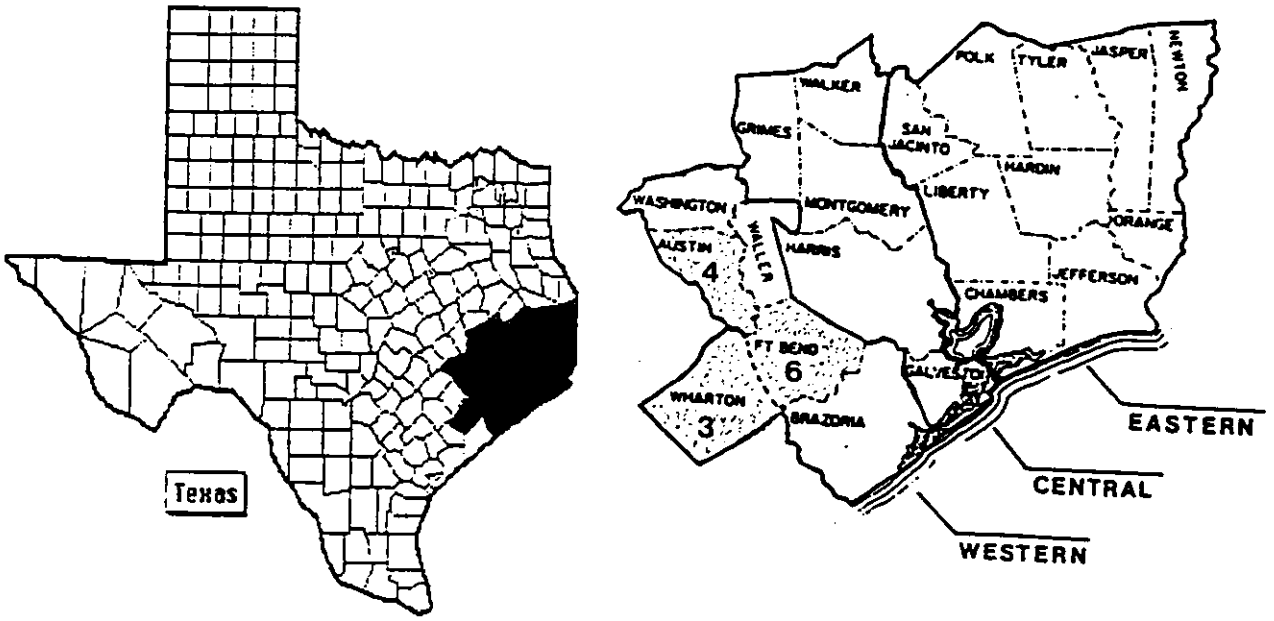
Table 31

SUMMARY OF GRAVE GOODS WITH INTACT BURIALS

burial	total items	items
3	2	split chert cobble, long-bone implement
5	22	2 shark teeth in fill, shell head ornament, 10 shell pendants, 6 long-bone implements, bone pin, 2 short bone artifacts
7	18	shell head ornament, shell pendant 2 tubular shell beads, 4 long-bone implements, 2 bone pins, 2 short bone artifacts, 6 shark teeth
8	1	long-bone implement
9	10	shell head ornament, 7 shell pendants, 2 long-bone implements
10	35	12 shell pendants, 3 boatstones, 5 olivella beads, 3 tubular shell beads, 5 long-bone implements, 6 bone pins, short bone artifact
11	4	boatstone, shell pendant, 2 tubular shell beads
12	1	shell pendant
13	17	17 shark teeth
15	2	asphaltum, long-bone implement
15B	2	asphaltum, shell pendant
17	1	shell pendant
21	5	3 shell pendants, short bone artifact,copper pin
22	1	mussel shell
23	1	bone pin
24	2	2 large pieces of asphaltum
26	3	2 short bone artifacts, shark tooth
27	1	sandstone tool
28	3	3 sandstone tools
29	5	short bone artifact, 3 long-bone implements, chert core
30	1	mussel shell
32	9	9 shell pendants
35	10	5 shell pendants, long-bone implement, mussel shell, 3 sandstone tools
36	3	mussel shell, red jasper pebble, sandstone tool
37	1	mussel shell
39	4	boatstone, 2 shell pendants, short bone artifact

Figure 1

GEOGRAPHIC DISTRIBUTION OF MORTUARY SITES



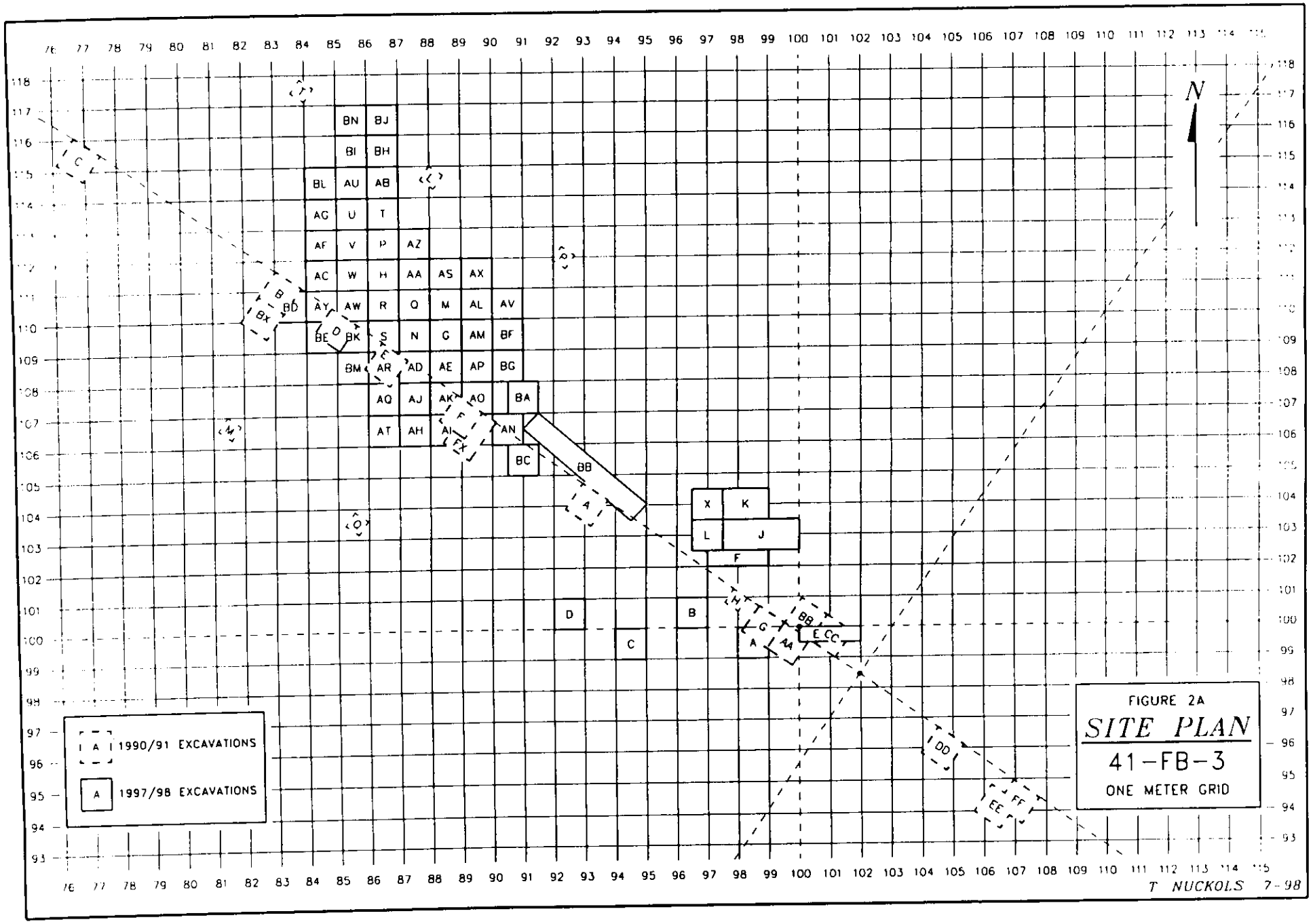


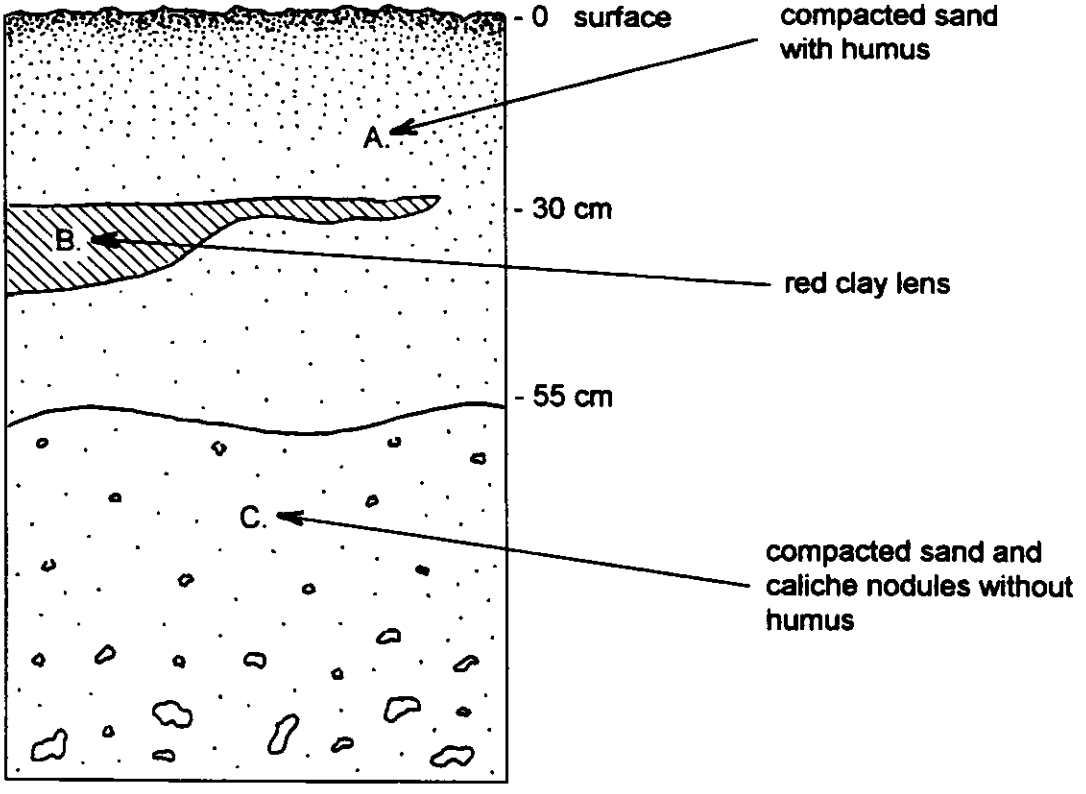
FIGURE 2A

SITE PLAN

41-FB-3

ONE METER GRID

Figure 2B
Typical Soil Profile at 41FB3



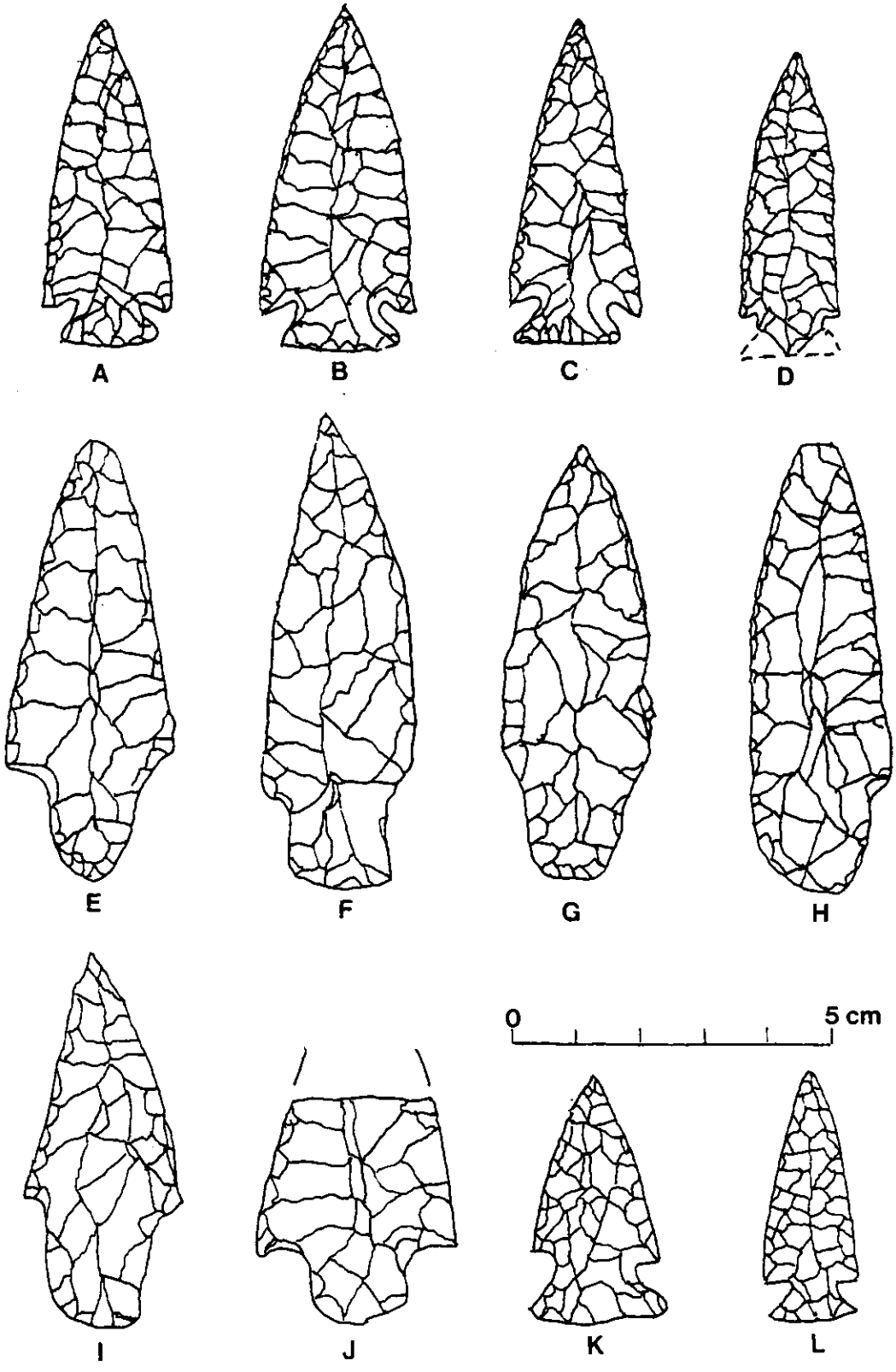
A. Compacted sand with humus, ranging in color from a dark gray-tan near the top to a moderate brown at greater depth.

B. Hard packed red clay lens. This lens appeared intermittently across the site with no discernable pattern. The clay was difficult to dig through. Where present, it ranged in thickness from a few centimeters to about 30 centimeters. No burials were found below the clay.

C. Highly compacted fine-grained sand with caliche nodules. The nodules ranged from pea size to baseball size, and increased in both size and abundance with depth. The color of this strata became lighter with depth. Unknown final depth.

Figure 3

PROJECTILE POINTS



A to D, L- Ellis; E,G- Gary; F- Kent; H,I- Morhiss; J- Bulverde-like; K- Ensor

Figure 4
Flake Size Distribution

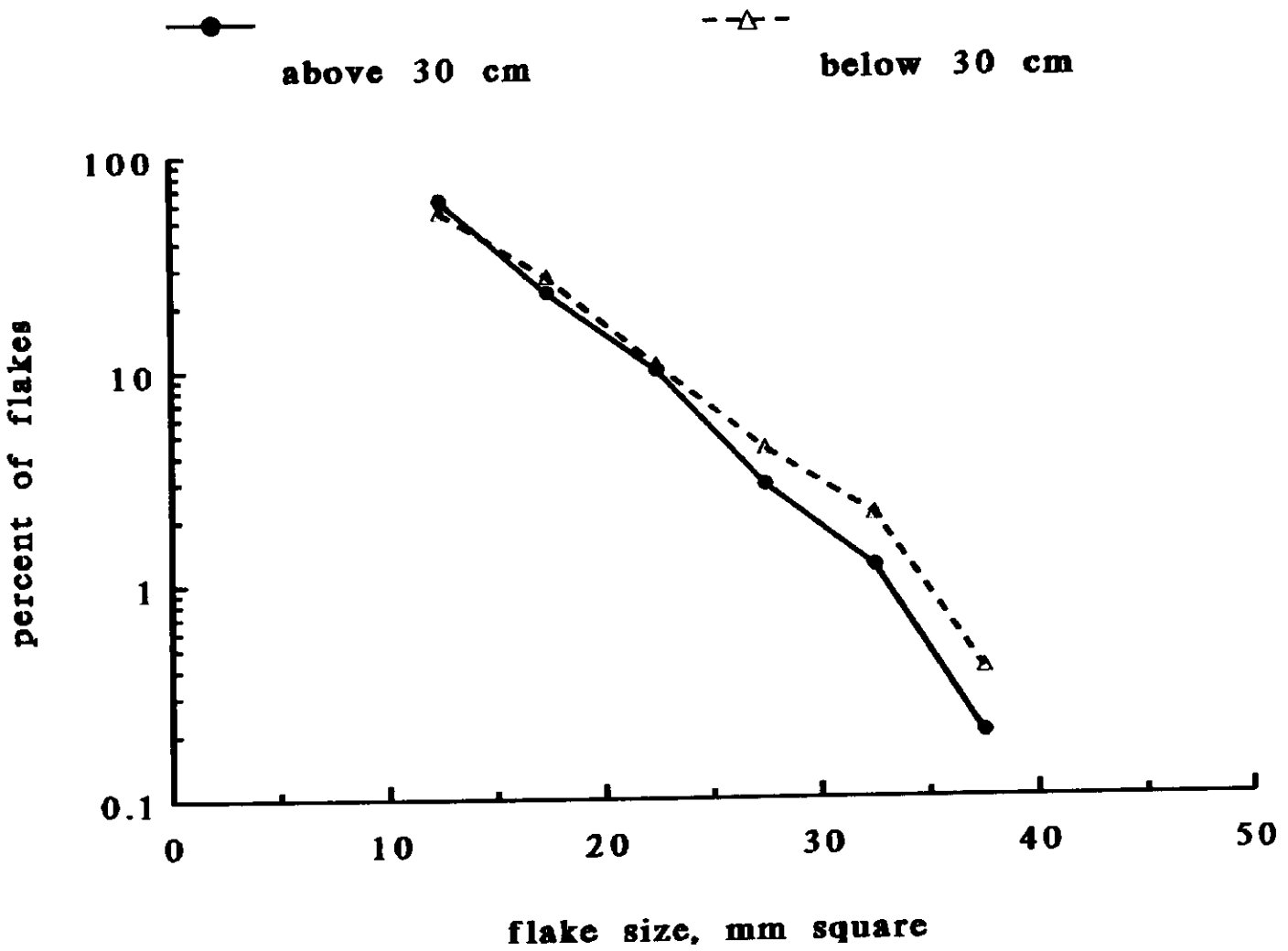
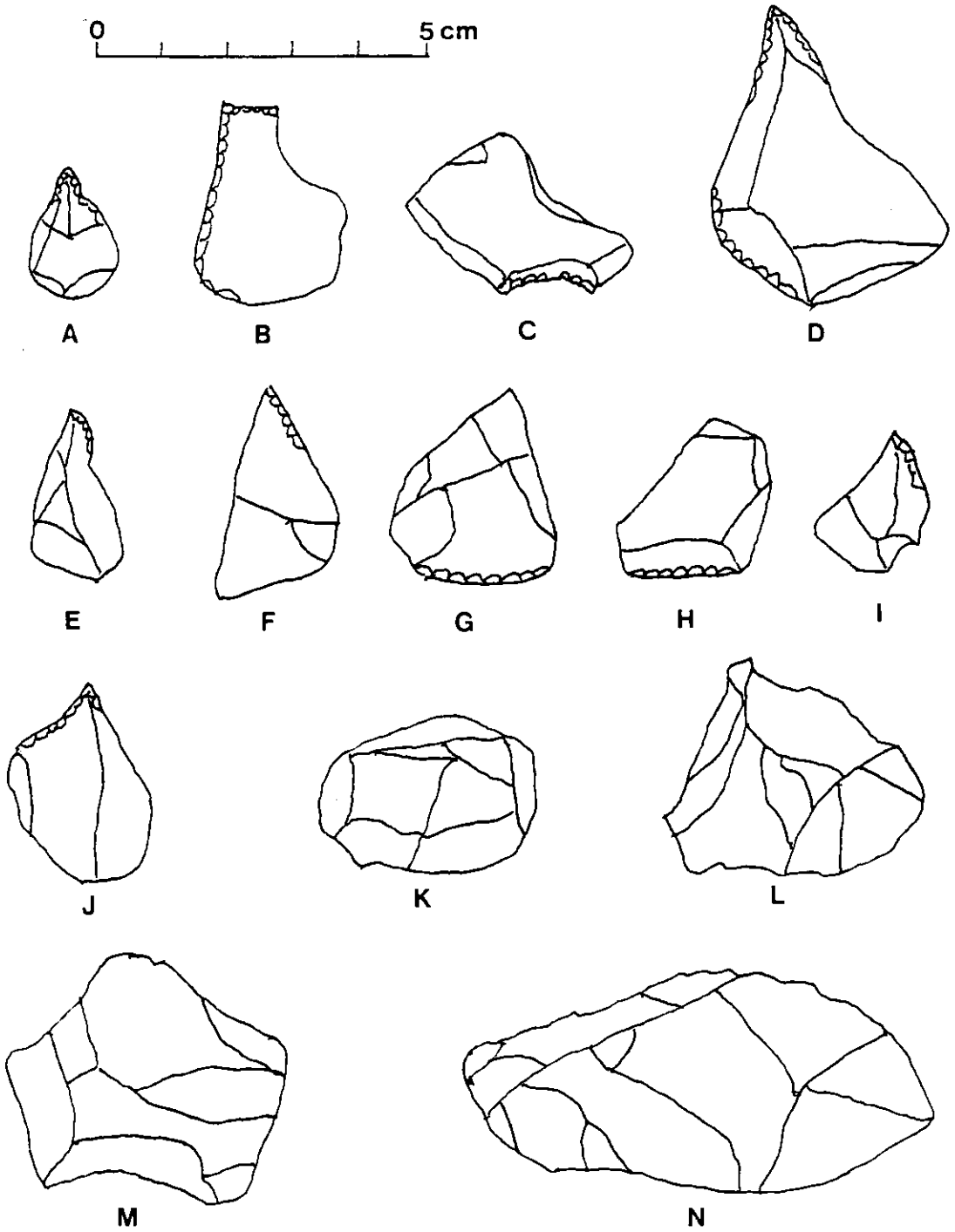


Figure 5

LITHIC ARTIFACTS



A- drill bit; B- scraper-graver; C- notched tool; D- scraper-perforator; E,F- perforators; G,H- scrapers; I,J- gravers; K to N- cores

Figure 6
41FB3 Blade Width Distribution

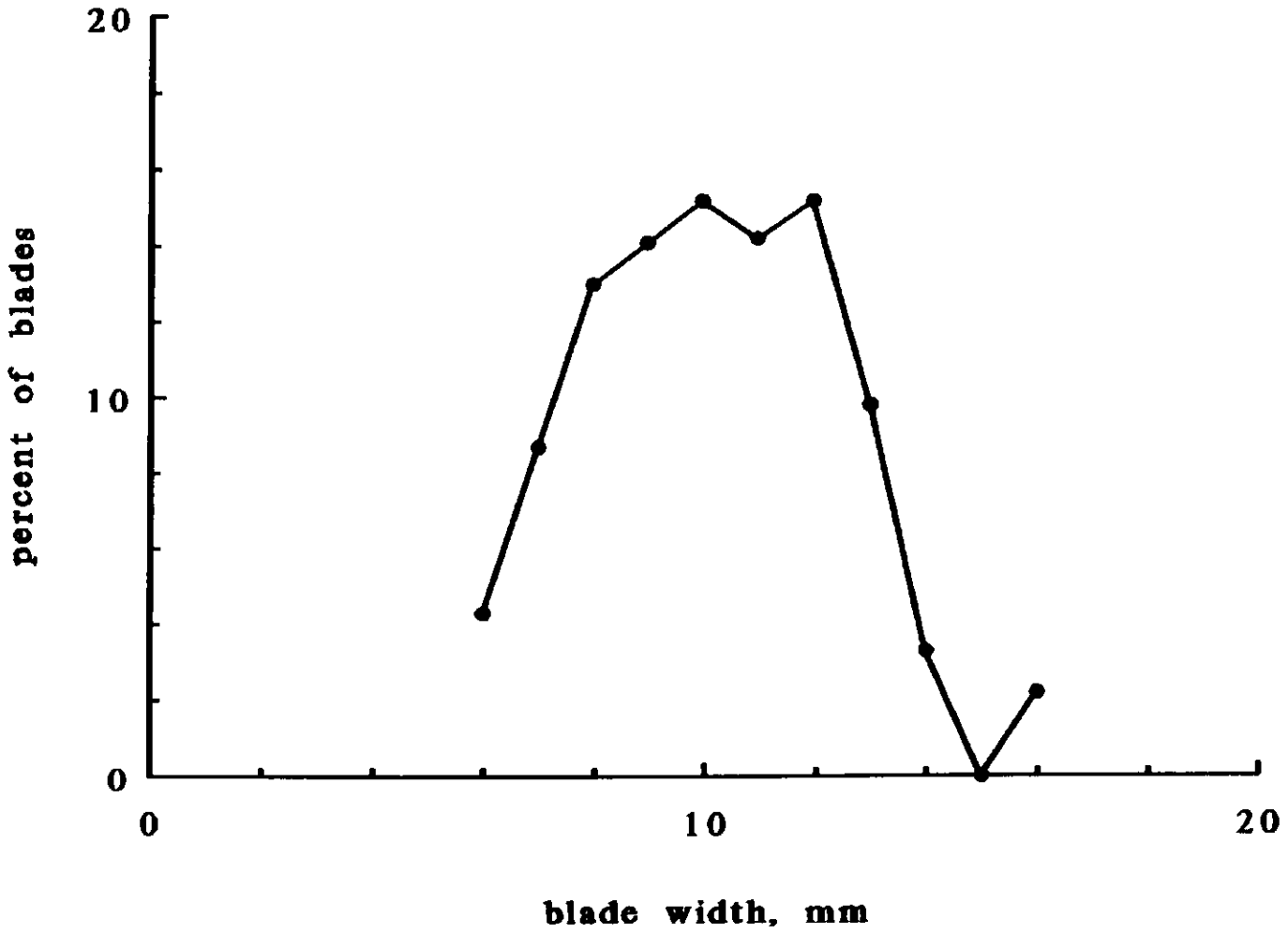
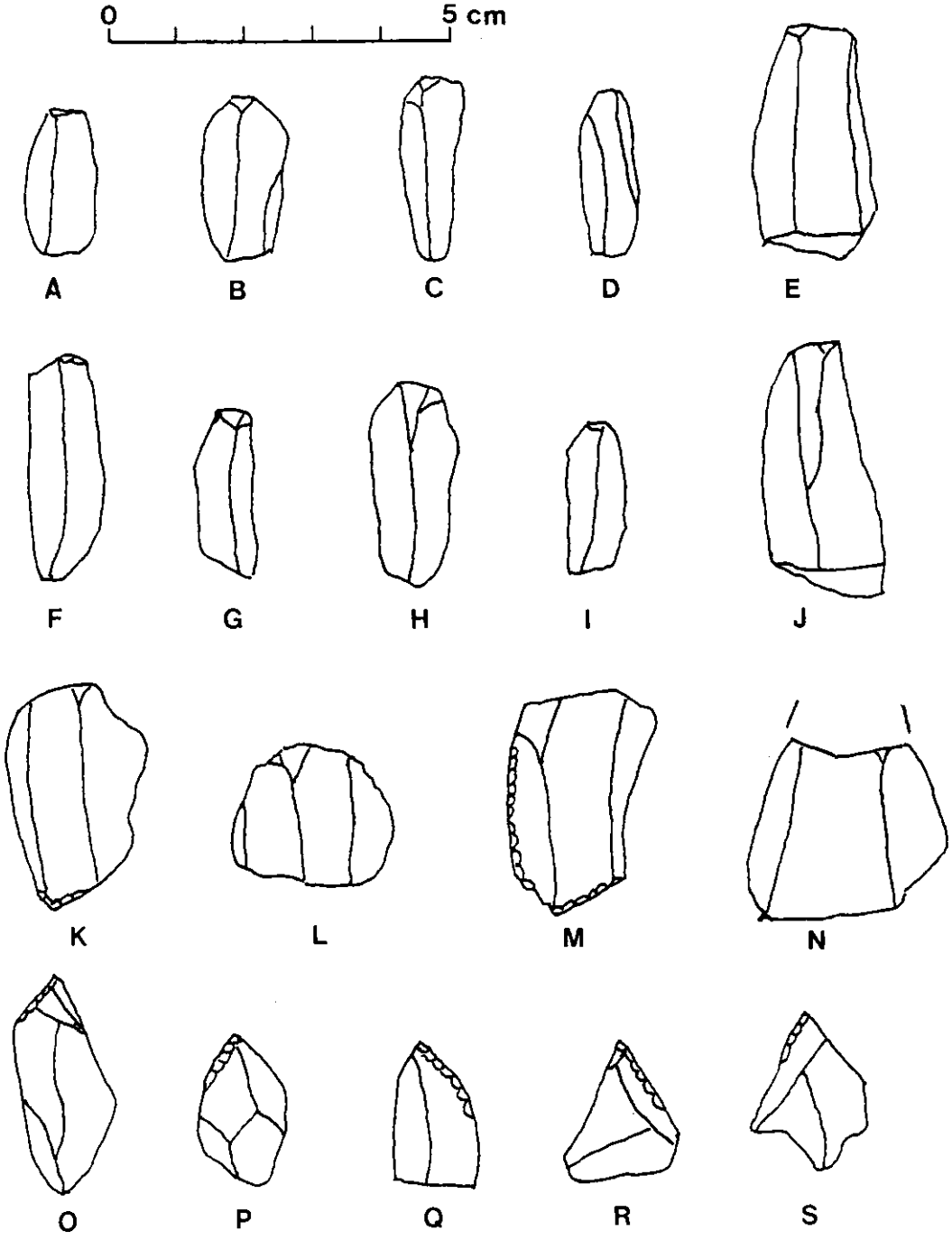


Figure 7

PRISMATIC BLADES, TRIM FLAKES, AND UNIFACIAL ARROW POINTS



A to J- prismatic blades; K to N- blade core trim flakes;
O to S- unifacial arrow points

Figure 8A

CORNER-TANG KNIFE

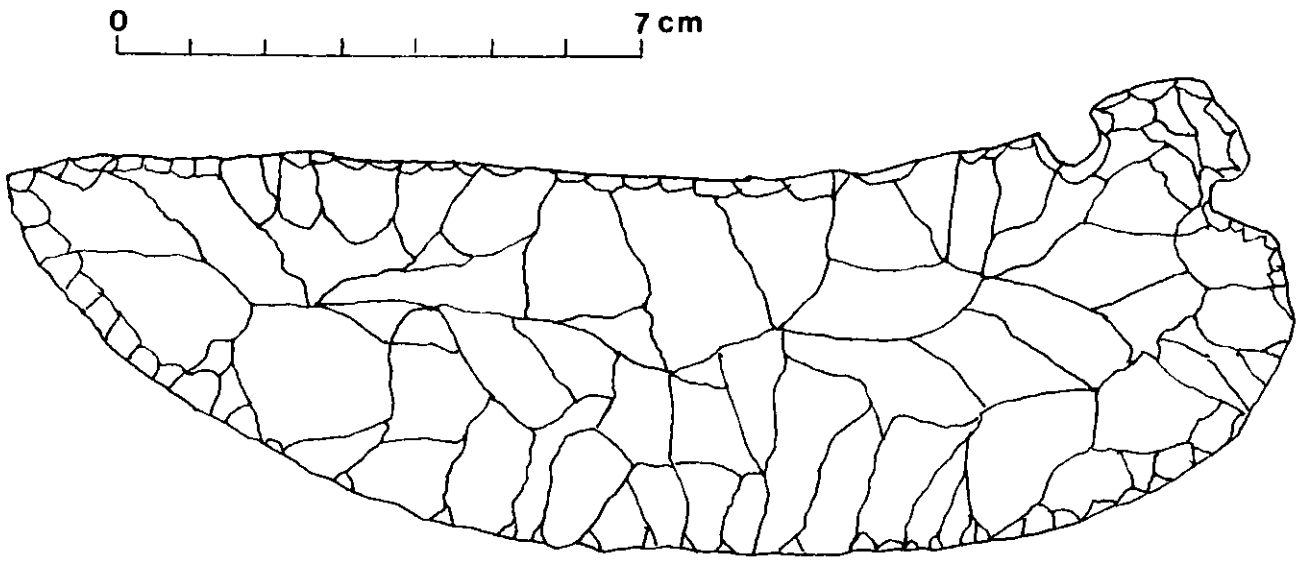


Figure 8: Corner-Tang Knife

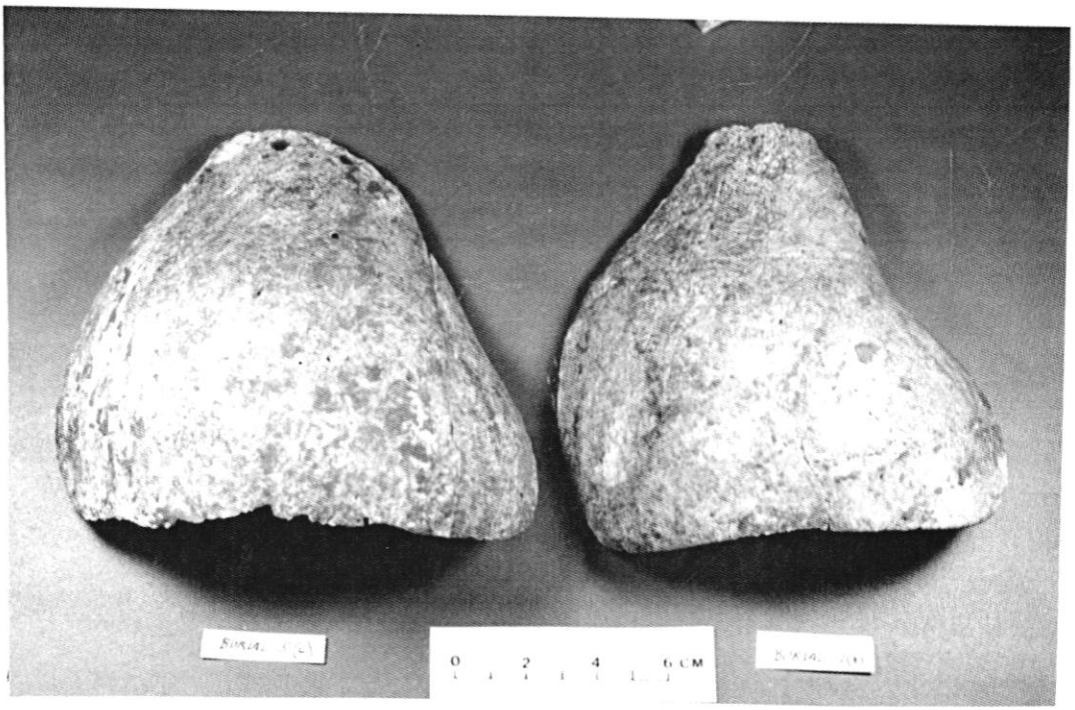


Figure 9: Type 1 Shell Ornaments

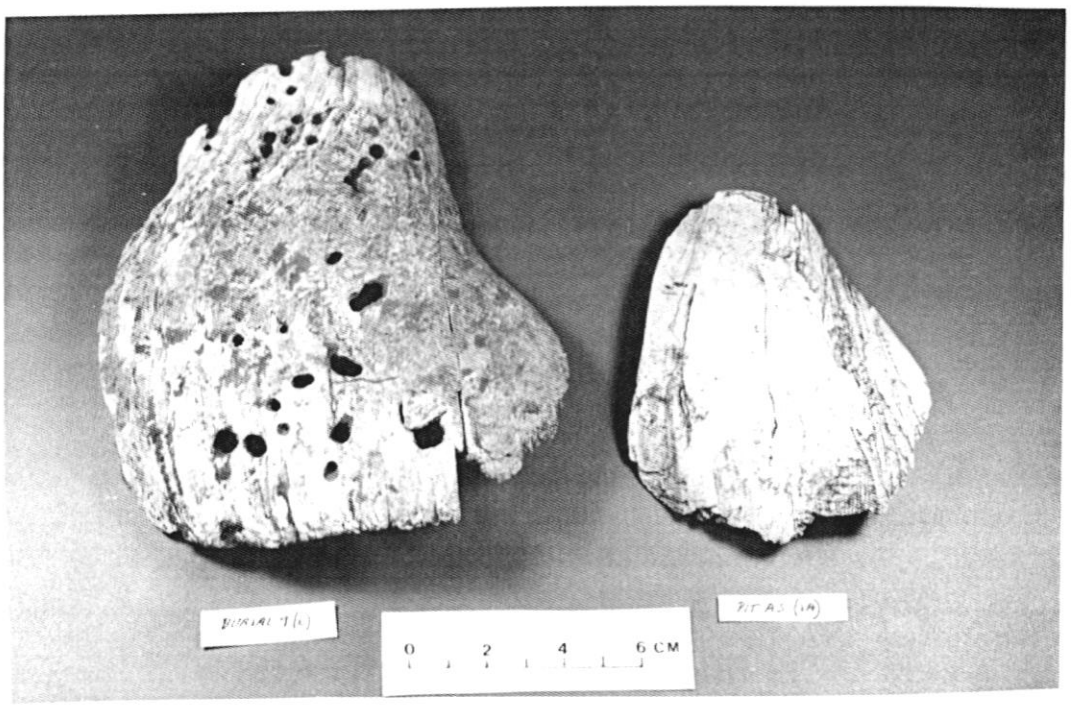


Figure 10: Type 1 Shell Ornaments

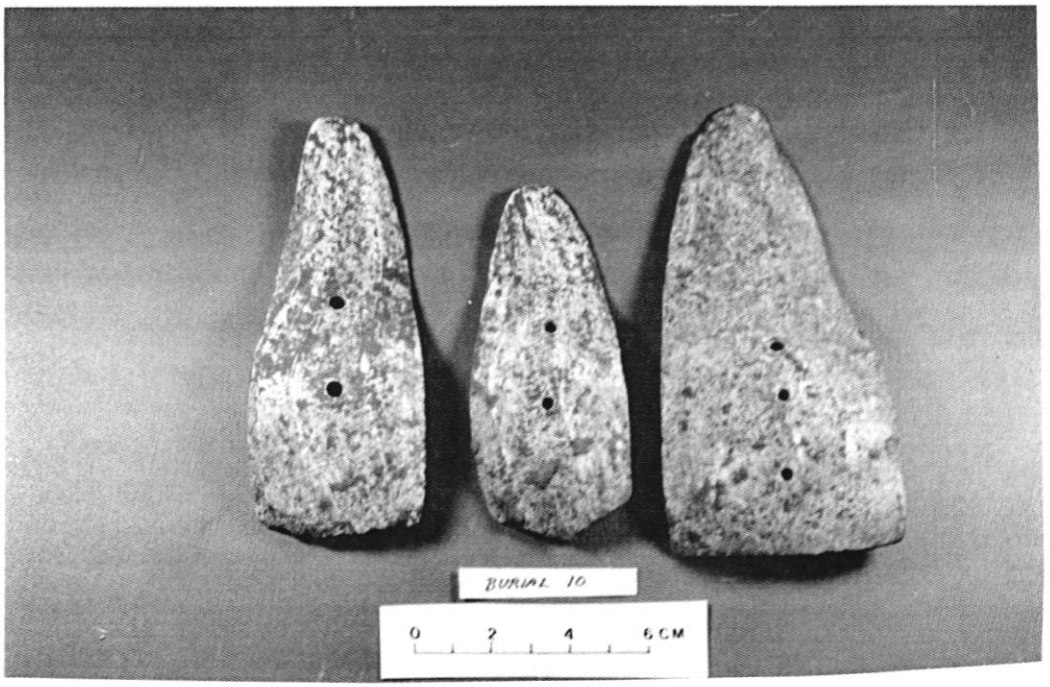


Figure 11: Type 2 Shell Ornaments

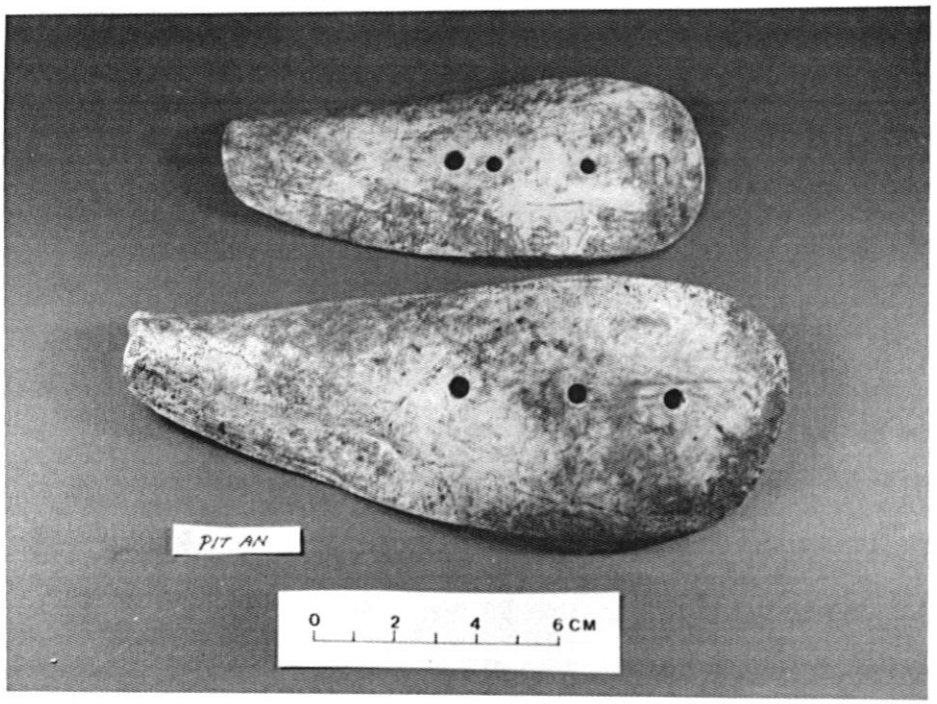


Figure 12: Type 2 Shell Ornaments

Figure 13: Type 3 Shell Ornaments

Figure 14: Type 3 Shell Ornaments

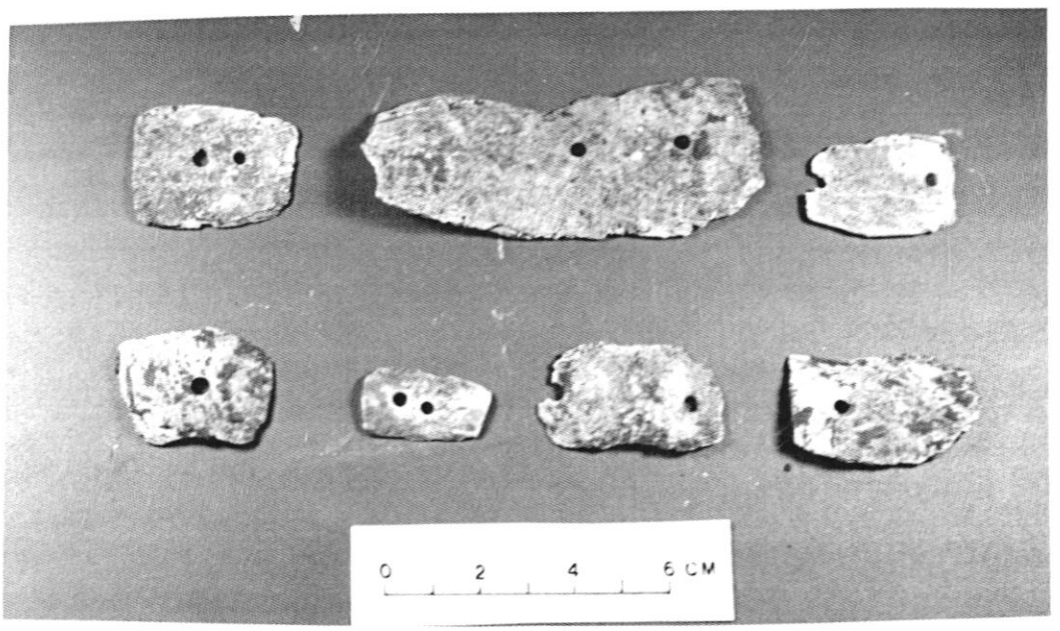


Figure 15: Type 4 Shell Ornaments

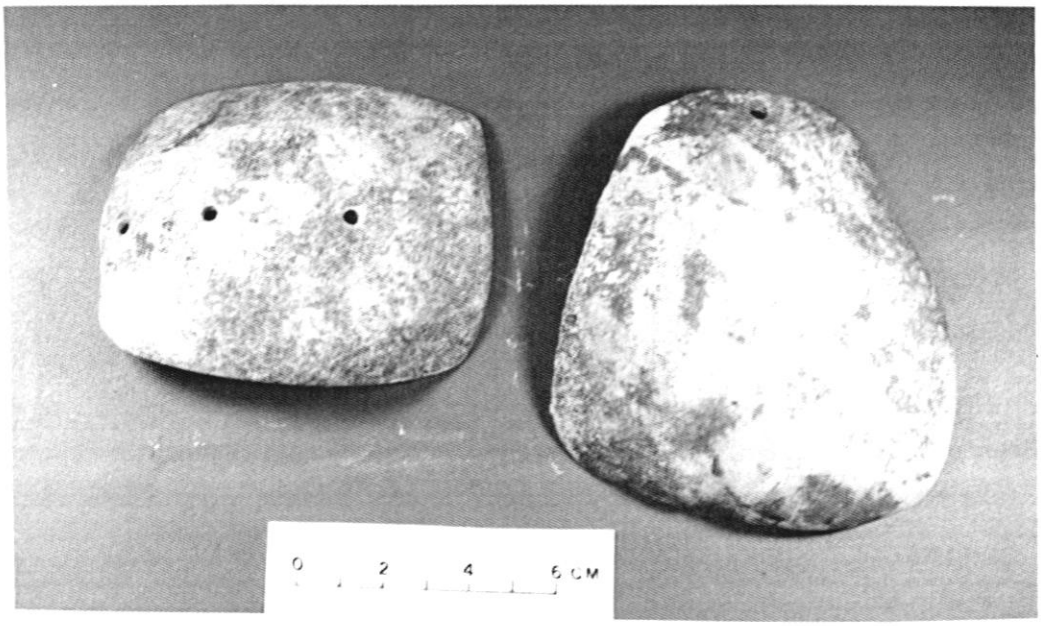


Figure 16: Type 4 Shell Ornaments

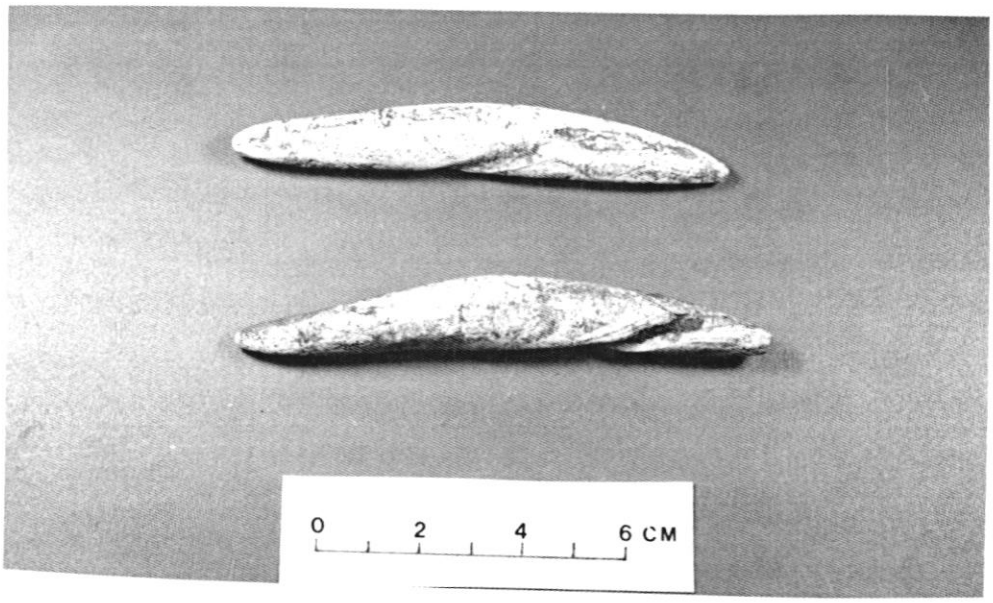


Figure 17: Lightning Whelk Columella Artifacts

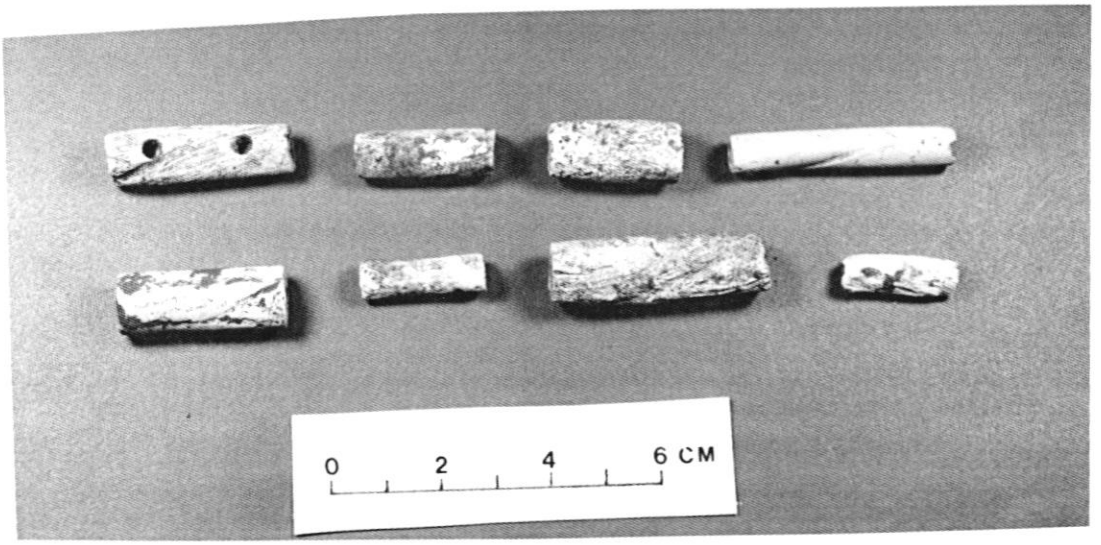


Figure 18: Tubular Shell Beads

Figure 19: Olivella Shell Beads

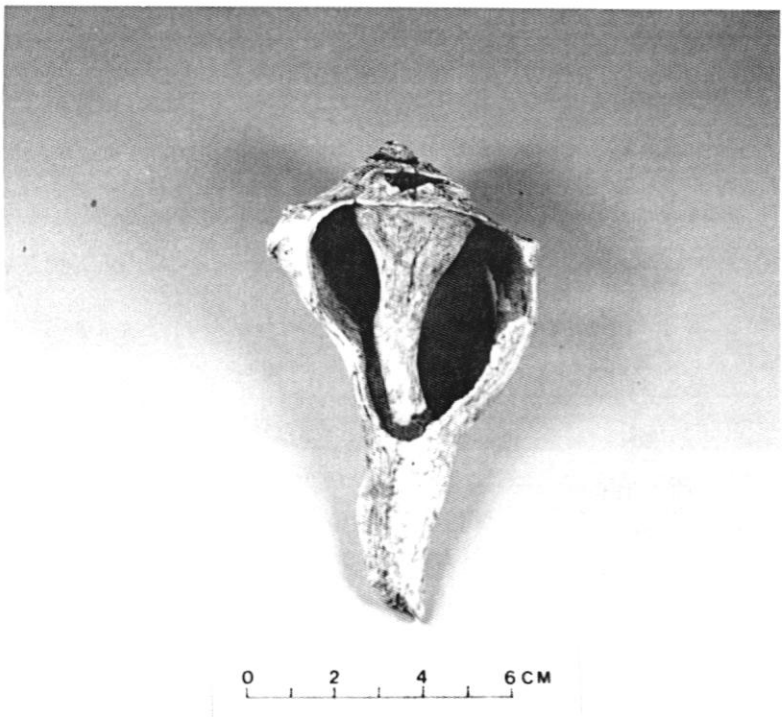


Figure 20: Cut Lightning Whelk Shell

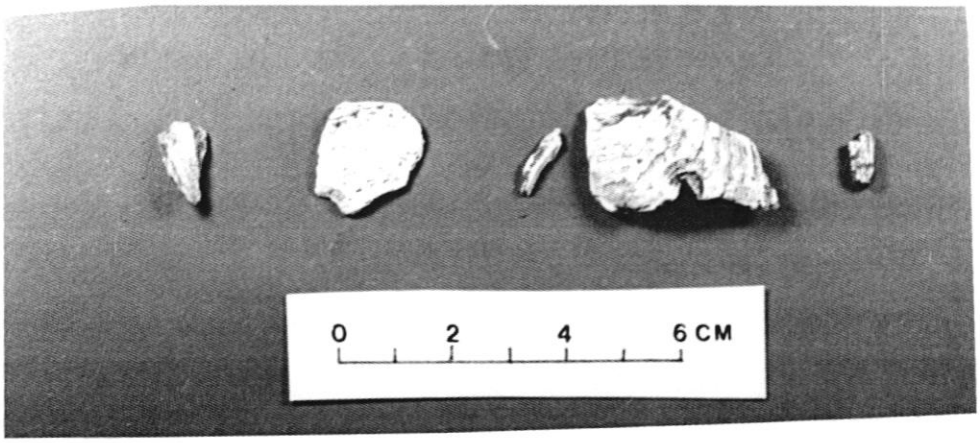


Figure 21: Lightning Whelk Shell Debris

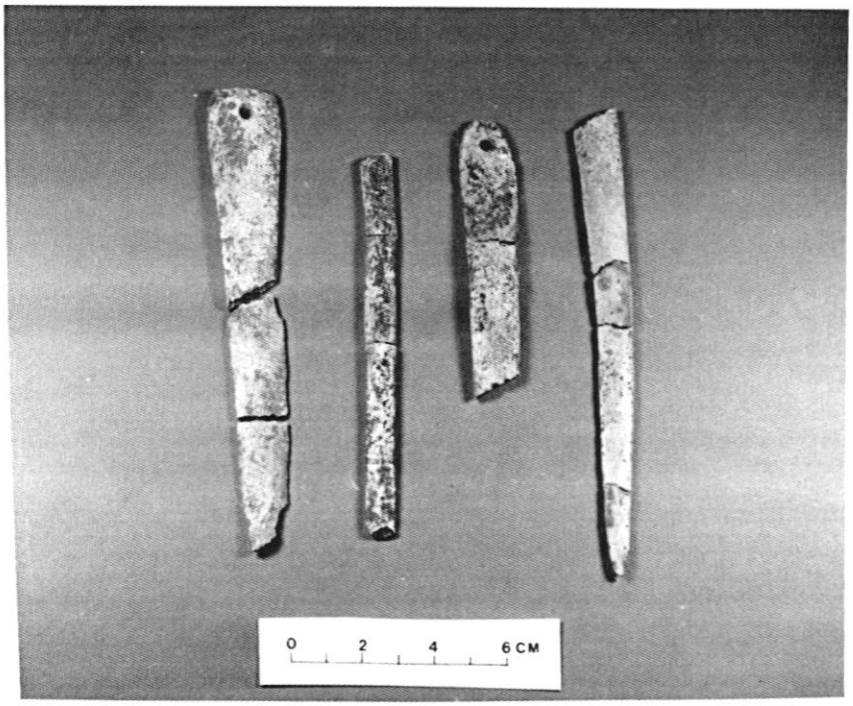


Figure 22: Long-Bone Implements

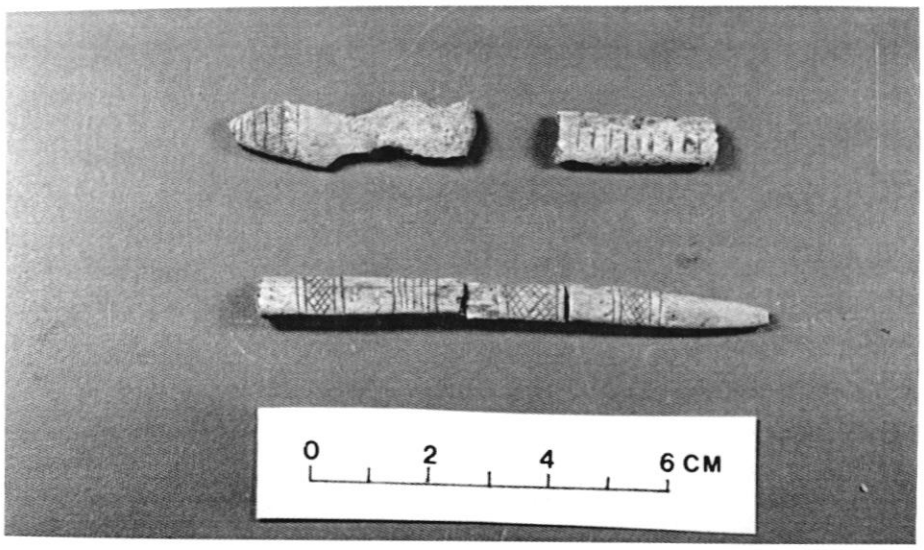


Figure 23: Incised Long-Bone Implements

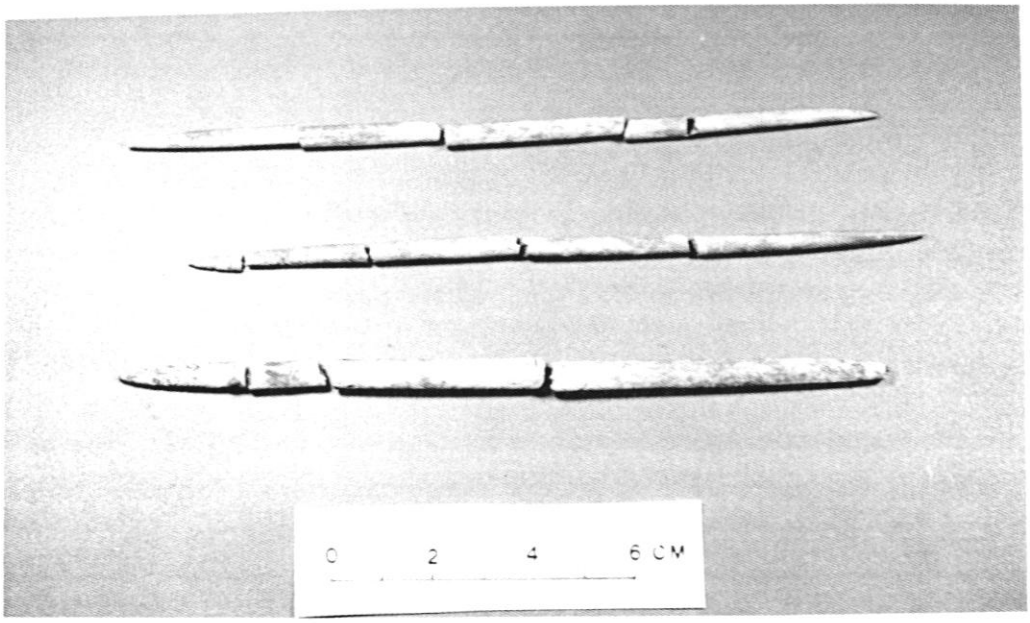


Figure 24: Bone Pins

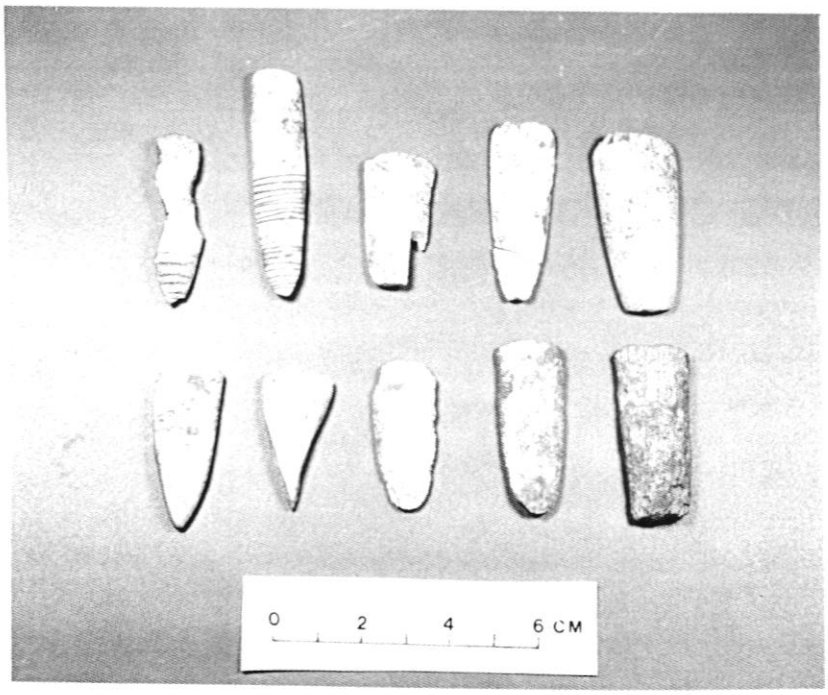


Figure 25: Short Bone Artifacts

Figure 26: Bone Projectile Points
upper- finished, lower- unfinished

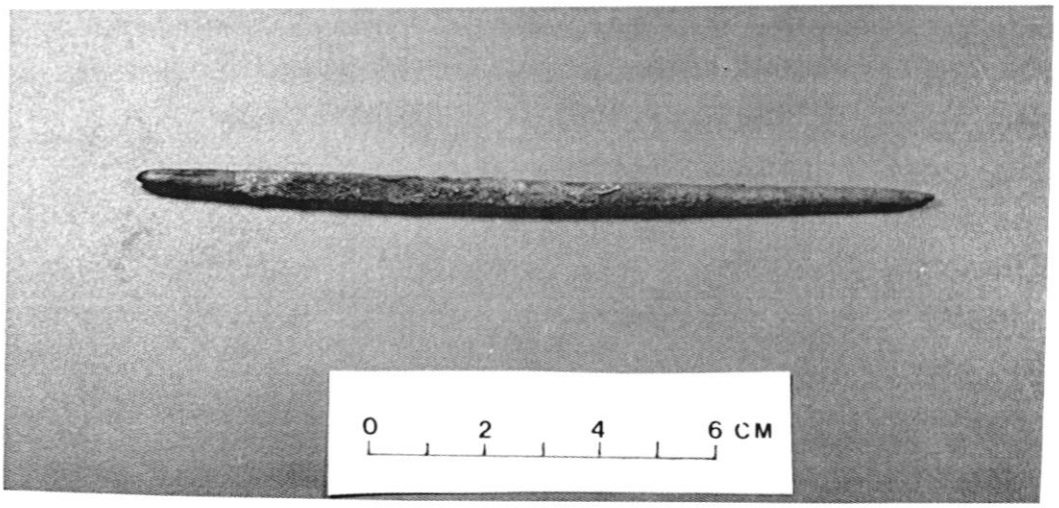


Figure 27: Copper Pin or Awl

Figure 28: Sandstone Tools

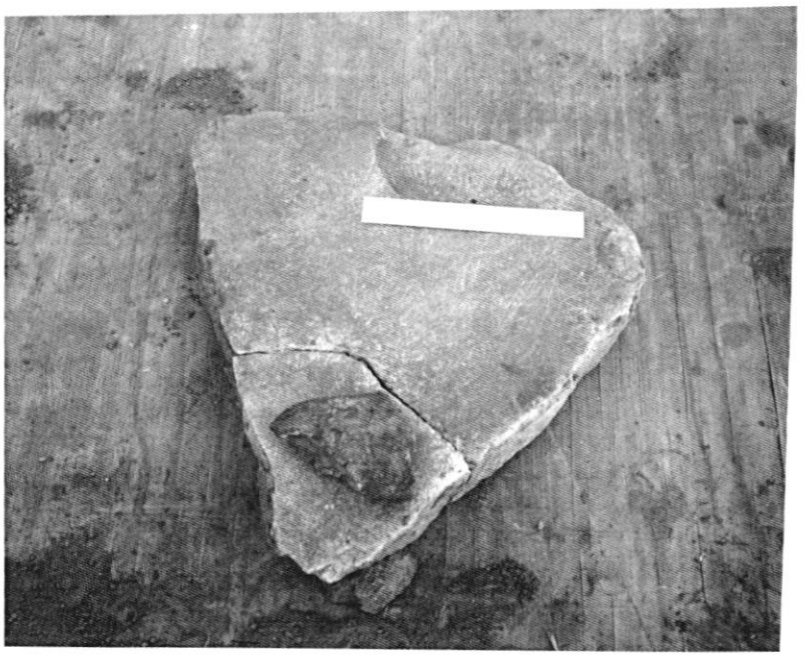


Figure 29: Sandstone Slab with Mano

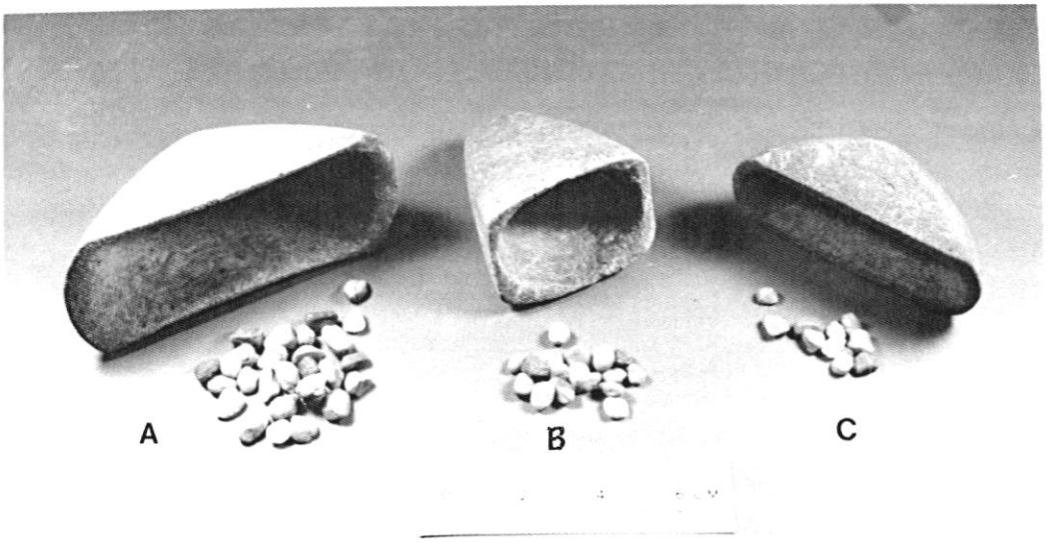


Figure 30: Boatstones with Pebbles, Burial 10
A,C- boat-shaped; B- bell-shaped

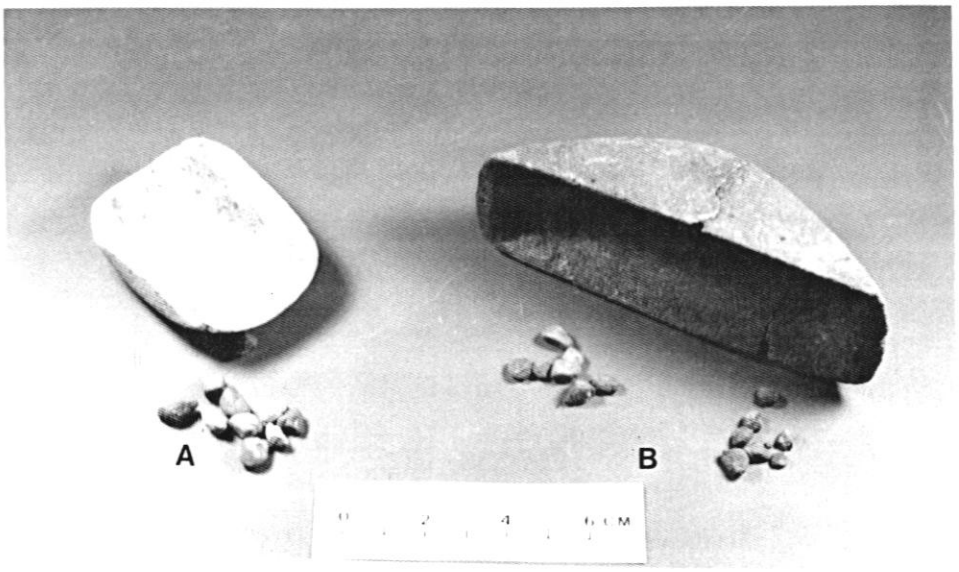


Figure 31: Boatstones with Pebbles
A- Burial 11, B- Burial 39

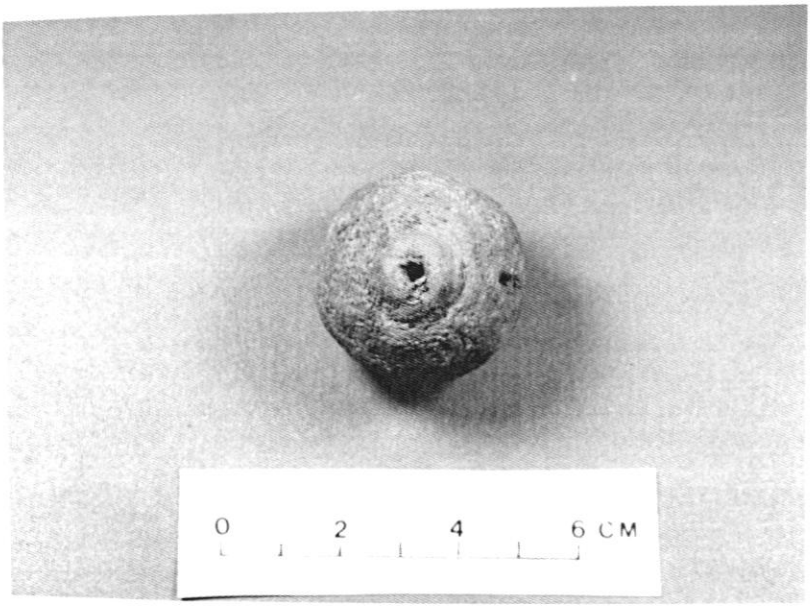


Figure 32: Ground Stone Object

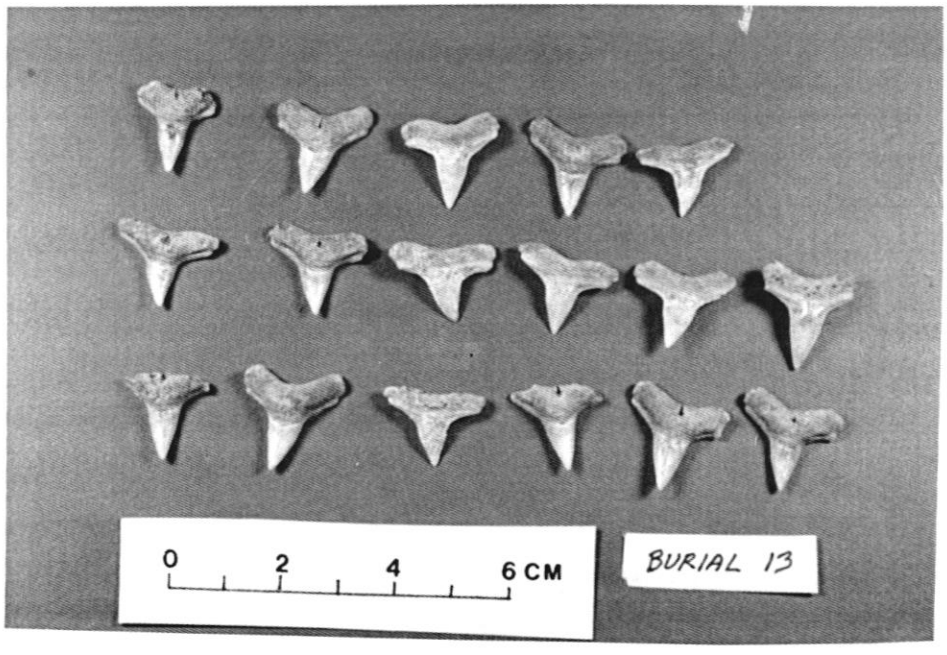


Figure 33: Shark Teeth, Burial 13

Figure 34: Seed Beads