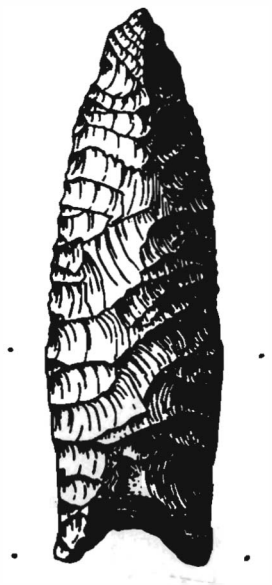
LA TIERRA



JOURNAL OF THE SOUTHERN TEXAS ARCHAEOLOGICAL ASSOCIATION

July 1986

Volume 13, Number 3

LA TIERRA

Quarterly Journal of the Southern Texas Archaeological Association

Volume 13, Number 3
July, 1986

Jimmy L. Mitchell
Editor

Cover Illustration: **Golondrina** dart point, diagnostic of the Golondrina Complex of southcentral Texas and the Lower Pecos (see Hester Note 86-3, pages 2-5, this issue). Illustration by Richard McReynolds of specimens presently under study by Ray Smith, Montell, Texas.

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Library of Congress Catalog No. 76-649774.

All articles in **La Tierra** are now summarized in **Abstracts in Anthropology** published by the Baywood Publishing Company.

All contributions to this Non-Profit organization are tax deductible.

EDITORIAL

WHO CARES? - WE CARE!

A Reply to Shafer

In a very comprehensive and significant essay on the future directions for archaeology in this state, published in **Texas Archeology** earlier this year, Dr. Harry Shafer of Texas A&M University cast an aspersion our way, although quite politely--he did not mention **La Tierra** by name. He asked rhetorically, "Who cares whether it's a **Bell** or an **Andice**?" Given the several **La Tierra** articles to date involving this issue [see 10(3) Prewitt, Chandler; 12(2) Weber and Patterson; 12(3) Editorial], and given the lack of such typological studies in other Texas archaeological publications, it seems safe to assume that this was aimed in our direction.

A direct answer to Shafer is that WE care! Elsewhere in this issue, readers will find a further report on the issue by Carey Weber which concludes that the two forms are probably part of one technological continuum (types, series, family, or whatever), along with an intermediate form, **Calf Creek.** This finding has considerable anthropological implications in terms of the geographic distribution of an Early (or Pre-) Archaic cultural group or groups scattered across central Oklahoma down through central and southcentral Texas and west along the Balcones escarpment, perhaps even into northern Mexico and up the east edge of the caprock [see also 6(2):26-27]. Weber also suggests that some of the systematic variation in attributes may be a time-related phenomenon, a hypothesis which certainly deserves further study. In any case, the point here is that we have something to learn about the makers and users of these tools through such typological and technological studies.

La Tierra will continue to publish such research reports as they become available. While it may seem to some that we are unduly concerned with projectile points and typological classifications, our ultimate aim is the same as theirs: to develop a better understanding of the PEOPLE who lived in this region before our ancestors arrived.

After all, T. C. Hill, our first **La Tierra** Editor, introduced us to Little Flower a number of years ago, long before Harry let us meet Moon, Onion, or Hawk [to learn about these new mythical Lower Pecos individuals, see Shafer's new book **Ancient Texans**, just published for the Witte Museum by Texas Monthly Press--see notice on p. 5 .]

And, by the way, Harry, we support the objectives you recommended for the future of archaeology in Texas. A bit abrasive in delivery, perhaps, but, for the most part, right on target!

The Editor

NOTES ON SOUTH TEXAS ARCHAEOLOGY 86-3

The Archaeology of Greater South Texas in 1986: An Overview*

Thomas R. Hester

In recent months, I have spent considerable time reviewing many facets of South Texas archaeology. There has been the final publication in the 12-volume Choke Canyon series, reporting the results of the largest archaeological project yet to take place in the region. Additionally, Stephen L. Black's recently published monograph on the Hinojosa site in Jim Wells County and A. J. Taylor's continuing research with the Loma Sandia cemetery in Live Oak County have provided other opportunities for reviewing what has been done and what interesting challenges remain in the study of southern Texas prehistory. I have also been working with the Southwest Division of the Corps of Engineers in the preparation of an archaeological "overview" of what to the Corps is their Region 3 which I have dubbed here "greater South Texas"--the South Texas coastal plains, and the adjoining Lower Pecos and Central Texas regions. As this project has developed, I've been aided greatly by input from Stephen Black, especially in taking a critical, though not prejudicial, view of the archaeological progress across these areas. As with most such projects, it is not yet complete. However, it has raised some issues that I want to pursue in this paper as they pertain to this part of Texas.

First of all, are we doing archaeology in the right way in southern Texas--are we conducting surveys and excavations that yield as much information as possible? This is difficult to assess, especially in comparison to Central and Lower Pecos Texas, since the nature of sites in South Texas is so different and the duration of archaeological research has been, comparatively, so brief. The Choke Canyon Project offered a way of measuring expectations versus results. When we compared our list of goals and objectives in the 1977 Choke Canyon research design to what resulted, to the final publications nine years later, there was reason to be both satisfied and frustrated. Some of the research goals, such as obtaining better data on subsistence, fell short of expectations; the faunal data were poorly preserved and charred paleobotanical remains very scarce--although through wood species identification of charcoal some unanticipated gains were made. This, and many of our other objectives, were tied to an excavation strategy that focused on block, or open area, excavation. Prior testing operations and block excavations at Chaparrosa Ranch in Zavala County in 1975 and 1976 had made it very clear that only through broad horizontal exposures were meaningful patterns ever to be extracted from South Texas occupation sites. Thus, at a number of sites in Choke Canyon, such approaches were used. At some sites, such as 41 LK 67 and 41 MC 222 (dug by Ken Brown) and to a lesser extent, 41 LK 201, published by Lynn Highley, this approach was highly valuable. But at other sites, where the deposits were buried in deep alluvium, open area excavations were too limited--chiefly due to the constraints of time and money. We got some intriguing glimpses of Archaic activity areas at site 41 LK 31/32, but the potential of that deposit could not be fully exploited. Additionally, I had personally envisioned that the cumulative results of these selective block excavations would produce a vast new set of data that could be used to address those problems of South Texas prehistory set forth in the research design. Here I was disappointed, undoubtedly because my expectations were too optimistic and unrealistic. If anything, the deposits at

* Revision of paper presented at the Texas Archeological Society Annual Meeting, Laredo, November 1, 1986.

these sites were even more scattered and more diffuse than had been expected. The research was surely sufficient to make great strides in the archaeology of the Frio River drainage and adjacent parts of South Texas, but despite the excellent job done by Grant Hall and his colleagues, some of the hoped-for "breakthroughs" for studies in the region simply did not occur. [A further illustration of open area excavation was provided by Joe Labadie's excavations of site 41 WN 73 in Wilson County, under contract with the State Department of Highways and Public Transportation. A very large block of units was opened up, and this proved critical in tracing the thin scattered occupation lenses across the site.]

Naturally, we have to deal with the sites we have, and I still think the open area excavation approach is the only one that holds any hope of results. We could blame "contract archaeology" and say that we had to spend a lot of money and time digging big holes in mediocre sites--because they were in the way of a dam or reservoir. But obviously we cannot anticipate what will be found. And, at Choke Canyon, the excavated sites were potentially the best (in terms of all our research goals) out of a sample of nearly 400 sites in the reservoir basin. However, perhaps in the future, archaeologists are going to have to be even more selective--not spreading the contract or grant dollars over several sites for the sake of some regulatory sampling size, but concentrating the efforts on the one site that offers the most potential, opening up hundreds of square meters at that site. Perhaps this sounds regressive--going back to the halcyon days of "salvage archaeology," with the focus on the richest site. We are told by archaeological historians that this concentration on "The Big Site" was what got us into the trouble we are supposed to be in today. There may be a lot of validity in that premise, but I do not think it holds for southern Texas: diffuse sites attacked with diluted efforts will simply continue to yield only mildly interesting results.

Moving to a second issue, let us look briefly at chronological problems. Much of the Choke Canyon effort was designed to help broaden and define the cultural-historical framework in South Texas; it seemed useless to pursue higher goals without having this foundation. While Choke Canyon, and the burial contexts at Loma Sandia, have greatly improved the artifact sequence for that part of South Texas, we are left wondering whether there are broader applications for the rest of the region. Most of the Choke Canyon excavated sites yielded few diagnostics; luckily, Loma Sandia has better associational data, supported by a cluster of radiocarbon dates. South Texas sites are simply not going to yield chronological data without a long struggle.

But assuming we obtain the diagnostics, the radiocarbon dates, and the like, what kind of theoretical framework will we place them in? Ponderous periodicities loom to the north in Central Texas reflecting stylistic changes in point types. But what else do they mean? In the Lower Pecos, with all the preserved perishable and intact associations that we archaeologists always say we are looking for, the chronological framework has changed, from manuscripts I have read, about three times this year alone. There are stages, phases, periods, subperiods, horizons, and intervals for us to use to sort the cultural remains. None of this is said to be critical of any researcher in Central and Lower Pecos Texas; I have contributed my own fair share of labels and tags to the confusion. But this is the point--I work with these materials and now I'm getting confused. The retreading of old time periods, no matter what fancy new clothes the regional specialists put on them, has done nothing to clarify--we still have a basic chronology that is overlaid, stratigraphically, by more recent labels and suggested time shifts made possible by gathering more radiocarbon dates. LeRoy Johnson, Jr., of Austin, has a manuscript that deals with aspects of this problem in great detail and with considerably more flair. New chronologies have simply reinforced regional views; I see no effort to integrate these with adjoining areas in any meaningful way. This "Balkanization"

of chronological sequences is leading us nowhere in moving Texas archaeology down the road toward better interpretation.

In the regional overview that we are doing for the Corps of Engineers, (and this is being done by specialists in other areas of the Southwest Division--for example, Dee Ann Story working with eastern Texas and adjacent areas), we were all asked to develop "adaptation types" for our study area, and most of us flinched at the idea. Here we would have to go beyond safe chronologies and venture into the realm of integration, of seeking to knit together meaningful patterns that spoke to the question of how the ancient Indian populations adapted to regional resources. This seemed rather easy to do for South Texas; we have so few hard data that any old adaptive type might sound good! But what of Central Texas and the Lower Pecos, with their sequences, radiocarbon dates, and hundreds of excavated sites? Here the challenge is more real and I cannot say that we have yet come up with adaptive types or models that can be supported (especially given the poor ecological data available for Central Texas). While I will not burden the reader with another set of names for the adaptive type concepts that we are struggling with, I will say that using this perspective makes it even more obvious that there are broad patterns shared by these three areas, and that should not be rigidly boxed up in regional sequences. For example, the Golondrina complex, or horizon, or whatever term you want to use, of 7000 B.C. clearly encompasses a broad area from the San Isidro site in Nuevo Leon, to Coahuila, the Lower Pecos, and most of Central and southern Texas. Ethnocentrically, if any of us drew a map of this, we would show the pattern swooping down from the north--but maybe it swoops up from the south! Here is where the lack of survey data from so much of northeastern Mexico really impedes further research. Some colleagues view Golondrina from a regional box called the Circleville Phase, in which are tossed a variety of other point styles, along with dates of 5000-6500 B.C. They insist that Golondrina is 1000 years later in Central Texas than it is in the Lower Pecos (where the only good dates currently exist). If one views **Golondrina** occurrences in Central Texas alone, then this regional box might work--though the question would then be <u>why</u> **Golondrina** stays around so long as a point style while all the other types in recent Central Texas sequences seem to change shape and association fairly rapidly. I think we must consider it from the broader perspective and try to find out what it represents from a <u>pan-regional</u> basis.

Similarly, my colleagues in Central Texas and the Lower Pecos often construct tight regional boxes for what is now generically known as the Early Archaic. In the box go a variety of point and tool types, some pretty distinctive regionally, but the whole lot showing considerable unity on a pan-regional basis--well into southern Texas and, based on collections we are studying, into northeastern Mexico. J. B. Sollberger and I stressed this 14 years ago in a paper in **Plains Anthropologist**, noting broad patterns between 3500-6000 B.C. that encompassed not only much of Texas but surrounding states, such as Oklahoma. We should pay more attention to these broadly extended early patterns, such as Golondrina at 7000 B.C. and the "Early Archaic" up to about 3500 B.C. Surely these differences--the more general early and then regionalizing later--are telling us something about adaptive patterns, resource utilization, movement of populations, and the like--but we have to ask better questions of our data than we are currently doing. I have no solution to the chronology crisis, but simply feel that our current concepts and labels are of little use anymore.

On a more positive note, I think that archaeology in southern Texas and adjacent areas is making some very useful progress in the attempts to better deal with people, ideas, and exchange. Grant Hall's Allens Creek report, with its consideration of Late Archaic exchange systems, is in my opinion a hallmark in this effort. He clearly shows broad patterns that eclipse the regional niche. Elton Prewitt, dealing with Central Texas, Solveig Turpin with Lower Pecos data, and Stephen Black, using South Texas information, have provided

some stimulating ideas about the movement of peoples and/or ideas in these regions late in prehistory--again a pan-regional phenomenon, not a local one. Black's new monograph on the Hinojosa site deals with the issue of the spread of the so-called Toyah materials--are these the movement of people, technologies, or ideas, or all of the above? In this regard, I've been able to examine a collection from Tamaulipas, below Laredo, with a high percentage of **Perdiz** points, extending these Toyah diagnostics considerably further than earlier data had suggested.

Unequivocal evidence that ideas and materials were moving through the Texas area, and into South Texas, throughout prehistory comes from the geologic source analysis of obsidian artifacts. Thus far in south central Texas is a Paleo-Indian obsidian artifact excavated at Kincaid Rockshelter, and derived from obsidian sources at Querétaro, Mexico, some 1000 km away. Elton Prewitt found the distinctive green obsidian of Pachuca, central Mexico, at a site in the Rio Grande Valley. Even more impressive is the number of obsidian flakes, fragments, and bifaces that occur on a rough north-south axis through the middle of Texas in Late Archaic and Late Prehistoric times (pardon my use of those labels; it is a hard habit to break). The southernmost comes from an excavated site at Choke Canyon (see **La Tierra** 13(2):2-5). These are derived from an obsidian source at Malad, southeastern Idaho. Similar finds have been made in Oklahoma, and Tim Baugh, an Oklahoma ethnohistorian, suggests these reflect a north-south trade network coming down through the Plains. Even more common, scattered through Texas, is the dispersion of New Mexico obsidian. And we must remember that these are largely the activities of, not complex societies, but rather hunter-gatherers. These data should clearly demonstrate to us that while we archaeologists might put the archaeological remains in regional boxes, the aboriginal originators of these remains were not quite so provincial!

* *

ANCIENT TEXANS

Rock Art & Lifeways Along the Lower Pecos

Harry J. Shafer

Photographs by Jim Zintgraff

Copyright 1986 by the San Antonio Museum Association (SAMA). 86-14412 ISBN 0-88719-058-5. Published for the Witte Museum and the SAMA by Texas Monthly Press, Austin, Texas. Contains 247 pp, multiple maps, color photographs, and illustrations. New definition of the Lower Pecos cultural "intervals." Includes papers by Vaughn Bryant, Tom Hester, Solveig Turpin, Terence Grieder, Mark Parsons, Megan Biesele, and Richard Gould, with a special essay by Peter Furst.

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PRELIMINARY REPORT ON THE FOX DRAW SITE (41 GL 175): AN ARCHAIC MIDDEN SITE IN GILLESPIE COUNTY, TEXAS

R. K. Saunders

ABSTRACT

This report describes the initial excavation of a shallow midden site in Gillespie County, Texas, which appears to have been occupied mainly during Early to Middle Archaic times but possibly in Late Paleo-Indian times as well. There is strong evidence that the site was used as a tool-making and repair center. Preliminary results indicate the site has good potential for further study.

INTRODUCTION

Site 41 GL 175 (Fox Draw) is located on a tributary of the Threadgill Creek drainage in Gillespie County, Texas (see Figure 1). The site is approximately 573 meters, or 1,880 feet, above mean sea level, and is one of several on a ranch owned by the James Baethge family. A metal projectile point from another site on this same ranch was reported by R. McReynolds (1982). Another Archaic site in the area is 41 GL 12 (see Moore 1983, 1985).

The lithic scatter at the site covers an area of approximately 1,050 square meters, but the depth of the deposits probably does not exceed 60 cm. A large portion of the Fox Draw Site has been disturbed by both road construction and cultivation. Fortunately, an undisturbed portion roughly 5 meters wide and 40 meters long exists through the very middle of the lithic scatter. The undisturbed area lies on either side of a seven-foot deer proof fence which served to isolate the plot from graders and plows.

For a number of years, the author, while attending family reunions held on the ranch, searched the surface of the five sites for artifacts. A substantial number of projectile points were found, along with many fractured bifaces (cf. Figure 2). In August of 1984, after a plowing, a point was found on the Fox Draw Site which had some of the characteristics of a Paleo-Indian point--namely lanceolate shape and ground basal edges (See Figure 2, center). The possibility that the site might contain Paleo-Indian artifacts provided the incentive to seek permission to do some controlled excavations. Permission was granted, but work could not be initiated until the Fall of 1985. In order to obtain as much information as possible from the site and to give the least interference to ranch activities, the guidelines of Hester, Heizer and Graham (1975), Hester (1980), and Hemion (1983), were followed as closely as possible.

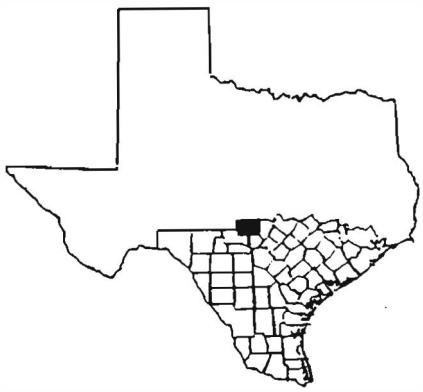


Figure 1. Map of Texas showing Gillespie County (darkened area).

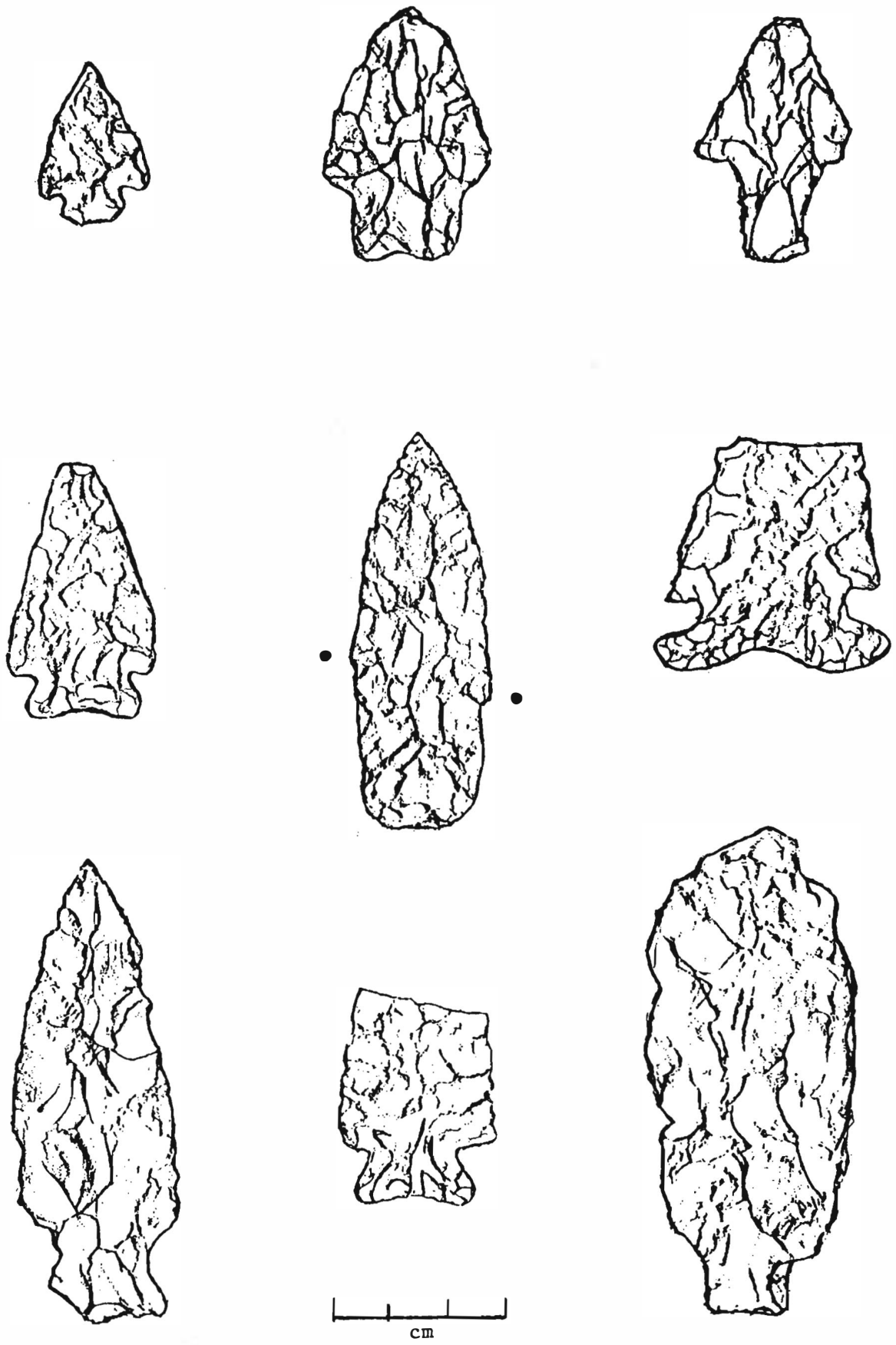


Figure 2. Artifacts from the surface of 41 GL 175, August 1984. Actual size.

The area to be excavated was laid out in one-meter-square units after establishing a datum point exactly 20 meters south of the initial baseline. All directions are based on a Project North assignment to the meridian line which was arbitrarily established to coincide with the seven-foot deer proof fence running through the site. The reason this was done was to have as much of the undisturbed site as possible within the bounds of the present and projected excavations (see Figure 3). The alpha datum point has been marked by placing a plastic flowerpot filled with concrete in the ground. The top of the concrete bears a circle and cross symbol etched in the surface with alternate quarters painted red.

The meridian line was labeled "A" with parallel lines labeled alphabetically to the east. The base lines are numbered 1, 2, 3, etc. going North from A-1. Units west of the meridian are labeled "L" plus a letter of the alphabet as in LB-1. Lines which are parallel to the original baseline going south have been labeled with Roman numerals in descending order. Therefore, A-1 is also A-XX which is exactly 20 meters from the alpha datum point. Current plans are for future work to progress south from A-1-XX using the Roman numeral ID. Two of these units were excavated during the current project, A-XIX and B-XIX (see Figure 4).

Each unit was excavated using 10-cm levels and screened using a one-quarter-inch mesh screen. In Units A-1 and A-2, an effort was made to save all the very small chert thinning flakes from all levels as well as all the larger chert pieces. In Units A-1, A-2, and B-1 all the snails were saved as well. This procedure proved to be so tedious, time consuming, and counterproductive that it was discontinued. There were literally thousands of minute chert flakes averaging about a half a gram in weight in the two units, and the snails were not especially numerous but were very small. No snails or very small thinning flakes were saved from any of the other units. All chert flakes the size of a dime and larger were saved, however, as well as any bone or anything unusual. The main purpose in this latter screening was to prevent the possible loss of small or fractured pieces of artifacts or utilized flakes.

In order to show how the soil composition changed with depth in the ground, representative soil samples were taken at various levels. In Unit A-3, samples were taken in each 10-cm level from 0 to 40 cm, and in Unit A-1 at 60 cm and in Unit B-1 below 60 cm. The soil varied from a black silty clay loam topsoil to a very calcareous gravel with increasing depth. Approximately quart-size samples were taken in each case. The total thickness of the soil layer seems to vary considerably since it rests on a natural limestone concretion which is very uneven.

Whenever possible, both black-and-white and color pictures were made of the artifacts resting where they were found. A scale and compass were included in most of the pictures. Both the scale and the compass were oriented to magnetic north which is approximately 40 degrees east of Project North.

Figure 5 includes photographic views of the site prior to excavation showing the arrangement of the unit stakes looking north and south.

THE ARTIFACTS

"Mystery Rocks"

A large stone found buried in Unit A-1 appears to have been erected as a marker of some sort (see Figure 5). The top was at 40 cm and the base was below 80 cm. It was estimated to weigh between 20 and 30 kilograms. The flat horizontal surface of the top was stained a bright yellow. Notice the flat stone on the right-hand side which stabilized the large stone in an upright position. In order to determine if the stone was a grave marker, units on all four sides of A-1 were excavated to bedrock. Some bone was found in the

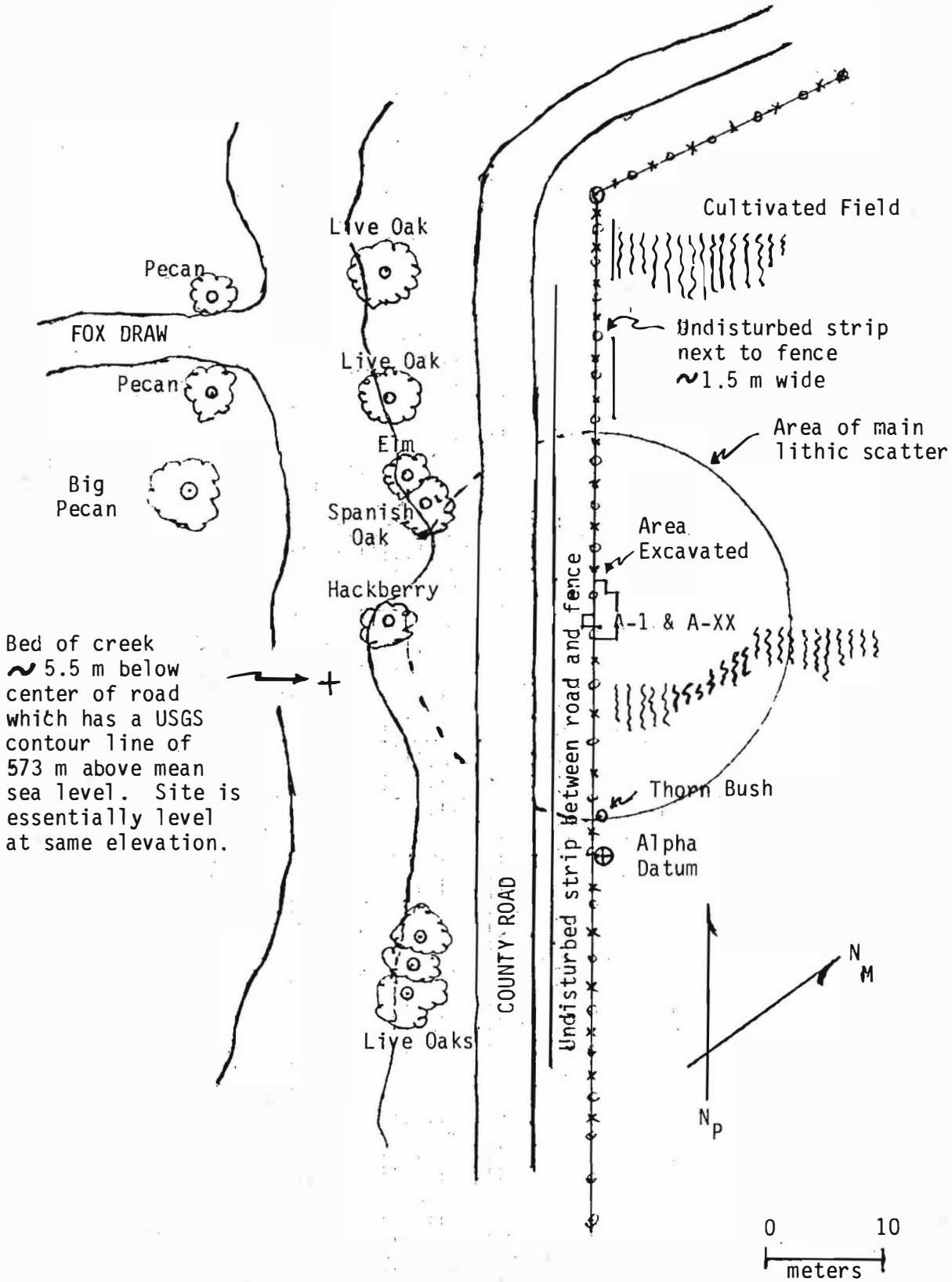


Figure 3. Fox Draw Site (41 GL 175).

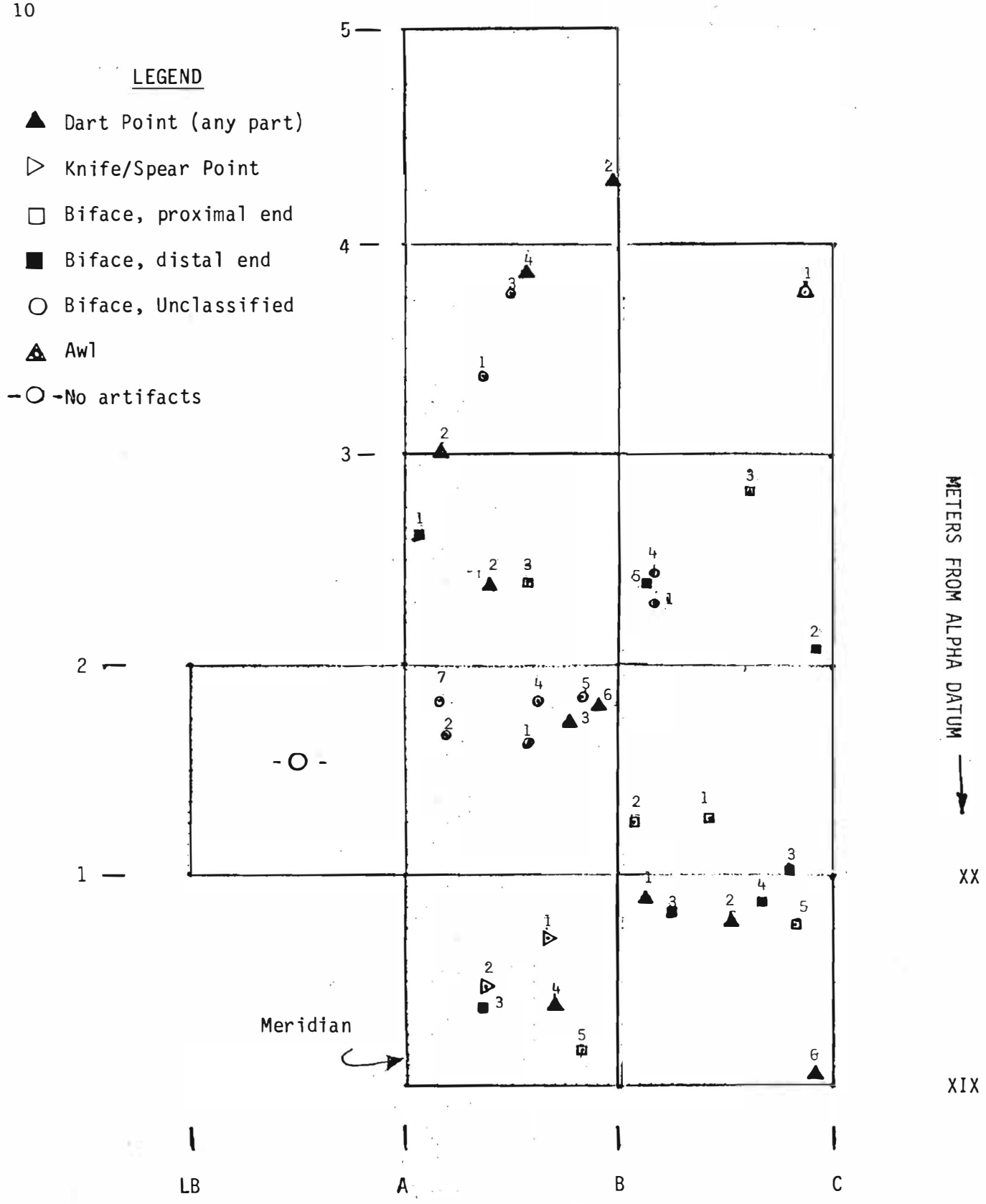
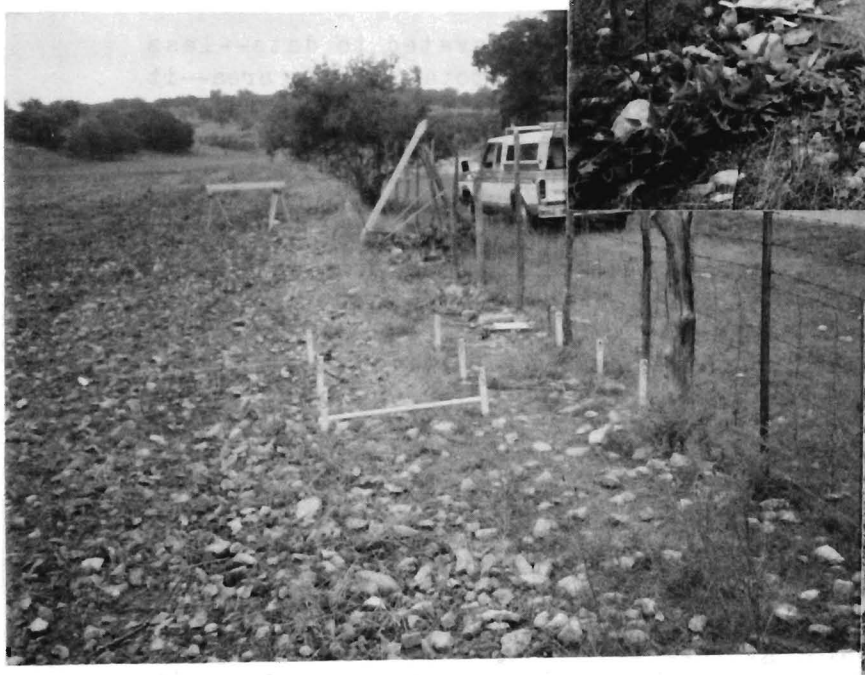


Figure 4. Horizontal Distribution of Artifacts, 41 GL 175, at 20-30 cm.

Site Looking North



Site Looking South

"Horsehead" Rock

Mystery Rock

Figure 5. Views of 41 GL 175 prior to excavation, and Mystery Rocks.

calcareous gravel, but it was scattered in random fashion and probably not directly associated with the stone.

In B-1 just east of A-1 was another large stone with a vague "horsehead" shape lying horizontally at about the same level as the one in A-1 (Figure 5). Hopes were high that this stone covered a burial or a cache, but further excavation showed the stone to be only a short distance above bedrock. There was a sizable irregular hole in the bedrock beneath the "horsehead" rock which was filled with a soft powdery soil, but this only increased our puzzlement concerning these large stones. No other stones of equivalent size were found in any of the other eight units excavated.

Projectile Points

Since only a small portion of the site has been excavated to date--less than 5% of the undisturbed area and less than 1% of the total midden area--it is perhaps premature to try to establish a time frame for the deposits. So far, the site has produced **Nolan, Pedernales,** and **Bulverde** points and possibly **Langtry** and **Tortugas** as well as several which do not fit any of the published categories. Given the above types, the time frame must include Early and Middle Archaic times.

In addition to the projectile points found, around 120 artifacts of various other types were recovered. Also, large quantities of both large and small thinning flakes and cores were recovered. This large amount of chert debitage strongly indicates that tool preparation and repair was a major activity.

Nolan: Four nearly complete points and three stem fragments were found which have the classic feature which identifies a **Nolan** point and that is the pronounced bevel on the right-hand side of the stem when the distal end is pointing up or away from the viewer regardless of which side is being viewed. Figure 6 shows some of the variety in point shape found in the **Nolan** category and the points are described below.

- Point (A) was made from a coarse-grained light gray chert. The blade has an elongated oval shape which can be called either convex or lanceolate. The stem is straight but appears to be expanding due to the strong beveling on alternate sides. The tip of the point has been broken off. Workmanship is good considering the quality of the chert.

- Points (B) and (C) are made of fine-grained light gray chert. The blade has a convex shape with a rectangular stem. The stem base is slightly convex. The barbs or shoulders are small and tend to slope towards the point. Workmanship is good.

- Point (D) was made of fine quality chert of an opalescent light gray color. The blade has convex sides with no barbs and has a decided twist due to alternate beveling which opposes the stem beveling. An attempt to illustrate this is shown with Points (D) and (E) in Figure 6. The stem expands due to beveling, and the base is slightly convex. Workmanship is excellent.

Nolan Variant: Point (I), Figure 6 is made of a fine-grained, light gray and tan chert. When complete (the tip is broken off) it was about 8.3 cm long and 3.2 cm wide. The stem is rectangular and is beveled on the left-hand side which is very unusual for a **Nolan** but has been found in some cases according to Suhm and Jelks (1962). The fact that several less ambiguous **Nolan** points were found in the site substantiates the belief that this point is a variety of **Nolan.**

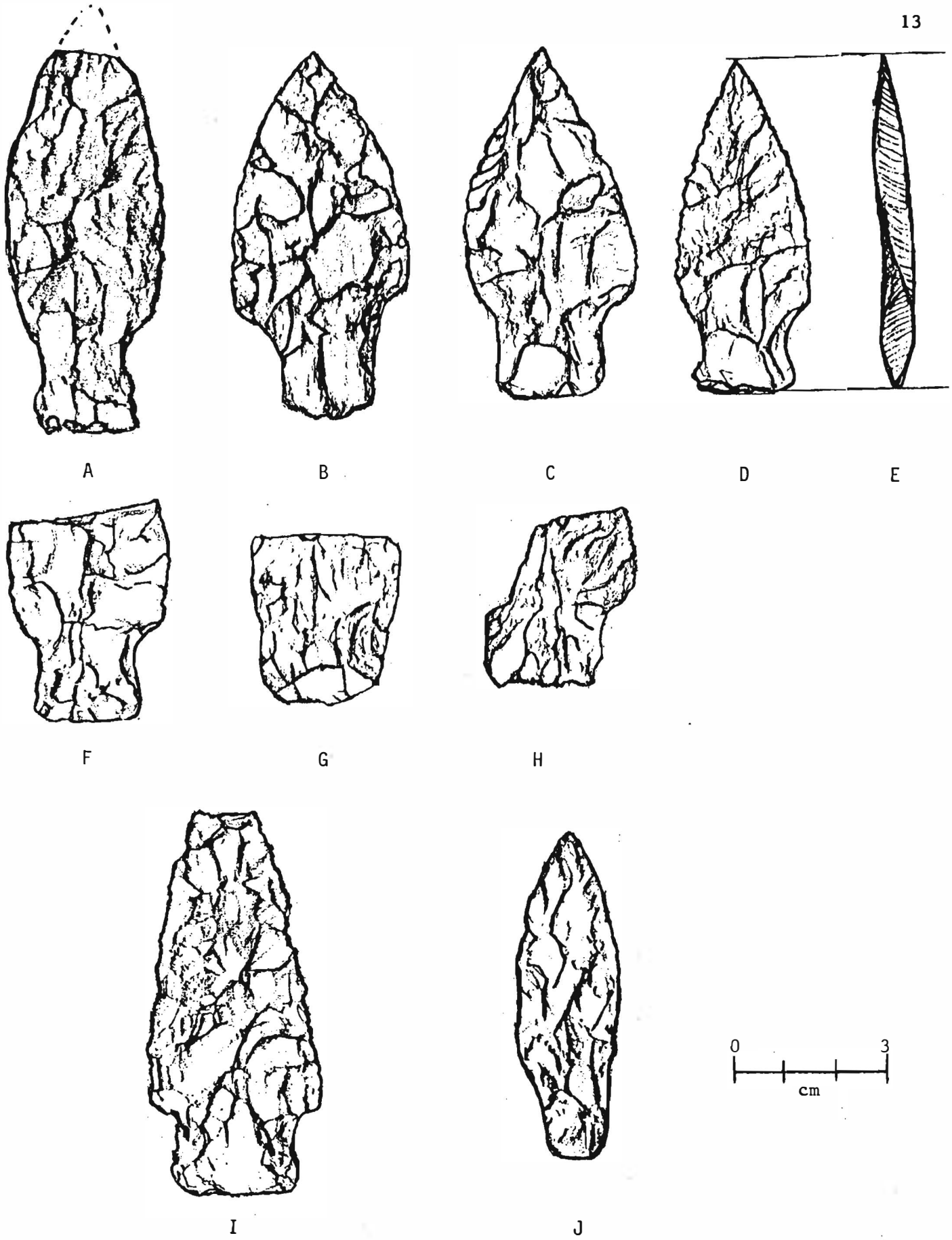


Figure 6. Projectile Points from 41 GL 175. Actual Size.

Nolan Stems: Two unequivocal **Nolan** stem fragments, (F) and (G), and one possible **Nolan** stem, (H), are shown in Figure 6.

Travis: Point (J), Figure 6, is made from a good quality brown chert with tan inclusions but is rather crudely made. The blade is slender and leaf-shaped. The stem is rectangular and contracts slightly. The base is straight and still shows cortex. The dorsal side of the point has a strong bevel on the stem similar to a **Nolan** but the ventral side is fairly flat from the base to the tip. It was first classified as a **Nolan** but when examined more closely it fits the **Travis** caregory much better.

Pedernales:

- The specimen shown as Figure 7, Point (A), is made of fine-grained beige chert with frosty white inclusions. About 40% of the distal end is missing. The stem is bifurcated in classic form. Workmanship is very good.

- Point (B) is made of fine-grained off-white chert. About 30% of the distal end is missing. The sides of the blade are straight, and the barbs are small. The stem is bifurcated in classic form. Workmanship is good.

- Point (C) is made of fine-grained gray chert but is badly fractured. The stem shows signs of being bifurcated when whole.

Langtry (?):

- Point (D), Figure 7, is made of good quality amber chert. The blade is triangular with a narrow straight stem. When displayed at the Little Bit Ranch STAA barbeque in October of 1985, several professionals could not agree on how it should be classified. The only basis for argument is its general shape. See examples (C) and (F) in Plate 19 of Bell (1958) for comparison.

- Point (E), Figure 7, is badly fractured but appears to have been very similar to Point (D) above when whole. A portion of the stem, blade, and both barbs have been broken off, but a best estimate restoration would most likely produce the **Langtry** shape.

Bulverde:

- Point (G), Figure 7 is made of a light beige good quality chert. The blade is triangular with straight edges. The shoulders are squared with no evidence of barbs. The stem is rectangular but is slightly contracting. The stem is thinned to a very sharp edge at the base. Workmanship is excellent.

- Point (H), Figure 7, is made of dark brown good quality chert. It differs from Point (G) above in the following categories: the blade edges are slightly convex, the shoulders have short barbs, and the stem is longer and contracts very little. Workmanship is only fair.

Tortugas: Point (F), Figure 7, is made of light brown chert. The blade is triangular with no stem. The base is decidedly concave. The shape and size suggest **Tortugas.** The markedly concave base is very similar to a large number of triangular points found at Falcon Lake (see example D, Figure 8, Saunders 1985). The Falcon Lake points were placed in the unclassified category because

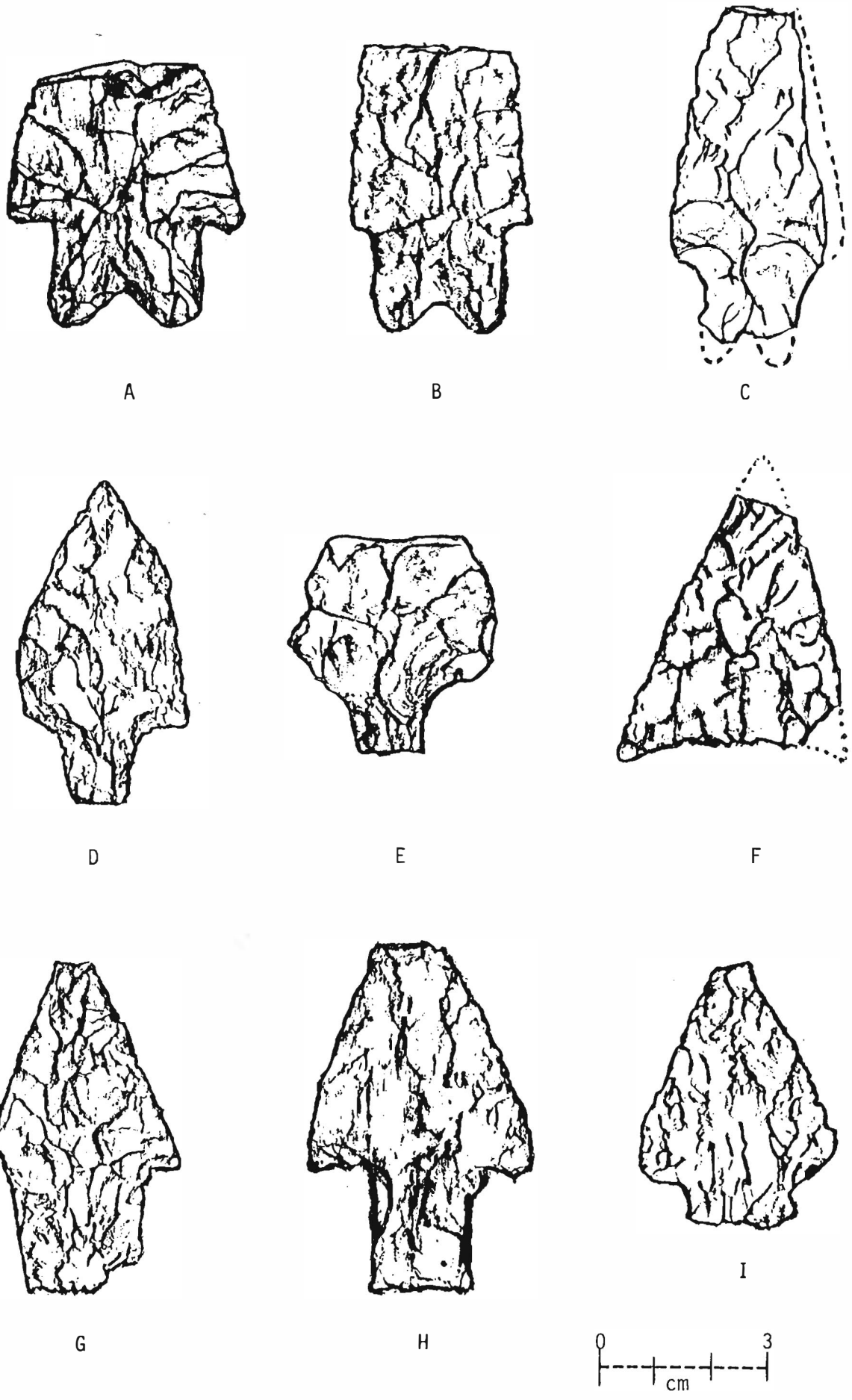


Figure 7. Projectile Points from 41 GL 175. Actual size.

of the base curvature. However, in a recent review of the literature, **Tortugas** examples C, E, and I in Plate 125 of Suhm and Jelks (1962) were found to have concave bases, especially example C.

Miscellaneous Unclassified Points

The following points are unclassified because they do not fit known categories or they lack sufficient discriminatory features.

- Point (A), Figure 8, is made of brown chert, but the stem end is broken off. The lanceolate shape and size suggest the possibility that it could be either **Angostura** or **Lerma**.

- Point (B), Figure 8, is made of good quality brown chert. It is quite large (9 cm long) but crudely made and quite thin (7 mm). It had large barbs (one is missing) and a small rectangular stem. It could be a knife or a preform. No similar likeness could be found in the literature available.

- Point (C), Figure 8, is made of light brown fine-grained chert. Originally it was a large point with pronounced barbs and an unusual U-shaped edge contour of the stem. It is estimated that about 40% of the distal end is missing. Similar points with U-shaped stem edges have been found at Falcon Lake and at the Baethge ranch. However, no similar likeness could be found in the literature available.

- Point (D), Figure 8, is made of a dark gray chert. It is quite similar to Point (C) above. A portion of the distal end is missing, but since no complete specimen is available for comparison, the amount is unknown. Three proximal fragments like the ones above with U-shaped stem edges were found in 1983 at site 41 GL 174 on the Baethge ranch.

- Point (E), Figure 8, is a proximal fragment only and is made of a mottled gray chert. The workmanship is poor, but the stem portion has the characteristics of a **Wells** or perhaps a **Travis** point.

- Point (F), Figure 8, is made of a light brown fine-grained chert. It is quite large (9 x 5 cm) and is somewhat heart-shaped. It was probably utilized as a knife or spear point.

- Point (G), Figure 8, is a large triangular point made of dark gray chert. It has convex sides and a straight base. All three sides have been worked to a sharp edge. Utilization may have been as a knife, scraper, or dart point.

Awls, Scrapers, etc.

- Item (A)-(A'), Figure 9, is a thick piece of gray chert which has been fashioned into an awl. Both sides are illustrated.

- Item (B), Figure 9, is made of dark gray chert and is also an awl or punch.

- Item (C), Figure 9, is made of dark gray chert and appears to be a combination beveled edge scraper and an awl.

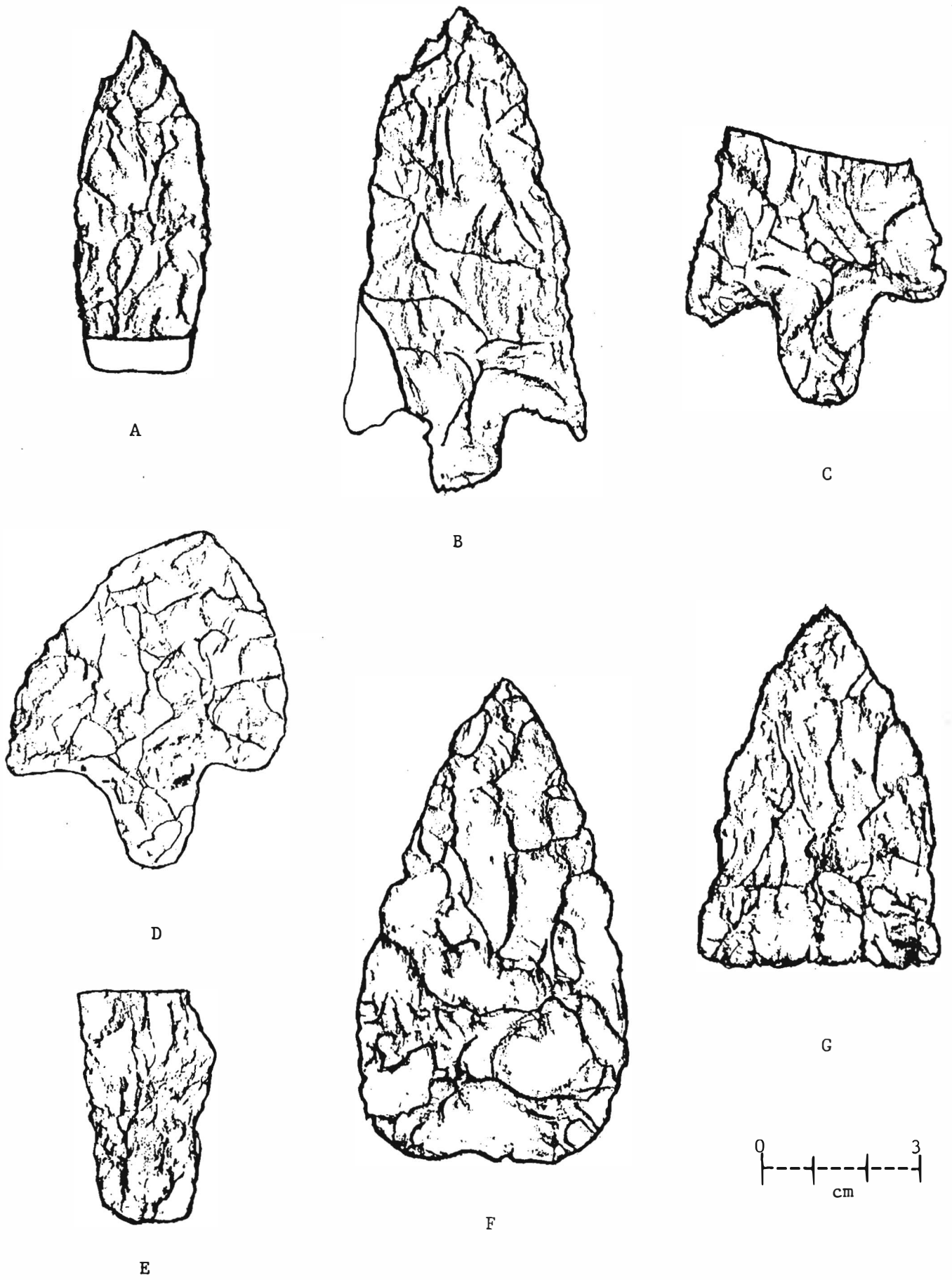


Figure 8. Miscellaneous Unclassified artifacts, 41 GL 175. Actual size.

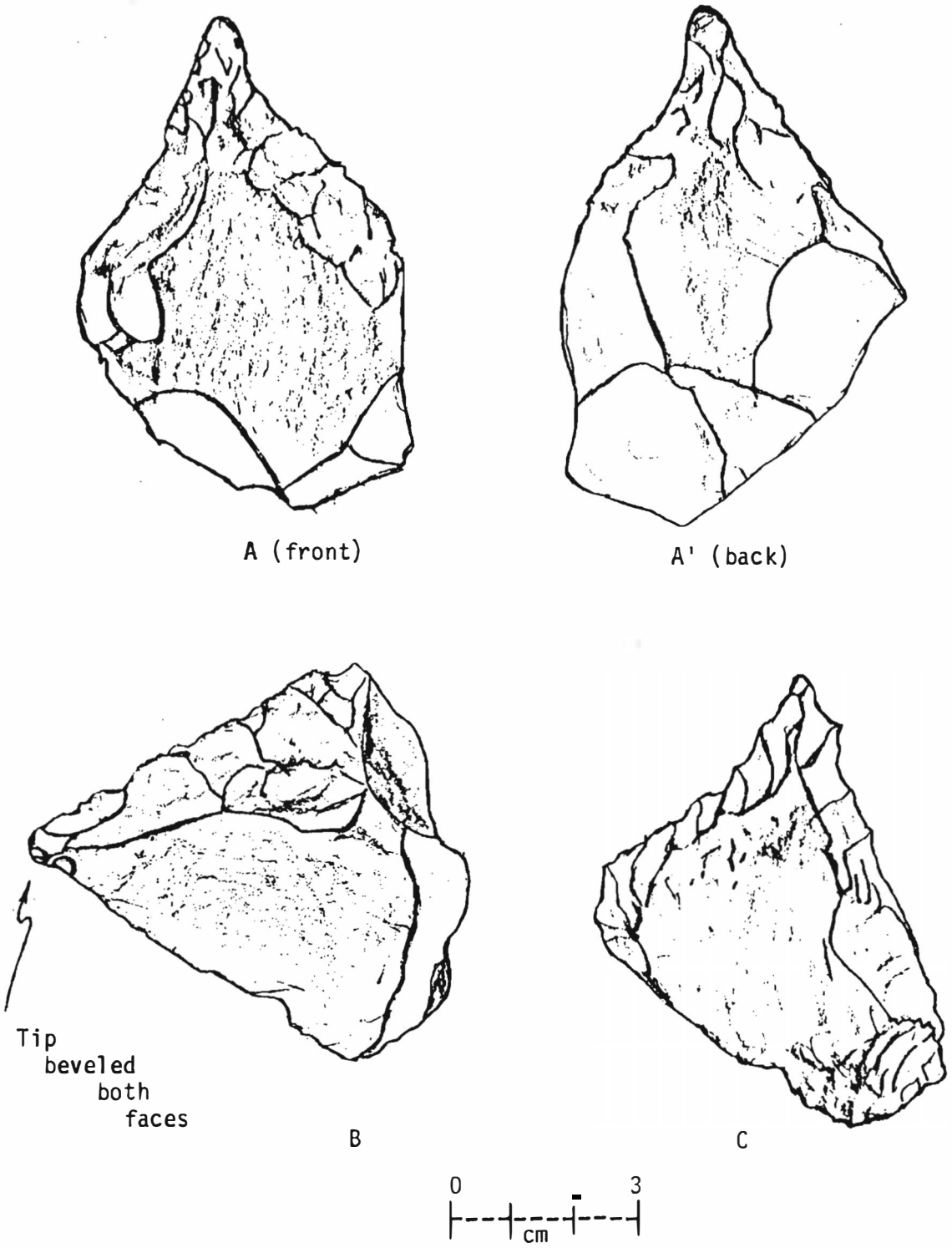


Figure 9. Awls or Punches from 41 GL 175. Actual size.

All items in Figure 10 are fractured bifaces whose utilization can only be a matter of conjecture. Workmanship is good to excellent for most of the items. They are illustrated primarily as a matter of record and to show some of the variety found in distal and proximal fragments at 41 GL 175.

Hand Ax

This artifact (Figure 11) was found at a depth of 45 cm which is the maximum depth at which any artifact was recovered. Chert flakes and bone were recovered at greater depth but were not classified as artifacts per se. It is very well made and may predate any of the other artifacats found, based on the stratigraphy.

However, if the artifact is classified as a "Butted Knife" biface, then it is most likely an item from the Late Archaic period (Turner and Hester 1985). If so, its migration below numerous Nolan projectile points is puzzling. Both sides and a lateral view are shown actual size. This tool would seem to be well suited for cracking open bones of game animals in order to recover the marrow. All the bone fragments found at 41 GL 175 had been cracked longitudinally.

Charcoal

The apparent absence of charcoal at this site is very perplexing. It is obviously a midden site with lots of cracked and "burned" rocks present, but, to date not a trace of charcoal has been found. Soil samples from Stage 1 were water-washed primarly to determine particle size distribution but were examined also to see if some charcoal could be recovered by flotation, but none was evident.

The site has many rock arrangements in the various levels which could be hearths, and these groupings almost always produce worked chert in close proximity, but no charcoal. Of course, the groupings could be stacks of boiling stones, but even if the fires were located outside the midden area or in some part of the midden not yet excavated, surely some charcoal would have migrated to the area being excavated. When questioned about this enigma, Dr. Hester pointed out that there is usually very little charcoal in these Archaic sites and he suspects that it may have been leached out by the downward percolation of water.

HORIZONTAL AND STRATIGRAPHIC DISTRIBUTION OF ARTIFACTS

Horizontal

A plot of the horizontal location for all the artifacts in each of the 10-cm levels for all of the units excavated did not show any significant trends. Horizontal location is strictly a random affair in the units excavated so far. The maximum concentration of artifacts was found in the 20-30 cm level and this plot is shown in Figure 5 which shows the random scatter.

Stratigraphy

The data from all levels and all units were combined in order to plot the vertical distribution of the major diagnostic components--bone, etc. (see Figure 12).

LITHIC FLAKE RECOVERY

The Fox Draw site must have been a campsite where tool manufacturing and repair was a major activity if the large number of all types of thinning flakes

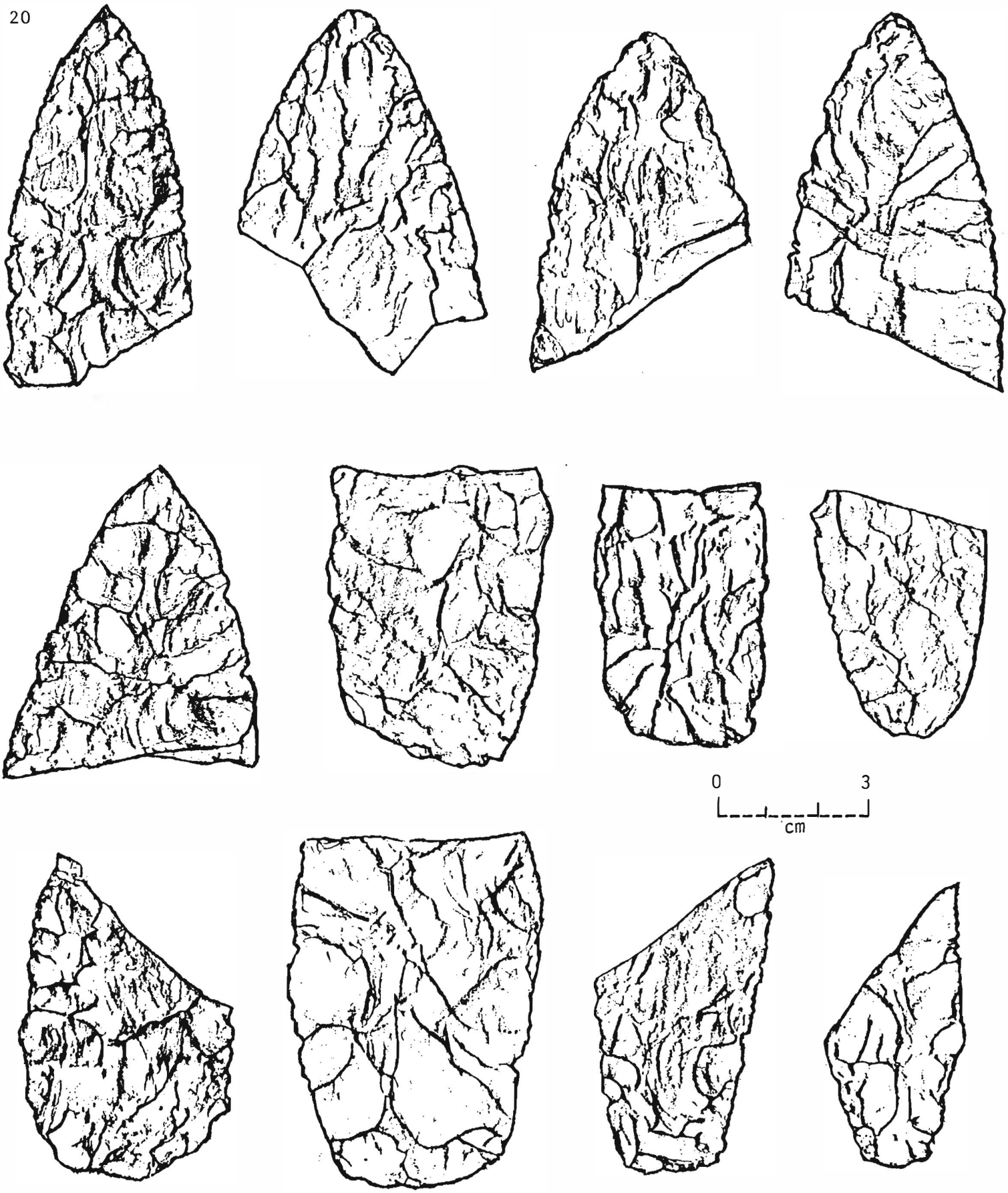


Figure 10. Examples of Distal and Proximal Fragments of Large Bifaces. Actual size

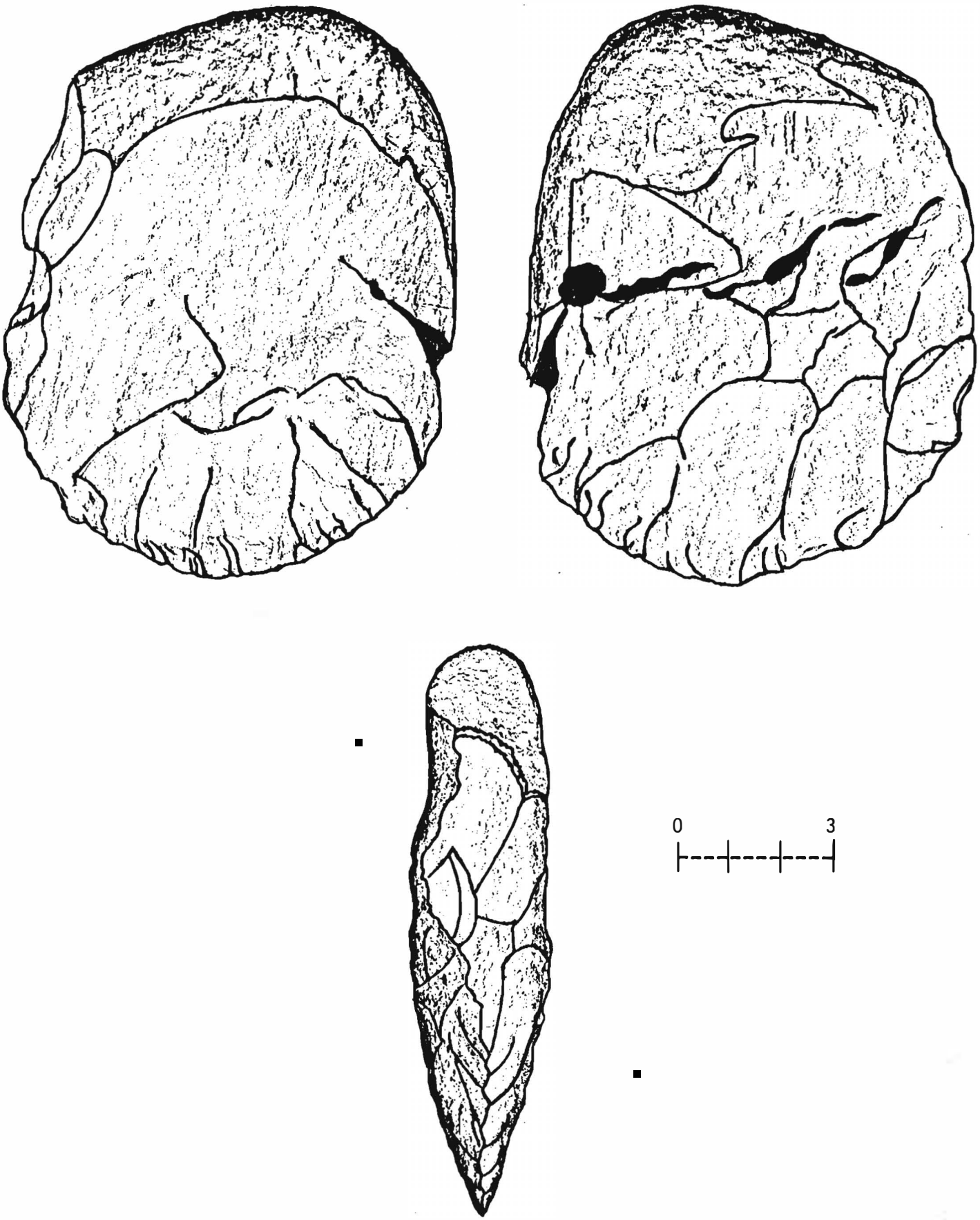


Figure 11. Hand Ax from Unit A-1 at a depth of 45 cm. Actual size.

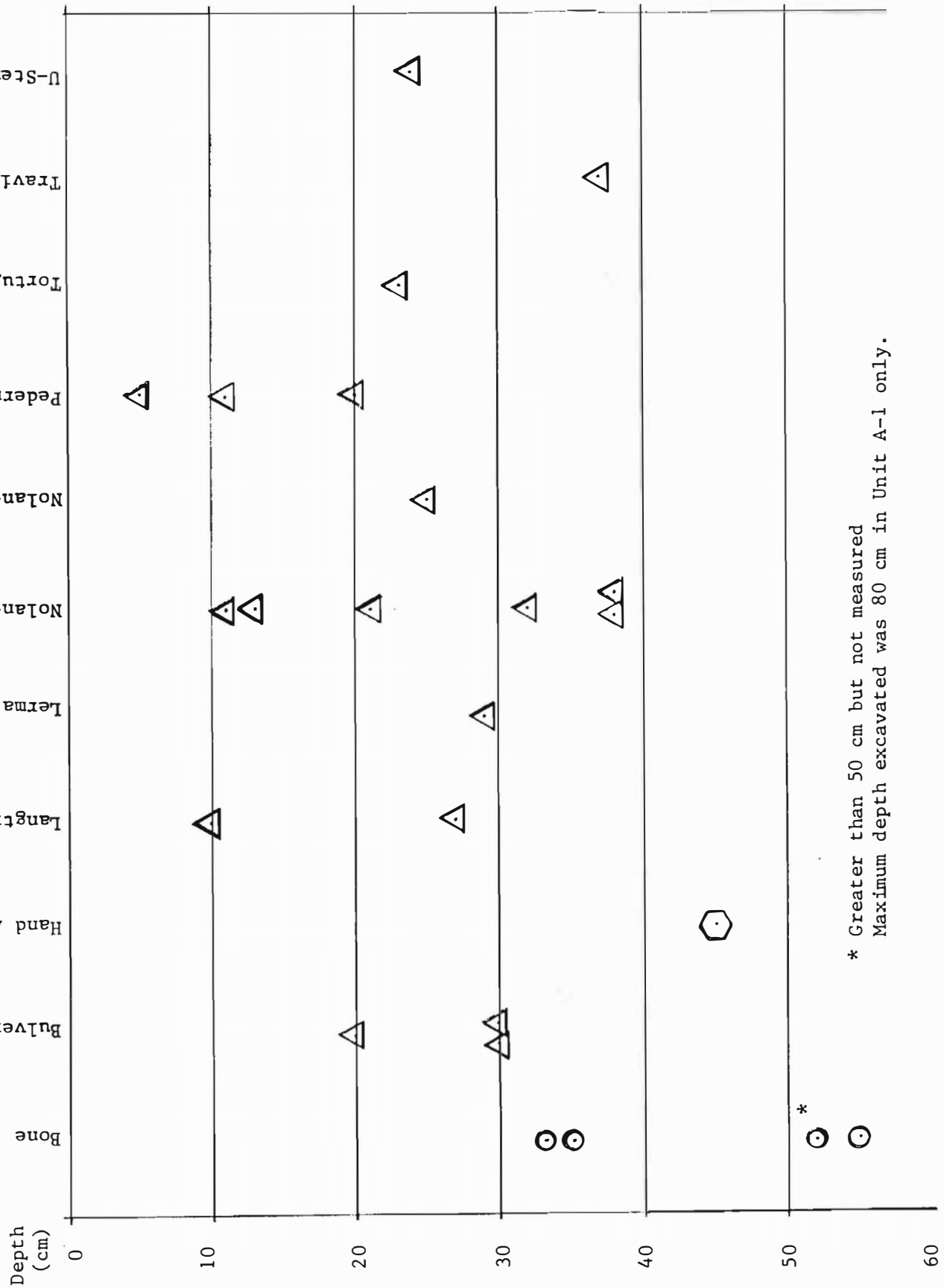


Figure 12. Vertical Distribution of Major Artifacts (Stratigraphy), Site 41 GL 175, Phase I

found is any indication. In addition to the multitude of flakes, large amounts of lithic reduction stages were found such as cores, percussion blades, preforms, etc. The abundance of workable chert in the area was probably one of the principal reasons for the site's location, and working the chert was a central activity that went on as a matter of daily life.

For the sake of expediency, all the flakes found in Units A-1 and A-2 were separated into arbitrary groups based on the area of a circle a flake covered up to 55 mm in diameter and by weight above 55 mm. It was assumed that anything smaller than 10 mm passed through the 1/4" screen used. Sizes 1, 2, 3, and 4 were 15, 25, 35, and 55 mm in diameter respectively. Sizes were selected on the basis of best area match. Size 4 was also limited to 2 oz. in weight. Size 5 contained any flake weighing more than 2 oz. which probably should have been called a percussion blade instead of a flake.

Unit A-1 0-60 cm:

Size	Number of Flakes Found	Average Flake Weight, gms
0	Unknown-thru screen	-
1	1,436	0.56
2	351	2.28
3	118	9.77
4	29	49.9
5	7	225

The total number found was 1,941 which does not include the flakes trapped in clods of the high clay content soil which did not pass through the 1/4" screen. Total weight of flakes was 10.9 pounds.

Unit A-2 0-50 cm:

Size	Number of Flakes Found	Average Flake Weight, gms
0	Unknown	-
1	1,646	0.45
2	459	2.20
3	145	6.44
4	38	15.6
5	63	56.7

The total number found was 2,351 with a total weight of 15.4 pounds.

BONE

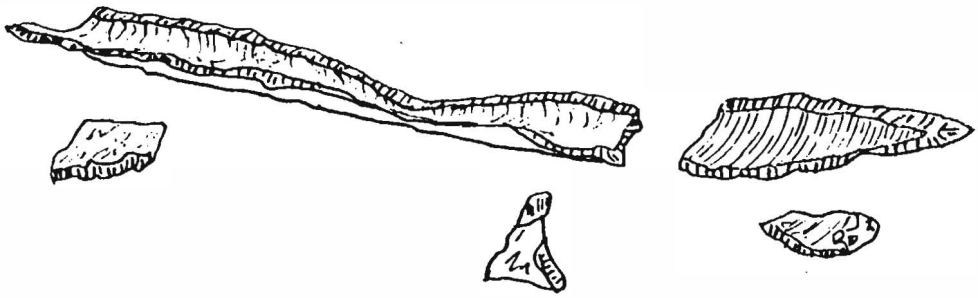
Bone fragments were scarce at Fox Draw. All the pieces found are shown actual size in Figure 13. They are illustrated to show the breakage patterns which suggest that they were broken in order to get at the marrow. They all appear to have been broken longitudinally as previously stated in the discussion about the possible hand ax.

No fragments were found above 33 cm which was a black soil layer possibly containing enough acidity to erode any bone content away. Below 33 cm the soil became increasingly calcareous and probably much less acidic and therefore more likely to retain bone.

SNAILS

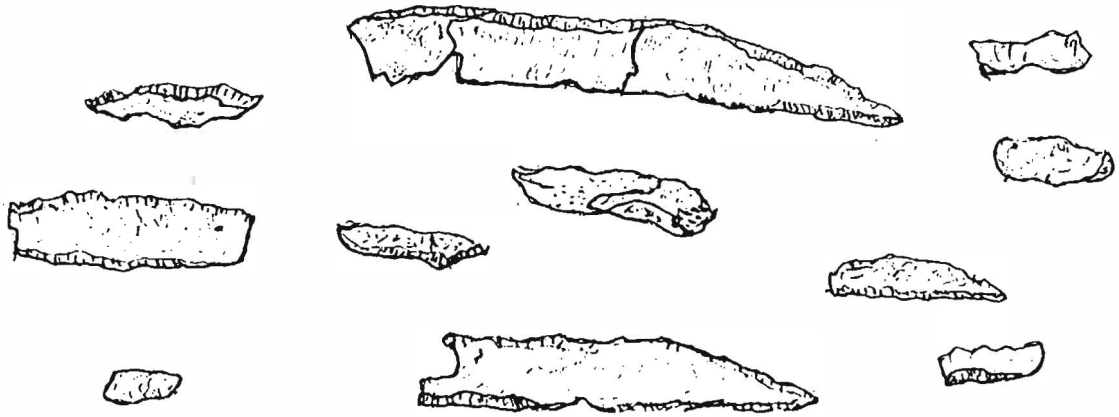
Snails at Fox Draw were not very numerous in any of the units excavated. The ones that were there were mostly the small variety. Snails were recovered

From Unit A-1, at 33 cm



From Unit A-1, at 55 cm

From Unit A-2, at 35 cm



From Unit B-1, 30-40 cm

From Unit B-1, below 50 cm

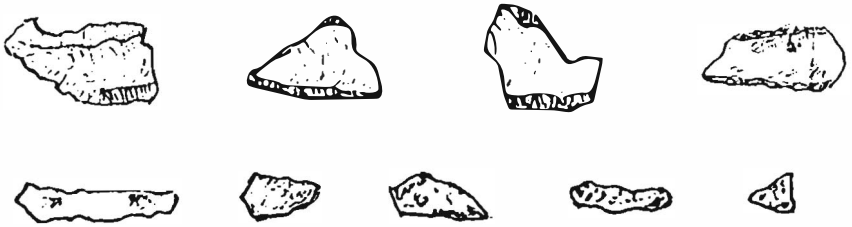


Figure 13. Bone Fragments from 41 GL 175. Actual size.

in only three of the units excavated for reasons previously stated. The following table summarizes the number of the three varieties: (R) **Rabdotus**, (P) **Polygyra**, and (H) **Helicina** recovered from each level.

Depth, cm	Unit A-1 (R)	(P)	(H)	Unit A-2 (R)	(P)	(H)	Unit A-3 (R)	(P)	(H)
0-10	0	0	0	0	0	0	0	0	0
10-20	0	0	0	0	0	0	0	0	0
20-30	1	5	65	1	9	62	0	1	7
30-40	4	16	74	10	15	173	3	11	141
40-50	1	3	35	1	2	34	2	8	64
50-60	0	0	1	-	-	-	-	-	-
Total	6	24	175	12	26	269	5	20	212

In view of the scant number and small size of the snails found, it appears that snails were a very minor item in the diet of early man, if, indeed, he used them at all.

ARTIFACT ILLUSTRATION TECHNIQUE

The illustrations of all the artifacts are not drawings but have been reproduced using a technique called a "rubbing." Rubbing is not exactly new since it was probably invented soon after the invention of paper. However, use of the method in this application may be a little unique. Its advantage is that it is a method whereby a person with little or no artistic talent can produce a facsimile of the artifact in a short period of time. It will also give a true rendition of the ridges and valleys of the artifact surface rather than that which is obtained in a drawing in which "artistic license" is used to illustrate the artifact.

The fact that the image is on tracing paper provides several major benefits. The image can be placed over the illustrations in the various morphology guides for rapid comparison and identification. Also, the image can be used to make the best judgement in classifying points which have been fractured. The missing parts can be rapidly substituted by placing whole point illustrations beneath the image of the fractured point. Obviously, the use of this method with fractured points is limited. In order to make a good judgement, some parts of the proximal end of the point must be complete enough or show breakage points which can act as keys to the identification.

Some dimensional accuracy is sacrificed, but this is not a problem unless the artifact surface has a pronounced curvature. Selection of the side to reproduce having the least curvature helps to alleviate this problem as well. Rubbings which show more than a few millimeters variation from the true size should be reproduced by some other method.

In order to produce a "rubbing," the artifact is placed on a pedestal such as an art gum eraser. It is then covered with a sheet of good quality tracing paper. The paper is pressed down on the artifact with one or two fingers of one hand while the other hand scrubs the side of the lead of a hard (4H to 8H) drawing pencil over the paper. The use of a top quality drawing pencil is emphasized. Care must be taken to prevent the paper moving in relation to the artifact or the image will be blurred and, of course, inaccurate and of poor quality. If care is taken, all the raised features and edges of the artifact will be reproduced. Some overlap outside the periphery of the artifact will probably occur, but this is easily erased. The image can be protected from smearing by spraying with a fixative obtained at an art supply store. The image can now be used as is, photocopied, or used to make precise traced drawings.

DISCUSSION

As indicated previously, the results of the initial excavations produced enough evidence of early occupation that more work is called for. So far, no artifacts have been found which can be classified unequivocally as coming from Paleo-Indian times. However, it seems logical to assume from the presence of **Nolan** points, which may go back as far as Early Archaic times, that the **Nolan**-makers were not the first people to camp in the area. The site location is just too attractive to have been ignored by migrant groups. There is plenty of spring water, wild game still abounds, and there are hundreds of pecan trees on the creek. Other food sources include watercress, mint, perch, bass, snakes and frogs in the creek, and jackrabbit, coon and deer that come to drink. Plant foods include agarita berry, cherry, acorns, hackberry, sotol, lechugilla, persimmon, and cactus tuna and pad. The hills and valleys and rock outcroppings offer security from unfriendly predators--man and beast--and protection from the elements. In addition, and probably most important of all, is the abundance of workable chert in the area. Certainly the ingredients were there to attract ancient man. Of course, the population density per square mile in Paleo-Indian times may have been so low that it could have precluded occupation at this particular site.

The original impetus to excavate at 41 GL 175 was the possibility that it could be proved to be a Paleo-Indian campsite. However, this was not the only focus, and in spite of the current lack of any reassurance that the site contains evidence of Paleo-Indian occupation, excavations will continue. There is still a large portion of the site to be uncovered, and a continuing effort should produce a better understanding of Early Archaic prehistory.

Certainly, there is little doubt that the people of Archaic times put the ready availability of chert at 41 GL 175 to good use. The amount of flakes from knapping and thinning operations is quite high compared to Baker Cave, the Dan Baker site, and Charlie's Place at Ingleside in which the author participated. There are also large numbers of cores, preforms, and fractured bifaces which gives strong evidence that tool-making and repair was emphasized at 41 GL 175.

During the preparation of this report, Phase 2 of the excavations at 41 GL 175 was attempted in May of 1986. Unfortunately, during the 10 days which were available, it rained three times, causing a serious delay in the effort. Only seven units were excavated out of a goal of ten. However, while Phase 2 suffered, there was an opportunity to do some site surveying. The location of 41 GL 175 adjacent to a county road aroused the curiosity of the local ranchers when they passed. When they stopped to observe what was going on, it presented a golden opportunity to publicize the goals of the STAA. Three very good contacts were made. Mr. J. T. Maner showed me the location of five very large burned rock middens on his ranch, only one of which had been disturbed by cultivation. Trinomial site numbers are being requested from Carolyn Spock at the Texas Archeological Research Laboratory, Austin.

In addition to Mr. J. T. Maner's ranch, a relative of his, Mr. "Stormy" Maner, has given me permission to survey his ranch which joins the Baethge ranch on the west. Hopefully, this can be accomplished in the not too distant future. If we can keep up the good relations which exist at present, there is a good chance that two or three dozen new site locations can be registered in Gillespie County.

Since these excavations are an ongoing effort and are done in finite stages, a report on each stage is planned provided the new information obtained justifies an account.

ACKNOWLEDGEMENTS

The author would like to thank the James Baethge family for allowing me to excavate one of their prized possessions and to express my appreciation to Dr. T. R. Hester and Jim Mitchell for their helpful comments and input during the preparation of this report.

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NOTES ON A METAL PROJECTILE POINT FROM BEXAR COUNTY, SOUTHCENTRAL TEXAS

C. K. Chandler

ABSTRACT

This report documents an unusual brass projectile point from Bexar County in southcentral Texas. It was recovered from near the surface of a burned rock midden which contained Archaic and Late Prehistoric artifacts. No other historic materials were recovered.

INTRODUCTION

Most reported metal points have been of iron; however, both copper and brass are known to have been sparingly used. The specimen reported here is of brass. A major effort to document and classify metal projectile points over a large area of the central and southern plains is presently underway by A. J. Taylor and Kay Eades at the Center for Archaeological Research at UTSA. There are very few metal arrow points recorded for southern Texas outside of the Spanish missions (Mitchell 1974; Hester 1975; Smith 1984; Chandler 1984). Documentation of individual specimens in private collections, such as this report, adds significantly to the historical archaeological record.

THE SITE

The metal arrow point described here was recovered by Randy Snyder, August 30, 1986, from an unrecorded prehistoric burned rock midden site in northwestern Bexar County (See Figure 1). The midden had been cut through to a depth of about four feet by a bulldozer in the building of a dam for a stock tank on the spring fed creek that passes through this private ranch property. The point was recovered about 16 cm below ground surface near the edge of the bulldozer cut. There have been several Archaic projectile points and other lithic tools recovered from this site but no other metal artifacts. The only other material that might possibly date to the historic period are several small sherds of heavily bone-tempered Leon Plain ware. These sherds came from the same area as the brass arrow point, but that in no way infers they are historic. The only lithic arrow points from the site are **Edwards** and there are only four of these. The absence of other Late Prehistoric time markers such as **Perdiz** points or other historic material seems to indicate this site received

Figure 1. Map of Texas showing Bexar County (darkened area).

very little utilization during these time periods. However, the size and depth of the cultural deposit indicates intense utilization over a very long period of time, and there may be considerable Late Prehistoric and historic evidence in other areas of the site.

THE ARTIFACT

This metal point is made of very thin brass and has a slightly contracting stem with a straight base (Figure 2). The stem has several tiny side notches, nine on one side and seven on the other that extend on to the sloping shoulders toward the widest blade area. Some of these notches are so small they require magnification to identify them. The more prominent of these tiny notches have one edge rolled back toward the stem base as if they were cut at an angle with a sharp tool--perhaps a metal knife. Some of these rolled edges are pulled to one side. They do not appear to be made with a file.

Both blade edges have been sharpened from both faces either with a file or some form of fine grinding stone. This sharpening is heavier on alternate edges in the fashion of alternate beveling on many stone artifacts. The stem base has been cut with a chisel against an anvil, but the blade and stem edges have been so altered by sharpening and smoothing it cannot be definitely determined that these edges are also chisel cut, but it seems probable they are. All surfaces show evidence of light hammering--perhaps to straighten it. There is also a very light ridge diagonally across one side that may be evidence of a bend in the parent metal that required hammering to straighten.

All surfaces are heavily oxidized, and this specimen was at first thought to be iron rather than brass. In spite of the heavy oxidation, the specimen is in very good condition. Both brass and copper are nonferrous, very malleable metals that lend themselves to being hammered out very thin and are readily shaped or molded. Sheet brass and sheet copper were used to patch various kinds of containers and cooking utensils, and this artifact may have been made from a fragment of such material or possibly from a brass kettle.

This metal point is illustrated by drawings (see Figure 2). It weighs 2.57 grams. Other dimensions are as follows:

Length	41.6 mm
Maximum width of blade	16.0 mm
Thickness	1.0 mm
Width of stem at neck	9.4 mm
Width of stem at base	7.0 mm
Stem length	11.0 mm

Figure 2. Brass Arrow Point from Northwestern Bexar County.

DISCUSSION

Metal projectile points have been found over much of the southern plains area, but reported finds from South Texas have been relatively scarce. Schuetz (1969) reports one copper spear point and one iron arrow point from Mission San Juan de Capistrano, and Mitchell (1980) reports an additional three iron arrow points from the same Mission; Mitchell and Highly (1982) report one metal arrow point from Victoria County; McReynolds (1982) reports one metal arrow point from Gillespie County; Smith (1984) reports three metal arrow points from Uvalde County; Chandler (1984) reports one metal arrow point from along the Pedernales River--probably in Blanco County, and Mounger (1959) reports 14 copper and 8 steel arrow points and one copper spear point from Mission Espíritu Santo in Goliad County. Fox (1982) reports one metal arrow point from Choke Canyon, Live Oak County and Hester (1975) reports several kinds of metal arrow points from San Bernardo Mission south of the Rio Grande near Guerrero, Coahuila. None of these reported in South Texas are identified as brass. Heavily oxidized brass and cooper are not readily identifiable as to metal type and can be easily mistaken for iron; in fact, the specimen reported here was first thought to be iron. It seems probable that some of the projectile points reported as copper may have been mistakenly identified and are actually brass.

While not yet reported, several other metal arrow points are known from Presidio La Bahía in Goliad County, one from Aransas County, one from Kendall County, two from Milam County, and three from McMullen County (A. J. Taylor, personal communication, 1986).

Thus far seven metal arrow points have recently been recovered by the Corpus Christi Museum and members of the Coastal Bend Archeological Society from near the site of old Fort Lipantitlan in Nueces County. It is hoped these artifacts will be reported soon.

It is generally believed brass arrow points came into usage earlier than those of iron; perhaps some time in the 1700s (A. J. Taylor, personal communication, 1986).

So far there has been very little effort to classify metal arrow point types in Texas and to define time periods or associations with specific Indian groups. Probably a major reason for this has been the scarcity of reported specimens to work with. It is important to document and report specimens found in private collections in order to increase the data base for such research.

ACKNOWLEDGEMENTS

I wish to extend my thanks to Randy Snyder for loaning this artifact for study and documentation, and for additional information about the site. My thanks also to Richard McReynolds for the excellent illustrations and to A. J. Taylor for her helpful comments and the use of information from her personal file.

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AN ANALYSIS OF DISCRIMINANT FUNCTION VALUES OF **ANDICE** AND **BELL** POINTS

C. D. Weber

ABSTRACT

A tabulation of discriminant function values calculated for **Andice** and **Bell** projectile points from Central Texas is presented. The prehistoric study sample is separated into six variant groups based on stem shape, and the discriminant function values of these groups are graphed. It is concluded that the quantitative data do not support the typological distinction between **Andice** and **Bell** points.

INTRODUCTION

Weber and Patterson (1985:21-27) described detailed quantitative data for **Andice** and **Bell** projectile points. Data were compiled on 21 quantitative attributes for 60 prehistoric **Andice** and **Bell** specimens which were selected as representative of previous type descriptions by Prewitt (1983:1-6) and Sorrow, Shafer and Ross (1967:11-13), respectively. Weber and Patterson used exploratory statistics (Patterson 1984) to determine which attribute sets would be useful in calculating a discriminant function. Discriminant functions were calculated using four different attribute sets, and it was found that the function using only stem length and maximum thickness attributes yielded 97% classification accuracy, while being relatively simple to calculate values. This study presents the data obtained by using this function to classify 319 prehistoric **Andice** and **Bell** specimens from Central Texas.

ANALYTICAL TECHNIQUES

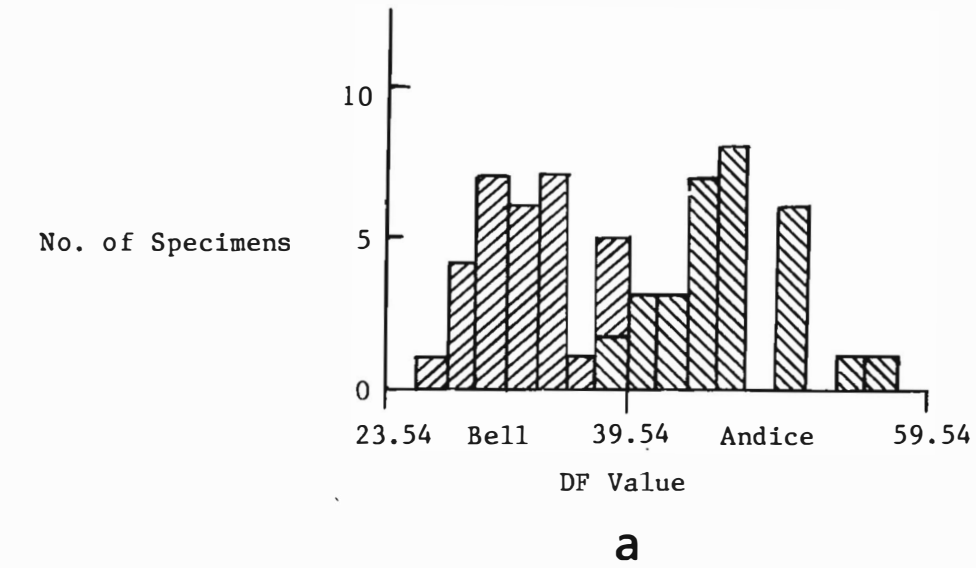
The discriminant function (0.9023SL + 3.4525T) and cutoff point (39.54) derived by Weber and Patterson (1985:25) for stem length and maximum thickness were used to calculate and graph values for each **Andice** and **Bell** specimen. Figure 1,a shows the distribution of these values for the 60 specimens used to derive the discriminant function and the cutoff point. Figure 1,b shows the distribution of these values for the entire Central Texas study sample.

The study sample was then classified into groups using stem shape as the selecting criterion. Stem shape characteristics of the six major variant groups are described below, and they are shown in Figure 2. The discriminant function values of the variant groups were then graphed separately, as shown in Figure 3.

It is acknowledged that some degree of subjectivity is involved when classifying groups merely according to shape. Furthermore, as demonstrated in replication experiments by the writer, unexpected events during the manufacture process sometimes result in stem shape changes (e.g., unexpected loss of a stem basal corner). The frequent recurrence of several shapes in the prehistoric sample, however, suggested that there was some intentional variance by the prehistoric craftsmen that would be useful for analysis. It should be noted that, except for the differences in stem shape, all of these variants were manufactured by apparently identical techniques.

Variation 1

Variation 1 (Figure 2,a) is characterized by stems that expand near the base and have concave to recurved basal alignment. An infrequent characteristic of this variant form is "fish-tailed" basal alignment, reminiscent of



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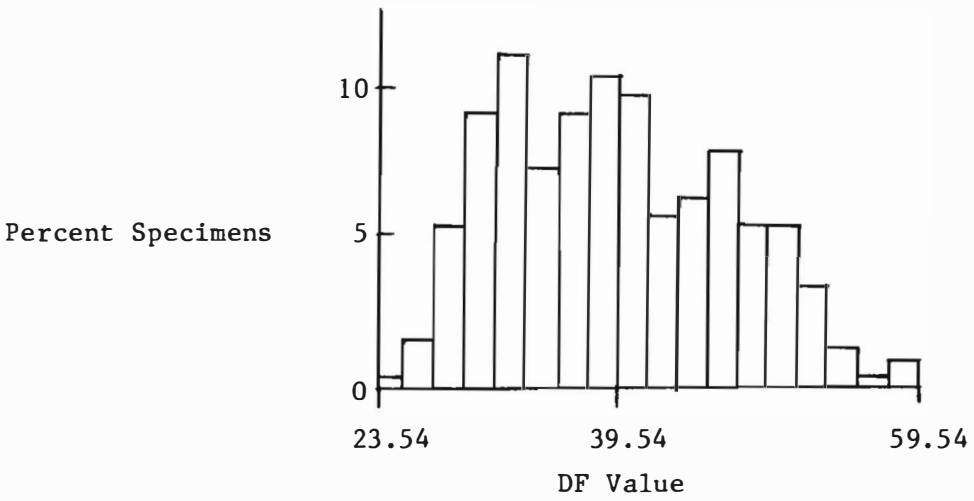

b

Figure 1. a, Distribution of discriminant function values for the 60-specimen sample used to derive the function.
b, Distribution of discriminant function values for the entire Central Texas study sample (N = 319).

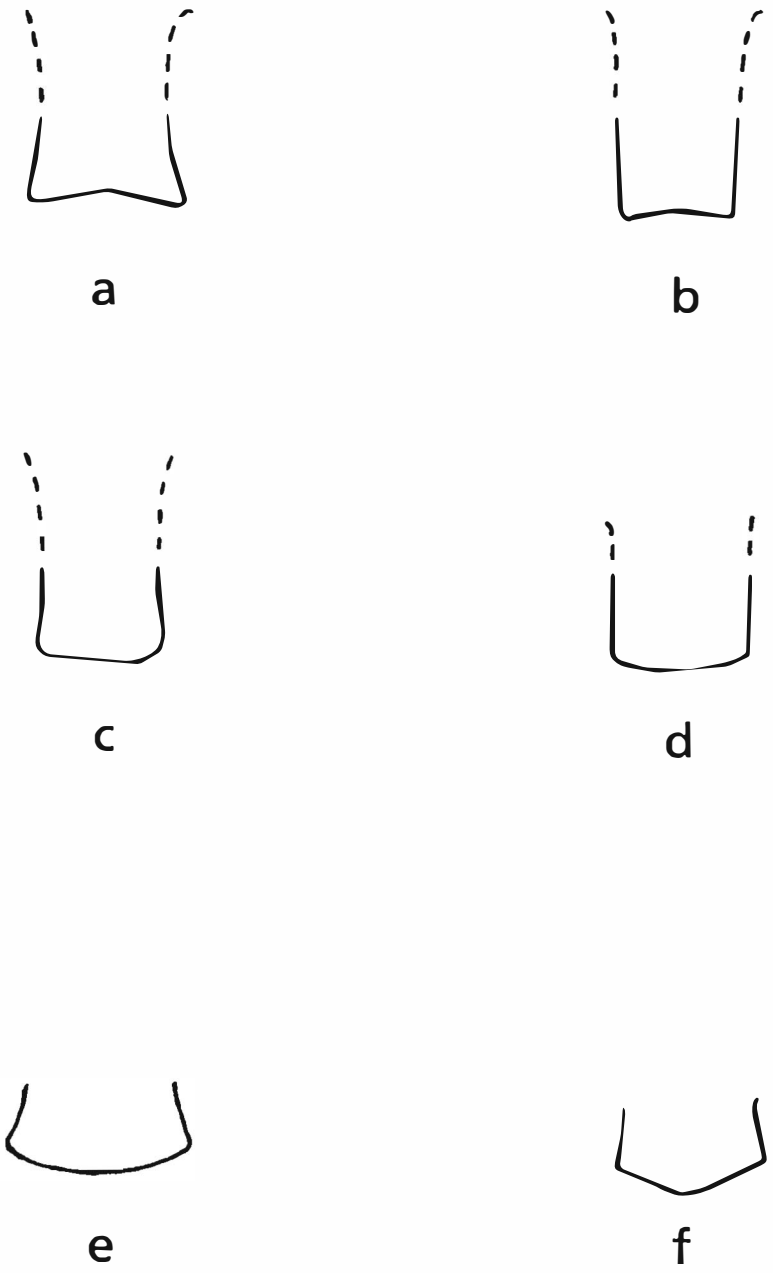

Figure 2. Major variations of stem shape in prehistoric **Andice** and **Bell** projectile points.

Martindale (Bell 1960:70-71; Turner and Hester 1985:120-121) and **Bandy** (Turner and Hester 1985:69) projectile points. In specimens of Variation 1 with longer stems, the stem width near the notch terminations (neck width) approximates that of the base, and the medial stem width is less than the measurement of stem width at the base and the notch terminations. This gives the stem edges a shallow-curved, or constricted, appearance. In shorter-stemmed specimens, stem width near the notch terminations approximates medial section width of longer-stemmed specimens.

Variation 2

Variation 2 (Figure 2,b) is characterized by stems that are generally contracting in form, with straight to concave bases, and, infrequently, slightly convex bases. Basal width usually falls into the lower end of the range for **Andice** and **Bell** specimens, while stem width near the notch terminations approximates that of other variations. Stem medial section width may approximate that of the base or may be slightly larger, and the curved, constricted appearance of the stem edges is more subtle than in Variations 1 and 3. Stem basal alignment of Variation 2 specimens is generally very precise, and stem basal edge acuteness usually exceeds that of other variations.

Variation 3

Variation 3 (Figure 2,c) is characterized by stems that generally expand mildly near the base and have straight to convex basal alignments. On specimens of this variation with longer stems, the stem width near the notch terminations equals or exceeds basal width. In these specimens, like long-stemmed specimens of Variation 1, the medial section stem width is less than the stem widths at the base and notch terminations, giving the stem a constricted appearance. In specimens of Variation 3 with shorter stems, the width of the stem near the notch terminations approximates the width of medial stem sections of specimens with longer stems.

Variation 4

Variation 4 (Figure 2,d) is distinguished by parallel-sided, rectangular stems and straight to convex bases. Very little difference is apparent in stem widths at the base, medial section and notch terminations.

Variation 5

Variation 5 (Figure 2,e) is distinguished by strongly expanding stems with convex bases. Basal width measurements comprise the upper range for **Andice/Bell** specimens, and sometimes stem width at the notch terminations of these specimens exceeds maximum stem width of other variations. Stem edge alignment suggests that notches of these specimens were produced at such an acute angle in relation to the facial centerline that it would be very difficult to transform into a Variation 3 specimen.

Variation 6

Variation 6 (Figure 2,f) is distinguished by strongly convex, generally pointed bases. Specimens have been observed with slightly expanding, as well as slightly contracting, stems.

DISCUSSION

As shown in Figure 1,b, the discriminant function values of the majority of prehistoric **Andice/Bell** artifacts from Central Texas cluster around the cutoff point. The grouping shows that there are more specimens midrange between the **Andice** and **Bell** groups (Figure 1,a) used to calculate the discriminant function. The shape of the distributional graph may be interpreted generally as a bell-shaped curve, or, alternatively, as three overlapping bell-shaped curves. The former interpretation would indicate a single technological continuum, rather than distinctive technologies. The latter interpretation would suggest three closely related technologies with a significant amount of overlap in attributes of individual specimens, which would support the **Bell, Calf Creek** and **Andice** typologies. However, if the latter interpretation is used, the data clearly show that there are more **Calf Creek** points in Central Texas than either of the other two types.

The writer prefers the interpretation suggesting the single technological continuum because the discriminant function values are closely situated numerically, and they are derived from independently variable attributes over which the craftsman has little control, considering the minute increments of caliper measurement (± .025 mm).

Furthermore, the distribution of discriminant function values by stem shape do not support the interpretation of the data as three distinct technologies. As shown in Figure 3, there are definite distributional differences in the discriminant function values when the specimens are separated into groups by similarities in stem shape. Variations 5 and 6 fall entirely within the **Bell** range, but are relatively rare specimens which may represent fortuitous occurrences or individual preferences. The majority of specimens occur in Variations 2, 3 and 4, and a significant percentage of specimens of each variation fall on either side of the cutoff point. This distribution suggests that, for these variations, manufacturing variables such as original preform size and degree of notching success (Weber n.d.) are the primary determining factors of whether a specimen is classified as **Andice** or **Bell.**

It is interesting to note that Variation 1 falls almost entirely within the **Andice** range of discriminant function values. One hypothesis which may account for this distribution is that shorter-stemmed specimens of this variation are currently being identified as other projectile point types. Another explanation may be that, considering basal alignment similarities and temporal proximity (Prewitt 1981; Turner and Hester 1985:69, 120-121) to **Martindale** and **Bandy** points, Variation 1 may represent a typological transition from these types to a long-stemmed, deep basal-notched form. In this case, Variation 1 would be the earliest of the deep basal-notched points, with Variations 2, 3 and 4 representing later, more generalized forms.

CONCLUSION

It is concluded that the quantitative data alone do not support current typological constructs which separate **Andice** and **Bell** points. In the absence of clear temporal, stratigraphical or geographical data, it appears that detailed analysis of attributes may offer some explanations regarding Early Archaic, deep basal-notched projectile points in Central Texas.

ACKNOWLEDGEMENTS

Appreciation is expressed to Mr. L. W. Patterson of Houston, Texas for his encouragement and to Mr. Don Screws of Belton, Texas for furnishing the majority of the specimens used in this study.

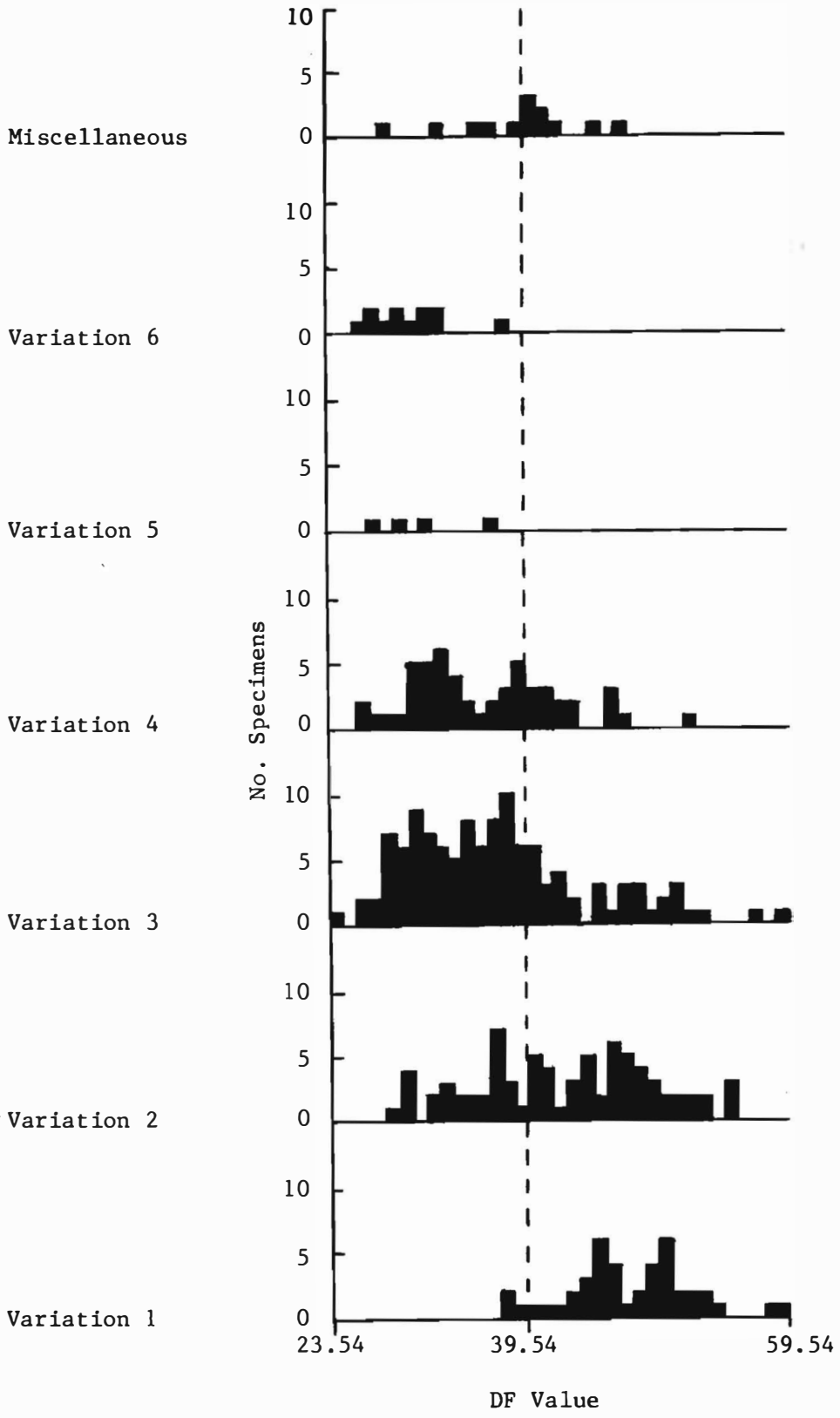

Figure 3. Distribution of discriminant function values of the prehistoric Central Texas **Andice** and **Bell** study sample by stem shape.

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R. K. (Pete) SAUNDERS retired from Exxon Research and Engineering in Houston almost 10 years ago. Pete participated in the UTSA-CAR and Witte Museum work at Baker Cave of 1984, and the Coastal Bend-STAA July 1986 excavations near Ingleside, as well as the continuing STAA work at 41 CM 104, the Dan Baker Site. He has previously reported his collections from the Falcon Lake area in this journal [12(2):6-20], and has promised continuing progress reports on his present project in Gillespie County. Pete and Dorothy sometimes winter near Falcon Lake on the Rio Grande and spend the rest of the year at their home near Canyon Lake on the Guadalupe River.

CAREY D. WEBER was recently promoted to Park Manager at Granger Lake on the San Miguel River, northeast of Taylor, Texas. He is a member of both the TAS and STAA and has an active interest in replicative research, as well as quantitative attribute analysis and use or wear pattern studies. He recently has completed 33 site reports for the Texas Archeological Research Laboratory in Austin. With Wordstar 2000 up and running on his computer, he has several manuscripts in progress, including a forthcoming report on **Scottsbluff** projectile points. Originally from Fredericksburg, Carey and his family now live on Route 1, Granger, Texas.

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