EXCAVATIONS AT THE FERGUSON SITE, 41FB42, FORT BEND COUNTY, TEXAS

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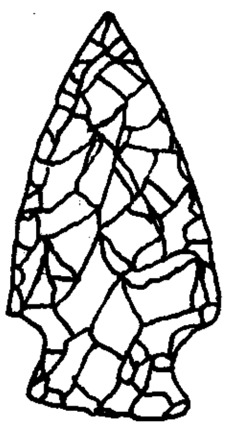 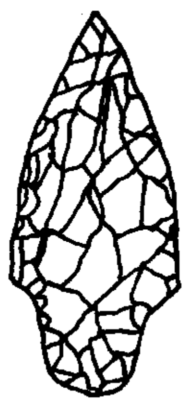 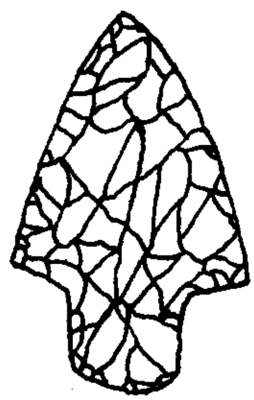

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TABLE OF CONTENTS

TABLE LIST

FIGURE LIST

INTRODUCTION

This report presents the results of excavations by the Houston Archeological Society at prehistoric site 41FB42 in Fort Bend County, Texas. The field work was done on weekends from October 1987 to December 1988. This site was originally found and recorded for state files by Joe Hudgins. Permission to do this work was granted by the landowner, Mr. Brad Ferguson.

Individuals who worked on the site are David Atherton, Allan Bagent, Marshall Black, Ethel Bowman, Charles Boyle, Robbie Brewington, Ramon Cantu, B. Crabb, Diana Crittendon, Gregg Dimmick, Heidi Dobrott, C. R. Ebersole, Robert Edwards, Jim Eller, Bob Etheridge, Joan Few, Roy Fuenter, Nancy Gaston, Stephen Gottlieb, Richard Gregg, Dale Griffin, Jocelyn Griffin, Lonnie Griffin, Sue Gross, Alexandra Hamaker, Claude Hamaker, Jimmy Hamaker, Suzanne Hardy, Jill Hartnell, Dieter Heymann, Mary Hodge, Joe Hudgins, Mike Johnston, Donna Jordan, Sheldon Kindall, Kevin MacDonald, Gail Marshall, Mike Marshall, Nathan Marshall, Melissa May, Steve May, Ray McCausland, Andrea McCormick, Bob Milam, Brandy Miles, Joseph Miles, Roger Moore, Linda Moorrees, Colin Mosser, Josh Mosser, C. Mutchler, Bernard Naman, John Napier, Ann Nuckols, Tom Nuckols, Lee Patterson, Stan Perkins, David Pettus, Johny Pollan, Steve Puccia, Marcia Reagan, Howard Reynolds, Katie Roark, Lisa Russell, Gary Ryman, Jerry Sadler, Buddy Schindler, Bill Schurmann, Howard Scott, Kim Scott, Alex Shahan, Anne Shaw, James Smith, C. Stevens, Ida Thomas, Tereba Togola, Connie Tortorelli, Lisa Tracy, Scott Tracy, Yvonne Tydeman, LaVon Vaughn, Mark Wade, Dudgeon Walker, Judy Wayland, Tom Webb, Bud Weightman, J.D. Wells, Pam Wheat, Brent Williams, Lynne Williams, Monica Williams, Tom Williams, and Alexandra Zielke.

Field work for this project was directed by Sheldon Kindall and laboratory work was directed by David Pettus. Site contour mapping was done by Marshall Black, Steve May, and Melissa May. Joe Hudgins handled many of the main logistic problems, such as protective covering of open pits and final filling to close all pits.

This is a deeply stratified site with some soil disturbance, from a burrow made by armadillos, and by burial pits. Interpretation of excavation results has required consideration of soil disturbance, but it has still been possible to obtain an orderly picture of the data from this site.

Site 41FB42 is a stratified prehistoric campsite with an occupation sequence from the Late Paleo-Indian period through the Late Prehistoric period, including occupation components in the intermediate Archaic and Early Ceramic periods. Human burials are present in the Late Archaic period, related to a mortuary tradition of the western part of Southeast Texas in this time period. Grave goods, including stone and shell beads, indicate widespread geographic trade activities, such as possible participation in the Poverty Point Exchange System (Patterson 1989a). The stratigraphic sequence of artifact types is generally what would be expected for the western side of Southeast Texas. Sites with long occupation sequences are fairly common in this region (Patterson 1983).

Analysis of vertebrate remains for this report was done by William McClure, and analysis of molluscan remains was done by Raymond Neck. Richard Gregg did the analysis of mortuary data. Sheldon Kindall handled several details for this report.

GEOGRAPHIC AND ECOLOGICAL SETTING

Site 41FB42 is located on the east bank of the San Bernard River in western Fort Bend County, about 50 miles from the Gulf Coast. It is in a wooded area at an ecological transition zone on the border of coastal prairie and woodland. Woodlands in this area are predominantly deciduous in nature. A variety of plant and animal food resources would have been available. From all indications, the site was used periodically as a seasonal campsite by nomadic foragers over a very long time period.

In the summary of shellfish and snail remains given by Neck, small amounts of shellfish remains indicate that this site was subject to periodic flooding, with accompanying deposition of some shellfish. There is little evidence of use of shellfish as food. As may be seen in Appendix F3, most of the shellfish remains are from the Late Paleo-Indian period, which may indicate high rainfall during this time period.

This location is typical for archeological sites in this general area. Most prehistoric sites are located along stream banks. According to Hudgins (1984:29), historic Indians were referred to locally as "fish eaters" because they followed stream courses.

EXCAVATION DETAILS

Five one-meter square test pits were originally excavated. The site turned out to have very deep cultural deposits and the soil in the top excavation levels was unusually hard. There is some suspicion that an early road ran directly over the site.

A total of 15 test pits were ultimately completed. Each test pit was a one-meter square. All test pits were excavated in levels of 5 centimeters and all dirt was put through 1/4-inch screen. A series of soil samples were taken. All recovered materials were taken to facilities at Rice University for cleaning and separating.

In November 1987, burials were detected in two of the first five pits. At that time the site was cordoned off by a 30-meter square nylon cord boundary, firmly anchored to the ground and marked at one-meter intervals. This permitted easy determination of any point within the boundary. A permanent datum point was set in the ground and is still in place. Levels within a pit were determined by line levels, but the corners of all pits were surveyed in with a transit. A contour map of the site was made using the transit, as shown in Figure 1. Layout of excavations is shown in Figure 2.

SITE GEOLOGY

According to the Land Resources map (St. Clair et al. 1975), this site is located on the border between sand and silty clay soil types. This situation is reflected in a variety of soil types at different excavation levels. As shown by the excavation profile in Figure 3, the soil in the top 100 cm is a sandy silt with decreasing clay content as depth increases. In various test pits, at depths of about 100 to 117 cm, the soil had a high carbonate content. In some of the test pits a thin layer of cemented sand was found, caused by very high carbonate concentration. Mike Waters of Texas A&M University (personal communication) states that this layer of high carbonate concentration was probably formed by capillary action of the soil after the cultural deposits were in place.

Below the thin cemented sand layer, there is an abrupt soil change to whitish brown sandy silt. The soil change is at the approximate interface between the Late Paleo-Indian (below) and Early Archaic (above) time periods. This situation is similar to sites 41WH19 (Patterson et al. 1987) and 41FB223 (HAS field notes), where strata of the Late Paleo-Indian period have light-colored sand, with darker silty sand above in the strata of the Archaic period. Mike Waters (personal communication) thinks that the light-colored sand may represent horizontal leaching, where water could not penetrate deeper strata with high clay content, and instead took a horizontal path.

SITE CHRONOLOGY

Interpretation of the chronological sequence of artifact types at this site is complicated by soil disturbance. An armadillo burrow was observed as deep as 100 cm. Late Archaic burial pits disturbed some of the earlier stratigraphy, especially in the 50 to 100 cm levels. After allowing for some displaced artifacts, however, most of the artifact types seem to be in the stratigraphic sequence that would be expected for prehistoric sites in this general area.

The frequency of potsherds is shown in Figure 4. This is a bell-shaped curve with a tail for some of the deeper excavation levels. It is judged that this tail on the frequency curve represents mixing, with sherds below about 50 cm being displaced from shallower levels of the Early Ceramic period. This conclusion is supported by the fact that all dart points found below 50 cm are types found in the Archaic (a preceramic period) in this region.

While some potsherds and flint flakes were found in the 0-10 cm excavation level, specimens of plastic and glass were also found at this level. Therefore, the first 10 cm of depth seems to represent historic time, after A.D. 1500. It was not determined if any historic Indians were present. Arrow points are concentrated in excavation levels between 10 and 30 cm. This is judged to be the stratigraphic interval representing the Late Prehistoric period of A.D. 600 to 1500. The Early Ceramic period of A.D. 100 to 600 is estimated to be represented by the stratigraphic interval of 30 to 50 cm. Date ranges used here for time periods are the same as previously given by Patterson (1979).

The Archaic period of 5000 B.C. to A.D. 100 is estimated to be represented by the stratigraphic interval from 50 to 100 cm. As a further estimate, the Late Archaic (1500 B.C. to A.D. 100) seems to be present from 50 to 60 cm, the Middle Archaic (3000 to 1500 B.C.) from 60 to 80 cm, and the Early Archaic (5000 to 3000 B.C.) from 80 to 100 cm. Late Paleo-Indian artifact types, such as the Angostura point, occur below 100 cm. Aten (1983) feels that the Early Ceramic period may start somewhat later than given above on the western side of Southeast Texas, but there is too little data for a firm conclusion on this. Since some projectile type points found in this general area are Central Texas types, there is a possibility that some Indian groups in the Early Ceramic period used pottery and other groups did not, since the introduction of pottery in Central Texas was later than in Southeast Texas.

PROJECTILE POINTS

Arrow points found here represent the Late Prehistoric period and perhaps the earliest portion of the Historic Indian period. A summary of arrow points is given in Table 1. There were 4 Perdiz arrow points, 6 Scallorn arrow points and 2 arrow point preforms found in excavation levels between 5 and 30 cm. Temporal differences of Perdiz and Scallorn points cannot be distinguished at this site. Five arrow point fragments found below 30 cm are judged to be displaced by soil disturbance. No arrow point types, such as Cuney, that have been found on Historic Indian sites were found at site 41FB42, but there is a possiblity that the Perdiz point continues from the Late Prehistoric into the Historic Indian period at this site. Arrow points are illustrated in Figure 5.

A few Gary, Kent, and triangular dart points were found from 5 to 30 cm, again demonstrating use of the spear concurrent with use of the bow and arrow at inland sites in this region (Patterson et al. 1987). A triangular dart point specimen (Table 2) may be related to the Matamoros type (Turner and Hester 1985:122), and could represent contact with Indians from the Central Texas Coast during the Late Prehistoric period. A shark tooth found at the 15-20 cm excavation level also indicates contact with the Gulf Coast during this time period. Dart point types found here in the 30-50 cm stratigraphic interval, which represents the Early Ceramic period, include Gary, Kent, and Yarbrough. Most specimens from the Late Prehistoric and Early Ceramic stratigraphic levels are fairly small, which seems to be representative of dart points from these time periods (Patterson 1980a). A large Williams-like point fragment (Figure 7B) seems to be a displaced specimen, since points of this size are rarely found in the Early Ceramic period as was this specimen.

Large Gary points that are generally representative of the Middle and Late Archaic periods (Patterson 1991a) were found at this site from 55 to 70 cm. Yarbrough points occur in both the Early Ceramic and Late Archaic periods in this region. One Yarbrough point found in the 54-59 cm level is probably from the Late Archaic period. Other dart points that occur here in the Late Archaic period include Pedernales and Williams. The Pedernales point is regarded as Middle Archaic in Central Texas (Prewitt 1981), but the Middle Archaic in Central Texas overlaps the Late Archaic in Southeast Texas because of later introduction of pottery in Central Texas.

Dart point types that occur in the Middle Archaic period from 60 to 80 cm at this site include Gary, Bulverde, Wells, and Morhiss-like. The Wells point type occurs in both the Early and Middle Archaic periods in this region (Patterson 1991). No time-diagnostic dart point types were found from 75 to 95 cm. An Early Stemmed point found at the 96-101 cm level probably represents the Early Archaic period. Some Early Stemmed points occur in the Late Paleo-Indian period (Patterson 1980; Patterson et al. 1987), but a variety of Early Stemmed point types with ground stem edges then become predominant in the Early Archaic period. An Angostura point was found at 130 cm. This is a Late Paleo-Indian point type, placed at 8500 to 7000 years B.P. in Central Texas chronology (Prewitt 1981).

A total of 45 dart points and point fragments were found in these excavations, as summarized in Table 2. Many dart point preforms were also found, as will be discussed below. Some of the dart point specimens are illustrated in Figures 6 and 7.

Stratigraphic disturbance is probable in excavation pits with Late Archaic burials, mainly at depths from 50 to 100 cm. Five projectile points found in burial pits are noted in Table 2, including one each of Yarbrough, Williams, Gary, Wells, and Morhiss-like specimens. Even if these five specimens were deleted from consideration, conclusions on the chronological sequence of this site would not change, because there are other dart points found in undisturbed excavation pits. By coincidence, disturbance from an armadillo burrow was in pits E98N96 and E99N96 which contained burials. Excavation pits that did not contain burials do not appear to have had any significant disturbance.

CERAMICS

Most of the ceramic specimens found at site 41FB42 are of the Goose Creek Plain sandy paste type. This pottery type is not time- diagnostic to differentiate between the Early Ceramic and Late Prehistoric periods. The frequency of potsherds by level is given in Table 3 and shown graphically in Figure 4. A total of 640 potsherds were found.

Only 3 sherds are not of the Goose Creek type. One bone-tempered sherd was found at 15-20 cm and two possible Rockport Plain sherds (light tan color, 4 mm thickness) were also found at the same level. Only 3 rimsherds were found, including 1 notched rimsherd at 21-26 cm. Four sherds were recovered with drilled lace holes. Four Goose Creek specimens in levels from 10 to 35 cm had brushed surfaces. The few sherds recovered here that are not of the Goose Creek type may represent contacts with Indians from adjacent geographic areas in the Late Prehistoric period.

Potsherd thicknesses ranged from 4 to 9 mm with an average of 7 mm. This seems to be typical for the Goose Creek pottery type. While thin specimens of Goose Creek pottery (4-5 mm thick) are not as common, the thin ware does not seem to have any time-diagnostic value, since this type was found at most excavation levels. Because most of the specimens were Goose Creek Plain body sherds, not much detailed discussion can be given on the pottery assemblage from this site.

GENERAL LITHICS

The general area of site 41FB42 does not have any locally available lithic raw materials. All chert would have been brought to the site from a distance of at least 15 miles. Raw materials would have been imported in the forms of chert cobbles, pebbles, and trimmed materials such as flake blanks and crude preforms for the manufacture of dart points. Chert cobbles are classified here as being over 40 mm in diameter, and chert pebbles are classified as being under 40 mm in diameter. Only 4 chert cobbles (Table 4) were found that would have been large enough to make flake blanks for dart point manufacture. Most dart points at this location were probably manufactured from imported flake blanks or crude preforms.

The impression that mostly trimmed raw materials were brought to this site from lithic source locations is supported by the relatively small amounts of remaining cortex on flakes, as shown in Table 5. At all excavation levels, the percentages of flakes with any remaining cortex are lower than obtained by experimental knapping of chert cobbles to simulate use of imported trimmed raw materials at campsites (Patterson 1981:32, Stage 2).

Small pieces of chert would have been useful for manufacturing arrow points during the Late Prehistoric period. The presence of 24 small cores and 17 chert pebbles (Table 4) in excavation levels earlier than the Late Prehistoric is more difficult to explain. Not many small cores would have been needed to manufacture flakes for general tool use, since byproduct flakes from dart point manufacture would have been available. It is possible that some chert pebbles were used as hammerstones, because quartzite hammerstones were not readily available. In this case, broken chert hammerstones could have been used incidently to produce flakes for tool use, even though byproduct flakes from dart point manufacture were present. In any event, the occurrence of small cores and chert pebbles appears to be incidental to the main activity of manufacturing bifacial dart points, especially in levels earlier than the Late Prehistoric period.

The manufacturing of bifacial projectile points was a major activity at this site. Twenty-nine dart point preforms and preform fragments were found (Table 6). Many of the specimens classified as dart point tips (Table 2) could also be preform fragments, since it is not common to find many dart point tip fragments at campsites. Usually, dart point fragments at campsites are mostly basal fragments from replacing broken points on spear shafts (Patterson 1980b). Two thick biface fragments (Table 7) were found that could represent early stage dart point preforms.

Some quartzite hammerstones were probably used here. Four quartzite pebbles and one quartzite flake were found at various excavation levels (Table 7). Five thin bifaces (Table 6) seem to represent knives rather than dart point preforms, with some specimens shown in Figures 5L,N and 18E. The basal fragment of a biface shown in Figure 18E has well-ground edges, and possibly is a hafted knife. This specimen was found below Burial 3, probably from the Late Paleo-Indian time period.

As with other sites in this general area, formal tool types other than projectile points are not common. A summary of formal tool specimens is given in Table 8. This includes 10 unifacial scrapers, 2 scraper-gravers, 2 unifacial perforators, 2 bifacial perforators, 4 gravers, and 1 stemmed bifacial scraper. Some of these stone tools are illustrated in Figures 5 and 8. Two thick scrapers and the stemmed scraper found below 100 cm are typical of Late Paleo-Indian tool types (Patterson et al. 1987). As was common for this region, the dominant tool type at this site was the unretouched utilized flake.

A summary of 5375 chert flakes recovered by excavation is given in Table 9. A summary of flake size distribution by excavation level is given in Table 10 and is shown graphically in Figure 9. This is not the usual type of flake size distribution by level that has been found at other sites in this region (Patterson 1980a:Figure 19, Patterson et al. 1987:Figure 20). At site 41FB42, the percent of flakes under 15 mm square decreases in later time, instead of increasing in the predicted manner when smaller projectile points were made in later time. There appears to be several possible reasons for this unusual flake size distribution by level at site 41FB42. One reason is the poor recovery of small size flakes in the hard soil levels, especially from 0 to 60 cm. Another reason is the mixing of flakes from different levels by soil disturbance. Still another reason may be the production of flakes from miscellaneous small cores. An additional reason to consider is that there may not have been much lithic manufacturing at the lower excavation levels, below 80 cm. A higher percentage of small flakes would then result from projectile point maintenance and retouch of unifacial tools. A few chert flakes were found as deep as 185 cm.

When bifacial reduction is done, the by-product flake size distribution will usually form a straight line on a semilog plot of percent of flakes versus flake size (Patterson 1990). As shown in Table 11, this type of linear plot was obtained for 10 of the 24 excavation levels shown. A semilog plot of this type is shown in Figure 10 for the 90-95 cm level, where a straight line except for one data point indicates the presence of bifacial reduction for dart point manufacture. Figure 11 shows a similar plot for the 30-35 cm level, where the curve is nonlinear. Since biface production was the major lithic manufacturing activity at most excavation levels, nonlinear plots can be explained by all of the reasons given above for flake size distribution by level not being of the usual type.

Heat treating was used extensively for chert materials at this site. Many flakes have evidence of heating in the form of waxy luster, reddish coloration, and potlid surface fracture scars. Heat treating lowers the tensile strength of chert to permit easier fracture.

MISCELLANEOUS ARTIFACTS

A summary of miscellaneous artifacts is given in Table 12. Glass, metal, and plastic at 0-10 cm shows mixing of modern materials with surface soil. Plastic at 20-25 cm is possibly from dropping down an animal burrow. Asphalt pieces were found at 75-80 cm, 95-100 cm, and 135-140 cm, and may have been used for hafting dart points. Specimens of red ochre from seven excavation levels represent some type of nonutilitarian activity, such as body decoration or burial use. Sandstone abraders were found at several excavation levels in the Late Paleo-Indian and possibly the Early Archaic time periods. These abraders may have been used for edge grinding in dart point manufacture. One incised clayball was found at the 65-70 cm level, with 2 incised lines forming a cross pattern.

FIRED CLAYBALLS

Fired clayballs are a well-known artifact type at some sites in Southeast Texas (Patterson 1986, 1989b). This type of artifact was found in significant quantities at most excavation levels at site 41FB42, as shown in Table 13. Other sites where fired clayballs start in the Late Paleo-Indian period include 41HR315 (Patterson 1980a), 41WH19 (Patterson et al. 1987), and 41FB223 (HAS field notes). A few clayballs were found as deep as 185 cm. A total of 15,188 clayballs were found at this site, with some 5-cm excavation levels having over 1000 specimens. This is the largest total quantity of clayballs found at any site in Southeast Texas (Patterson 1989b), except for site 41FB223 (HAS field notes). Clayballs under 15 mm in diameter were not counted. The size range of tabulated clayballs is 15 to 70 mm in diameter, with specimens of 25 to 50 mm in diameter being most common. The average weight per clayball was 7.7 grams for the total collection. The total number of clayballs reported here is slightly larger than used in a previous article (Patterson 1989b) because some additional materials from this site were found in the laboratory.

Typical clayballs are fairly rounded with the appearance of uniform exposure to heat on all surface areas. Site 41FB42 does not have clayball features, but at other excavated sites where clayball features have been found intact, this type of feature has been in the form of a convex mound of clayballs. Clayball hearth features seem to be associated with a cooking function, although the exact use remains vague. A baking or roasting function seems likely for clayball hearths in Southeast Texas (Patterson 1986), as proposed for the use of clayballs by the Poverty Point Culture in Louisiana (Gibson 1975). Patterson (1989b) has proposed that clayball hearths in Southeast Texas may have been used for the seasonal processing of plant food materials at a limited number of sites. Prehistoric sites with clayballs have been found throughout this region, but not in high frequency. This fits well with limited seasonal use for processing plant materials. Hudgins (1993) has experimentally demonstrated the roasting of meat with clayballs that were heated over a wood fire.

ANALYSIS OF VERTEBRATE REMAINS- McClure

INTRODUCTION

Soil from the excavations was passed through 1/4-inch screens and less than 1% was passed through finer mesh screens. The bones were identified by direct comparison with bones of known animals in the McClure collection and in the Houston Archeological Society collection.

RESULTS

The effort on the larger screens yielded more than 4200 bones or fragments thereof. Preservation of the bones was fair. Nearly all of them had been exposed to heat of various intensities. The only whole bones were those of some of the smaller animals or the smaller, more compact, bones of the larger animals. A few of the bone fragments had indications of cutting by a sharp implement or gnawing by rodents. More than 330 of the bones could be identified to the generic level. Of these 51% were mammals, 31% were reptiles, and 18% were fish. Amphibians and birds were indicated by only a few bones. About 80% of the total bone fragments could not be assigned to a particular animal although most could be of deer or pronghorn.

The finer screens yielded hundreds of unidentified fragments, but these were not quantified. However, more than 450 could be identified to generic level. Of these 68% were fish, 25% were mammals, and 6% were reptiles. A few amphibian and bird bones were also included.Fragments of crawfish claws were recovered from four pits and three burial fills between 95 and 110 cm.

More than 400 unopened leaf buds and a few seeds of unidentified plants were recovered from the fill of Burial 3. It is probable that these items were introduced into the fill by the armadillo or pocket gopher intruders. Hackberry seeds were also found in several of the excavation units.

SPECIES LIST

Carcharhinus sp.	shark
Atractosteus or Lepisosteus	gar
Amia calva	bowfin
Ictalurus punctatus	channel catfish
Aplodinotus grunniens	freshwater drum
Lepomis sp.	sunfish
Rana catesbeiana	bullfrog
Rana sphenocephala	leopard frog
Alligator mississippiensis	American alligator
Sternotherus odoratus	stinkpot
Kinosternon subrubrum or K. flavescens	mud turtle

Terrapene ornata and/or _T. carolina_	box turtle
Pseudemys texana or _Trachemys scripta_	slider
Trionyx spiniferus or _T. muticus_	softshell
Elaphe sp.	rat snake
Lampropeltis sp.	kingsnake
Heterodon platyhrinos	eastern hognose snake
Masticophis flagellum	coachwhip
Nerodia sp.	watersnake
Thamnophis sp.	garter or ribbon snake
Virginia striatula	rough earth snake
Agkistrodon piscivorus	cottonmouth
Crotalus atrox	diamondback rattlesnake
Sistrurus miliarius	pigmy rattlesnake
Pelecanus occidentalis	brown pelican
Anas sp.	duck
Didelphis virginiana	Virginia opossum
Cryptotis parva	least shrew
Dasypus novemcinctus	nine-banded armadillo
Sylvilagus floridanus	eastern cottontail
Geomys attwateri	Attwater's pocket gopher
Sigmodon hispidus	hispid cotton rat
Reithrodontomys fulvescens	fulvous harvest mouse
Canis latrans	coyote
Procyon lotor	raccoon
Mustela vison	mink
Antilocapra americana	pronghorn
Odocoileus virginianus	white-tailed deer

SPECIES ACCOUNTS

Fishes:

Shark (_Carcharhinus_ sp.)
The tooth of a large shark was recovered at a depth of 15 to 20 cm. This tooth may have been picked up at the beach which is about 100 kilometers downstream from the site.

Gar (_Atractosteus spatula_ or _Lepisosteus_ sp.)
Six sculptured head bones, 3 teeth, 20 vertebrae, and 130 scales were recovered from 13 pits at depths of 60 to 150 cm. Various sizes from small to very large are included but none of the material is complete enough to identify the particular species of gar that is represented.

Bowfin (_Amia calva_)
A vertebra and a tooth of this fish were recovered at a depth of 90 cm in 2 pits.

Freshwater drum (Aplodinotus grunniens)
Two teeth of this species were recovered in the fill at Burial 3 and in one pit below 100 cm.

Channel catfish (Ictalurus punctatus)
Catfish bones were recovered at all levels in the site. The 37 bones are dentary (3), cleithrum, vertebra (6), dorsal spine (6), and pectoral spine (21). Some of these are channel catfish (Ictalurus punctatus) but others could be of the other species of the genus. Most of the pectoral spines had been broken at the articulating end as shown in Figure 12. This may suggest some technique of processing the fish by applied force to remove the spine from the body.

Sunfish (Lepomis sp.)
Bones of sunfish were recovered throughout the site at all depths. The 177 bones are pelvic spines (33), dorsal spines (88), and anal spines (56). It is possible that some of these elements are of small individuals of other members of the sunfish family such as crappie (Pomoxis sp.) or bass (Micropterus sp.).

Unidentified fish (Teleostei)
More than 500 fish bones were not identified as to species but they are most likely either catfish or sunfish since their shape is consistent with those fish. The bones are 423 vertebrae and 82 other fragments.

Amphibians:

Bullfrog (Rana catesbeiana)
One ilium of bullfrog was recovered at a depth of 1 meter.

Leopard frog (Rana sphenocephala)
One ilium of a leopard frog was recovered at a depth of 95 cm, a mandible came from 120 cm and a urostyle from 115 cm in three pits.

Reptiles:

American alligator (Alligator mississippiensis)
Three bones of large alligator were recovered in three pits separated laterally by about 3 meters and at depths from 25 to 70 cm. The two dermal bones and one vertebra could be from a single individual.

Stinkpot (Sternotherus odoratus)
At least 18 bones of the small stinkpot were recovered in 10 of the pits at depths of 80 to 135 cm.

Mud turtle (Kinosternon subrubrum or K. flavescens)
At least 29 bones of mud turtle were recovered from 9 pits at depths of 60 to 115 cm. There is not enough complete material to

separate the two species of mud turtle, both of which are found in the area today.

Box turtle (Terrapene ornata and/or T. carolina)
At least 25 bones of box turtles were recovered from nine pits at depths of 5 to 110 cm. Only 2 of these could be identified to species level and they were the ornate box turtle. (Terrapene ornata). Since both T. ornata and T. carolina are known from the area, the other bones could be of either.

Slider (Pseudemys texana or Trachemys scripta)
At least 15 bones of slider turtles were recovered from eight pits and one burial fill at depths of 80 to 130 cm. These fragmentary bones can not be separated between the two species, both of which are resident in the area.

Softshell (Trionyx spiniferus or T. muticus)
Two bones of softshell turtle were recovered in two pits at depths of 80 to 95 cm. These could be of either of the species but T. spiniferus is the most likely on basis of available habitat and current population numbers.

Unidentified turtles
More than 400 bones of turtles were recovered from throughout the site at all levels. These are too fragmentary to identify but they are thought to be of no other than the above varieties. None of them are of the common snapper (Chelydra serpentina) which is common in the area today.

Snakes
At least 165 vertebrae of snakes were recovered from 12 pits and the burial fills at depths of 35 to 140 cm. Caudal as well as precaudal bones are included. Only 23% of the vertebrae are complete enough to identify the genus and/or species. The number of bones of the 10 varieties of snakes are 6 rat snake (Elaphe sp.), 1 hognose snake (Heterodon platyrhinos), 6 kingsnake (Lampropeltis sp.), 2 coachwhip (Masticophis flagellum), 10 watersnake (Nerodia sp.), 4 garter or ribbon snake (Thamnophis sp.), 1 rough earth snake (Virginia striatula), 2 cottonmouth (Agkistrodon piscivorus), 4 western diamondback rattlesnake (Crotalus atrox) and 2 pigmy rattlesnake (Sistrurus miliarius). The unidentified varieties are probably of the same taxa.

Birds:

Brown pelican (Pelecanus occidentalis)
Half of a carpometacarpus of a pelican was recovered at a depth of 115 cm. Even though no brown pelican bones are available for direct comparison, this bone is assigned to the species since, except for size, it matches the same element from the white pelican (Pelecanus erythrorhynchos).

Duck (<u>Anas</u> sp.)
Two coracoids of duck were recovered at a depth of 45 cm. They can not be relegated to a particular species since there are several ducks of similar size.

In addition to the above, a fragment of a tibiotarsus of a bird that was somewhat larger than a mallard (<u>Anas platyrhynchos</u>) was recovered at a depth of 120cm and a phalanx that is the size of the toe bone of a turkey (<u>Meleagris gallopavo</u>) was at 100 cm.

Mammals:

Virginia opossum (<u>Didelphis</u> virginiana)
Four bones of the opossum were recovered in only one pit. Three vertebrae that appear to be prehistoric were near the surface and a fresh scapula was at 134 cm. The scapula indicates the depth to which some of the site was disturbed by the recent armadillo burrows.

Least shrew (<u>Cryptotis parva</u>)
Both maxillae of a least shrew were recovered in fill of Burial 3 and a mandible came from Burial 4.

Nine-banded armadillo (<u>Dasypus novemcinctus</u>)
Bones of the armadillo were recovered from the surface down to 25 cm over a horizontal distance of 5 meters. The bones consist of 81 dermal scutes, 2 vertebrae, 2 phalanges and one each mandible, tibia, metatarsal and astragalus. Since the armadillo entered the Fort Bend County part of Texas only during the past 100 years (Schmidly 1983, p. 103), this represents a modern intrusion into the site. Evidence of armadillo burrows at the site was noted by the excavators. Since all of the bones could be from a single individual, this may suggest the distance that bones can be scattered by scavengers in less than 100 years.

Eastern cottontail (<u>Sylvilagus floridanus</u>)
Bones of cottontail were recovered from the surface down to 129 cm. The 13 bones came from four pits and two burials across a space of about 8 meters. Elements include tooth, vertebra (2), rib, humerus, ulna, calcaneus, metatarsal, and phalanx (4).

Attwater's pocket gopher (<u>Geomys attwateri</u>)
At least 46 bones of pocket gophers were recovered from six pits and three burial fills. Depths ranged from 50 to 180 cm. Elements include mandible, upper incisor, lower incisor (6), cheek tooth (12), humerus (4), vertebra (2), tibia (2), astragalus (3), calcaneus (3), and phalanx (12). This array of bones across most of the site suggests that these burrowing rodents were living on the site and may not necessarily have been residue of diet of the human occupants.

Hispid cotton rat (Sigmodon hispidus)
Bones of this ubiquitous rat were recovered from seven pits and at depths of 45 to 130 cm. Elements include mandible (2), cheek tooth (7), incisor (12), scapula, ulna (4), vertebra (3), astragalus, calcaneus and phalanx (6).

Fulvous harvest mouse (Reithrodontomys fulvescens)
An upper incisor and a mandible with all teeth of this diminutive mouse were recovered at a depth of 140 cm. In addition, 2 upper incisors, a lower incisor and 2 femora were recovered from the burials and a pit with a horizontal spread of over 4 meters.

In addition to the above rodents, fragments of 8 incisors, 2 tibiae, and 5 phalanges were not assigned to species. They are probably not from any species other than the above.

Coyote (Canis latrans)
A canine tooth, the right lower M-1, left ulna, metacarpal and phalanx of coyote were recovered in four pits at depths of 10 to 95 cm. At least two individuals are included. The carnassial is about 1 mm longer than that of a large modern coyote from Uvalde County, Texas. Since the modern coyote may be somewhat larger than the prehistoric specimens, it is possible that the red wolf (Canis rufus) is represented.

Mink (Mustela vison)
Two teeth that are assigned to this small carnivorous mammal were recovered from the fill of two burials.

Raccoon (Procyon lotor)
Two fragments of mandibles and an astragalus of raccoon were recovered.

Pronghorn (Antilocapra americana)
Three teeth and two astragali from the excavations can be identified as from pronghorn. These were scattered over a horizontal distance of 11 meters and at depths of 60 to 120 cm. Other pronghorn bones are probably included but can not be separated from deer bones. The nearest current range of the species is in far west and north parts of Texas. However, pronghorn bones were also recovered from an archaic site in Harris County, Texas, 32 km northeast of this site (Wheat 1955).

White-tailed deer (Odocoileus virginianus)
Deer bones were recovered throughout the site at all levels that included bones or fragments. The 59 identified elements include tooth (14), mandible, humerus, radius (4), ulna (2), femur, tibia (4), trapezoid magnum, metacarpal (2), metatarsal (6), astragalus (13), calcaneus (3), centroquartal (6), and scaphoid (2). In addition, many of the elements that can not be separated from pronghorn are probably of deer. Because it is probable that mule deer (Odocoileus hemionus) were never residents in this part of

the state, that species is not considered here even though most of the material recovered can not be differentiated between the congeners.

Bones that are either too fragmentary or can not be differentiated between deer and pronghorn were also recovered throughout the site. These include petrous bone (2), mandible, tooth, humerus (2), ulna (2), patella, astragalus (2), tarsal, metapodial (15), sesamoid, and phalanx (25). In addition, most of the unidentified bone fragments are in this category. None of the recovered material appears to be referable to bison (*Bison bison*).

DISCUSSION

The investigations at this site resulted in identification of remains of 6 fishes, 2 frogs, an alligator, 5 turtles, 11 snakes, 2 birds, and 12 mammals. The shark and the armadillo were not available at the site at the time of human occupation. The shark tooth was probably a souvenir of a trip to the beach of the Gulf of Mexico. The armadillo arrived in the area much later. With these exceptions, all of the animals would have been available from the river, the wooded area along its banks, and in the surrounding prairie. The pronghorn has vacated the area since Archaic times. The absence of bison in the assemblage may reflect abandonment of the site before the bison arrived in this part of the coastal prairie. With the same exceptions, it is probable that all of the animals were used by the people for food, fur, or other resource. However, some of the small mammals may have died of natural causes.

The site had been in use for many centuries and has been disturbed by armadillos in recent times and by gophers and humans in earlier times. Because of this, an analysis of resource utilization must be general rather than specific. Any conclusions about any one period of occupation would be tenuous. However, some conclusions and speculations can be elicited from the data. At all times of occupation fish, turtles, snakes, and mammals were consumed. Large and small varieties of each of the categories were used. Poisonous and harmless snakes were included. The large number of remains of small fish indicates that they were regular parts of the diet. Their collection would not have been possible with hooks, so nets are a probable tool used in fishing. The greatest source for animal flesh was the deer and the pronghorn. Even though the number of individuals of other classes of animals exceeds that of deer, the consumable material of all of the other varieties is far less than that of deer.

ANALYSIS OF MOLLUSCAN REMAINS- Neck

INTRODUCTION

The study of molluscan shells from archeological sites can provide significant information for both archeologists and biologists. Information concerning environmental setting and use of shellfish as food, tools, and ornaments is of interest to archeologists. Biologists may use dated occurrences of shellfish in various strata to analyze ecological and zoogeographical changes. Information from sites along the San Bernard River can be used in conjunction with a survey of modern fauna (Neck, in progress) and other prehistoric sites (Neck 1986) to provide a broader data base for cultural utilization of freshwater shellfish.

METHODS AND RESULTS

Molluscan shell remains were identified to species. Shell counts are presented in Appendices F3 and F4. Most shell was recovered below a layer of calcareous-cemented sand at a depth of approximately one meter below the surface. Only a few scattered shells were found above this layer. Details of molluscan species found at this site are as follows:

Brackish Bivalves

Crassostrea virginica, common oyster, is found in shallow marine waters of bays along the Atlantic and Gulf coast of North America.

Mulinia lateralis, dwarf surfclam, is a ubiquitous, often abundant, species found in coastal waters with salinity varying from 5 to 80 parts per thousand (Parker 1975).

Freshwater Bivalves

Amblema plicata, three-ridge, is a widespread species found throughout most of Texas and the Mississippi River basin. This species is common in rivers and may become abundant in reservoirs.

Quadrula apliculata, southern mapleleaf, is found in every major river system in Texas. Commonly found on hard clay substrates, this remains one of the more abundant species in modern stream and reservoirs.

Lampsilis hydiana, Louisiana fatmucket, is present in streams and reservoirs in the eastern half of Texas. This species is generally found in streams and reservoirs with a sandy substrate.

Lampsilis teres, yellow sandshell, is found throughout Texas and most of the Mississippi River basin. Although commonly found in sandy substrates, this species also occurs in streams and lakes with muddy substrates.

Potamilus purpuratus, bleufer, is known from most of the Mississippi River basin and most of Texas.

Toxolasma texasensis, Texas lilliput, is a small freshwater mussel found throughout the west Gulf Coastal Plain. Typically found in quiet waters of small ponds, streams, and sloughs, this is the most abundant species in samples from 41FB42.

Freshwater Gastropods

Campeloma crassulum, ponderous campeloma, is found in sandy substrates of moderate- sized streams and ponds. Most sites supporting populations of this species have slightly acidic water.

Fossaria dalli, dusky fossaria, is a small pulmonate snail belonging to the family Lymnaeidae. Typical habitat for this species includes shallow water with vegetation and variable substrates.

Planorbella trivolvis, marsh rams-horn, is a common pulmonate snail that is found most often in shallow creeks and floodplain pools.

Terrestrial Gastropods

Oligyra orbiculata, globular drop, is the only terrestrial operculate gastropod known from Texas. This species is found in a variety of habitat types, but generally some cover in the form of rocks or downed wood is required.

Helicodiscus singleyanus, smooth coil, is found throughout most of North America, and is found in almost any kind of habitat that will support terrestrial gastropods.

Rabdotus dealbatus, whitewashed rabdotus, is found in open woodlands, savannahs, and riparian woodlands in Texas and eastward to mississippi and Arkansas.

Polygyra texasiana, Texas liptooth, is found in woodlands and savannahs with downed wood for cover.

Mesodon thyroidus, white-lip globe, is found in the southeastern United States as far west as the Balcones Escarpment. Typical habitat is a mesic upland or riparian forest.

Praticolella pachyloma, sandyland scrubsnail, is found in areas of sandy soil in southern, central, and southeastern Texas.

DISCUSSION

Most of the molluscan shells recovered from 41FB42 appear to be in situ flood debris deposited with alluvium. Most freshwater mussel shells, or fragments, represent small individuals of species that are found in the San Bernard River today. These small valves would be more readily transported to lateral alluvial deposits than would large specimens. Transport distance for most of these freshwater mussel shells is probably short, because only a few valves exhibited wear patterns caused by water transport. Almost all mussel shells, however, were moderately water leached, indicating substantial ground water movement through this alluvium.

Little cultural use of freshwater mussels is indicated at 41FB42. Only a few of the larger valves have the typical breakage pattern (posterior one-third to one-half of shell removed) that indicates utilization as food. One valve in particular is a large left valve of Amblema plicata that has the posterior third removed (E94N95, 75-80 cm). This valve is higher in the excavation pit than most other valves, and could indicate a single, essentially fortuitous, utilization of a freshwater mussel as food by later humans. Valves can be opened by heat, but the only valves that are charred are two fragments of an unidentifiable freshwater mussel found associated with Burial 4. These shells may represent backfill material that originated from midden material.

The occurrence of two species of brackish water bivalves, Cassostrea virginica and Mulinia lateralis, was limited to a single sample of each much higher in the column than any other shell sample. Found at a depth of 25-30 cm, these shells probably represent historical transport of shell as road surfacing. The shell fragments of C. virginica are heavily riddled by a boring sponge, Cliona sp. These sponges do attack occupied valves of oysters, but the heavy degree of "burrowing" in the oyster shell at 41FB42 is indicative of unoccupied (dead) shells.

Generally, the molluscan species recovered at 41FB42 are the most common molluscs found in the modern San Bernard River and its alluvial terraces. The freshwater operculate gastropod, Campeloma crassula, has not yet been reported living from the San Bernard River, but one shell of this species has been recorded from a nearby prehistoric site (Neck 1986).

MORTUARY DATA - Gregg

A. Burial Details

Six burials were found at site 41FB42. A plan view of the burials is given in Figure 13, and important attributes are listed in Table 14. All of the burials except one (Burial 6) are of adults. Two of the burials (1 and 6) were at moderate depths of 46 and 65 cm, respectively, while the other four (2 through 5) were deep, 96 to 123 cm. The (artificial) elevations of the deep burials were even closer, ranging from only 8.85 to 8.90 m.

Burial 1 consisted essentially of the long bones of the legs and very fragmentary remains of the skull and a few other bones. The positions of the leg bones clearly indicated that the body was buried on the left side in a semiflexed position. A lot of very small, unidentifiable bone fragments were noted in the area between skull and leg bones.

Burial 2 was essentially complete and articulated, with extended, supine body configuration, and head direction to the southeast. It was the only burial with grave goods: exotic marine shell and stone beads, and small snail shells ground flat on one side.

Burial 3 was a bundle burial, with the skull at the southeast end. The remains may be primarily those of one individual, but some duplicate bones were present.

Burial 4 consisted of articulated, extended leg bones, a skull where the pelvis would be expected, and a few miscellaneous bones. If this was part of an originally extended burial, the head orientation would have been to the southeast. It may be that this burial was disturbed when the pit for Burial 3 was dug. Perhaps some of the "extra" bones in Burial 3 are from Burial 4; this will be addressed in a subsequent detailed report on the burials.

Burial 5 was very much like Burial 2: extended, supine, orientation to the southeast. It was 3 meters directly east of Burial 2.

Burial 6 was that of a child. The remains consist of some of the leg bones and a few small fragments of other bones. The shallowness of Burials 1 and 6 likely led or greatly contributed to their deteriorated conditions, caused by physical, chemical, and biological agents in the soil.

The two extended burials (2 and 5) lay in dark soil just above the hard cemented layer discussed in previous sections. The other deep burials (3 and 4) were in the very light colored soil just below this layer. In fact, the layer appeared to drape over some of the upper bones of Burial 3. Many of the bones of Burial 3 are encrusted with the caliche-like material of this hard layer.

Despite the "penetration" of Burials 3 and 4 into the very light colored soil beneath the hard layer, there was no indication of a burial pit for either, and no absence or thinning of the hard layer in the area just above the burials. This situation appears to be similar to that of the alternating light and dark bands of soil at site 41WH19, where a dark, harder band draped over the legs of a burial but continued uninterrupted beneath the skull (Patterson et al. 1987:15-18). So, with the same sort of logic as applied at 41WH19, it is concluded that the formation of the hard layer at 41FB42 postdates Burials 3 and 4, and that ground water flow in the area in and beneath what is now the hard layer must have carried away the dark-colored fraction of the burial fill. This also agrees with statements about this subject given in the section on geology.

Found to the left side of the left femur and just above the knee of Burial 2 was the tip of a dart point deeply embedded in human bone (see Figure 14). The bone is not well preserved, so the soil matrix containing the bone and the dart point fragment was removed as a block of about 4 by 3 by 2.5 cm. Only a small portion of bone surface remains, so the specific bone or bones involved have not yet been identified.

The bone is thick and cancellous with thin exterior wall. This would appear to be consistent with where it was found, because the knee area is one of the relatively few areas of the skeleton with these characteristics. Nevertheless, the bone is not from Burial 2 because the bones of Burial 2 in the knee area, specifically the femora and tibiae, are complete. Furthermore, the surface of the bone in question is markedly stained a dark brown (as are many burials in Southeast Texas), whereas the bones of Burial 2 are stained very little. On the other hand, Burial 6, which is laterally close to Burial 2 but considerably shallower, is so stained. It is speculated that the bone with the embedded point may be from Burial 6 and that it was redeposited when Burial 6 was disturbed in the process of preparing for Burial 2.

No healing of the bone is evident; it is likely that this wound led to the individual's death. Similar situations have been found at other Late Archaic cemetery sites of the area, namely

41AU36 (Hall 1981), 41WH14 (Copas 1984), and 41WH39 (Vernon 1989).

Some red ochre streaks were noted scattered throughout the site, and a few lumps of red ochre were found (see Table 12). However, there were no concentrations of ochre around the burials as have been found at many of the other burial sites in the region.

B. Burial Chronology

The four deep burials (numbers 2-5) at site 41FB42 appear to date to the Late Archaic period (1500 B.C. - A.D. 100), based on similar burial treatment, depth of burial, and lack of pottery. Also, one of them (Burial 2) had exotic grave goods, which have been found only with Late Archaic burials in the western part of Southeast Texas, at radiocarbon-dated sites such as 41AU36 (Hall 1981) and 41FB3 (Patterson et al. 1993). The southeast head direction of burials at 41FB42 is the same as for the Middle Archaic burial group at 41AU36 (Hall 1981:Figure 53). However, head direction is not time-diagnostic for Late Archaic burials of this area. For Late Archaic burials at sites 41AU36 (Hall 1981) and 41FB3 (Patterson et al. 1993) head directions were predominantly northerly, while at sites 41WH14 (Copas 1984) and 41WH44 (Black et al. 1992) of the same time period head directions were predominantly southerly. The largest number of Late Archaic burials at site 41WH39 (Vernon 1989:46) had head directions to the east, with some burials with more northerly head direction, and a few to the southwest.

There is insufficient data to ascertain the age of the shallower burials (1 and 6).

An attempt to obtain a radiocarbon date from some of the bones of Burial 5 failed because of poor preservation of organic material in the bone. No other substance suitable for radiocarbon dating was found at the site.

C. Grave Goods

Only one burial at 41FB42 had grave goods. Burial 2 had exotic marine shell and stone beads in positions indicating possible use as anklets and bracelets. Also, just below the pelvis, and to either side at the tips of the fingers, were a number of small snail shells ground flat on one side.

Over 210 discoidal marine shell beads (Figure 15A) were recovered. There were 110 shell beads in the area of the right wrist and hand of Burial 2, and over 100 beads were found elsewhere, mostly around the lower tibiae and fibulae, just above the ankles. These shell beads are similar to the single Form 6 bead found as a grave good at site 41AU36 (Hall 1981:Figure 48). It is assumed that the origin of this type of bead is somewhere along the Texas coastal margin. A number of the beads were found in fairly tight stacks of up to eight or so, strong evidence of having been strung together. However, the lengths of the strings are uncertain. The beads in the ankle and right-hand regions were concentrated in compact areas; long strings would thus have taken tortuous paths, and the resulting archeological record would likely be indistinguishable from that due to shorter strings. Complicating factors are that the area around the left hand was disturbed, and that the region of the right hand and lower right arm apparently dropped down 5 to 10 cm because of undermining by an animal burrow.

A group of shell beads from between the lower tibiae appear to be from a four-string arrangement (Figure 16). The beads in each string segment are spaced somewhat far apart and are set at an angle with the string. The adjacent string segment, with beads at opposite angle, interlaces well with its neighbor, forming a sort of "alternating chevron" pattern. As seen in Figure 16, this pattern is clear for three adjacent string segments of four or more beads each. Each of the string segments is essentially straight but the segments are not coplanar. It appears that there are remnants of a fourth string segment (area obscured in Figure 16) which may have meshed with the other three to form a four-string arrangement with square cross section. What sort of cross-stringing would be required to maintain such a pattern is left for the speculation of the readers. It might be, however, that at the time of burial a long string of beads was carefully laid out in the pattern seen in Figure 16, without any cross-stringing, on the lower legs, and that a portion of this arrangement survived in place over the many years because of the support from and protection by the leg bones (tibiae). On the other hand, it seems very unlikely that the observed arrangement is coincidental.

The discoidal beads are fairly consistent in diameter, ranging from 8 to 16 mm, but with most between 12 and 13 mm. Bead thicknesses range from 1.6 to 6.0 mm, with most 3 to 4 mm. The hole diameters range from 2 to 7 mm, with most from 3.5 to 4.0 mm. Although the beads are relatively thin, many appear to have been drilled from both sides.

Fourteen tubular stone beads, shown in Figure 17, were associated with Burial 2, with 10 found in the area of the right wrist (intermingled with the 110 shell disk beads), and two in the area of the left wrist. The other two, along with 10 shell disk beads, were found in a clump about 10 cm beneath the pelvis; as in the case of the right hand, they were probably displaced downward due to animal burrowing. With one exception, the stone beads are dark gray to black in color, with a distinct dark green or blue-green tint. The exception is a red bead (SB14), made of a sandy siltstone or shale, and found in the clump beneath the pelvis.

The stone beads, unlike the shell disk beads, in no instance were found positioned end-to-end so as to indicate having been strung as a bracelet. Nor were there stone beads and stacks of shell beads end-to-end to indicate strings of alternating stone and shell beads. In several instances, however, a stack of shell beads lay parallel alongside a stone bead. This could suggest that the stone beads might have been attached pickaback to a shell bracelet, or it might indicate an alternating stone/shell bead bracelet or necklace laid zigzag fashion at the time of burial.

The stone beads were finished quite smooth by grinding. For most, the outer surface is fairly circular in transverse cross section, but for four (SB1, SB4, SB8, SB9) it is formed of long, narrow, flat longitudinal facets, and thus tends toward being polygonal in transverse cross section. What may be wear patterns, from the rubbing of adjacent beads of a necklace or bracelet, are discernible on the ends of more than half the beads. These vary from just rounded edges to opposite ends wearing at opposing angles to give the bead a somewhat "keystone" shape. A number of beads have a rounded spot on each end, but the angle between spots runs the gamut from 0 to 180 degrees. Of course, it may be that some or all of these supposed wear patterns were produced in the manufacturing of the bead. Bead SB7 differs greatly in shape from the rest. It is the shortest bead yet has the largest diameter. The surface has a number of irregular facets, both rounded and flat, and the hole is considerably off-center.

The red bead (SB14) has a small cut or saw mark parallel to and about 9.5 mm from one of the ends. The cut is 4.5 mm long, 1 mm wide, and the bottom tapers from near the surface on one side of the cut to about 1 mm depth along the other side. This was probably a mistake made during manufacture.

As can be seen from Figure 17, most of the beads were found with caliche adhering to the surface. Gentle brushing with water was not sufficient to remove all of the caliche. Two beads (SB3 and SB7) were cleaned of most of their caliche by applying dilute hydrochloric acid by eyedropper to the caliche concentrations. However, during this cleaning process it was noted that the beads rapidly absorbed the acid droplets. So this procedure was abandoned for fear that the acid might harm constituents of the rock or residues within the rock matrix.

Measurements of the stone beads from 41FB42 are given in Table 15. As noted there, the hole in each bead has been drilled from both ends (see Figure 15B). An interesting observation is that the outside diameters of the stone beads are about the same as those of the shell disk beads, and that the inside diameters are just a little larger. Could this mean that they were made to be strung together? The color measurements were made with the 1975 edition of the Munsell Soil Color Charts; soil color charts are insufficient for accurate measurements of rock colors.

According to Larry Banks (personal communication 1990) of the Corps of Engineers, the stone beads from 41FB42 seem to be made of materials that typically occur in the Ouachita Mountains of Arkansas, particularly siliceous shales and quartzitic sandstones from the Stanley and Jackfork groups.

Although the location of origin of the materials may be Arkansas, the manufacturing location for the beads has not been determined. The Poverty Point site in northeastern Louisiana is a known stone bead manufacturing location, with totals of 417 tubular stone beads and 191 stone bead preforms found there (Webb 1982:Table 13). But visual comparison of specimens on display at Poverty Point with the 41FB42 beads by one of the authors (Gregg) revealed that Poverty Point stone beads are generally smaller, drilled from only one end, and made of softer materials. These conclusions were also expressed by archeologists at Poverty Point, Dennis LeBatt and Nancy Clendenen (personal communication 1992). Ford and Webb (1956) report on examining 99 tubular stone beads from Poverty Point that lengths ranged from 10 to 38 mm and outside diameters from 4 to 9 mm. This contrasts with ranges of 29 to 42 mm in length and of 10 to 16 mm in diameter for the 41FB42 beads, and confirms the visual size differences, mentioned above, with the Poverty Point site specimens. Ford and Webb further state that their beads are drilled from both ends. This also is true of the 41FB42 beads, but in conflict with observations of the Poverty Point display specimens (which had to be viewed from a distance). Ford and Webb also say that 83 of their beads were made of red jasper, five of "a hard black stone," and 11 of "gray or cream-colored stone." Only two of the 41FB42 beads (SB2, SB7) would be described as made of hard black stone, and none of gray or cream-colored stone. And the one red bead from 41FB42 is certainly not made of red jasper. It should be noted, however, that the definition of jasper as given in mineralogy books (a certain type of microcrystalline quartz) is often not followed.

Another possible location of manufacture for the stone beads of 41FB42 is the Cad Mound site (Gibson 1968) in northern central Louisiana, which may be of Poverty Point Late Archaic age or somewhat older from the Middle Archaic period. But here again the beads are considerably smaller than those of 41FB42. The diameters, ranging from 7 to 13 mm, are about midway between those of Poverty Point and 41FB42. But the lengths are more restricted than those of Poverty Point, being 14 to 30 mm, and thus almost fail to overlap with the range for 41FB42. Almost all of the Cad Mound beads were made from local materials, with about 60% from varicolored quartzites.

Stone beads were also produced at other sites associated with the Poverty Point culture. For example, Lehmann (1982:41) reports that tubular beads were the most common lapidary item at the Jaketown site in central western Mississippi, with 43 made of jasper, six of other hard stone, and four others. Just south of Jaketown at the Slate site, disk and tubular stone beads were the most common lapidary forms (Lauro and Lehmann 1982:37), with 88 tubular stone beads recorded. Of these, 76 are made of slate, five of quartz diorite, and four of bauxite.

At the time of discovery, the tubular stone beads of 41FB42 were the only ones known from Southeast Texas. Since then, five similar beads have been found at ongoing excavations by Texas A&M University at the Brandes Site, 41AU55, in Austin Co., Texas (Bill Dickens and Harry Shafer, personal communication 1992). Also, two of the authors (Kindall and Gregg) were permitted to document a tubular stone bead, in a private collection, which was found at site 41HR233 in Harris Co., Texas.

About 40 quite small, worked gastropod shells were found with Burial 2, with 14 at the distal end of the pelvis. Most of the rest were concentrated at the same distance distally but just outside the femora, thus at the location of the outstretched fingers. All of these shells appear to be of the same type. However, the suture lines are fairly indistinct, possibly because of chemical action in the soil, and so identification as to species or genus could not be made. In fact, this indistinctness is one of several reasons that led one of the authors (Neck) to suspect that these may be fossils.

These shells are hemi-ellipsoidal in shape (see Figure 15C), with lengths of 7-9 mm and heights typically 1-2 mm less than length. The width or thickness, measured perpendicularly from the flattened side, ranges from 4 to 6 mm. The flat side was probably produced by grinding; it is oriented so that the columella is sectioned, the apex is present, and the aperture is absent. About 30% of the shells have remnants of a light brown substance on the exterior. This could be what is left of the natural shell surface or of an applied coating.

It seems unlikely that the shells were strung such as for a bracelet; they are small and fragile, and no corresponding wear patterns have been discerned. More likely would have been their use as an appliqué, sewn on or fastened with an adhesive. Sewing would require that thread be passed around the columella or through one or more holes made in interior or exterior walls, or through the columella. No such holes are apparent, but they may be obscured by the lumpy gray caliche deposits which fill many of the cavities of these shells. No trace of an adhesive was noted.

The shape and size of the shells are consistent with those of the virgin nerite, *Neritina (Vitta) virginea,* a shell with quite variable colors and patterns which is common in bay margins along the Gulf Coast (Andrews 1981). However, the walls and columellae seem considerably thicker than those of any candidate species, modern or fossil, from the comparative collections of the Houston Museum of Natural Science.

Although a variety of shell ornaments have been found with burials in this region, this appears to be the first site in Southeast Texas at which small ground gastropod shells as described here have been reported.

D. Skeletal Analysis

A detailed analysis of the skeletal material will be given in a separate report.

BONE ARTIFACTS

A few bone artifacts were found at site 41FB42 as shown in Figure 18. Two bone objects with drilled holes were recovered in Pit E99N95 at 140-145 cm, in the Paleo-Indian time period. Both specimens are drilled from only one end. The specimen shown in Figure 18A has a hole with a diameter of 2.6 mm that has been only partially completed. The specimen shown in Figure 18B has a completely drilled hole with a diameter of 2.5 mm. These two specimens might be beads. There is not much information available on ornaments used in the Paleo-Indian period.

An engraved bone fragment (Figure 18C) was found in Pit E101N95 at 90-95 cm, above Burial 5. The engraved pattern is similar to some patterns shown by Hall (1988b) for long-bone implements in this general geographic area. Therefore, this specimen is possibly a fragment of a long-bone implement.

The basal end of a long-bone implement (Figure 18D) was found in Pit E102N94 at 106 cm. This is at the level for Burial 5 in one of the Burial 5 pits, but this specimen was not closely associated with the skeletal remains. There is a possibility that this specimen could be an item of grave goods for Burial 5, since long-bone implements are frequently found as grave goods in the Late Archaic mortuary tradition of the western part of Southeast Texas, and because this specimen was found in one of the Burial 5 pits. This specimen is highly polished, and has a mottled black and brown color even in the interior of the material. The bone does not appear to have been burnt. It is unusual for bone to have a color this dark.

GENERAL DISCUSSION

A number of conclusions can be made regarding the results of excavations at site 41FB42. This site can be added to the increasing list of prehistoric sites in Southeast Texas that have very long occupation sequences (Patterson 1983). In the case of site 41FB42, an occupation sequence of 8000 years or longer seems to be indicated, starting in the Late Paleo-Indian period and continuing through the Late Prehistoric period.

After accounting for some soil disturbance, the projectile point sequence over time seems to be fairly typical of sites in this general area, on the western side of Southeast Texas (Patterson 1991a). Some projectile point types in this area, such as Scallorn, Bulverde, and Pedernales, demonstrate technological influences and perhaps the presence of Indians from Central Texas. Southeast Texas is an interface between technological traditions of the Southern Plains and the Southeast Woodlands. A mixture of these traditions is most evident in the western part of Southeast Texas, between the Brazos and Colorado Rivers.

Fired clayballs are the most numerous type of artifact found at site 41FB42. Clayballs were found in all strata, indicating use of this artifact during all time periods found here. Fired clayballs may have been used for the seasonal processing of plant food materials (Patterson 1989b). This implies use of this site by Indians during warm weather, when plant materials would have been available for harvest, although use of this site in other seasons is also possible. The long time period of use of fired clayballs in this region, Late Paleo-Indian through Late Prehistoric periods, demonstrates some cultural continuity in Southeast Texas.

Nonutilitarian grave goods were found with one burial from the Archaic period, in the form of shell and stone beads that were possibly worn as anklets and bracelets. Shell beads indicate contact with Indians of the coastal margin, and tubular stone beads show possible participation in the Poverty Point Exchange System (Patterson 1989a), or some other aspect of a widespread Late Archaic trade system. The Archaic period burials at this site seem to be related to a Late Archaic burial tradition, principally at sites between the lower Colorado and Brazos Rivers, with many types of exotic grave goods. The wide variety of exotic grave goods found in this subregion of Southeast Texas implies a somewhat more sophisticated degree of social organization than indicated in other areas of Southeast Texas during the Late Archaic period. Due to a good supply of natural food resources, the area of the lower Brazos and Colorado Rivers may have been relatively more prosperous than other areas of Southeast Texas during the Archaic period. In any event, the use of exotic grave goods declines rapidly in the following Early

Ceramic period (Hall 1981), indicating changes in social behavior and organization.

Nonutilitarian grave goods were found with only one of the Late Archaic period burials at site 41FB42. This implies some type of high status for this one individual, such as being a "big man" or shaman.

A human leg bone was found that had an embedded tip of a large dart point indicating violence. Other sites have been found in this general area that have burials with evidence of violence (Hall 1981; Hudgins and Kindall 1984; Vernon 1989). All sites in this area with burials showing evidence of violence are associated with the Late Archaic mortuary tradition of the western part of Southeast Texas. Evidence of violence implies social stress that resulted in either intra- or inter-group conflict (Hall 1988a; Patterson 1988). A rapidly rising population density during the Late Archaic period (Patterson 1991b) and perhaps climatic deterioration may have contributed to social stress.

A small amount of freshwater shellfish remains were found at 41FB42, mainly in Late Paleo-Indian strata. There is little evidence of use of shellfish as food at this site, although several sites along the San Bernard River have shell middens indicating significant use of shellfish (Patterson and Hudgins 1986, 1987a,b). Shellfish at 41FB42 seem to have been deposited by floods, perhaps indicating a wet climate during the Late Paleo-Indian period. Soil conditions at this site might have had a major influence on what shellfish and gastropod remains may be found. It does not seem possible, however, to discern much about specific soil conditions which any potential shellfish remains at this site would have been subjected over the years.

The analysis of vertebrate remains from 41FB42 indicates the utilization of a wide range of faunal resources, as also has been found at other sites in this general area of the western part of Southeast Texas (McClure 1986, 1987).

There is evidence at this inland site of contacts with Indians of the coastal margin, and/or visits to the coastal margin, during the Late Prehistoric period. This evidence includes a few sherds of possible Rockport pottery, a triangular dart point (Matamoros ?), and a shark tooth.

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TABLE 1

ARROW POINTS

Type	dimensions, mm L	W	T	level, cm	pit	Fig.
Perdiz	47*	18.6	4.9	5-10	E98N94	
Scallorn	25.2	17.0	4.6	5-10	E98N94	
Perdiz	40*	24.8	3.9	10-15	E98N95	5F
arrow pt. preform	--	--	3.4	10-15	E98N94	
Scallorn	25*	16.8	4.3	14-19	E99N96	5D
Scallorn	20.5	12.9	2.8	16-21	E101N94	5E
Perdiz	42*	15.9	3.8	18-23	E99N95	5G
Scallorn stem	--	--	3.2	19-24	E98N96	
arrow pt. preform	29.5	17.7	3.5	24-29	E99N95	5I
Scallorn frag.	21.0	--	1.7	24-29	E99N95	
Perdiz	--	16.7	2.1	29	E101N95	5C
Scallorn	34.5	14.7	4.2	29	E101N95	5B
Scallorn stem	--	--	3.5	44-49	E98N96	
unclass. frag.	--	13.3	3.5	53-58	E99N95	5H
blade tip	--	--	2.9	60-65	E98N94	
blade tip	--	--	3.4	65-70	E101N95	
Scallorn stem	--	--	2.0	83-88	E99N95	

Note: all arrow points below 30 cm level are probably displaced
*- asterisk indicates estimated dimension

TABLE 2

DART POINTS

type	dimension, mm L	W	T	level, cm	pit	Fig.
stem frag.	--	--	6.5	5-10	E98N96	
Gary	42.1	22.1	9.0	5-10	E98N94	
triangular	27.3	14.0	6.5	10-15	E91N92	
blade frag.	--	24.0	6.5	15-20	E91N92	
blade tip	--	--	5.0	15-20	E98N95	
Kent stem	--	--	7.2	20-25	E94N95	
Kent	45*	20.2	6.7	20-25	E91N92	
Kent stem	--	--	6.0	21-26	E102N94	
blade tip	--	--	--	21-26	E102N94	
straight stem (D)	--	--	6.2	25-30	E105N96	
Gary	49.6	23.3	7.3	28-33	E99N95	7H
Kent stem	--	--	6.8	25-30	E102N94	
blade tip	--	--	6.1	31-36	E101N94	
blade tip	--	--	8.3	31-36	E101N94	
blade tip	--	--	6.6	39-44	E98N96	
Kent	38.7	22.1	7.9	39-44	E98N96	7I
blade tip	--	--	5.8	33-38	E98N95	
Gary	33*	19.0	7.6	33-38	E98N95	5A
Kent stem	--	--	9.7	35-40	E105N96	7D
blade tip	--	--	6.5	38-43	E99N95	
Kent	38.8	19.6	8.1	41-46	E101N94	7J
blade frag.	--	--	7.0	34-39	E98N96	
blade tip	--	--	8.3	38-43	E98N95	
blade tip	--	--	4.0	38-43	E98N95	
Yarbrough	47.5	21.8	6.6	40-45	E101N95	7F
Yarbrough	68.8	26.8	9.2	40-45	E91N92	7E
blade tip	--	--	--	40-45	E102N94	
Williams-like (D)	--	--	9.5	39-44	E99N96	7B
Gary stem	--	--	--	45-50	E102N94	
blade frag.	--	--	6.6	44-49	E99N96	
stem frag.	--	--	7.3	50-55	E105N100	
blade frag.	--	--	8.8	50-55	E105N100	
Gary	--	29.4	9.7	55-60	E105N100	6G
Yarbrough (B)	--	20.7	7.2	54-59	E99N96	7G
Williams (B)	51.8	27.8	9.0	55-60	E101N95	7A
Pedernales stem	--	--	7.0	55-60	E105N100	7C
blade tip	--	--	8.8	60-65	E105N96	
Gary (B)	96.0	31.1	9.5	64-69	E98N96	6H
Wells (GS,B)	59.3	28.3	8.9	65-70	E97N95	6F
Bulverde	47.9	29.8	7.0	65-70	E105N100	6D
Bulverde	67.8	28.2	9.0	70-75	E105N100	6E
Morhiss-like (B)	--	23.0	6.7	70-75	E97N95	6C
blade tip (B)	--	15.7	4.6	83-88	E98N95	
Early Stemmed(GS,U)	38.0	13.5	6.9	96-101	E102N94	6B
Angostura (GS,U)	--	19.0	6.8	130	E97N95	6A

(B)- burial pit (U)- undisturbed below burial
(D)- probably displaced (GS)- ground stem edges

TABLE 3

POTSHERD FREQUENCY BY LEVEL

level, cm	total sherds
0-5	12
5-10	7
10-15	69
15-20	133
20-25	92
25-30	107
30-35	65
35-40	53
40-45	35
45-50	21
50-55	16
55-60	6
60-65	9
65-70	10
70-75	2
75-80	3
total	640

TABLE 4

CORES AND LITHIC RAW MATERIALS

level, cm	cores	pebbles	cobbles
0-5	--	--	--
5-10	--	--	--
10-15	2	1	--
15-20	--	1	--
20-25	--	--	--
25-30	2	1	--
30-35	1	2	--
35-40	1	2	--
40-45	1	1	1
45-50	2	4	--
50-55	2	1	--
55-60	1	3	--
60-65	--	1	--
65-70	--	2	--
70-75	--	--	1
75-80	1	--	--
80-85	3	--	1
85-90	2	--	--
90-95	--	--	1
95-100	3	1	--
100-110	1	--	--
110-120	--	--	--
120-130	4	--	--
130+	2	--	--
total	28	20	4

TABLE 5

REMAINING CORTEX ON FLAKES

level, cm	primary, %	secondary, %	total with cortex, %
0-5	13.6	13.6	27.2
5-10	0	25.0	25.0
10-15	5.3	30.7	36.0
15-20	6.9	18.2	25.1
20-25	3.0	22.0	25.0
25-30	6.0	22.4	28.4
30-35	3.7	23.4	27.1
35-40	1.9	15.5	17.4
40-45	3.8	9.5	13.3
45-50	4.7	18.8	23.5
50-55	4.9	20.7	25.6
55-60	2.7	13.4	16.1
60-65	1.4	15.1	16.5
65-70	3.0	11.9	14.9
70-75	3.2	17.5	20.7
75-80	5.1	19.2	24.3
80-85	3.8	11.3	15.1
85-90	0	13.3	13.3
90-95	2.7	21.6	24.3
95-100	7.6	15.4	23.0
100-110	0	36.4	36.4
110-120	0	23.1	23.1
120-130	0	16.0	16.0
130+	13.6	13.6	27.2

TABLE 6

DART POINT PREFORMS AND KNIVES

type	dimensions, mm L	W	T	level, cm	pit	Fig.
preform frag.	--	28.9	7.3	10-15	E105N100	
preform frag.	--	--	7.2	15-20	E105N100	
preform frag.	--	--	5.6	15-20	E105N96	
preform frag.	--	--	5.3	19-24	E98N96	
preform frag.	--	--	6.3	26-31	E101N94	
preform frag.	--	--	5.7	24-29	E98N96	
knife frag.	--	36.5	8.1	24-29	E99N95	
preform frag.	--	--	8.7	30-35	E101N95	
preform frag.	--	--	10.6	40-45	E91N92	
preform	45.5	20.3	9.2	41-46	E101N94	7K
preform frag.	--	--	10.0	43-48	E99N95	
preform frag.	--	--	9.7	44-49	E99N96	
preform frag.	--	--	7.5	45-50	E97N95	
preform	40.3	21.5	8.8	45-50	E97N95	7L
knife frag.	--	35.0	7.8	44-49	E98N96	5N
preform frag.	--	--	10.2	46-51	E101N94	
preform frag.	--	21.0	9.7	56-61	E102N94	
knife frag.	--	--	10.0	50-55	E105N96	
preform frag.	--	19.3	11.6	50-55	E101N95	
preform frag.	--	16.2	6.5	56-61	E101N94	
knife	48.0	17.5	9.5	59-64	E98N96	5L
preform frag.	--	17.8	10.2	60-65	E97N95	
preform frag.	--	32.3	8.7	60-65	E91N92	
preform frag.	--	--	7.8	70-75	E91N92	
preform frag.	--	36.0	11.8	75-80	E105N98	
preform frag.	--	21.0	14.2	86-91	E101N94	
preform frag.	--	--	7.4	89-94	E98N96	
preform frag.	--	35.8	13.5	89-94	E98N96	
preform frag.	--	33.8	7.6	95-100	E97N95	
preform frag.	--	--	9.1	108-113	E98N95	
preform frag.	--	--	5.9	115-120	E105N100	
preform frag.	--	24.1	8.5	115-120	E99N95	
preform frag.	--	24.8	7.9	119-124	E99N96	
preform frag.	--	--	4.2	145-150	E105N100	
hafted knife ?	--	34.9	8.8	125	E99N95	18E

TABLE 7

MISCELLANEOUS LITHICS

item	number	level, cm	pit
chert pebble	1	15-20	E98N95
chert pebble	1	11-16	E101N94
chert core	1	11-16	E101N94
chert core	1	10-15	E97N95
chert pebble	3	15-20	E99N95
chert pebble	1	25-30	E105N96
chert core	1	25-30	E105N96
quartzite flake	1	25-30	E98N94
chert core	1	25-30	E98N94
chert pebble	1	35-40	E97N95
chert pebble	1	30-35	E98N95
chert pebble	3	35-40	E98N95
chert pebble	1	30-35	E98N96
chert core	1	30-35	E101N95
biface frag.	1	35-40	E101N95
chert core	1	35-40	E101N95
chert pebble	2	40-45	E98N95
quartzite pebble	1	45-50	E99N96
chert core	1	46-51	E101N94
chert pebble	1	40-45	E101N95
chert pebble	1	45-50	E101N95
chert core	1	40-45	E105N96
chert core	1	45-50	E105N96
chert cobble frag.	1	40-45	E91N92
chert pebble	2	55-60	E98N96
chert pebble	2	46-51	E101N94
chert pebble	1	56-61	E101N94
chert core	1	56-61	E101N94
chert pebble	1	55-60	E101N95
chert piece	1	55-60	E101N95
chert pebble	1	50-55	E105N100
chert core	2	50-55	E105N100
chert pebble	1	55-60	E105N100
chert pebble	1	60-65	E98N96
chert piece	1	60-65	E98N96
chert pebble	1	65-70	E99N96
chert pebble	1	61-66	E101N94
chert piece	1	61-66	E101N94
chert pebble	1	66-71	E101N94
quartzite pebble	1	70-75	E98N96
chert cobble frag.	1	70-75	E105N96
chert core	1	75-80	E91N92
quartzite pebble	1	75-80	E94N95
chert core	2	80-85	E91N92
chert core	1	85-90	E91N92
chert core	1	81-86	E101N94

TABLE 7 (continued)

MISCELLANEOUS LITHICS

item	number	level, cm	pit
chert cobble	1	81-86	E102N94
chert core	1	85-90	E98N94
biface frag.	1	85-90	E98N94
chert core	2	94-99	E98N96
chert core	1	95-100	E99N95
chert pebble	1	95-100	E99N95
chert piece	1	95-100	E97N95
chert cobble	1	91-96	E102N94
chert core	1	100-105	E91N92
chert piece	1	115-120	E110N99
quartzite pebble	1	110-115	E110N99
chert core	1	119-124	E99N96
chert core	3	121-126	E102N94
chert core	1	136-141	E102N94
chert core	1	135-140	E99N95

TABLE 8

LITHIC TOOLS

type	dimensions, mm L	W	T	level, cm	pit	Fig.
graver	18.0	27.9	2.4	0-5	E99N96	4G
graver	29.7	15.0	3.2	5-10	E98N94	
perforator, unif.	23.0	17.2	3.4	10-15	E98N94	
scraper	35.8	29.2	6.2	15-20	E85N95	4F
scraper	20.5	18.6	7.0	20-25	E101N95	
perforator, biface	--	11.7	5.4	21-26	E101N94	3J
perforator, unif.	31.4	10.8	4.0	25-30	E105N96	3K
graver-scraper	20.0	23.0	4.2	24-29	E98N96	4I
graver-scraper	22.9	22.6	2,9	24-29	E98N96	4J
scraper	23.7	22.4	5.0	30-35	E101N95	
scraper	30.0	27.0	7.3	44-49	E99N96	
graver	39.7	23.0	6.9	45-50	E102N94	
scraper	41.5	13.2	6.2	68-73	E99N95	
graver	30.0	23.5	1.8	60-65	E101N95	4H
perforator, biface	--	--	7.3	74-79	E99N96	
scraper	28.9	23.0	13.9	70-75	E94N95	4D
scraper	21.5	16.2	3.5	94-99	E98N96	
scraper	45.7	44.4	19.2	126-131	E102N94	4A
stemmed scraper	44.8	24.2	11.2	116-121	E101N94	3M
scraper	32.4	24.2	4.2	110-115	E110N99	4E
scraper	51.4	39.6	14.4	131	E101N94	4B

TABLE 9

LITHIC FLAKES
(flake size percent by excavation level)

size	excavation level, cm							
mm sq.	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
under 15	48.8	67.5	58.9	66.3	53.2	63.2	55.0	60.3
15-20	34.9	21.1	26.5	24.8	33.6	26.6	30.8	24.2
20-25	9.3	9.8	12.4	6.7	7.5	6.3	8.0	11.5
25-30	7.0	1.6	2.2	1.7	4.3	3.6	5.0	2.0
30-35	--	--	--	0.5	1.4	0.3	0.8	2.0
35-40	--	--	--	--	--	--	0.4	--
number	46	139	262	695	338	400	300	288

	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
under 15	56.3	67.1	67.8	70.3	67.6	63.1	64.5	68.7
15-20	24.7	18.5	24.1	18.6	18.7	24.8	26.9	20.6
20-25	13.1	9.7	7.0	8.4	9.6	8.9	4.8	3.9
25-30	3.6	2.3	0.7	1.8	1.4	2.3	1.6	4.7
30-35	1.4	1.4	0.4	0.9	2.2	0.9	1.1	1.3
35-40	0.9	0.5	--	--	0.5	--	1.1	0.8
40-50	--	0.5	--	--	--	--	--	--
number	250	236	285	358	245	230	221	233

	80-85	85-90	90-95	95-100	100-110	110-120	120-130	130+
under 15	75.7	68.1	71.8	71.6	65.6	65.4	70.5	64.2
15-20	17.4	20.3	19.7	19.8	20.4	17.8	14.1	13.2
20-25	6.3	9.4	5.0	3.7	8.6	10.3	9.0	9.4
25-30	0.6	1.4	0.9	3.7	3.2	1.3	3.8	7.5
30-35	--	0.8	1.7	--	--	2.6	--	5.7
35-40	--	--	--	--	2.2	2.6	1.3	--
40-50	--	--	--	1.2	--	--	--	--
60-70	--	--	0.9	--	--	--	1.3	--
number	144	138	117	81	111	86	85	87

total flakes- 5375

TABLE 10

FLAKE SIZE DISTRIBUTION BY LEVEL

level, cm	under 15 mm sq.	15-20 mm sq.	over 20 mm sq.
0-5	48.8	34.9	16.3
5-10	67.5	21.1	11.4
10-15	58.9	26.5	14.6
15-20	66.3	24.8	8.9
20-25	53.2	33.6	8.9
25-30	63.2	26.6	10.2
30-35	55.0	30.8	14.2
35-40	60.3	24.2	15.5
40-45	56.3	24.7	19.0
45-50	67.1	18.5	14.4
50-55	67.8	24.1	8.1
55-60	70.3	18.6	11.1
60-65	67.6	18.7	13.7
65-70	63.1	24.8	12.1
70-75	64.5	26.9	8.6
75-80	68.7	20.6	10.7
80-85	75.7	17.4	6.9
85-90	68.1	20.3	11.6
90-95	71.8	19.7	8.5
95-100	71.6	19.8	8.6
100-110	65.6	20.4	14.0
110-120	65.4	17.8	16.8
120-130	70.5	14.1	15.4
130-185	64.2	13.2	22.6

TABLE 11

FLAKE SIZE DISTRIBUTION TYPES

level, cm	semilog plot form
0-5	nonlinear
5-10	nonlinear
10-15	linear, except 25-30 mm size
15-20	linear, except under 15 mm size
20-25	nonlinear
25-30	nonlinear
30-35	nonlinear
35-40	linear, except 25-30 mm size
40-45	nonlinear
45-50	roughly linear
50-55	linear, except 25-35 mm sizes
55-60	roughly linear
60-65	nonlinear
65-70	roughly linear
70-75	nonlinear
75-80	nonlinear
80-85	nonlinear
85-90	nonlinear
90-95	linear, except 30-35 mm size
95-100	nonlinear
100-110	linear, except 35-40 mm size
110-120	nonlinear
120-130	nonlinear
130-185	linear, except under 15 mm size

TABLE 12

MISCELLANEOUS ARTIFACTS

item	number	level, cm	pit
plastic	8	0-5	E99N96
glass	1	5-10	E97N95
glass	1	5-10	E105N96
iron	1	5-10	E98N95
plastic	5	5-10	E99N95
plastic	3	20-25	E101N95
red ochre	1	25-30	E110N99
red ochre	1	35-40	E98N95
red ochre	3	40-45	E84N95
red ochre	3	50-55	n.a.
red ochre	1	60-65	E105N100
red ochre	1	89-94	E98N96
red ochre	1	111-116	E102N94
asphalt	10	75-80	E101N94
asphalt	1	80	E100N95
asphalt	1	95-100	E101N95
asphalt	1	135-140	E105N100
sandstone abrader	1	90-95	E98N95
sandstone abrader	1	98-103	E98N95
sandstone abrader	2	99-104	E99N96
sandstone abrader	1	118-123	E99N95
sandstone abrader	1	140-145	E105N100
sandstone abrader	1	145-150	E105N100
sandstone abrader	1	140-145	E105N96
sandstone abrader	1	150-155	E101N95
sandstone abrader	1	155-160	E105N96
sandstone abrader	1	160-165	E105N100

TABLE 13

FIRED CLAYBALLS

level, cm	no. of balls	wt., gr.	size range, mm	avg. wt. per ball
0-5	82	470	15-40	5.7
5-10	177	1123	15-50	6.3
10-15	462	1995	15-50	4.3
15-20	570	3358	15-50	5.9
20-25	751	4243	15-50	5.6
25-30	844	4941	15-50	5.9
30-35	1094	6845	15-50	6.3
35-40	1428	10082	15-60	7.1
40-45	1298	9628	15-70	7.4
45-50	1159	9344	15-70	8.1
50-55	1225	7754	15-60	6.3
55-60	1183	10451	15-70	8.8
60-65	1002	7015	15-70	7.0
65-70	722	5104	15-60	7.1
70-75	497	3891	15-70	7.8
75-80	399	3152	15-50	7.9
80-85	384	3179	15-60	8.3
85-90	185	1171	15-50	6.3
90-95	284	2130	15-50	7.5
95-100	183	1676	15-60	9.2
100-110	315	3009	15-50	9.6
110-120	356	3591	15-60	10.1
120-130	300	2933	15-60	9.8
130-140	147	1795	15-50	12.2
140-150	91	934	15-60	10.3
150-160	33	383	15-30	9.7
160-185	17	101	15-35	5.9
total	15188	110298	15-70	7.3

Table 14

BURIAL DATA

Burial No.	pit(s)	elev., m	depth, cm	head dir.	body config.	comments
1	E101N94 E102N94	9.55	46	E	semiflexed, left side	skull, most long bones
2	E98N94 E97N95 E98N95	8.90	96	SE	extended, supine	complete
3	E99N95	8.85	123	SE	bundle (A)	extra bones
4	E98N96 E99N96	8.85	119	SE	extended, supine (B)	skull, legs
5	E101N94 E101N95 E102N94	8.90	110	SE	extended, supine	complete
6	E98N95	9.23	65	SE	extended, supine (B)	child, legs only

(A)- bundle oriented SE-NW and skull located (base up) at SE end of bundle

(B)- characteristic(s) extrapolated from incomplete skeletal remains

Table 15

MEASUREMENTS OF STONE BEADS

bead #	length	OD at center min.	OD at center max.	hole diam. at ends short hole	hole diam. at ends long hole	wt., grams	Munsell color
1	40.8	11.8	12.4	5.8	6.2	8.8	5Y3/1 vd gray
2	38.6	13.7	14.2	6.8	6.7	10.6	2.5YR2.5/0 black
3	34.0	11.3	11.7	5.3	5.5	6.9	10YR4/1 d gray
4	33.8	12.1	12.5	5.7	6.0	7.2	2.5Y4/0 d gray
5	31.2	15.5	15.7	5.0	5.2	11.6	2.5Y3/0 vd gray
6	32.7	13.4	13.8	5.0	5.7	10.9	5Y4/1 d gray
7	28.8	15.0	16.4	4.5	5.2	11.2	2.5Y3/0 vd gray
8	34.4	10.9	11.7	5.5	5.4	6.0	5Y3/1 vd gray
9	31.2	12.3	12.7	6.1	5.7	7.5	2.5Y3/0 vd gray
10	30.3	9.6	10.2	4.6	4.6	4.7	2.5Y4/0 d gray
11	33.5	10.7	10.9	4.7	4.7	6.3	5YR3/1 vd gray
12	32.4	12.1	12.3	4.5	4.5	7.8	2.5Y3/0 vd gray
13	39.0	11.5	11.9	4.8	5.3	8.8	5Y3/1 vd gray
14	42.3	12.2	12.5	5.2	5.7	8.3	2.5YR4/6 red

all dimensions in mm; v - very, d - dark

Observations: All beads except #14 have a dark green or blue-green tint. Appearances to the contrary, the beads are very permeable.

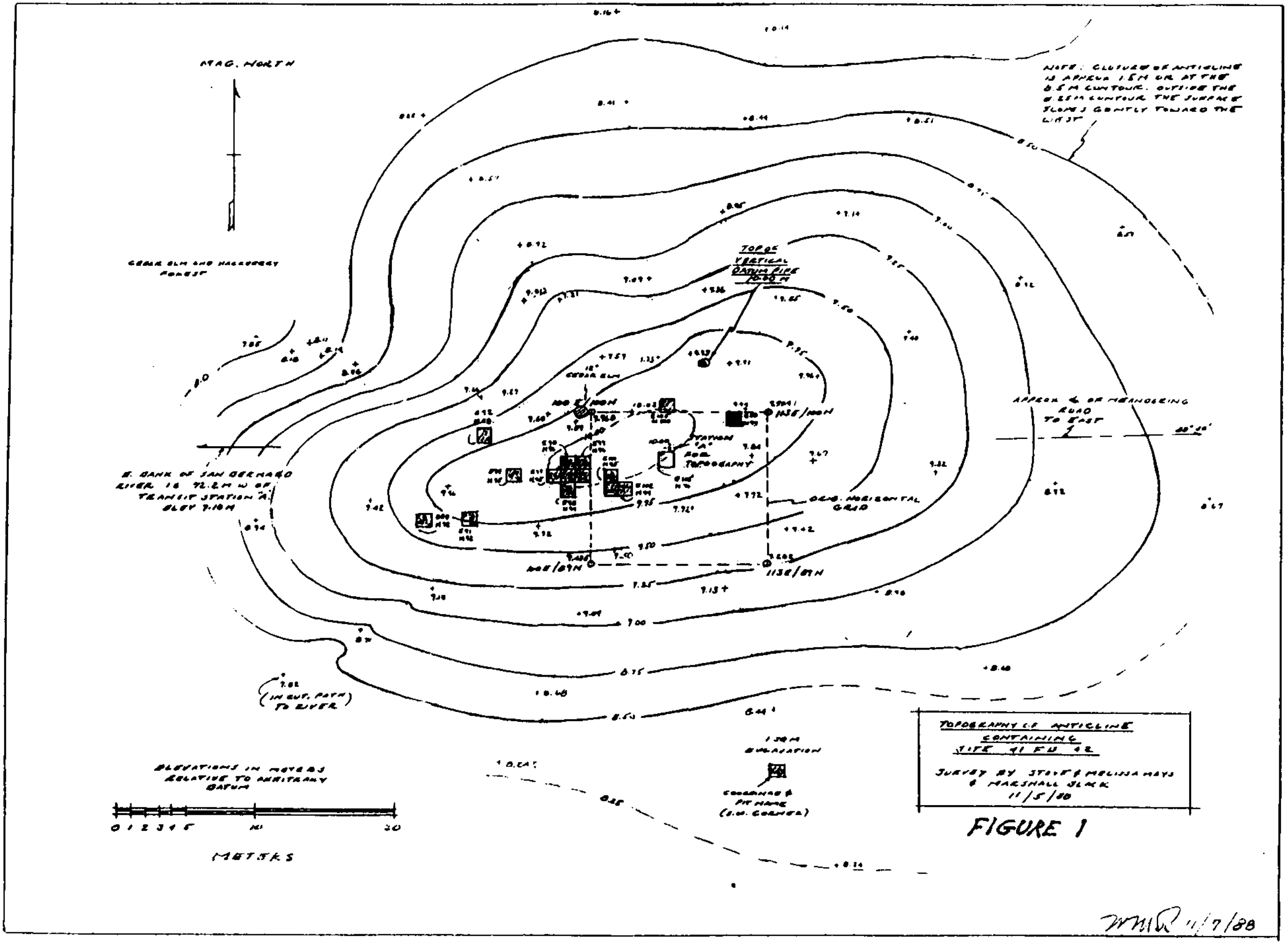


FIGURE 1

11/7/88

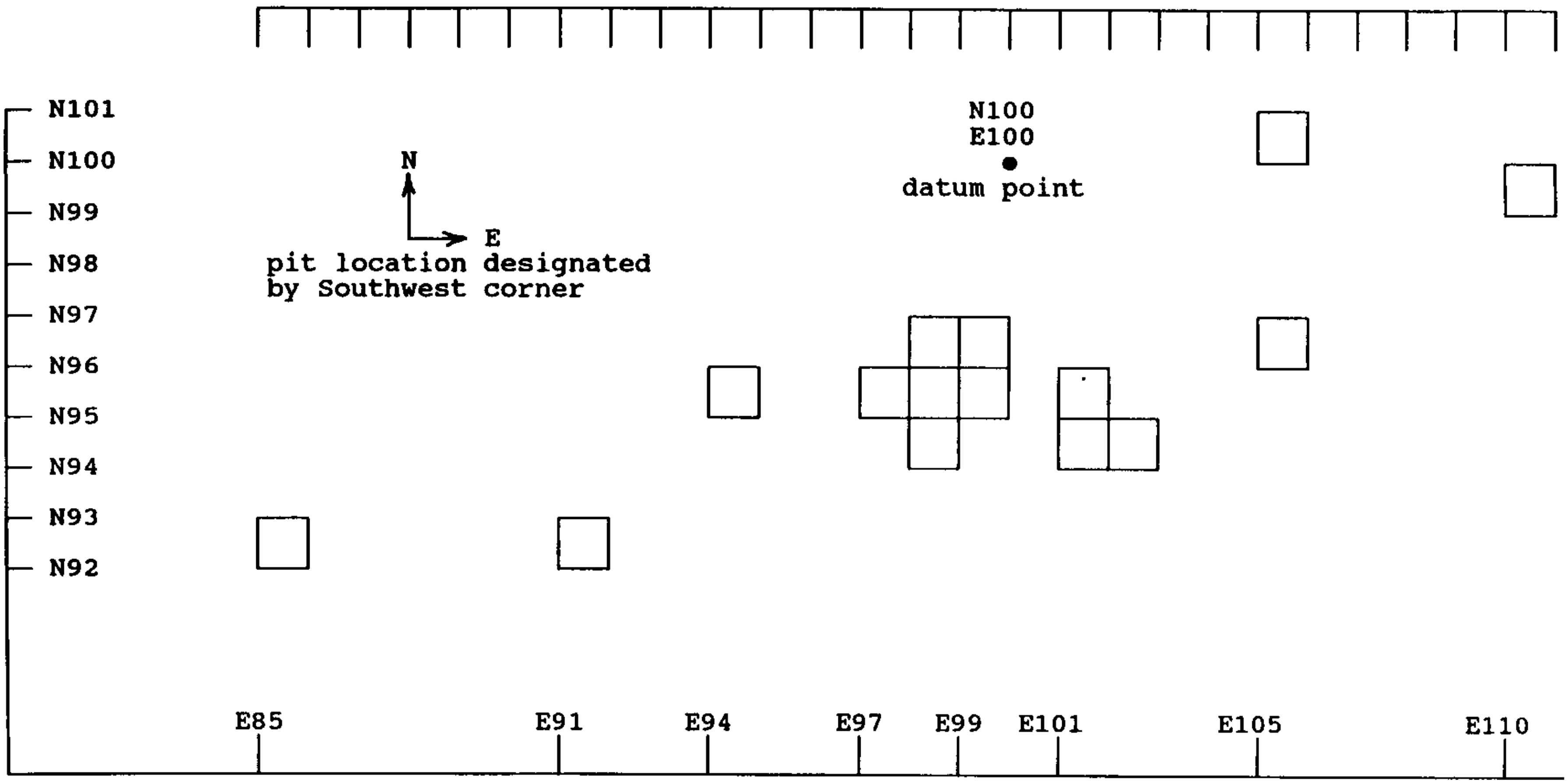
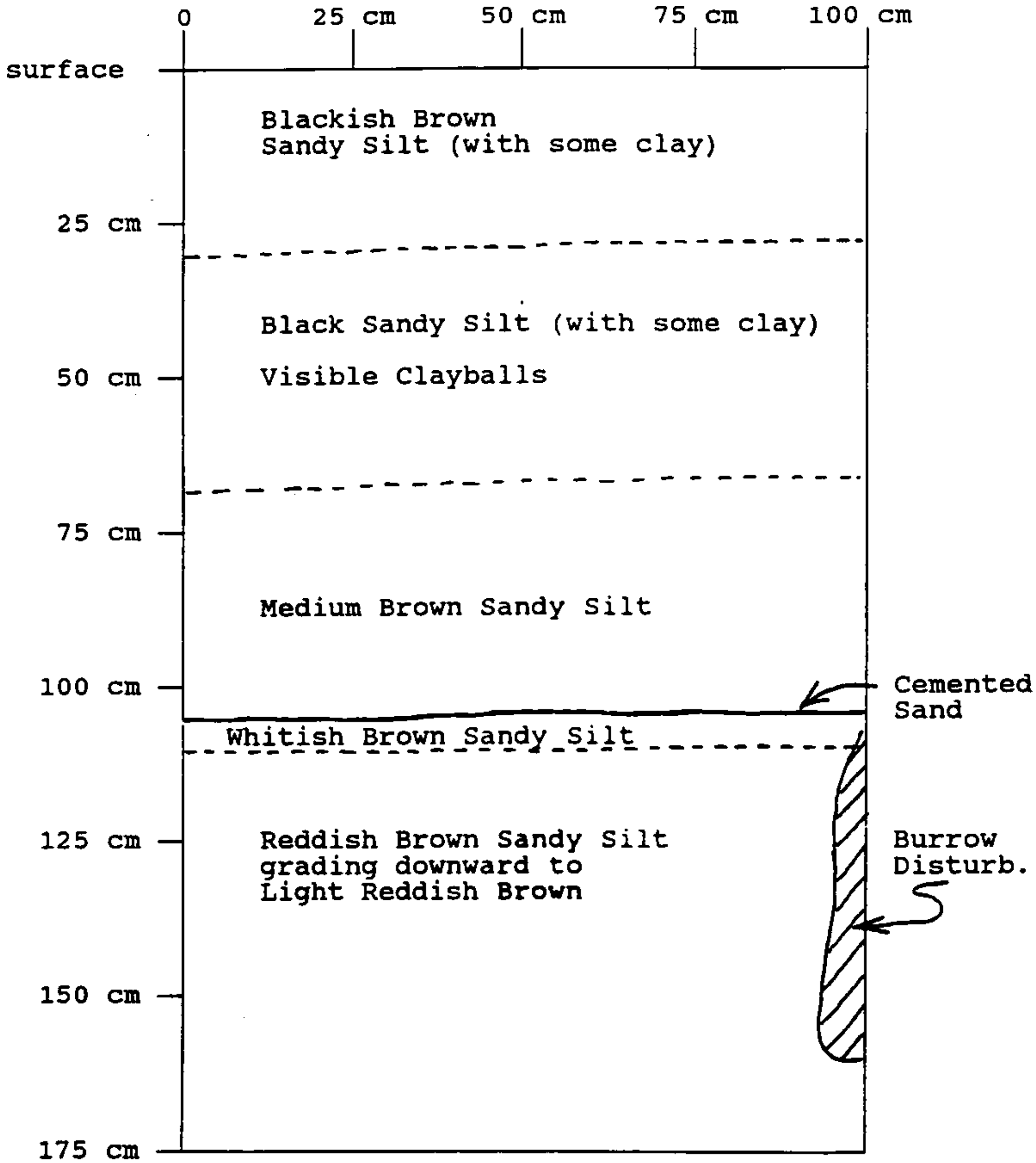


Figure 2

Excavated Pits, 41 FB 42



Profile, North Wall of Pit E105/N100
Site 41FB42

Figure 3

Figure 4
Ceramics Distribution by Level

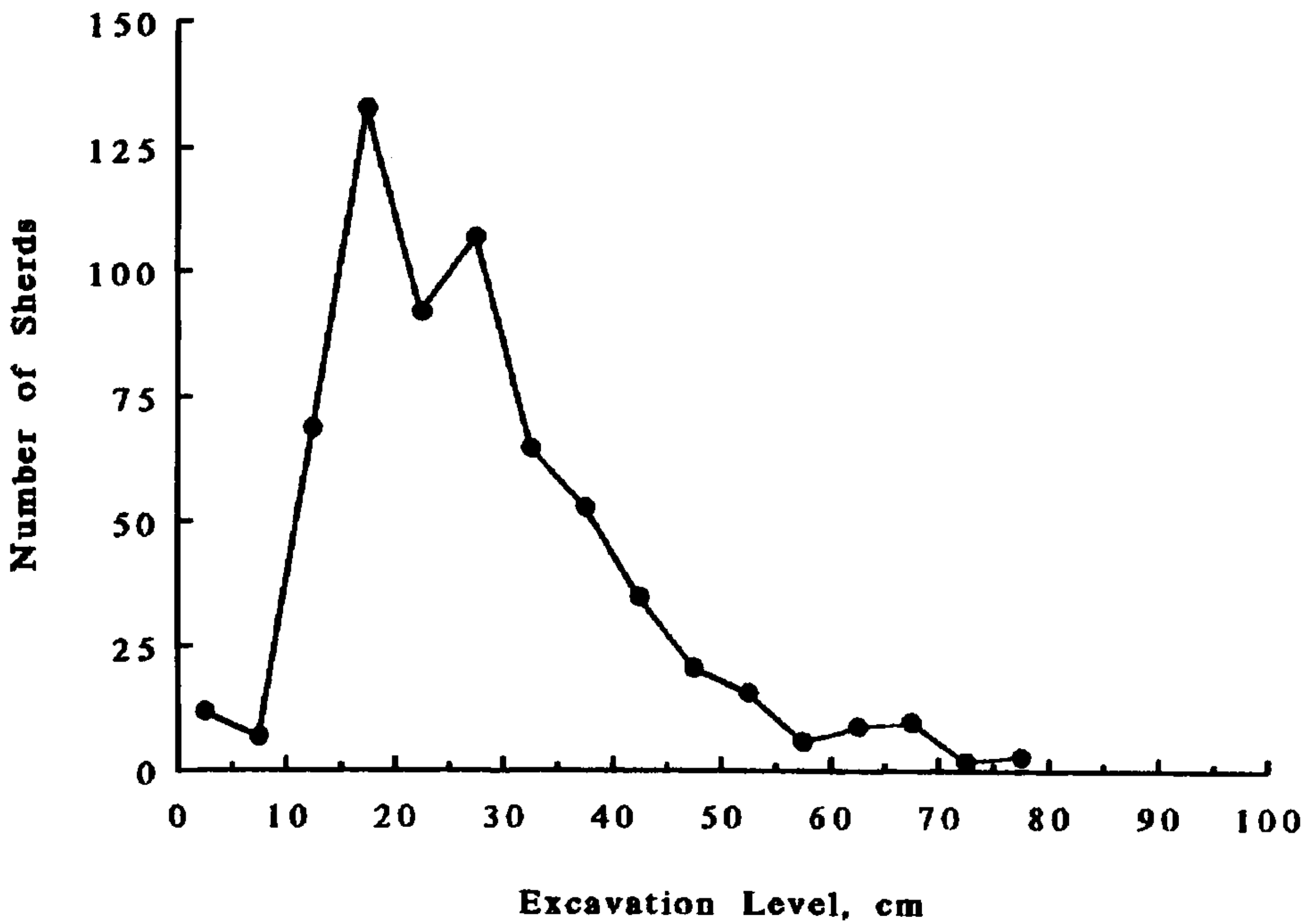
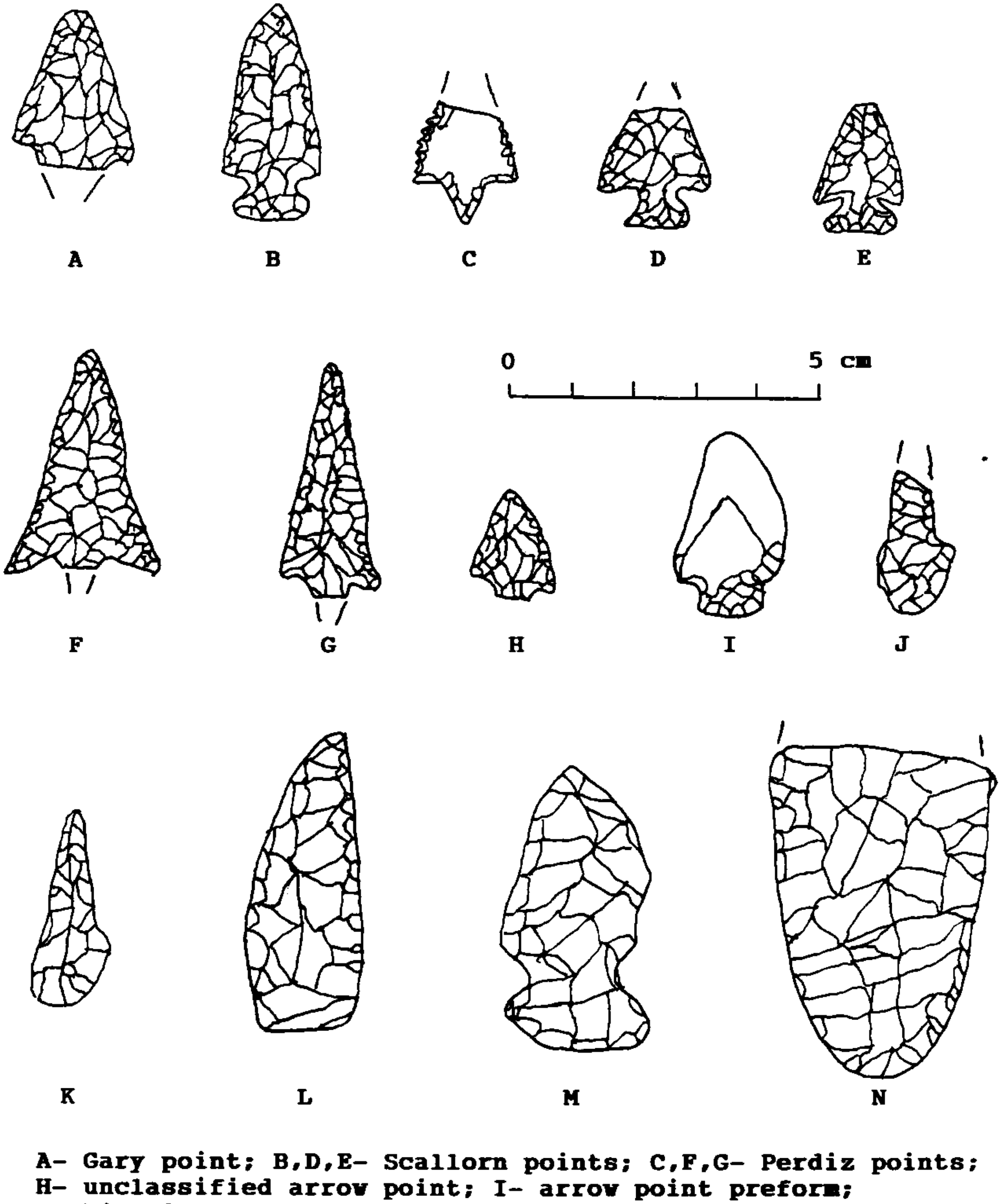


Figure 5

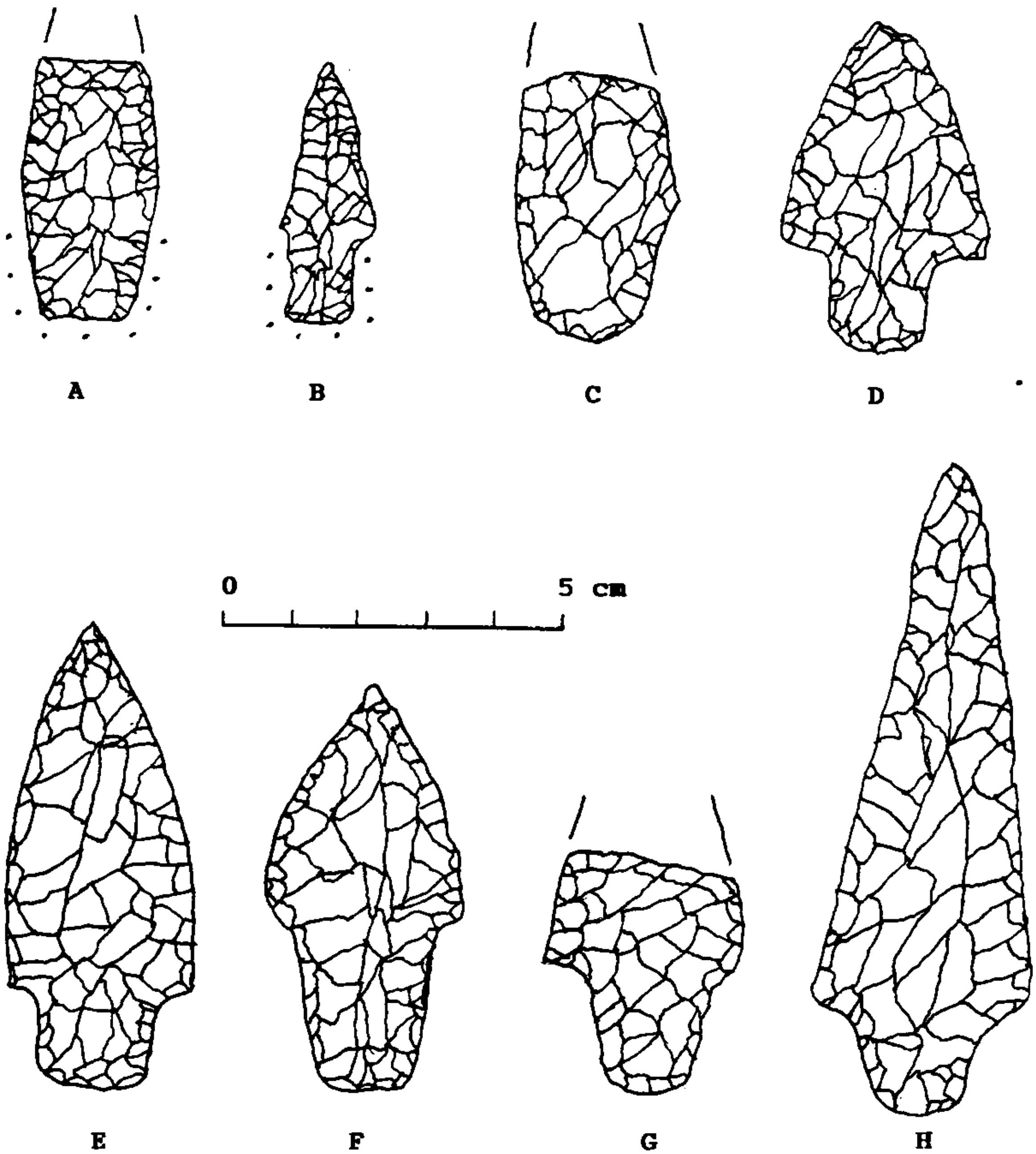
Projectile Points and Tools



A- Gary point; B,D,E- Scallorn points; C,F,G- Perdiz points;
H- unclassified arrow point; I- arrow point preform;
J- bifacial perforator; K- unifacial perforator;
L,N- knives; M- stemmed scraper

Figure 6

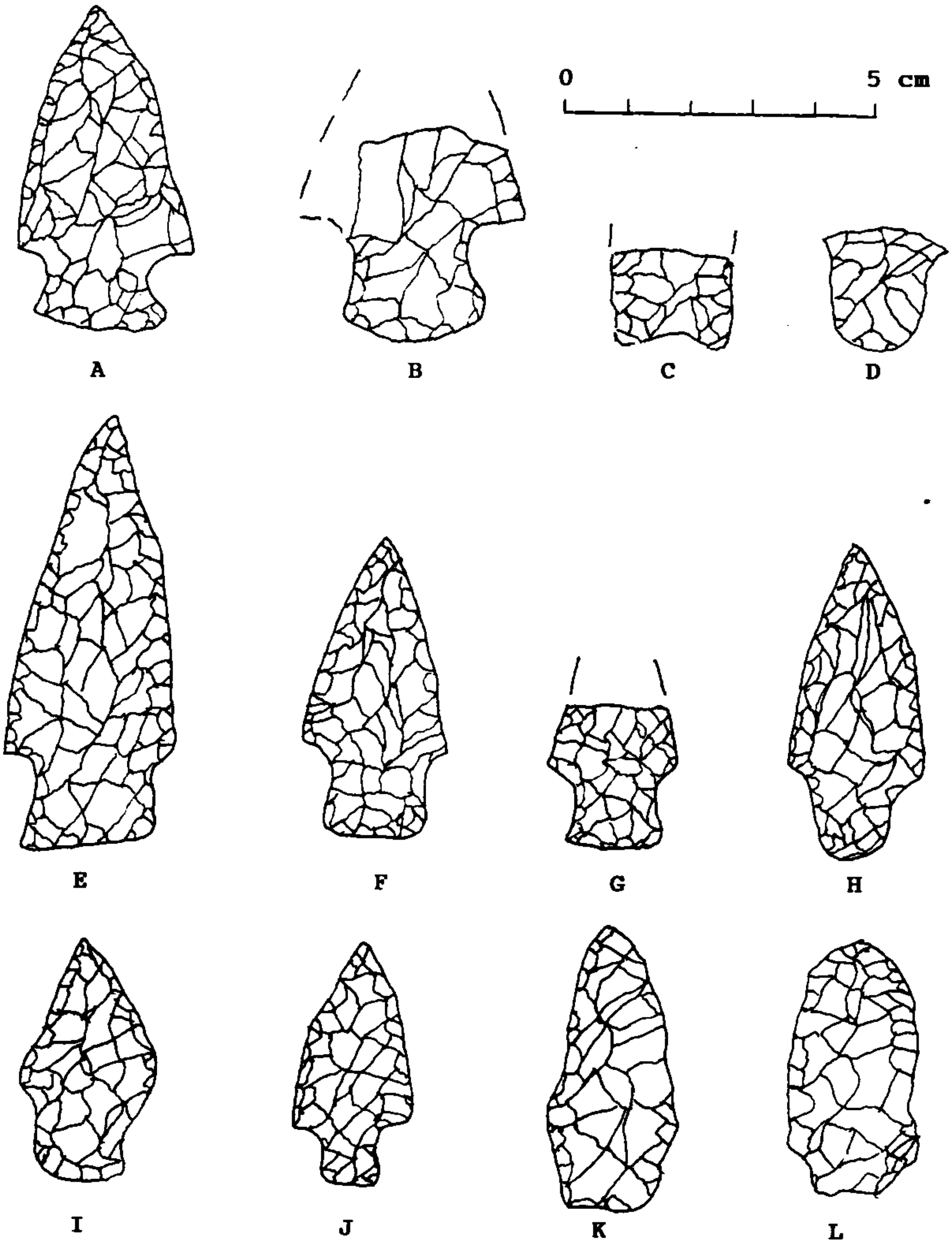
Dart Points



A- Angostura; B- Early Stemmed; C- Morhiss-like;
D,E- Bulverde; F- Wells; G,H- Gary;
dots show ground edges

Figure 7

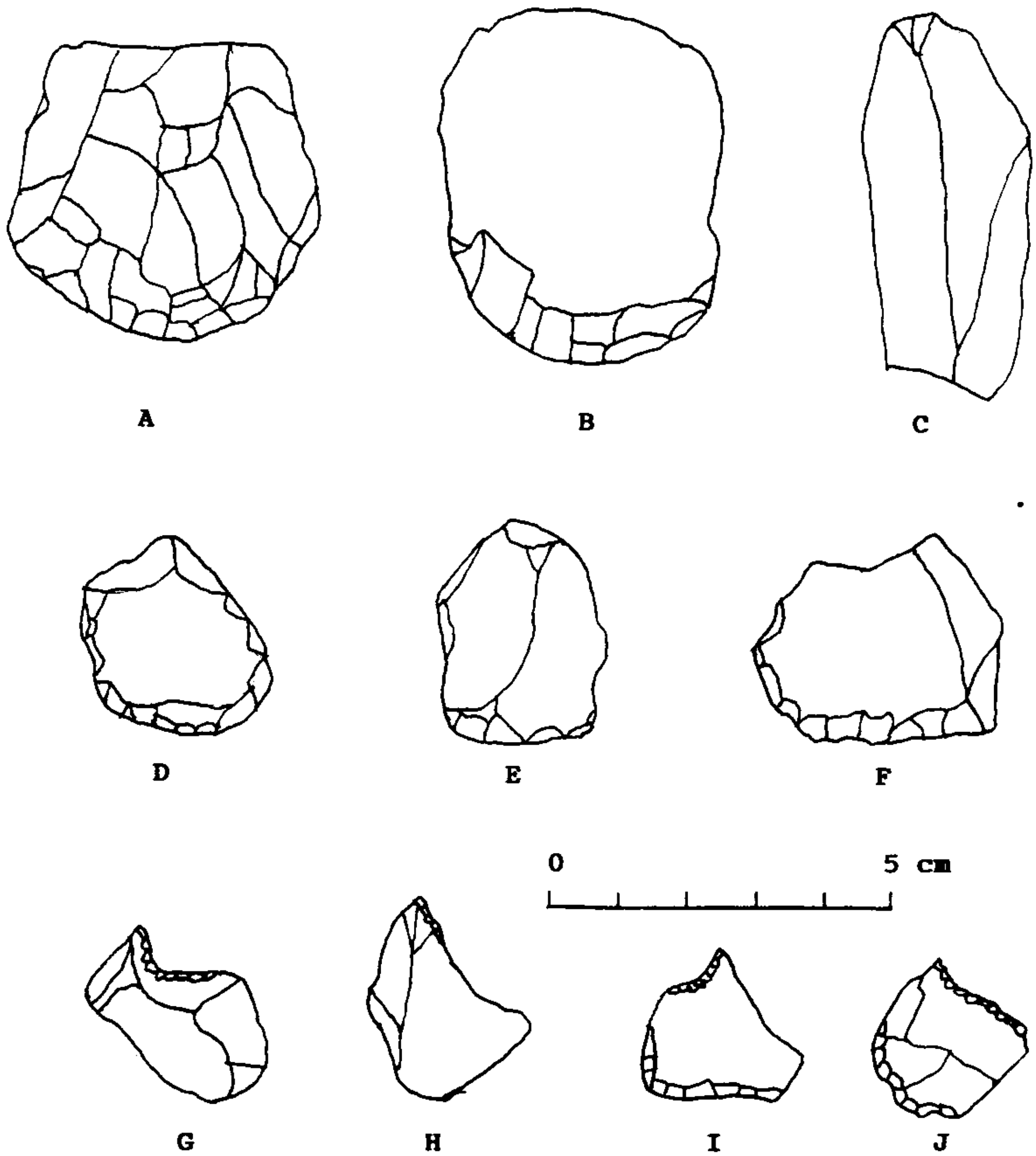
Dart Points



A- Williams; B- Williams-like; C- Pedernales stem; D- Kent stem; E,F,G- Yarbrough; H- Gary; I,J- Kent; K,L- preforms

Figure 8

Unifacial Tools



A,B- large scrapers; C- large prismatic blade;
D,E,F- scrapers; G,H- gravers; I,J- scraper-gravers

Figure 9
Flake Size Distribution by Level

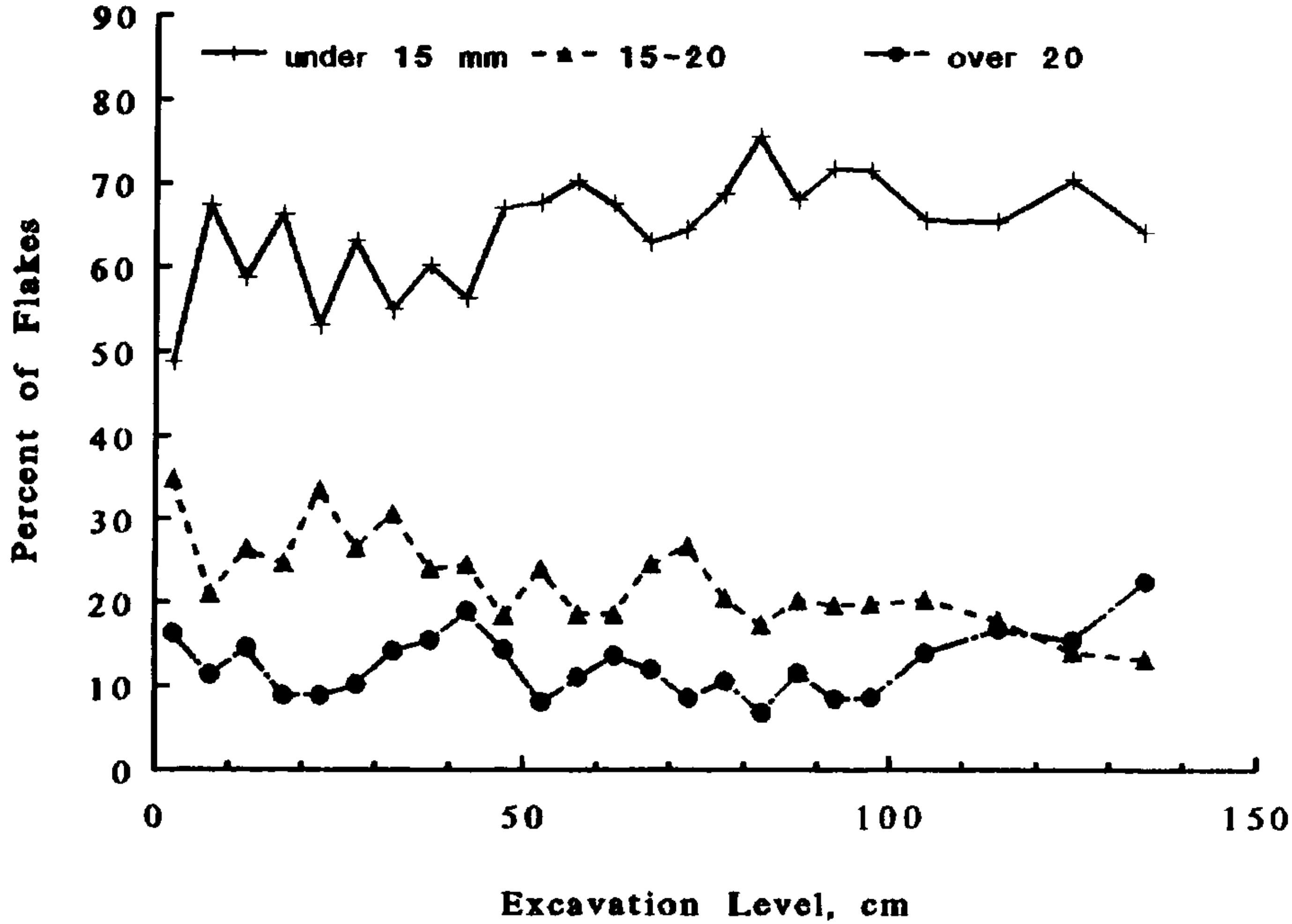


Figure 10
Flake Size Distribution, 90-95 cm

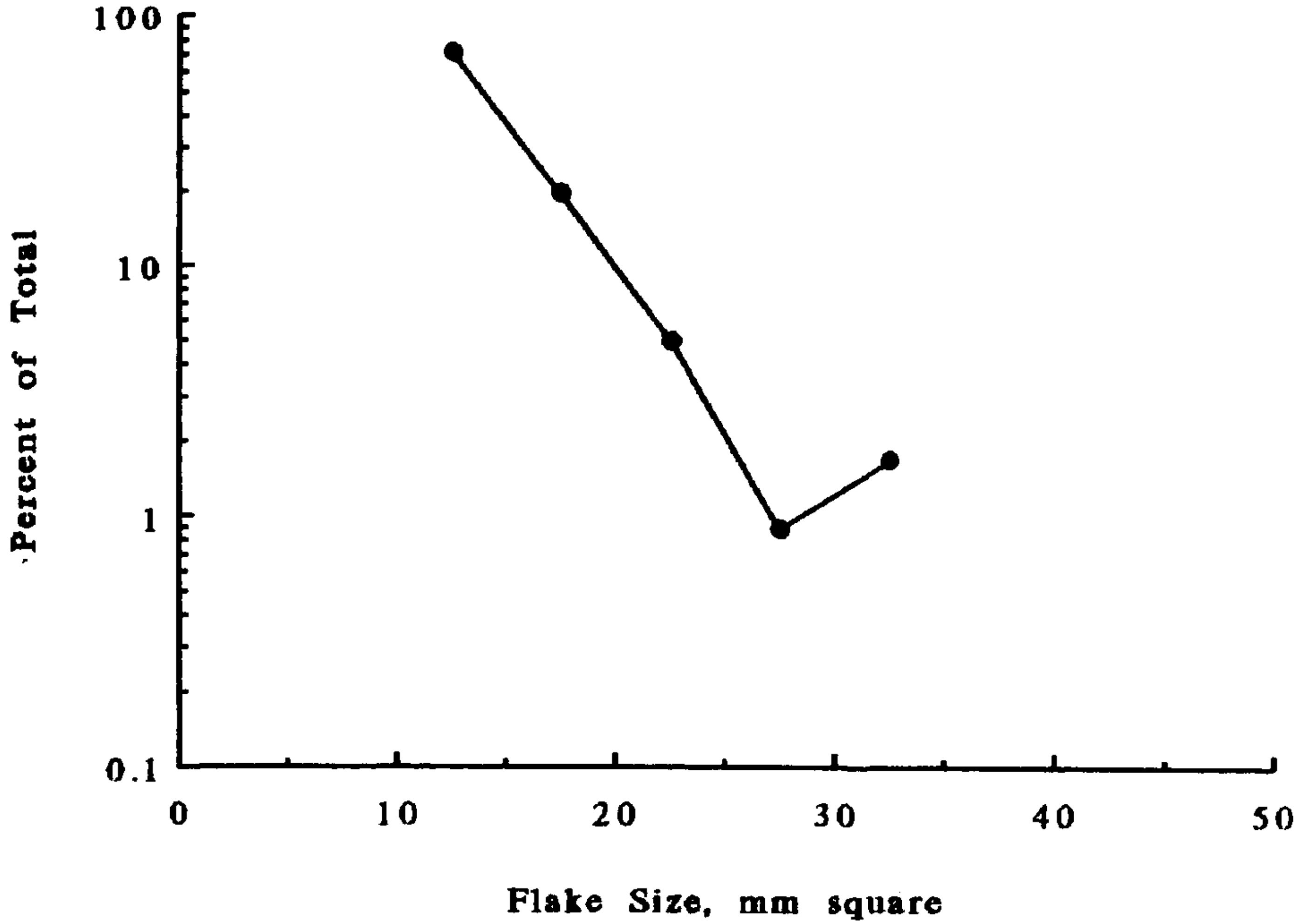


Figure 11

Flake Size Distribution, 30-35 cm

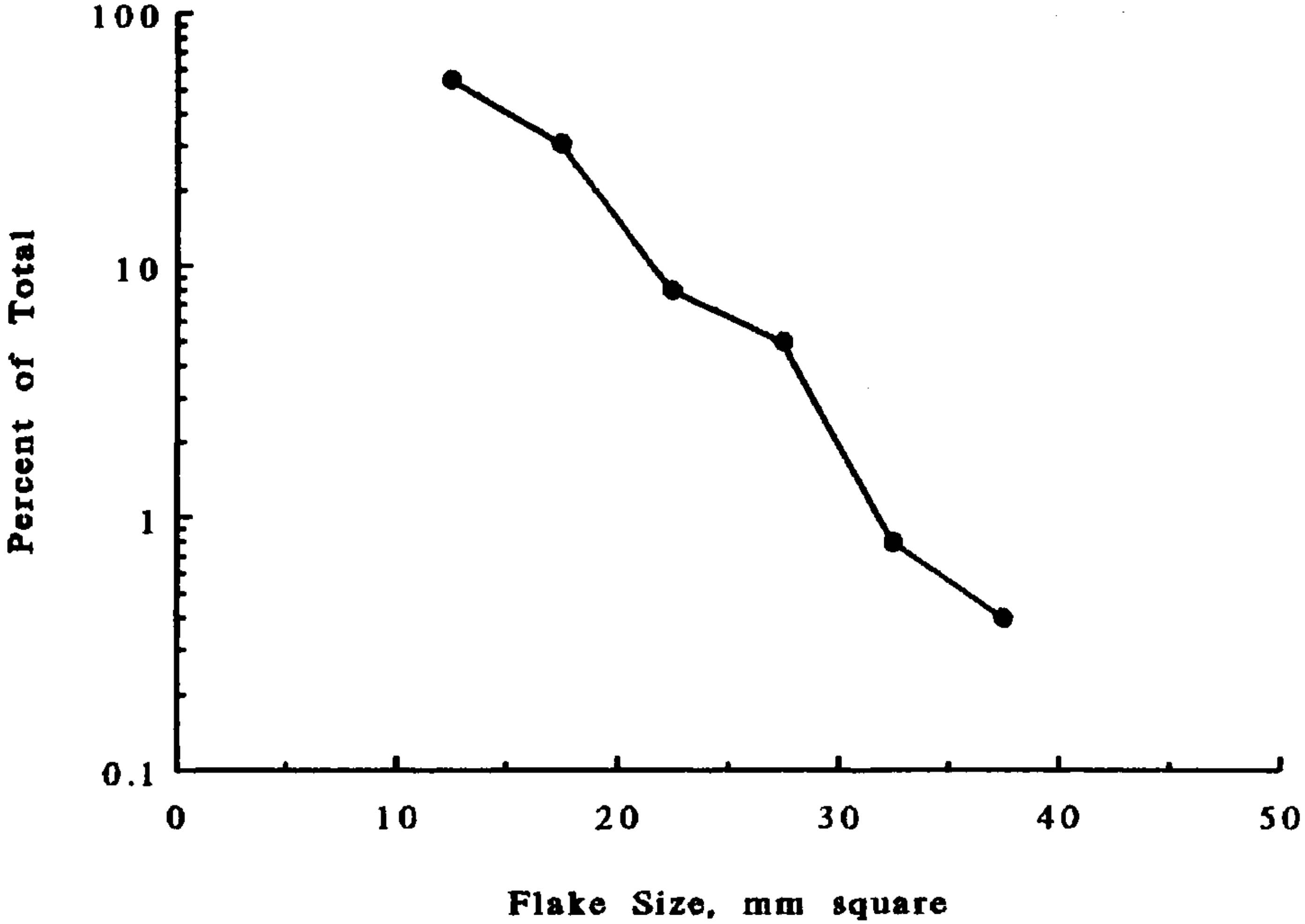
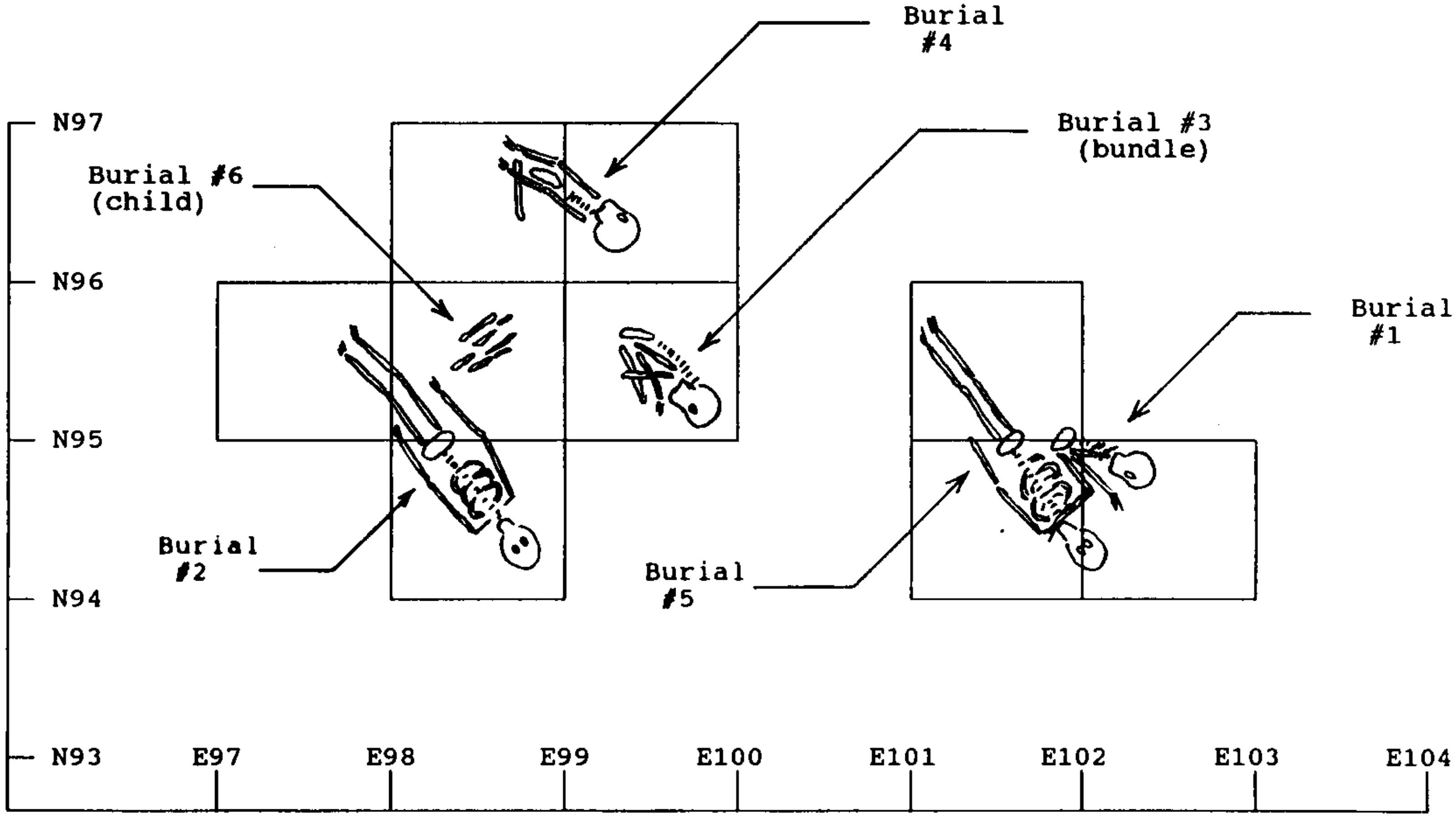


Figure 12

CATFISH SPINE BREAKAGE PATTERN

Pectoral Spine of
Catfish Showing
Usual Break Points



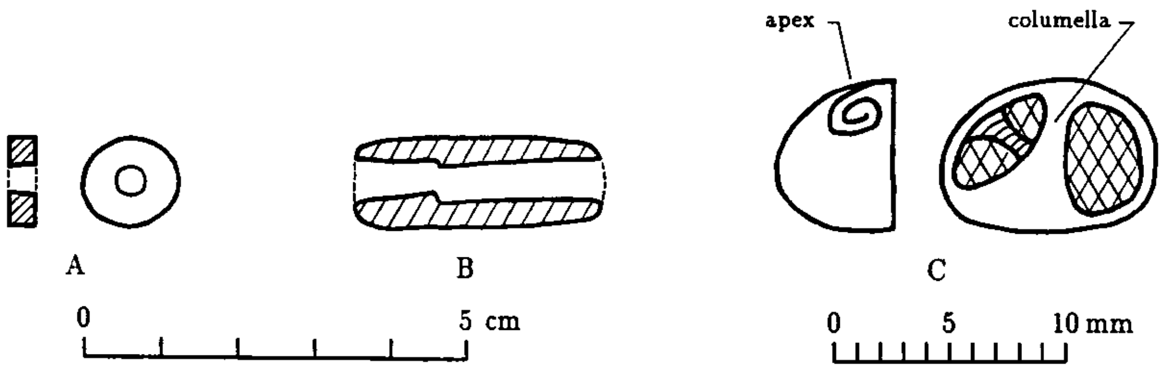
41 FB 42

Figure 13

BURIAL PLAN

Figure 15

TYPICAL GRAVE GOODS FROM BURIAL 2



A: discoidal shell bead, cross section and front views;

B: tubular stone bead, longitudinal cross section;

C: snail shell ground flat on one side,
side and front views

Figure 14

DART POINT TIP EMBEDDED IN HUMAN BONE

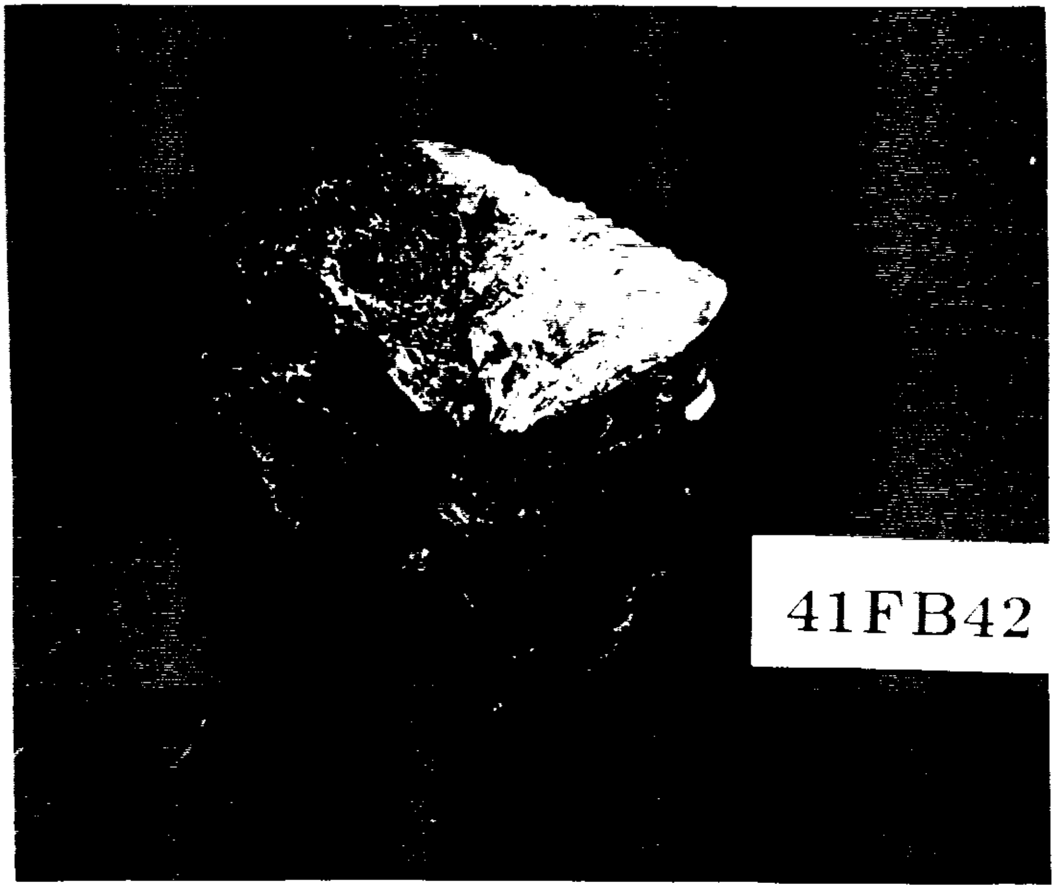


Figure 16

MULTI-STRING DISCOIDAL SHELL BEAD ARRANGEMENT, BURIAL 2

Three of the four strings are visible here. Four extraneous beads, one along the top (at 4.2 cm) and three along the bottom (3.7, 4.7, 5.2 cm), also appear in this photo

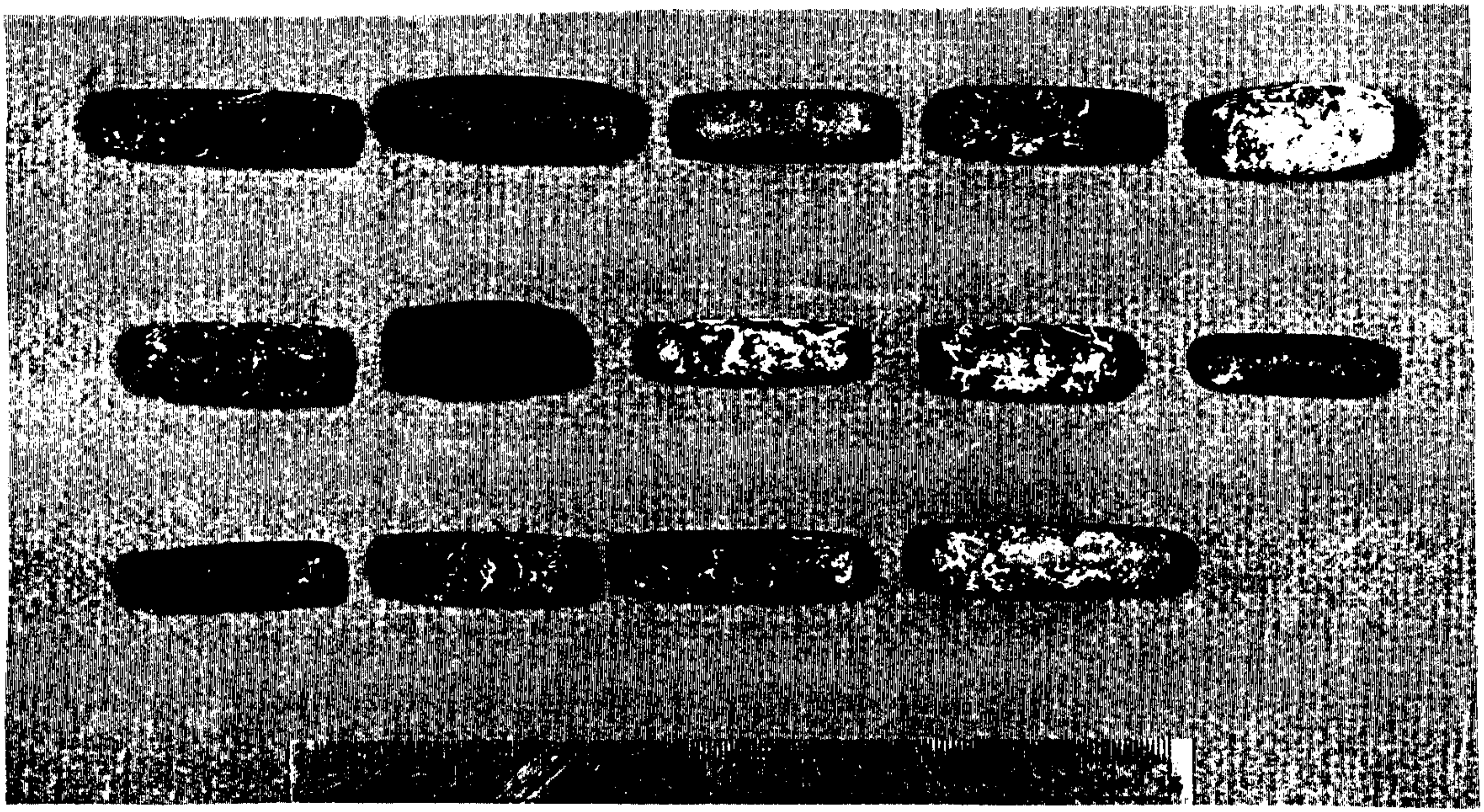


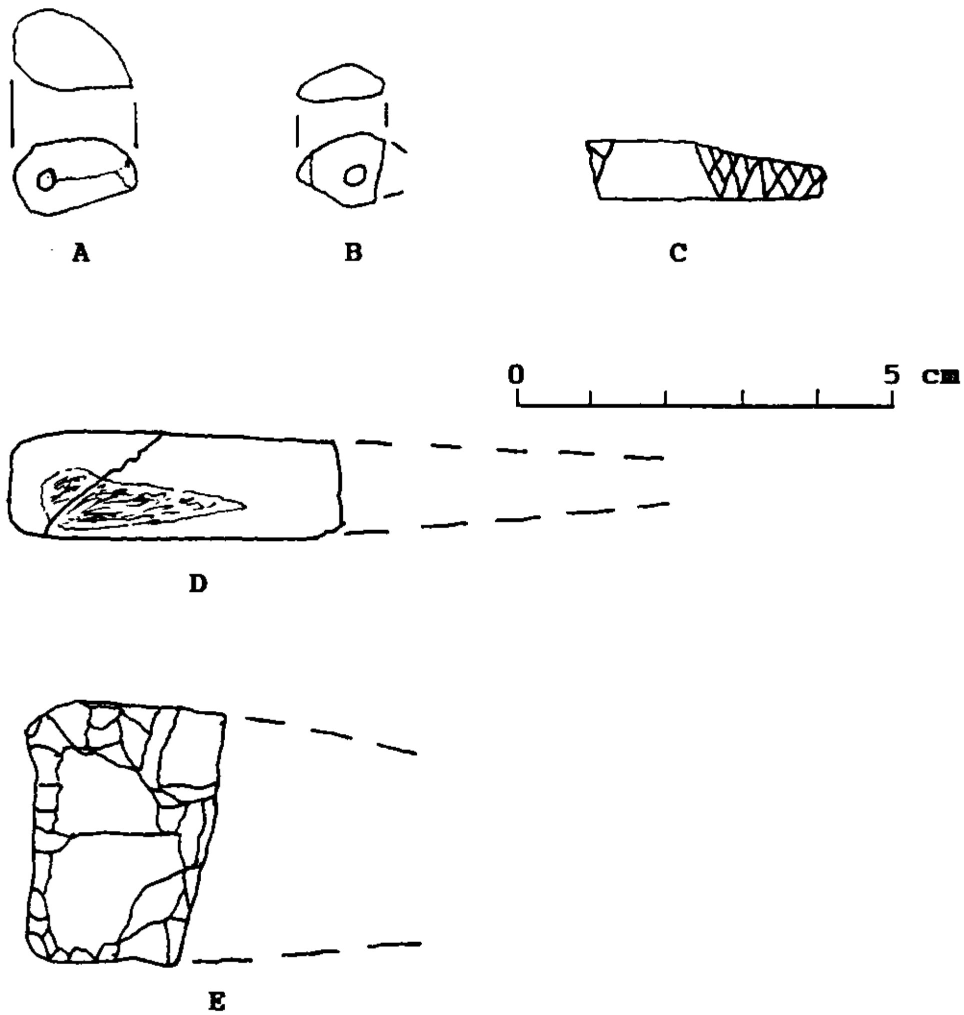
Figure 17

TUBULAR STONE BEADS FROM BURIAL 2

They are arranged left to right, then top to bottom, for designations SB1 through SB14, respectively. The lighter-shaded, somewhat "stringy" material is caliche adhering to the surface; SB3 and SB7 were partially cleaned of caliche by use of dilute hydrochloric acid.

Figure 18

BONE AND LITHIC ARTIFACTS



A,B- drilled bone (beads ?), C- incised bone,
D- long-bone implement, E- hafted knife ?, ground
basal edges

APPENDIX F-1

PROVENIENCE OF VERTEBRATE REMAINS FROM 1/4-INCH SCREENS

Pit 84E-92N NE 1/4

L-8 40-45 cm
UNID: frags (8 + 4 turtle)

45-55 cm
UNID: 3 frags

55-65 cm
UNID TURTLE: 2 frags

65-75 cm
UNID: 5 frags

75-85 cm (all coated with carbonate)
UNID: 16 frags (including condyle of metapodial + 3 turtle)

Pit 85E-92N

L-6 30-35 cm
UNID: 13 frags

L-7 35-40 cm
UNID: 4 frags

Pit 91E-92N

L-5 20-25 cm
UNID: 2 frags

L-6 25-30 cm
UNID: frags (3 + 2 turtle)

33-40 cm
UNID: frags (5 + 1 turtle)

40-45 cm
UNID: 5 frags

45-50 cm
UNID: frags (4 + 1 turtle)

L-10 50-55 cm
UNID: frags (18 + 8 turtle)

L-11 55-60 cm
UNID: 20 frags

L-12 60-65 cm
UNID: frags (10 + 3 turtle)

L-13 65-70 cm
UNID: 3 frags

L-14 70-75 cm
UNID: frags (8 + 3 turtle)

L-15 75-80 cm
UNID: frags (2 + 2 turtle)

L-16 80-85 cm
PRONGHORN: lt. astragalus
UNID: 6 frags

L-17 85-90 cm
GAR: scale
UNID: 12 frags

L-18 90-95 cm
GAR: scale
UNID: frags (16 + 1 turtle)

L-19 95-100 cm
UNID: frags (6 +1 turtle; 1 ? deer tooth)

L-20
GAR: scale
UNID: frags (5 + 3 snake vert.+ 6 turtle)

L-21
GAR: scale
UNID: frags (8 + snake vert.+ 1 turtle)

Pit 94E-95N

L-3 10-15 cm
UNID: 9 frags

L-4 15-20 cm
UNID: frags (10 + 1 turtle)

L-7 30-35 cm
DEER: upper M-3
UNID: frags (33 + 2 turtle + 1 snake)

L-8 35-40 cm
DEER: rt. tibia (dist end with hack marks)
UNID: 4 frags

L-9 40-45 cm
UNID: 4 frags

L-10 45-50 cm
UNID: 10 frags

55-60 cm
UNID: frags (18 + 1 turtle)

60-65 cm
DEER: rt tibia (prox end)
UNID: 3 frags

65-70 cm
UNID: 9 frags

L-15 70-75 cm
UNID: frags (4 + 5 turtle)

L-16 75-80 cm
UNID: frags (7 + 1 turtle)

L-17
UNID: 2 frags

85-90 cm
GAR: vert.
DEER OR PRONGHORN: humerus (dist end frag)
UNID: frags (7 + 1 fish)

90-95 cm
DEER: phalanx
UNID: 4 frags

Pit 97E-95N

35-40 cm
UNID: frag

40-45 cm
UNID: 10 frags

L-10 45-50 cm
DEER: lt. astragalus
UNID: 10 frags

50-55 cm
UNID: 4 frags

55-60 cm
DEER: rt. centroquartal
UNID: 5 frags

60-65 cm
PRONGHORN: astragalus
UNID: 5 frags

65-70 cm
ALLIGATOR: dermal bone
BOX TURTLE: peripheral
DEER OR PRONGHORN: metatarsal (midsection)
UNID: 10 frags

70-75 cm
UNID: 3 frags

75-80 cm
UNID: 10 frags

80-85 cm
DEER: rt. lower M-3
DEER OR PRONGHORN: phalanx
UNID: frags (10 + 1 turtle)

90-95 cm
GAR: 2 scales (1 large)
STINKPOT: rt. hyoplastron
DEER OR PRONGHORN: phalanx
UNID: frags (6 + 2 turtle)

95-105 cm E 1/2
UNID: 2 frags

Pit 98E-94N

L-5 20-25 cm
UNID: frags (8 + 2 turtle)

L-6 25-30 cm
UNID: frags (6 + 1 turtle)

L-7 30-35 cm
DEER: rt astragalus
UNID: frags (12 + 2 turtle)

L-8 35-40 cm
UNID: frags (3 + 1 turtle)

L-9 40-45 cm
BOX TURTLE: peripheral
UNID: 5 frags

L-10 45-50 cm
UNID: 1 frag

L-11 50-55 cm
UNID: 8 frags

L-12 55-60 cm
DEER: metacarpal and metatarsal (midsections)
UNID: frags (30 + 1 turtle)

L-13 60-65 cm
UNID: 4 frags

L-14 65-70 cm
UNID : 6 frags

L-15 70-75 cm
UNID: 2 frags

L-16 75-85 cm
UNID: frags (20 + 3 turtle)

L-17 80-85 cm
GAR: vert.
UNID: frags (20 + 8 turtle)

L-18 85-90 cm
GAR: 2 vert.; head bone
UNID: frags (20 + 7 turtle)

L-19 90-95 cm (see fine screen tabulation)

L-20 95-100 cm
UNID: 3 frags

100-105 cm
UNID: 6 frags

105-110 cm
UNID: frags (1 + 1 turtle)

110-115 cm
DEER: acarpal (prox. end); frag. of long bone

115-120 cm
SLIDER: pleural
UNID: frag

120-125 cm
DEER: lt. radius (dist. epip. unfused)

BALK 10-85 cm
GAR: vert.
UNID: frags (15 + 3 turtle)

Pit 98E-95N

L-4
UNID: frags (10 + 5 turtle)

28-33 cm
UNID: frags (6 + 1 snake)

L-9 33-38 cm
ORNATE BOX TURTLE: nuchal
DEER: tooth frag; rt. astragalus
UNID: frags (15 + 4 turtle)

34-39 cm (this may be mis-labled)
UNID: frags (10 + 7 turtle)

L-10 38-43 cm
DEER: rt. radius (prox end)
UNID: frags (30 + 1 fish)

L-11 43-48 cm
ALLIGATOR: vert (large)
DEER: lt. humerus (prox 1/2)
UNID: frags (20 + 1 turtle + 1 snake)

L-12 48-53 cm
WATER SNAKE: vert.
DEER: rt. centroquartal
UNID: frags (30 + 4 turtle)

L-13 53-58 cm
DEER: 2 rt. astragali; metatarsal
DEER OR PRONGHORN: 3 metapodial condyles
UNID: 20 frags

L-14 58-63 cm
DEER: lt astragalus (gnawed)
UNID: frags (6 + 2 turtle)

L-15 63-68 cm
UNID: 15 frags

L-16 68-73 cm
UNID: frags (12 + 2 turtle)

L-17 73-78 cm
BOX TURTLE: peripheral
DEER: rt. scaphoid
UNID: 12 frags

L-18 78-83 cm
GAR: vert.; scale
KINGSNAKE: 5 vert.
STINKPOT: rt. 3rd. peripheral
UNID: frags (40 + 3 snake vert. + 10 turtle)

L-19 83-88 cm
GAR: head frag.; 2 vert.; 4 scales
RATSNAKE: 1 vert.
RATTLESNAKE: 2 vert.
MUD TURTLE: pleural; peripheral
BOX TURTLE: pleural; neural; 2 peripherals
DEER: rt. astragalus; upper rt. P-1
DEER OR PRONGHORN: metatarsal midsection; 2 phalanges
UNID: frags (60, 3 gnawed + 2 fish vert + 3 snake + 30 turtle)

L-20 88-93 cm (2 bags)
GAR: 2 vert.; 2 scales
CATFISH: vert.
RATTLESNAKE: vert.
COTTONMOUTH: vert.
STINKPOT: peripheral
BOX TURTLE: pleural
DEER: lt. centroquartal
UNID: frags (50 + 1 fish + 3 snake + 20 turtle)

L-21
STINKPOT: peripheral
DEER OR PRONGHORN: phalanx
UNID: frags (8 + 1 fish + 7 turtle)

103-108 cm
DEER: lt. calcaneus; lt. radius (prox half)

108-113 cm
STINKPOT: lt. 9th. peripheral
UNID: frag

113-118 cm
DEER: rt. scaphoid (burned)
UNID: frag

Pit 98E-96N

5-10 cm
ARMADILLO: dermal scute
BOX TURTLE: pleural

10-15 cm
UNID: 4 frags

L-4 19 cm
UNID: frag

L-5 19-24 cm
UNID: frag

39-44 cm
UNID: frags (5 + 5 turtle)

L-10 44-49 cm (2 bags)
DEER OR PRONGHORN: frag of metapodial
UNID: frags (13 + 2 turtle)

L-11 49-54 cm
DEER OR PRONGHORN: mandible frag.; phalanx frag.
UNID: frags (60 + 1 turtle)

L-12 54-59 cm
UNID: 1 tooth frag.; 12 frags.

L-13 59-64 cm
UNID: frags. (21 + 5 turtle)

L-14 64-69 cm
RACCOON: rt. mandible midsect. with P4,M1,M2
DEER OR PRONGHORN: condyle & other frag of metapodial
UNID: 35 frags

L-15 69-74 cm
BOX TURTLE: peripheral
DEER OR PRONGHORN: phalanx #2
UNID: frags (28 + 2 turtle)

L-16 74-79 cm
BOX TURTLE: peripheral
DEER OR PRONGHORN: phalanx #1
UNID: 24 frags

L-17 79-84 cm
MUD TURTLE: peripheral
DEER: lt. astragalus
UNID: frags (13 + 1 turtle)

L-18 84-89 cm
BOX TURTLE: peripheral
DEER: rt. astragalus
DEER OR PRONGHORN: metapodial condyle
UNID: frags (64 + 3 turtle)

L-19 89-94 cm
ALLIGATOR GAR: 2 scales (large)
PIT VIPER: 2 vert.
MUD TURTLE: peripheral
BOX TURTLE: peripheral
COYOTE: lt. ulna (prox end, sub-adult)
UNID: frags (70 + 2 snake + 8 turtle)

L-20 94-99 cm
GAR: scale (large); vert.(small)
WATER SNAKE: 2 vert.
PIT VIPER: vert.
MUD TURTLE: peripheral; 2 frags. carapace
SLIDER: 2 frags carapace
UNID BIRD: terminal phalanx (size of turkey)
POCKET GOPHER: humerus frag.
RABBIT: rt. humerus (dist condyle)
DEER OR PRONGHORN: 2 petrous bones (MNI=2)
UNID: frags (70 +2 fish +30 turtle)

L-21 102-104 cm
BULLFROG: lt. ilium
MUD TURTLE: peripheral
DEER OR PRONGHORN: tooth frag
UNID: frags (26 + 12 turtle)

L-22 104-109 cm
CRAWFISH: frag of chela
MUD TURTLE: 2 peripherals ; 3 pleurals
SLIDER: frag. of carapace
POCKET GOPHER: rt. humerus; thoracic vert.
DEER OR PRONGHORN: dist. condyle of metapodial
UNID: frags (18 + 2 snake + 14 turtle)

L-22 109-119 cm
SLIDER: frag of carapace

L-22 109-119 cm (second bag with this #; has coated bone)
MUD TURTLE: peripheral
DEER OR PRONGHORN: phalanx #1
UNID: frags (21 + 1 turtle)

L-23 119-124 cm
UNID: frag ; vert. (deer size, several frags)

L-24 124-129 cm
RABBIT: centrum of vert.
UNID: 2 frags

Pit 99E-95N

8-13 cm
BOX TURTLE: peripheral
UNID: 3 frags

L-3 13-18 cm
UNID: 10 frags

L-5 24-29 cm
UNID: 11 frags

BALK OF N WALL L-3
UNID: 4 frags

L-6 29-34 cm
ALLIGATOR: dermal bone
CATFISH: pectoral spine frag
UNID: frags (6 + 1 turtle)

L-7 33-38 cm
UNID: 5 frags

L-8 38-43 cm
UNID: 4 frags

L-9 43-48 cm
UNID: 6 frags

48-53 cm
UNID: 7 frags

53-58 cm
UNID: 7 frags

L-12 58-63 cm
UNID: frags (10 + 1 turtle)

L-13 63-68 cm
DEER OR PRONGHORN: phalanx
UNID: frags (30 + 1 turtle)

L-14 68-73 cm
DEER: rt. centroquartal; upper rt. P-2
UNID: 30 frags

L-15 73-78 cm
DEER: rt. astragalus
DEER OR PRONGHORN: condyle of metapodial
UNID: frags (40 + 1 turtle)

L-16 78-83 cm
DEER OR PRONGHORN: phalanx; sesamoid
UNID: frags (34 + 5 turtle)

L-17 83-88 cm
DEER OR PRONGHORN: phalanx
UNID: frags (30 + 8 turtles)

L-19 93-98 cm
DEER: upper molar
DEER OR PRONGHORN; condyle of metapodial
UNID: 30 frags

L-20 98-103 cm
UNID: frags (20 + 1 fish + 3 turtles)

L-21 103-108 cm (2 bags)
WATER SNAKE: vert.
DEER OR PRONGHORN: 2 phalanges
UNID: frags (70 + 7 turtle)

L-22 108-113 cm
GAR: 1 scale
DEER OR PRONGHORN: vert.; phalanx
UNID: frags (40 + 10 turtle)

L-23 113-118 cm
GAR: 1 scale
COTTON RAT: rt mandible
DEER OR PRONGHORN: rt. ulna frag
UNID: frags (40 + 1 fish + 10 turtle)

L-24 118-123 cm
DEER: lt. upper molar; metatarsal (midshaft, gnawed)
DEER OR PRONGHORN: phalanx
UNID: frags (25 + 5 turtle)

L-26 125-130 cm
DEER OR PRONGHORN: phalanx
UNID: 10 frags

L-27 130-135 cm
UNID: frags (5 + 1 turtle)

L-28 135-140 cm
UNID: frags (7 + 1 turtle)

L-29 140-145 cm
GAR: scale
UNID: frags (8 + 1 turtle)

Pit 99E-96N

L-1 0-5 cm
ARMADILLO: 4 dermal bones
OPOSSUM: vert.
UNID: 20 frags

L-2 5-10 cm
OPOSSUM: vert.
UNID: frags (10 + 1 turtle)

L-4 14-19 cm
UNID: 3 frags

24-29 cm
UNID: 5 frags

L-8 34-39 cm
UNID: frags (5 + 1 turtle)

39-44 cm
UNID: frags (10 + 4 turtle)

L-10 44-49 cm
UNID: frags (20 + 2 turtle)

L-11 49-54 cm
UNID: frags (16 + 4 turtle)

L-12 54-59 cm
MUD TURTLE: neural
DEER: molar; metatarsal (midsect, gnawed)
DEER OR PRONGHORN: lt. astragalus; vert.
UNID: frags (30 + 1 snake + 2 turtle)

L-14 64-69 cm
DEER: lt. tibia (dist 1/2)
UNID: 20 frags

L-15 69-74 cm
UNID: frags (20 + 2 turtle)

L-16 74-79 cm
OPOSSUM: vert.
UNID: frags (40 + 7 turtle + 1 snake)

L-17 79-84 cm
UNID: frags (40 + 2 turtle)

L-18 84-89 cm
GAR: scale (large)
MUD TURTLE: peripheral; pleural
BOX TURTLE: peripheral
DEER: tarsal
UNID: frags (50 + 3 turtle + 1 fish)

L-19 89-94 cm
GAR: head bone
DEER OR PRONGHORN: humerus frag
UNID: frags (18 + 1 turtle + 3 snake)

L-20 94-99 cm
ORNATE BOX TURTLE: pleural
RATSNAKE: 2 vert.
UNID: frags (20 + 3 turtle)

L-21 99-104 cm
WATER SNAKE: 1 vert.
BOX TURTLE: nuchal; pleural
UNID: frags (30 + 1 fish + 4 turtle)

L-22 104-109 cm
WATER SNAKE: 1 vert.
COTTONMOUTH:1 vert.
MUD TURTLE: peripheral
UNID: 5 frags

L-23 119-124 cm
UNID: 1 frag

129-134 cm
OPOSSUM: lt. scapula (appears fresh)

L-29 149-154 cm
UNID: 4 frags

L-30 154-159 cm
UNID TURTLE: 1 frag

L-31 159-164 cm
UNID: frags (1 + 1 turtle)

Pit 97E-95N NW 1/4

WATER SNAKE: vert.

RACCOON: lt. astragalus
UNID: 2 frags

Pit 100E-95N

UNID: 15 frags (some may be human or large bovid(1w/cuts)

Pit 100E-95 (NE 1/4)

110-120
PRONGHORN: tooth

Pit 101E-94N

L-1
ARMADILLO: 8 dermal bones

5-10 cm
ARMADILLO: 4 dermal bones; terminal phalanx

L-4 16-24 cm
UNID: small mammal skull frag

L-8
UNID: frags (20 + 1 turtle)

L-10
UNID: frags (15 + 2 turtle)

51-56 cm
CATFISH: vert.
BOX TURTLE: peripheral
UNID: frags (30 + 5 turtle)

L-12 56-61 cm
BOX TURTLE: peripheral
DEER OR PRONGHORN: phalanx
UNID: frags (40 + 3 turtle)

L-13 61-66 cm
UNID: frags (60 + 11 turtle)

L-14
GAR: vert.
PRONGHORN: molar (upper rt.)
UNID: frags (30 + 8 turtle)

L-15 71-76 cm
DEER: lt. trap. mag.
UNID: frags (20 + 3 turtle)

76-81 cm
BOX TURTLE: peripheral
DEER: lt. ulna (prox. end); rt. astragalus; lt. radius (dist. epip, unfused); phalanx
UNID: frags (30 + 1 fish)

81-86 cm
GAR: vert.
DEER OR PRONGHORN: phalanx; rt. ulna (frag @ prox end)
UNID: frags (7 + 1 turtle)

86-91 cm
DEER: lt. mandible frag w/M-1 & M-2
COYOTE: lower rt. M-1
UNID: frags (30 + 4 turtle)

L-18
PRONGHORN: lt. upper molar
DEER: rt. calcaneus; phalanx
UNID: frags (25 + 2 turtle)

L19 96-101 cm
DEER: lt. astragalus
DEER OR PRONGHORN; metapodial condyle frag.
UNID: 10 frags

L-20 101-106 cm
STINKPOT: rt. hypoplastron
MUD TURTLE: pleural
UNID: 15 frags

L-21 106-111 cm
UNID: frags (7 + 4 turtle)

L-22 111-116 cm
UNID: 6 frags

L-24 121-126 cm
GAR: scale
UNID TURTLE:3 frags

L-25 126-131 cm
UNID: frag

L-27 136-141 cm
UNID: frag (1 + 2 turtle)

Pit 101E-95N

5-10 cm
ARMADILLO: 7 dermal bones
UNID: 16 frags

10-15 cm
ARMADILLO: 30 dermal bones; tibia; astragalus
COYOTE: canine tooth
UNID: 3 frags

15-20 cm
ARMADILLO: 25 dermal bones; 2 vert.
UNID: 4 frags

20-25 cm
ARMADILLO: 2 dermal bones

25-30 cm
UNID: 2 frags

30-35 cm
UNID: 3 frags

35-40 cm
UNID: 2 frags

40-45 cm
UNID: 2 frags

50-55 cm
UNID: 4 frags

55-60 cm
UNID: 4 frags

60-65 cm
UNID: 10 frags

65-70 cm
UNID: 18 frags

70-75 cm
UNID: 12 frags

75-80 cm
DEER: rt. centroquartal
DEER OR PRONGHORN; condyle of metapodial
UNID: 7 frags

80-85 cm
UNID: 8 frags

85-90 cm
UNID: 8 frags

90-95 cm
SLIDER: 2 frags of plastron
UNID: frags (10 + 1 turtle)

95-100 cm
UNID: 4 frags

100-105 cm
UNID: 2 frags

L-20 105-110 cm
UNID: frags (4 + 3 turtle)

110-115 cm (fill from Burial #4)
MUD TURTLE: peripheral
UNID: 7 frags

L-22 115-120 cm
STINKPOT: 3 pleurals
UNID: 3 frags

120-125 cm
UNID: frags (2 + 2 turtle)

125-130 cm
UNID: 2 frags

130-135 cm
UNID: frags (1 + 2 turtle)

L-25 135-140 cm
UNID TURTLE: frag

L-26 140-145 cm
UNID: 5 frags

145-150 cm
SLIDER: 2 pleurals
UNID: 10 frags

L-28 150-155 cm
UNID: 2 frags

Pit 101E-97N
140-150 cm NE 1/4
STINKPOT: lt. 9th peripheral
UNID: 3 frags

Pit 102E-94N
L-1-2-3 0-15 cm
ARMADILLO: mandible; metatarsal; phalanx

L-4
UNID: 4 frags

L-7 31-36 cm
UNID: 5 frags

L-8 36-41 cm
UNID: 5 frags

L-9 41-46 cm
UNID: frags (10 + 1 turtle)

L-10 46-51 cm
UNID: frags (4 + 1 turtle)

L-11 51-56 cm
DEER OR PRONGHORN: phalanx frag
UNID: frags (30 + 3 turtle)

L-12 56-61 cm
DEER OR PRONGHORN: rt. astragalus
UNID: 10 frags

L-13 61-66 cm
UNID: 10 frags

L-14 66-71 cm
UNID: frags (8 + 2 turtle)

L-15 71-76 cm
DEER: rt ulna frag; lt. tibia frag
UNID: 15 frags

76-81 cm
UNID: frags (8 + 4 turtle)

81-86 cm
UNID: 5 frags

91-96 cm
UNID: frags (7 + 3 turtle)

L-20 96-101 cm
UNID: frags (8 + 1 snake)

L-21 101-106 cm
UNID: 10 frags

L-22 106-111 cm
UNID: frags (10 + fish vert.)

L-23 111-116 cm
COLUBRIDAE: vert.
UNID TURTLE: frag.

L-24 116-121 cm
VIPERIDAE: vert.
STINKPOT: 2 peripherals
UNID: frags (12 +12 turtle + 1 fish)

L-25
STINKPOT: peripheral
UNID TURTLE: frag

L-26 126-131 cm
DEER: rt. calcaneus
POCKET GOPHER: rt. humerus
UNID: 7 frags.

131-136 cm
CLAM: frag.
GAR: 2 scales (large); head frag.
UNID: frags. (14 + 1 fish + 1 turtle)

L-28 136-141 cm
UNID: 7 frags. (burned)

Pit 105E-96N
L-1 0-05 cm
UNID: frag

L-2
RABBIT: ulna, prox. end

L-3
UNID: frag

15-20 cm
SHARK: tooth
UNID: 10 frags

20-25 cm (2 bags)
UNID: 4 frags

25-30 cm
UNID: frags (7 + 1 turtle)

33-35 cm
UNID: 4 frags

35-40 cm
UNID: frags (10 + 1 turtle)

L-4 45-50 cm
UNID: frags (2 + 1 turtle)

L-5 50-55 cm
UNID: 3 frags

L-6 55-60 cm
UNID: frags (3 + 2 turtle)

L-7 60-65 cm
UNID: 4 frags

L-8 65-70 cm
UNID: 10 frags

L-9 70-75 cm
RABBIT: dist. end of metatarsal
DEER: rt. centroquartal
UNID: frags (1 + 1 turtle)

L-11 80-85 cm (2 bags)
DEER: rt. metatarsal (prox end)
UNID: 5 frags

90-95 cm
GAR: scale
DEER: femur (frag near dist end)
RABBIT: phalanx
UNID: 1 frag

95-100 cm
GAR: 2 scales
DEER: tooth
UNID: frags (9 + 6 turtle + 1 rodent tibia)

100-105 cm
GAR: 1 scale; 1 vert.
MUD TURTLE: nuchal
BOX TURTLE: peripheral
UNID: frags (10 + 10 turtle)

105-110 cm
GAR: 2 scales
SOFTSHELL: frag
STINKPOT: peripheral
SLIDER: frag carapace
WATER SNAKE: 1 vert.
RABBIT: lt. calcaneus
UNID: frags (7 + 1 fish + 4 turtle)

110-115 cm
UNID: frags (6 + 2 turtle)

115-120 cm
UNID: 8 frags

120-125 cm
DEER: tooth
UNID: frags (5 + 1 turtle)

125-130 cm
DEER: phalanx
UNID: frags (5 + 1 turtle)

130-135 cm
GAR: vert.
DEER: lower molar
UNID: 4 frags

135-140 cm
DEER OR PRONGHORN: patella; metapodial condyle
UNID: 3 frags

150-155 cm
GAR: scale
DEER OR PRONGHORN: metapodial condyle

Pit 105E-100N

30-35 cm
UNID: 2 frags

40-45 cm
UNID: 4 frags

50-55 cm
UNID: 7 frags

L-3 55-60 cm
UNID: 3 frags

L-4 60-65 cm
UNID: frags (2 + 1 turtle)

L-5 65-70 cm
UNID: frag

L-6 70-75 cm
UNID: 6 frags

L-7 75-80 cm
UNID: 4 frags

L-8 80-85 cm
UNID: 2 frags

L-9 85-90 cm
DEER OR PRONGHORN: tooth
UNID TURTLE: frag

L-10 90-95 cm
UNID: frags (5 + 1 turtle)

L-11 95-100 cm
UNID: 2 frags

L-12 100-105 cm
GAR: scale
UNID: frag

L-13 105-110 cm
UNID: 6 frags

L-14 110-115 cm
MUD TURTLE: pleural; peripheral
SLIDER: pleural
UNID: 11 frags

L-15 115-120 cm
DEER OR PRONGHORN: phalanx
UNID: frags (4 + 2 turtle)

L-16 120-125 cm
UNID: 20 frags

L-17 125-130 cm
GAR: 3 scales
UNID: 18 frags

L-18 130-135 cm
SLIDER: plastron frag
UNID: 12 frags

135-140 cm
SOFTSHELL: 1 frag
SLIDER: 1 frag
COLUBRIDAE: 1 vert.
UNID: frags (4 + 2 turtle)

L-20 140-145 cm
MUD TURTLE: 1 peripheral
UNID: 5 frags

L-21 145-150 cm
GAR: 1 scale
BOX TURTLE: 1 peripheral
UNID: frags (4 + 2 turtle)

L-22 150-155 cm
MUD TURTLE: 1 peripheral
BOX TURTLE: 1 pleural
UNID: 5 frags

160-165 cm
UNID BIRD: tibiotarsus (midsection, larger than mallard)
UNID: 4 frags

165-170 cm
GAR: 1 scale
COTTON RAT: lt. mandible
UNID: frags (1 + 1 turtle)

170-175 cm
UNID: 1 frag

175-180 cm
UNID TURTLE: 1 frag

180-185 cm
WATER SNAKE: vert.
UNID RODENT: lower incisor

Pit 110E-94N
L-26 131-136 cm
STINKPOT: lt. 2nd pleural
UNID: 7 frags

Pit 110E-99N
L-4 40-50 cm
UNID: frags (2 + 1 turtle)

105-110 cm
UNID TURTLE: 1 frag

110-115 cm
UNID: frags (1 + 1 fish + 1 turtle)

115-120 cm
UNID: frags (2 + 1 turtle)

120-125 cm
UNID: 2 frags

125-130 cm
GAR: 2 scales
UNID: 2 frags

APPENDIX F-2

Provenience of Vertebrate Remains from Fine Screens

Burial No. 2

GAR:	10 scales
CHANNEL CATFISH:	2 dorsal spines
CATFISH:	pectoral spine
SUNFISH:	13 spines (4 pelvic, 7 dorsal, 2 anal)
UNID FISH:	42 vert.
SLIDER:	pleural
UNID TURTLE:	frag
COACHWHIP:	vert.
UNID SNAKE:	9 vert (3 caudal)
POCKET GOPHER:	lower I
COTTON RAT:	molar; caudal vert.
UNID RODENT:	phalanx
MINK:	upper P-2

Burial No. 2 (around feet)

HACKBERRY:	seeds
CRAWFISH:	chela
GAR:	25 scales; tooth; head frag.
CHANNEL CATFISH:	4 spines (1 pectoral, 3 dorsal)
CATFISH:	cleithrum frag.; 2 pectoral spines
SUNFISH:	36 spines (5 pelvic, 18 dorsal, 13 anal)
UNID FISH:	67 vert.; 7 frags.
BOX TURTLE:	2 pleurals
SLIDER:	neural
UNID TURTLE:	3 frags
RAT SNAKE:	vert.
GARTER SNAKE:	2 vert.
UNID SNAKE:	11 vert. (1 caudal)
POCKET GOPHER:	molar; astragalus
COTTON RAT:	molar; ulna; phalanx
HARVEST MOUSE:	upper I; lower I
UNID RODENT:	incisor frags
RABBIT:	2 phalanges

Burial No. 3 (around skull)

SUNFISH:	spine; dentary frag.
MOUSE:	caudal vert.

Burial No. 3

PLANTS:	400 leaf buds + several seeds
CRAWFISH:	2 chelae
GAR:	4 scales; tooth
CATFISH:	3 pectoral spine frags.
SUNFISH:	22 spines (5 pelvic, 11 dorsal, 6 anal)
UNID FISH:	50 vert.; 5 frags
MUD TURTLE:	peripheral
RAT SNAKE:	vert.
UNID SNAKE:	4 vert.

LEAST SHREW:	lt. maxilla w/P3,M1; rt. maxilla w/P3,M1,M2
POCKET GOPHER:	astragalus
COTTON RAT:	upper I; molar
HARVEST MOUSE:	upper I
UNID RODENT:	incisor frags
MINK:	upper I

Burial No. 3 (beneath)

UNID FISH:	2 vert.; 2 frags

Burial No. 4

SUNFISH:	2 spines (1 dorsal, 1 anal)
UNID FISH:	12 vert.
POCKET GOPHER:	caudal vert.
COTTON RAT:	phalanx
RABBIT:	phalanx

Pit 98E-94N

L-19 90-95cm (fine screen, upper torso Burial #2)

CRAWFISH:	chela
GAR:	3 vert.; 10 scales
BOWFIN:	tooth
CATFISH:	2 vert.; pectoral spine
UNID FISH:	6 vert.
LEOPARD FROG:	ilium
MUD TURTLE:	peripheral
SLIDER:	pleural
UNID TURTLE:	20 frags
UNID SNAKE:	2 vert.
DUCK:	2 coracoids (MNI=2)
POCKET GOPHER:	lt. mandible; lt. lower incisor
UNID RODENT:	2 incisors
COYOTE:	metacarpal; phalanx
DEER:	lt. astragalus
UNID:	88 frags.

Pits E98&99-N96 (burial No. 4)

HACKBERRY:	seed
CRAWFISH:	chela
GAR:	9 scales; 1 vert
SUNFISH:	22 spines (4 pelvic, 11 dorsal, 7 anal)
CATFISH:	dentary; pectoral spine
UNID FISH:	30 vert.; 6 frags.
UNID TURTLE:	2 frags
UNID SNAKE:	3 vert.
LEAST SHREW:	lt. mandible
POCKET GOPHER:	calcaneus; astragalus;upper I;molar;phalanx
COTTON RAT:	lower I; caudal vert.; phalanx
RABBIT:	phalanx
DEER OR PRONGHORN:	tooth frag.

Pit E99-N95

L-22

GAR:	2 scales; tooth
SUNFISH:	7 spines (2 pelvic, 1 dorsal, 4 anal)
FRESHWATER DRUM:	tooth
UNID FISH:	24 vert.; 8 frags.
MUD TURTLE:	neural
UNID TURTLE:	4 frags
ROUGH EARTH SNAKE:	vert.
UNID SNAKE:	5 vert. (1 is caudal)
POCKET GOPHER:	lower incisor; phalanx
COTTON RAT:	upper incisor; ulna frag.
UNID RODENT:	incisor (small)

L-24

CRAWFISH:	chela
GAR:	4 scales; 1 vert.
SUNFISH:	11 spines (1 pelvic, 7 dorsal, 3 anal)
CATFISH:	2 pectoral spines
LEOPARD FROG:	mandible
UNID FISH:	21 vert.
KINGSNAKE:	vert.
GARTER SNAKE:	vert.
UNID SNAKE:	vert.
POCKET GOPHER:	upper I
UNID RODENT:	phalanx

Pit E99-N96

L-20

STINKPOT:	humerus

L-22

HACKBERRY:	seed
GAR:	8 scales; head bone frag
SUNFISH:	15 spines (1 pelvic, 10 dorsal, 4 anal)
CHANNEL CATFISH:	dentary
UNID FISH:	31 vert.; 8 frags.
MUD TURTLE:	neural
GARTER SNAKE:	vert.
UNID SNAKE:	8 vert.
POCKET GOPHER:	molar; 2 phalanges
COTTON RAT:	lower I; astragalus; phalanx
HARVEST MOUSE:	2 femura (MNI=2)

L-23

GAR:	scale; vert.
SUNFISH:	3 spines (1 pelvic, 2 dorsal)
UNID FISH:	17 vert.; 2 frags.
LEOPARD FROG:	urostyle
STINKPOT:	peripheral
UNID TURTLE:	3 frags
UNID SNAKE:	6 vert (1 caudal)

Pit E101-N94

L-20 (burial)

CRAWFISH:	chela
GAR:	3 scales
CHANNEL CATFISH:	dorsal spine
CATFISH:	dentary; 3 pectoral spines
SUNFISH:	5 spines (1 pelvic, 3 dorsal, 1 anal)
FRESHWATER DRUM:	tooth
UNID FISH:	27 vert.; 4 frags.
UNID SNAKE:	8 vert.
COTTON RAT:	lower M-1;upper & lower I;ulna;scapula;caud.vert.

L-21

GAR:	scale
CATFISH:	pectoral spine
UNID FISH:	11 vert.
UNID TURTLE:	frag.

Pit E101-N95

L-20 (burial)

GAR:	vert.
SUNFISH:	10 spines (2 pelvic, 3 dorsal, 5 anal)
UNID FISH:	31 vert.
UNID TURTLE:	4 frags
HOGNOSE SNAKE:	vert.
RAT SNAKE:	vert.
PIGMY RATTLESNAKE:	vert.
UNID. SNAKE:	10 vert.
COTTON RAT:	lt. upper M-1; lower I; ulna; phalanx
POCKET GOPHER:	3 cheek teeth
COTTONTAIL:	lower I; rib; vert.
DEER OR PRONGHORN:	petrous bone

Pit E102-N94

L-4

UNID SCRAPS

L-7

UNID FISH:	3 vert.; frag.
UNID TURTLE:	frag

L-8

UNID FISH:	2 frags.
UNID TURTLE:	2 frags
UNID SNAKE:	2 vert.

L-9

SUNFISH:	2 spines (1 dorsal, 1 anal)
UNID FISH:	2 vert.
COTTON RAT:	lower M-3

L-10
CHANNEL CATFISH: pectoral spine
UNID FISH: vert.
UNID TURTLE: frags
POCKET GOPHER: 2 phalanges
UNID RODENT: 2 tooth frags
DEER: tooth frags

L-11
GAR: head bone frag
UNID FISH: 3 vert.; frag.
UNID SNAKE: 2 vert
COTTON RAT: lower I (2); calcaneus

L-16
SUNFISH: 2 spines (1 dorsal, 1 anal)
CATFISH: pectoral spine
UNID FISH: 5 vert.; 3 frags.
UNID TURTLE: 3 frags

L-18
BOWFIN: vert.
SUNFISH: 2 spines (1 dorsal, 1 anal)
UNID FISH: 6 vert.
UNID TURTLE: frag
POCKET GOPHER: molar
DEER: tooth (2)

L-19
HACKBERRY: seed
SUNFISH: 2 pelvic spines
UNID FISH: 3 vert.; 2 frags
UNID TURTLE: frag
COACHWHIP: vert.
UNID SNAKE: 5 vert.
UNID RODENT: 2 phalanges

L-20
GAR: scale
SUNFISH: dorsal spine
UNID FISH: 5 vert.
UNID TURTLE: 5 frags
POCKET GOPHER: molar

L-23
GAR: 9 scales
SUNFISH: 8 spines (2 pelvic, 5 dorsal, 1 anal)
UNID FISH: 22 vert.; 8 frags.
MUD TURTLE: pleural; peripheral
UNID TURTLE: 4 frags
WATER SNAKE: vert.
PIGMY RATTLESNAKE: vert.

UNID SNAKE:	6 vert.
BROWN PELICAN:	carpometacarpus
POCKET GOPHER:	2 molars
COTTON RAT:	lower M-1; lower I (3)
RACCOON:	rt. mandible frag.

L-24

GAR:	scale
SUNFISH:	2 spines (1 pelvic, 1 anal)
UNID FISH:	8 vert.
UNID SNAKE:	vert

L-25

UNID FISH:	5 vert.

L-26

SUNFISH:	4 spines (2 dorsal, 2 anal)
UNID FISH:	11 vert.; 10 frags.
DIAMONDBACK RATTLESNAKE:	vert.
UNID SNAKE:	9 vert. (3 caudal)
COTTON RAT:	phalanx
HARVEST MOUSE:	upper I; mandible w/3 teeth

L-27

GAR:	scale
SUNFISH:	4 spines (2 pelvic, 2 anal)
UNID FISH:	2 vert.
UNID SNAKE:	2 vert.
POCKET GOPHER:	3 lower I; 2 lower cheek teeth; humerus; 2 tibias; 6 phalanges; calcaeus

L-28

GAR:	tooth
SUNFISH:	4 spines (3 dorsal, 1 anal)
CATFISH:	2 pectoral spines
UNID FISH:	12 vert.
UNID SNAKE:	vert.
POCKET GOPHER:	calcaneus

Appendix F3

Distribution of Bivalves from 41FB42

species	pit	level, cm	no. of shells adult	no. of shells immature
Crassostrea virginica	E105N100	25-30	f	
Mulinia lateralis	E105N100	25-30	1	
Amblema plicata	E110N95	10-15	0	1
" "	"	125-130	0	1
" "	"	140-145	f	
" "	"	145-150	1	1
" "	E99N95	118-123	0	1
" "	"	130-135	4	1
" "	"	135-140	3	0
" "	"	140-145	1	0
" "	E98N95	88-93	1	0
" "	"	93-98	0	1
" "	"	98-103	1	0
" "	"	103-108	2	2
" "	"	108-113	3	2
" "	"	113-118	0	1
" "	E97N95	95-100	0	1
" "	"	100-110	1	0
" "	"	110-120	0	1
" "	"	140-160	1	0
" "	E94N95	90-95	0	2
" "	E105N96	115-120	1	0
" "	"	140-145	0	1
" "	E99N96	99-104	1	0
" "	"	119-123	0	2
" "	"	124-129	1	0
" "	"	134-139	1	0
" "	"	139-144	2	1
" "	"	149-154	1	0
" "	E98N96	109-119	2	1
" "	"	119-124	1	0
" "	"	124-129	2	1
" "	E101N97	140-150	1	0
" "	E102N94	131-136	1	2
" "	"	136-141	f	
" "	E98N94	100-105	0	1
" "	"	105-110	0	2
" "	"	110-115	0	3
" "	"	115-120	0	3
" "	"	130-135	0	1
" "	E105N100	130-135	0	1
" "	"	145-150	f	
" "	"	150-155	1	0
" "	"	160-165	1	1

f- fragments only

Appendix F3, continued

species	pit	level,cm	no. of shells adult	immature
Amblema plicata	E105N100	165-170	1	0
" "	"	170-175	1	1
" "	"	175-180	1	0
" "	"	180-185	0	1
" "	"	185-190	1	0
Quadrula apiculata	E97N95	100-110	0	1
" "	"	110-120	0	1
" "	E99N96	119-123	1	0
" "	"	134-139	0	1
Lampsilis hydiana	E102N94	116-121	1	0
" "	"	126-131	1	0
" "	E98N94	115-120	1	0
Lampsilis teres	E99N95	130-135	1	0
" "	E98N95	88-93	0	1
" "	"	108-113	1	1
" "	E97N95	95-105	2	0
" "	"	100-120	1	0
" "	E94N95	85-90	1	0
" "	E105N96	110-115	0	1
" "	E99N96	144-149	1	0
" "	"	159-164	1	0
" "	E98N96	119-124	0	1
" "	E101N94	136-141	f	
" "	E110N94	131-136	1	0
" "	E98N94	115-120	1	0
Potamilus purpuratus	E110N95	130-140	1	0
Toxolasma texasensis	E110N95	125-130	f	
" "	"	130-140	f	
" "	"	150-155	0	1
" "	E99N95	108-113	0	1
" "	"	118-123	0	1
" "	"	130-135	1	0
" "	"	135-140	0	2
" "	"	140-145	1	0
" "	E98N95	88-93	0	1
" "	"	93-98	0	1
" "	"	98-103	0	1
" "	"	103-108	2	0
" "	"	108-113	0	2
" "	"	113-118	2	0
" "	E97N95	95-100	1	1
" "	"	100-105	1	2
" "	"	105-110	1	1

Appendix F3, continued

species	pit	level,cm	no. of shells adult	immature
Toxolasma texasensis	E97N95	110-120	2	1
" "	"	140-160	0	2
" "	E94N95	85-90	1	0
" "	"	90-95	1	1
" "	"	95-100	1	1
" "	"	105-110	2	0
" "	"	110-120	0	1
" "	E105N96	115-120	1	0
" "	"	120-125	0	1
" "	"	125-130	1	0
" "	E99N96	119-123	1	1
" "	"	124-129	0	1
" "	"	134-139	1	0
" "	"	139-144	1	2
" "	"	144-149	1	1
" "	"	149-154	0	1
" "	E98N96	102-104	3	0
" "	"	104-109	3	2
" "	"	109-119	1	1
" "	"	119-124	1	1
" "	"	124-129	2	2
" "	E101N94	121-126	1	2
" "	"	126-131	1	0
" "	"	136-141	1	0
" "	E102N94	126-131	0	1
" "	"	131-136	1	0
" "	"	136-141	0	1
" "	E110N94	131-136	1	0
" "	E98N94	100-105	1	0
" "	"	105-110	1	0
" "	"	110-115	f	
" "	"	120-125	0	2
" "	"	130-135	1	1
" "	E105N100	120-125	2	0
" "	"	125-130	0	2
" "	"	140-145	2	0
" "	"	150-155	1	0
" "	burial 2		2	0
" "	burial 3		1	0
" "	burial 4		1	1
unidentified frag.	E110N95	115-120	x	
"	"	120-125	x	
"	"	130-140	x	
"	E98N95	88-93	x	
"	E97N95	100-110	x	
"	E94N95	80-85	x	
"	E99N96	154-159	x	
"	E102N94	121-126	x	

Appendix F4

Distribution of Gastropods from 41FB42

species	pit	level,cm	no. of shells adult	immature
Campeloma crassulum	E98N96	124-129	1	0
Fossaria dalli	burial 2		1	0
Planorbella trivolvis	E98N95	108-113	1	0
" "	E94N95	110-120	1	0
" "	E101N94	126-131	1	0
Oligyra orbiculata	E97N95	95-100	1	0
" "	E94N95	80-85	1	0
" "	burial 2		3	0
Helicodiscus singleyanus	burial 2		1	0
Rabdotus dealbatus	E98N95	113-118	1	0
" "	E98N94	120-125	1	0
" "	burial 2		0	1
" "	burial 3		0	3
" "	burial 4		1	2
Polygyra texasiana	E99N95	108-113	1	0
" "	E94N95	80-85	2	0
" "	E102N94	116-121	1	0
" "	burial 2		0	1
Praticolella pachyloma	E98N94	100-105	1	0
" "	"	110-115	1	0
" "	burial 4		2	1
Mesodon thyroidus	E101N95	115-120	0	1
" "	"	125-130	1	0
" "	"	145-150	1	0
" "	E98N95	108-113	2	0
" "	E99N96	99-104	0	1
" "	E98N94	100-105	1	0
" "	"	115-120	1	1
" "	"	120-125	1	0
" "	burial 2		1	0
" "	Burial 4		1	0