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SITE DESCRIPTION

Morhiss is an Archaic mortuary site located on the Western Gulf Coastal Plain in Victoria County, Texas (Figure 1). The site is located on a remnant river terrace on the east bank of the Guadalupe River, approximately 3.8 km south of the modern city of Victoria (Campbell 1976:81). Morhiss was excavated from October 1938 to January 1940 by workers for the Works Project Administration (WPA) under the direction of project archeologist William A. Duffen. The site measures 145 m long and 91 m wide (Campbell 1976:81). The site was also about 32.3 km from the nearest portion of San Antonio Bay and 64.4 km from the coastal strand.

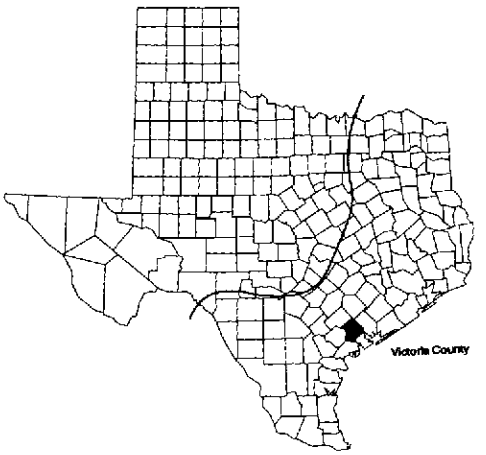

Figure 1. Location of the Morhiss site (41VT1) in Victoria County, Texas within the West Gulf Coastal Plain.

Morhiss had remained undated by chronometric means until recently, but projectile point styles indicated a strong Archaic period occupation (Dockall 1997:45). The lithic assemblage consisted primarily of Morhiss, Lerma, Refugio, Pandora, Nolan, and Darl Archaic dart points (Campbell 1976:83). There are traces of Late Paleoindian and Late Prehistoric components as well. In 1995, the Texas Archeological Society Donor's Fund enabled the junior author to obtain one AMS radiocarbon date on skeletal material from Burial 159 from Morhiss. The resulting uncorrected and uncalibrated date is 2410 $\pm$ 50 B.P., or 460 B.C., a firm Late Archaic date (Dockall 1997:46). This date is significant because it demonstrates that at least some of the Morhiss burials are contemporaneous with those of the Group 2 burials at Ernest Witte (see Hall 1981).

WPA excavations recorded 219 poorly preserved human burials, with the majority being recovered on the southeastern slope of the site (Jackson 1939:70). Due to poor preservation, only 181 discrete individuals were curated at the Texas Archeological Research Laboratory at The University of Texas (Dockall 1997:43). In addition, over 30 hearths were identified during excavations (Campbell 1976:83). Also recovered was one of the largest shell artifact assemblages (over 3000 specimens) from any site on the Western Gulf Coastal Plain, consisting of ornaments and tools (Dockall and Dockall 1996). The bone and shell artifact collections included some manufacturing debris, indicating that some items were made at the site. Shell artifacts included beads, adzes, edge-modified Sunray Venus, and hammers.

PRESENCE OF UTILITARIAN OBJECTS IN TEXAS ARCHAIC CEMETERIES

Recently, Taylor (1995:663-699) has performed a tremendous service to Texas archeology by synthesizing and interpreting the massive amount of published and unpublished information on mortuary items in Archaic cemeteries in Texas. For the present brief study, knapping implements are grouped as a class of utilitarian artifacts.

A number of burials at Morhiss (41VT1) included clusters of utilitarian items as grave associations (Duffen n.d.; Taylor 1995:689). Burial 139 (adult male) included three clam shells, a bone flaker or awl, four flint flakers, and shell bead blanks. Burial 39 (adult male) had a bone awl, an antler flaker, an antler ornament, a shell necklace, and two stones with pigment. Burial 50 (young adult male) at Morhiss included worked shell, drilled shell, 50 columella beads, and an antler flaker. A series of probable "tool kits" were recorded with some of the other burials at Morhiss. Burial 61 (adult indeterminate) grave associations included five gouges.

Taylor (1995:689) identified an interesting and possibly significant difference in utilitarian grave associations between the earlier mineralized human skeletal remains (largely represented by fully flexed and bundle burials) at Morhiss and the later non-mineralized skeletal remains (dominated by flexed and extended interments). The earlier mineralized

interments were characterized by a predominance of various types of lithic implements, including dart point fragments, stemmed drills, keeled scrapers, gouges (presumably Guadalupe bifaces), a chopper, and manos. The later burial group included dart points, a blade, and flakes. Additionally, this later group also included a number of bone needles, awls, flakers, and billets (see Taylor 1995:689). Both groups had burials with "knives," "scrapers," and asphaltum.

Of the major mortuary sites along the West Gulf Coastal Plain and adjacent regions summarized by Taylor (1995:689-691), namely: Olmos Dam (41BX1), Blue Bayou (41VT94), Ernest Witte (41AU36), Rudy Haiduk (41KA23), Rodd Field (41NU29), and others, the presence of various utilitarian implements was not as prevalent as encountered at Loma Sandia (41LK28). In particular, Loma Sandia is noted for the abundance of stacks of lithic implements associated with some burials, especially Tortugas points, Lange points, and distally beveled implements. Rudy Haiduk, Morhiss, and the Rio Salado Burial, all located within or directly adjacent to South Texas, had burials with associated stacks of utilitarian lithic and bone/antler/shell implements. Taylor (1995:691) considered this as a distinctive trait of southern Texas mortuary sites. From the available data, these clusters of utilitarian goods seem to be primarily associated with adults, more commonly adult males.

OSTEOLOGY AND PATHOLOGIES OF BURIAL 119

Field descriptions of Burial 119 indicated a male buried in a fully extended position in an east-west orientation, head to the west and facing south. Unfortunately, little of this individual could be recovered due to the extremely fragmented and poorly preserved nature of the remains. No skull or teeth were curated, nor were any thoracic or arm elements. Skeletally, this burial is represented solely by the portion of the right ilium bearing the sciatic notch and auricular surface, a portion of the left femoral diaphysis, portions of both tibiae, and the distal ends of both fibulae. In addition, the proximal and medial phalanges of the right fifth digital ray of the hand were recovered, as were the proximal and distal phalanges of the right first toe.

The sex determination as male was based solely on the narrow width of the sciatic notch as well as the preauricular sulcus, which appears as a groove of ligament attachment rather than as a groove of pregnancy (see Houghton 1974). Age estimations were based only on the condition of the auricular surface following Lovejoy et al. (1985). Using this technique, age was estimated for Burial 119 at 35-44 years old. This is based on characteristics of the auricular surface, including coarse granulation and reduced billowing. Slight changes were observed in the apex of the auricular surface and some microporosity was evident.

Medical disorders were limited to bone fusions. The proximal and distal phalanges of the right fifth digital ray of the hand were fused together, as were the proximal and distal phalanges of the first ray of the right foot. The proximal and medial phalanges of the hand fifth ray were fused together at a right angle (Figure 2), with a subsequent disuse atrophy of the shaft of the medial phalanx. Wasting from lack of use may be seen as recently as a few weeks after disuse (Steinbock 1976:261). The nature of the fusion suggests a traumatic origin. Ortner and Putschar (1985:69) noted that the fracture of adjacent joints can result in fusion occurring with comminuted fractures and callus formation over the joint. The origin of the injury cannot with certainty be associated with knapping activities.

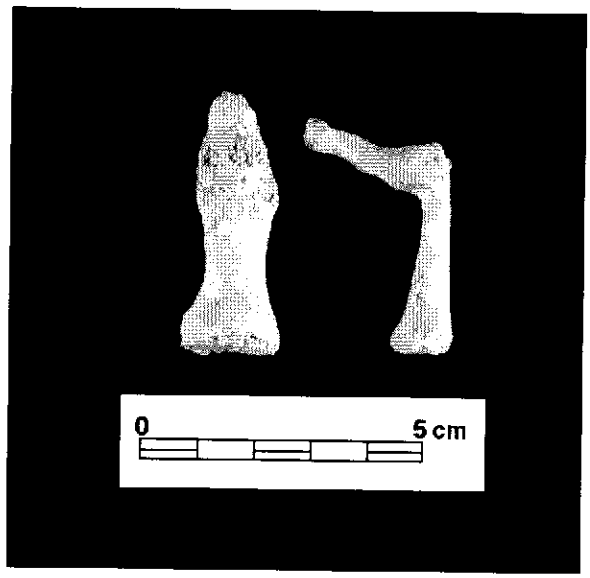

Figure 2. Left: Fusion of proximal and distal phalanges of right first toe; Right: Fusion of proximal and medial phalanges of the right fifth finger.

The proximal and distal phalanges of the right first toe are fused together, but not misaligned (see Figure 2). Therefore, it is harder to attribute to trauma. It is possible that it represents a congenital union of two phalanges. This usually results when a joint fails to differentiate and, when seen, is typically identified in distal phalangeal joints of the toes (Resnick and Niwayama 1988:3560). In this instance, a case of congenital symphalangism is inferred based on the presence of a "smooth osseous contour" (Resnick and Niwayama 1988:3560) between the joints.

DESCRIPTION OF THE BURIAL 119 BURIAL ASSOCIATIONS

Schiffer (1987:41) noted that an individual's personal items technically become obsolete upon death. Those items that are not interred with the individual or destroyed in funerary rituals are available to be reused or laterally recycled, generally through inheritance.

The personal artifact inventory of mobile hunter-gatherers is limited by the frequency of moves. Thus, survivors may not necessarily be in a position to take on personal items of the deceased. Therefore, the death of an individual in these groups may result in little reuse or recycling as personal items are destroyed or interred. This concept may explain the inclusion of the items with Burial 119. This is assuming that all grave goods associated with Burial 119 were that individual's personal property. It is just as plausible to assume that none or only a portion of the items were personal property, which would lead to entirely different interpretations. To approach this topic would require a detailed mortuary analysis of the Morhiss site, well beyond the scope of this paper.

Elements of the assemblage include antler artifacts, lithic debris, a flaked uniface, a sandstone abrader, long bone artifacts, and asphaltum. The Texas Memorial Museum accession number for the lot of items from Burial 119 is TMM 7-1-830. All artifacts, including the asphaltum, were covered in red ocher. Field notes indicate that the lump of asphaltum was placed near the right hip. There is no other information in Duffen's (n.d.) notes relating to the relative position of these artifacts. A knife and bone needle are also mentioned as having been embedded in the mass of asphaltum but could not be located for analysis. The final grave inclusion was a "mass of Mexican persimmons" (Jackson 1939:5). Presumably seeds made up the mass, but this was not made clear in the description. It is also not clear as to whether the seeds or fruits were charred. Burial 119 was the only individual excavated in which grave associations were covered in red ocher, possibly denoting the distinctive status of this individual.

Antler Billets

The assemblage of antler billets (n=5) was composed of one complete and four fragmentary specimens (Table 1 and Figure 3). All billets were entirely coated in red ocher making examination of use-wear at the distal ends difficult. The complete billet is well-smoothed at the base, perhaps from prehension during use. The distal end is extremely worn and smooth, exhibiting a slight use-bevel. Fragments all retain intact distal ends with well-developed bevels and smooth surfaces.

Figure 3. Antler billets included as grave goods with Burial 119.

Antler Tine Pressure Flaker

Ocher staining is present on the proximo-medial portion of the one tine (Figure 4 bottom). A slight amount of rodent gnawing is present at the tip. The base of the tine has a remnant of an incised groove that indicates it was cut by the groove and snap technique. The fracture surface at the base has been abraded to remove sharp

Table 1. Dimensions of Antler Billets Associated with Burial 119

Artifact No.	Distal Diameter	Length	Medial Diameter	Condition
2671a	2.7	6.4	2.8	Complete
2671d	2.3	12	2.3	Fragmentary
2671g	3.1	10.7	2.4	Fragmentary
2671h	2.8	3.0	2.8	Fragmentary
no number	–	–	–	Fragmentary

All dimensions are in centimeters

edges. The tip displays a bevel that may be associated with use of the implement. Dimensions: Length=14.1 cm; Basal Diameter = 1.5 cm; Medial Diameter = 1.5 x 1.1 cm; Distal Tip Diameter = 0.5 x 0.5 cm.

Antler Punch Fragment

In addition to antler billets and pressure flakers, the kit included a single distal fragment of an antler punch for indirect percussion (Figure 4 top). This specimen is also entirely stained in ocher except for the broken end. The working end is quite rough, irregular, and blunted from heavy use such as would occur during indirect percussion.

Uniface

The flaked uniface was manufactured by soft hammer invasive flaking on the dorsal surface of a secondary cortex macro-flake (Figure 5). Both dorsal and ventral surfaces were covered in red ocher. The cortex is stream battered and the material is identical to other chert types observed in the Morhiss collections. Flake dimensions are: Length = 9.2 cm; Width = 5.1 cm; Thickness = 1.6 cm.

Another small proximal flake fragment was also recovered from the burial but has no red ocher or use wear. It may have been incidentally incorporated into the grave fill.

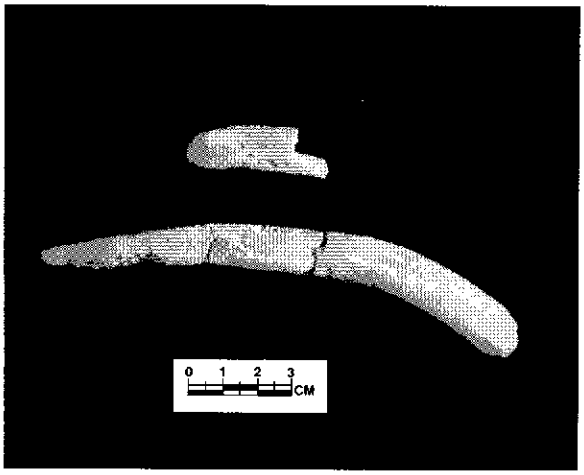

Figure 4. Top: Fragmentary antler tine punch; note blunted end; Bottom: Reconstructed antler flaker. Both were included as grave goods with Burial 119.

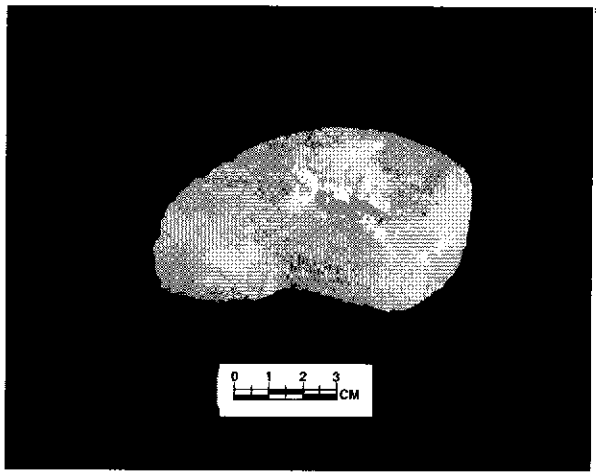

Figure 5. Dorsal view of secondary percussion flake with retouch along the right dorsal margin (at top of photo). Specimen is oriented with the proximal end at the left in the photograph.

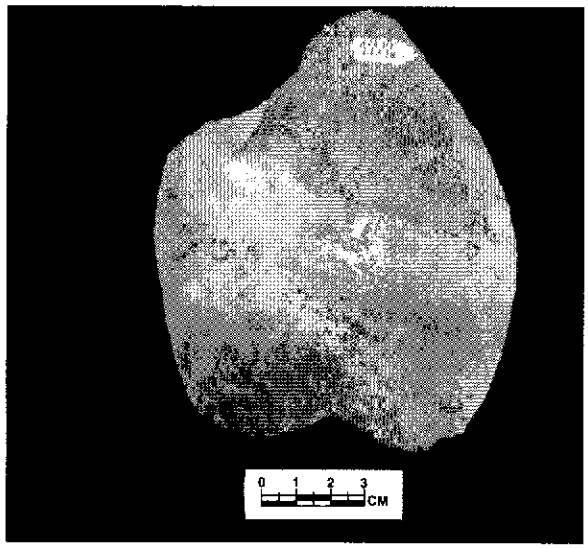

Figure 6. Sandstone abrader recovered with Burial 119.

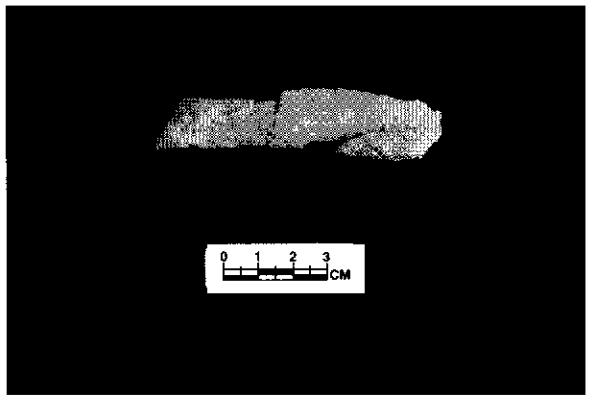

Figure 7. Incised long bone implement fragment associated with Burial 119. Note the incised chevron or zig-zag design across the face of the fragment.

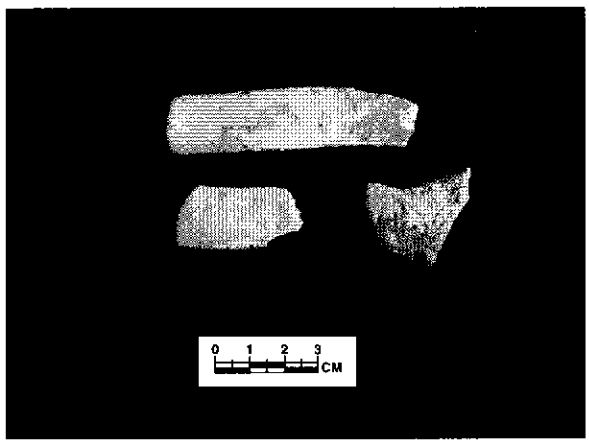

Figure 8. Undecorated fragments of split long bone implements from Burial 119.

Sandstone Abrader

A single sandstone abrader was included in the kit (Figure 6). The raw material is a coarse-grained gray-brown sandstone. It is roughly oval in shape with a longitudinal groove on one surface from use, possibly as a biface edge abrader or to maintain the shape of billets and punches. Both surfaces are coated in red ocher. Dimensions: Length = 12.8 cm; Width = 10.1 cm; Thickness average = 2.1 cm.

Incised Long Bone Implement Fragment

This fragment represents a probable long bone cortical fragment or split metapodial implement. The condition is very fragmentary but it is ocher-stained on the exterior incised surface. Cancellous interior material is not present. The outer cortical surface displays a deeply incised design characterized by discrete zones of encircling chevrons or zig-zag lines (Figure 7). Each zone is created by three incised lines. The design on this fragment compares favorably to similar designs observed on other split metapodial implements from Morhiss and other Archaic mortuary sites in the region (Hall 1981, 1988). Dimensions: Length = 8.3 cm; Width = 1.7 cm; Thickness = 0.5 cm.

Unincised Split Long Bone Implement Fragments

All three specimens are fragments, representing the proximal ends of this implement type (Figure 8). These fragments represent either unincised bone implements or unmodified fragments of decorated bone implements (see Hall 1981). Red ocher covers both surfaces of each fragment except for the fracture surface at the ends. The proximal end of each artifact is well-smoothed by abrasion and forms a distinct beveled surface. The interior has also been abraded smooth and the cancellous material removed by scraping. There is no decoration. The blanks for these and similar implements seem to have been split metapodials of medium-sized artiodactyls, perhaps deer.

Asphaltum

A large mass of asphaltum (contained in two small boxes numbered 2671; the artifacts discussed

above were also in these numbered boxes) was included with Burial 119. It is estimated that between 800-1000 grams are present along with traces of red ocher. Unfortunately, the mass of asphaltum was recovered in a large number of small angular fragments. A knife (2673) and bone needle (2672) discussed earlier were embedded on the surface of the mass and it seemed that the asphaltum had been contained in a "skin pouch" (Duffen n.d.).

COMMENTS ON OCHER STAINING

The presence of ocher on the surfaces of the antler billets and other grave inclusions with Burial 119 is potentially significant because it may indicate the symbolic treatment of utilitarian mortuary items. During analysis of the artifacts it was concluded that the ocher had been applied after being combined with some type of liquid. Traces of ocher can be observed deep into surface concavities of the antler and bone artifacts and the sandstone abrader. It is possible that it was rubbed into the surface in powder form.

COMPARISONS WITH OTHER KNAPPING IMPLEMENT SETS FROM TEXAS AND THE MIDCONTINENT

Sometimes, researchers have attributed variability in technology to differences in subsistence (Binford 1980; Bettinger 1991), primarily assigning hunter-gatherer groups to either forager or collector. There is also some indication that social complexity may be in part related to patterns of subsistence and settlement (Binford 1980:17). But, as Thomas (1983) has demonstrated for Great Basin hunter-gatherer groups, the collector-forager dichotomy need not be associated with dramatic differences in social organization, complexity, or technological organization.

Irrespective of the causes of technological, social, and complexity differences, one cannot deny those observed between Texas and the Midcontinent. Previous research has shown that the Midcontinental region was the locus of a complex series of social, cultural, and technological changes (Charles 1995; Hall 1981:285-288; Jeffries and Butler 1982:19-24; Goldstein 1980; Griffin 1983). Data and research for much of Texas indicates that, to varying degrees, prehistoric groups were characterized by an egalitarian hunter-gatherer lifeway. Exceptions would include areas where Native groups were practicing agriculture or had formative-chiefdom level social structures.

Bousman (1993:76-78) has emphasized the idea that manufacture/maintenance tools were not used and repaired in the same manner as weapons and other tools. His discussion is couched in terms of a forager/collector dichotomy. It is also probable that social complexity and technological organization differences can influence patterns of use and maintenance of manufacturing implements and kit composition. Mortuary and cache contexts provide one means of examining toolkit differences and how these implements were used and discarded. Comparative data from the Midcontinent and Texas are used here to briefly examine potential differences that may be related to social complexity and technological organization broadly characteristic of these areas.

Comparisons can be made between Burial 119 from Morhiss and similar mortuary assemblages from Texas (Appendix 1). Other comparative data for the Midcontinent are obtained from Seeman (1985:Appendix 1.1). The examples from Texas are not meant to be exhaustive but probably represent the general range of variability observed among such mortuary assemblages interpreted as knapping toolkits or personal kits containing some knapping implements. There is probably considerable variability in what different analysts would consider to represent such kits and what artifacts should be present, hence the variability among examples in Appendix 1. One way of examining differences is to consider the presence/absence of particular artifact types probably associated with knapping (Table 2), and the proportion of each artifact type among both combined samples. The analysis does not include any other artifacts present within the burial because of the focus on knapping implements.

The sample sizes from Texas and the Midcontinent are too small to attempt analysis by time period or various statistical methods. It is also assumed for the sake of this preliminary analysis that both samples are broadly comparable. Based on this analysis, there are some differences that can be observed between the two areas.

Regarding Texas, various flaking tools of bone and antler are the most common implement

Table 2. Presence/absence, Counts, and Percentage of Selected Artifact Types Associated with Knapping Activities Represented in Mortuary or Cache Contexts from Texas and the Midcontinent

(Data calculated from Seeman 1985)

Artifact Type	Combined Texas		Combined Seeman (1985)	
	Count	Percent	Count	Percent
Hammer/hammerstone	6	26	14	35
Billets/drifts	7	30.4	22	55
Flakers/tines	13	56.5	22	55
Abraders/whetstones	7	30.4	28	70
Punches	2	8.7	2	5
Shaft straightener/wrench	1	0.2	7	17.5
Ocher	6	26	10	25

Counts represent the number of individual burials/caches with each artifact type

represented. Interestingly, they are more common than billets of bone or antler, but billets are as common as abraders or whetstones. Midcontinent toolkits are equal in proportions of billets and flaking implements, followed in abundance by abraders and whetstones. It may be significant that punches are better represented in Texas toolkits than Midcontinent examples, but this may also be related to the difficulty in identification of punches, and possible confusion with blunted antler and bone flaking implements. Shaft straighteners and shaft wrenches (potentially functionally similar artifact types) are much more common in Midcontinent toolkits, with the only Texas example being the Late Paleoindian double burial from Horn Shelter No. 2 (Redder 1985). The equivalent presence of ocher as either lumps, stained rocks, or on the surfaces of artifacts probably indicates the general use of this material in a mortuary context and it is not considered to be associated with the presence or absence of knapping implements.

The observed differences in composition between the combined samples may be ultimately related to a greater degree of specialization and status associated with the manufacture and repair of stone tools and weapons in Midcontinental Woodland and Mississippian societies than among Texas hunter-gatherers and agricultural groups. Although there are similarities in the types of knapping tools included as grave goods between Texas and Woodland/Mississippian groups, there is a trend for the latter to be more specialized in terms of the abundance of certain artifact types, most notably shaft wrenches/straighteners and abraders/whetstones. A greater representation of shaft wrenches and abraders/whetstones in association with other types of knapping tools could arguably indicate a greater co-occurrence of these artifact types among Midcontinent burials and toolkits. If we consider this association to represent a true trend in burial practices and knapping technology in this region, then the association of other implements not directly related to knapping but instead with the manufacture and repair of perishable portions of weapons sets further supports this hypothesis (see below).

Additional artifacts were also included with knapping implements in burials from both Texas (Table 3) and the Midcontinent. Again, although we are limited by sample size and the obvious problems with differences in artifact identification, there are some trends that are provocative regarding potential regional differences. These limitations have made it necessary to use broad artifact categories based on function, irrespective of raw material differences. The objective was to identify potential trends in functional types between the two sample groups. Commonalities exist in the presence of various types of ornaments and chert drills. Small flake tools such as burins, spokeshaves, and gravers are

Table 3. Presence/absence, Counts, and Percentage of Selected Artifact Types Represented in Mortuary or Cache Contexts from Texas and the Midcontinent

(data calculated from Seeman 1985)

Artifact Type	Combined Texas		Combined Seeman (1985)	
	Count	Percent	Count	Percent
Projectile points	9	41.0	27	67.5
Bifaces	5	22.7	14	35.0
Endscrapers/scrapers	–	–	7	17.5
Unifaces	2	9.1	–	–
Modified flakes	2	9.1	–	–
Knives	2	9.1	8	20.0
Drills	2	9.1	4	10.0
Flakes/debitage	3	13.6	16	40.0
Awls (various materials)	5	22.7	16	40.0
Long bone tool/pin	4	18.2	–	–
Cores	1	4.5	7	17.5
Bladelets	–	–	4	10.0
Burin/graver/spokeshave	–	–	5	12.5
Adze/celt/axe	–	–	11	27.5
Ornaments	8	36.4	16	40.0
Incisors/mandibles	4	18.2	20	50.0
Fishhook	1	4.5	–	–

Counts represent the number of individual burials/caches with each artifact type

more common among Midcontinent burials with knapping tools. If these types of small flake tools can be linked to woodworking or other similar tasks, then hafted, unhafted, and in situ incisors and small mandibles may also be included as similar implements. A greater abundance of these implements among Midcontinent burials may indicate that knapping toolkits were more extensive and oriented toward the manufacture of a wider array of artifacts of stone and perishable materials. Seeman (1985:18) suggested that such artifacts could have included bow staves, atlatls, and arrow/dart shafts and foreshafts. There is a trend for those burials described by Seeman (1985) to have a wider array of artifacts coupled with a greater numbers of these same artifacts, and he uses this evidence to foster arguments for specialized toolkits, craft specialization, and the status of the deceased individual.

The Texas data (see Appendix 1) do not exhibit the variability and numbers observed in Seeman's sample. All things being equal, this could argue for a less specialized repertoire of tools employed by hunter-gatherer groups in Texas, or conversely it could be indicative of differences in discard rituals between these regions. Texas burials that exhibit the greatest similarity to those from the Midcontinent in terms of artifact variability and numbers include the Rudy Haiduk site (Mitchell et al. 1984) in Karnes County, Alex Justiss (Bell 1981) in Titus County, and Tyson (Tom Middlebrook, 1997 personal communication) in Shelby County, but overall the Texas sample does not have the uniformity of composition exhibited by burials included in Seeman's (1985:Appendix 1.1) data. This hints at a greater degree of craft specialization or status associated with knapping and related

activities among Woodland, Mississippian, and Protohistoric groups than most Archaic and Late Prehistoric groups in Texas.

Unlike associated knapping implements from Texas, Midcontinent associations appear to represent sets of specialized implements for the manufacture/maintenance of a range of artifacts associated with hunting technology. Midcontinent toolkits may have been designed for more replacement of parts in weapons systems while those from Texas, in general, seem to have been designed for a greater degree of parts repair rather than components replacement.

The overwhelming majority of Texas and Midcontinent knapping toolkits examples are associated with adult males (Table 4). This suggests that knapping implements are more frequently associated with adult males than with adult females. Reasons for inclusion of knapping implements in the graves of deceased females may be the result of other unidentified social factors operating beyond the male/female division of labor and are not addressed here. The general trend seems to be for inclusion of knapping implements in mortuary context to be age and sex specific.

INFERENCES REGARDING TECHNOLOGICAL ORGANIZATION BASED ON MORTUARY ASSOCIATIONS

We are all to varying degrees familiar with the growing debate involving reliable and maintainable toolkits and similarly oriented technologies (see Bleed 1986; Bousman 1993; Hayden et al. 1996; Nelson 1991; Torrence 1983, 1989). Although issues are always much more complex than they appear initially, Bleed's (1986:739) discussion of maintainable and reliable technologies does provide some indication of what may be expected in such technologies. One of his key characteristics of reliable weapons systems includes a generalized repair kit with sufficient raw materials and tools to effect any repair. Manufacture and maintenance are frequently the responsibility of specialists. While maintainable weapons systems are manufactured and maintained by the user, repair and use co-occur, and the emphasis is on the overall ease of repair with a less complex repair kit.

Subsistence and mobility strategies also can influence the time and energy available for tool manufacture or repair, and as a result influence the composition of tool manufacture and repair kits (Bettinger 1991:69; Bousman 1993:73; Binford 1979, 1980; Torrence 1983, 1989). Ultimately, the composition and orientation of tools and toolkits are governed by a series of constraints (Hayden et al. 1996:11-14) that include the task(s) to be performed; raw materials available; available technology (also skill); and socio-economic concerns (mobility, transport, labor, and storage). All of these factors influence the design of the tool or weapon, along with use, maintenance, and repair strategies.

Another potential variable that may be important is that as the time and effort invested in tool manufacture and maintenance increases so too does the use-life of that tool (see Shott 1989). This would be indicated by the number and variety of different tool types associated with stone tool manufacture/repair and weapons design and manufacture.

Table 4. Sex of Individuals Associated with Knapping Implements in Mortuary Context

Sex	Combined Texas		Combined Seeman (1985)	
	Count	Percent	Count	Percent
Male	12	54.5	26	65
Female	2	9.1	4	10
Indeterminate	5	22.7	10	25
Isolated/unknown	3	13.7	—	—

It is proposed here that the overall toolkit and mortuary data from Texas fit very well within the parameters of forager group toolkits associated with low production costs where manufacture and repair co-occur. The suggested toolkit and technology are broadly generalized, and emphasize ease of repair and replacement as a part of their design (see Hayden et al. 1996). A major part of the generalized toolkit would probably be a variety of expedient short use-life implements that would not be curated or interred in mortuary contexts. This may account for the overall similarity of types of manufacture/maintenance implements from mortuary and cache contexts in Texas. Data from the Midcontinent (Seeman 1985) are strongly suggestive of a different set of strategies and social factors influencing the design and composition of maintenance toolkits and technology (as judged from mortuary context). This is reflected in greater numbers and varieties of manufacture/maintenance tools associated with burials from the Midcontinent. If these toolkits do represent more specialized tool associations, then it may be hypothesized that the components of the toolkits were also more functionally specific as compared to the more generalized Texas examples. In this light, the tool association of Burial 119 at Morhiss may represent only a portion of the maintenance/manufacture technology and not a specialized knapping kit. When making inferences regarding the function or role of technological items in mortuary or cache context, it is necessary to consider the items that may be absent, the overall technological system of which they were a part, and the probable social framework.

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APPENDIX 1

Sites in Texas with Associated Burial Goods Inclusive of Stone Knapping and Maintenance Implements

Site Number	Name	Age	Sex	Associations	Reference
41BQ46 Paleoindian	Horn Shelter No. 2	— —	Male Male	4 modified turtle shells, 2 antler billets, 2 sandstone abraders, red ocher, long bone tool, bifacial knife, antler shaft wrench	Redder 1985
41SV60 Late Prehistoric	Lemens Rockshelter	35-45	Male	3 chert bifaces, hammerstone, antler awl, 2 antler punches, 2 antler pressure flakers, 2 possible pressure flakers, 2 deer ulna flakers, 1 deer ulna tool, 1 shell scraper, 1 Scallorn arrow point	Smith 1994
— [Unknown age]	Hollis Roberts Mound 1	Adult and Infant	Female; Indet.	3 antler pressure flakers, 3 deer ulna flakers, 1 abrading stone, 1 chert uniface, 1 bifacial drill	Ray 1933

APPENDIX 1 *(Continued)*

Site Number	Name	Age	Sex	Associations	Reference
Shackelford County [Unknown age]	—	—	—	1) 3 freshwater shells, 2 deer ulna tools, 1 snake skeleton (minus skull)	Forrester 1951
	—	—	—	2) 1 antler tine pressure flaker, 3 deer split radii, 1 awl, polished deer radius, 1 deer ulna flaker	
41HR80 Late Prehistoric	Harris County Boy's School	25-35	Male	compound fishhook barb, 3 flageolets, 6 bone dice, incised bone awl or pin, 4 ulna tools, 1 possible ulna tool, 4 deer ulna tool fragments, 1 antler flaker, 2 antler projectile points, 1 antler debitage, 40 drumfish teeth, 16 shell beads	Aten et al. 1976
41KA23 Archaic	Rudy Haiduk	Middle-aged	Male	13 Marcos points, 5 corner-tang bifaces, 2 drills, 16 biface fragments and preforms, hammerstone, 2 abrading stones, 7 ironstone pellets, gorget, quartz crystal, 4 pebbles, deer antler sections, deer antler tines	Mitchell et al. 1984
— [Unknown age]	Horseshoe Ranch Caves	—	—	2 sinew bundles, rawhide strip, 3 deer antler flakers, limestone hammerstone, 4 chert bifaces, 10 uniface flake knives, 11 rabbit mandibles, pigment, Mountain Laurel seeds, mussel shell, perforated turtle carapace	Shafer 1986
41BX1 Archaic	Olmos Dam	17-25	Male	chert biface, chert biface fragment, chert core, 2 chert cobbles, ground ocher, bone awl, 21 deer antler halves, 4 bone beads, 1 conch pendant, 4 columella dangles, shell pendant fragments, freshwater mussel, grinding slab	Lukowski 1988
41VT1 Archaic	Morhiss	Adult	Male	1) B. 139—3 clam shells, broken boneflaker or awl, 4 flint flakers, shell bead blanks	Duffen n.d., Taylor 1995
		Adult	Male	2) B. 39—bone awl, antler flaker, antler ornament, snake necklace, 2 stones with pigment	
		Young Adult	Male	3) B. 50—worked shell, drilled shell, 50 columella beads, antler flaker	
41TT13 Late Prehistoric	Alex Justiss	—	—	14 deer ulnae, 1 worked long bone, 2 beaver teeth incisors, 1 antler fragment, 1 deer mandible, 15 modified flakes, 8 silicified wood fragments, 2 dart points, 8 Talco and Maud preforms, 1 hematite tool or pigment stone.	Bell 1981

APPENDIX 1 *(Continued)*

Site Number	Name	Age	Sex	Associations	Reference
41CP5 Late Prehistoric	Tuck Carpenter	—	Male?	Burial 19: Cache by left wrist—21+cm long chert biface, ferruginous sandstone abrader, 3 hematite fragments, flakes and chips, petrified wood fragment, green pigment, fragments of two deer ulnae	Turner 1978, 1992
41SY92 Late Prehistoric	Tyson	18 mo.	Subadult	Vertically arranged set of 6 deer ulna flakers and two beaver teeth near right side of infant, 2 chert pebbles, unifacial arrow point, flakes, 6 shell artifacts including notched shell point	Tom Middlebrook, 1997 personal communication
41NU29 Archaic	Rodd Field	young adult	Female	1 small ovate dart or arrow point, 4 dart point fragments, 1 biface, 1 biface fragment, 1 modified flake or point, 2 utilized flakes, 3 unmodified flakes, 1 battered pebble, 1 hammerstone, 2 smooth pebbles, 4 resin balls	Taylor 1995
41VT94 Archaic/ Late Prehistoric	Blue Bayou	adult	Male	Burial 24—2 mussel shell pendants, 1 bone awl, 1 left deer antler, 1 right deer antler, 1 antler fragment (note: all antler minus tines).	Huebner and Commuzzie 1992
41GV66 Proto- historic	Mitchell Ridge	30-40	Male	Feature 65—3 bone points, 1 antler billet, 1 chert drill, iron nails/tool fragments	Ricklis 1994
			—	Feature 65A—1 antler billet, 1 engraved bone pin, 1 spatulate bipointed tool, 1 iron spike, 67 small glass beads, 1 glass mirror fragment, fragments of a bird bone whistle	
41LK28 Archaic	Loma Sandia			Feature 165—3 Tortugas points, 6 unmodified flakes, 1 chert hammerstone, 1 quartzite hammerstone, 1 grinding slab, 1 mano, 1 antler billet, 1 conch shell, 4 marine pendants Feature 133—1 Tortugas point, 1 quartzite hammerstone, 1 flake, 1 billet, 2 pieces of deer antler	Taylor 1995

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