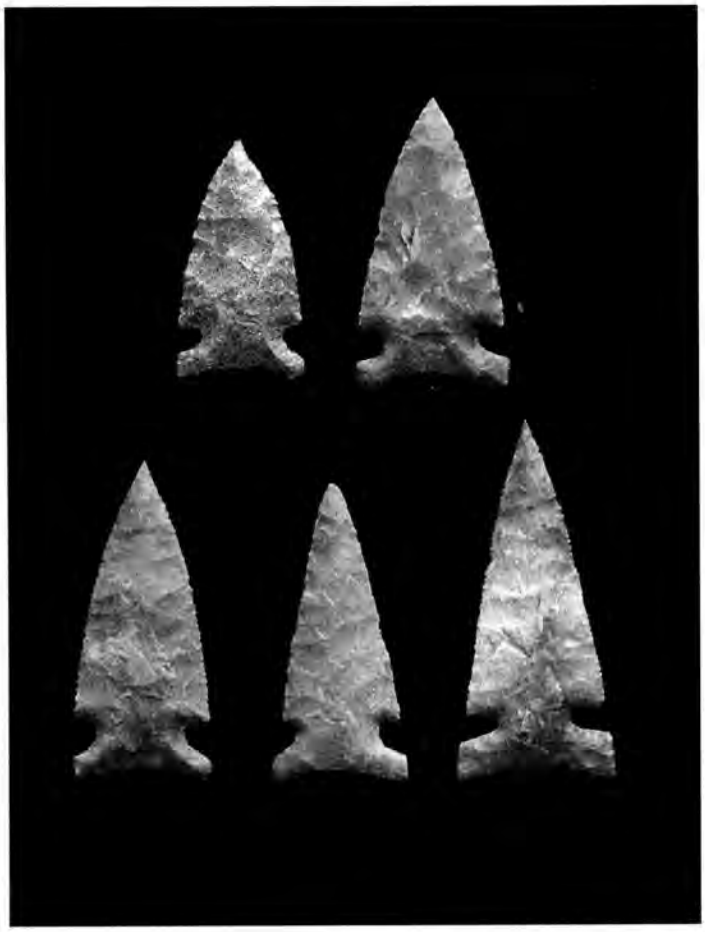
LA TIERRA



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LA TIERRA

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Shirley and W. R. Van der Veer
Editors

About the Cover: A photo of selected Caracara points found in Lower Rio Grand area. See article by James Boyd and Timothy Perttula beginning on Page 5. Richard McReynolds' drawings are on pp. 21-26 and 28-37.

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For membership information contact the Membership Chairman, Roy Banning, 11807 Broadwood, San Antonio, TX, 78249, 210-561-0244. Also see STAA internet address: http://www.soutxarchaeology.org . *La Tierra* is sent to all STAA members; copies may be purchased from the Internet site address or from P.O. Box 791032, (see below)

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NOTES ON SOUTH TEXAS ARCHAEOLOGY 2000-4:

The Contributions of Jimmy L. Mitchell to South Texas Archaeology

Jimmy L. Mitchell
1935 - 2000

One of the founders of the Southern Texas Archaeological Association and a key figure in the study of this region's cultural heritage, Jimmy L. Mitchell, passed away suddenly at his home in Converse, Texas on December 19, 2000. It is impossible to chronicle all of his work on behalf of the STAA and archaeology–simply because he did so much for so many years. His death has left a great void not only for his family, to which he was greatly devoted, but also for the numerous friends and colleagues who worked with Jimmy in all of his many endeavors, in archaeology and in other pursuits.

Jimmy was born December 29, 1935 in Wichita Falls, Texas. He had a distinguished career in the United States Air Force, coming to San Antonio from Dayton, Ohio. In Dayton, he had been assigned to the Air Force Institute of Technology. At Lackland Air Force Base in San Antonio he served initially as chief

of the test review section in the Occupational Measurement Squadron, where all specialty-knowledge tests used by the Air Force were developed. In a letter to the author dated February 26, 1972, then-Major Mitchell lamented that "I am trying to improve my formal background in anthropology through off-duty course work (San Antonio doesn't have much; I may drive to UT next fall)." But even at that time, Jimmy had already been involved in Ohio and Texas Panhandle archaeology and had just published a paper on atlatls in the *Ohio Archaeologist*.

His undergraduate education, at Phillips University (Enid, Oklahoma) was in psychology (BA, 1957), and he became a psychologist who dealt with personnel tests and measurements (MA in Industrial Psychology, Ohio State University, 1966). In 1974, the Air Force selected him out of many applicants to attend Purdue University, where he received a Ph.D. in Industrial Psychology in 1976. Returning with his family to San Antonio, "Dr. Major Mitchell" continued his work in the Air Force, promoted to the rank of Lieutenant Colonel in 1972. He retired from the Air Force in 1984 after 27 years of service.

Thus, in the early 1970s, Jimmy was broadening his interest in archaeology as an "avocation" (letter to Hester, noted above) while fully involved in Air Force research, obtaining a Ph.D. and raising a family of five with his wife, Heidi. Yet, he somehow managed to create the time to help develop the STAA, chairing its organizational meeting on December 2, 1973, editing its journal, *La Tierra,* for a decade (and publishing at least 40 papers on archaeology in South Texas, the Texas Panhandle and Ohio during this period), initiating the STAA's Special Publications series, taking boxes and boxes of the Association's publications to STAA and Texas Archeological Society (TAS) meetings year after year, taking part in public-outreach programs around South Texas, encouraging countless collectors to join the STAA, and urging numerous budding authors to submit their manuscripts to *La Tierra* or other publication outlets.

He was always a tireless, vocal, enthusiastic, letter-writing advocate of the STAA and of cultural resource protection throughout the state. These activities continued up to the time of his death. At a reception following his interment in Fort Sam Houston National Cemetery, I noted on his desk at the Institute for Job and Occupational Analysis (of which he was Director and Chairman of the Board) a big stack of recently-reprinted copies of T. N. Campbell's *The Payaya Indians of Southern Texas* which had been the STAA's first special publication in 1975. Jimmy had also developed the Web site for STAA, and it soon became a source of information, with many photographs of its members at work and at play.

Jimmy strongly felt that hard work in archaeology should be recognized by awards, and he instituted such a program in the STAA. With the input of others, he selected recipients of the several awards, and presented these honors with great flair at each January meeting. Over the years, the number of awards expanded, with the goal of recognizing the efforts of members and others who contributed to South Texas archaeology. One such award, the Dee Ann Story Conservation Award (named after the long-time UT-Austin professor, Texas Archeological Research Laboratory (TARL) director, and historic preservationist) went each year to a firm, a local state agency, or a landowner who had provided protection of, and sometimes investigations of, cultural resources that they controlled. Another major honor, the Lifetime Achievement Award, goes to members who have made distinguished, long-time contributions to the STAA. It was awarded to Jimmy, a surprise engineered by Paul Ward, in January 2000.

The Texas Archeological Society also had the benefit of Jimmy's active participation for many years, as a regional vice-president, Board member, and editor of the *Bulletin of the Texas Archeological Society* in the early 1990s. Additionally, he was a staunch and generous supporter of the Friends of Archaeology program at UT-San Antonio and later of the Friends of TARL at UT-Austin. Working with both of these university programs, he helped put together the Archaeology Fairs in San Antonio and Austin in 1999 and 2000.

Wherever you found ongoing archaeological activities in South Texas and adjacent areas, you found Jimmy. He either organized or assisted with (always in a major way) public-outreach events over the years in San Antonio, Uvalde, Fredericksburg, Jourdanton, Kerrville, and other cities. Jimmy helped set in motion the several "South Texas Palavers" of the 1980s, and with his new-fangled laptop computer, recorded the sessions and then saw that they were printed and distributed. These informal volumes remain a great source of information.

He worked on STAA field projects (such as the Dan Baker Site excavations) and helped out on professional projects. In 1972, he helped Dr. S. Alan Skinner follow up on TAS field school work in Kerr County. In 1973, he was in one of my first classes at UT-San Antonio and helped in testing the acequia area at the Alamo in October and November of that year. The record of his involvement and contributions in the field goes on and on. His "field work" also included the spreading of The Word to up-and-coming avocationals or to collectors whom he sought to educate and bring into the STAA.

Jimmy was a mentor to many who are now very active in STAA, a colleague to many others in that organization and in the TAS, and an outspoken advocate of whatever cause he was pursuing at the time. You didn't have to wonder where Jimmy stood on an issue, and you didn't have to worry about arguing with him--because you always would! Jimmy delighted in tweaking his friends, provoking lively discussion or irate outbursts, all part and parcel of his great sense of humor and his intellectual curiosity.

His archaeological contributions in South Texas focused on his interests in material culture (especially ground stone technology), chronology (especially in Late Prehistoric times), salvaging information from burial sites (such as the Rudy Haiduk site) ethnohistory, and the recording of collections. The latter sessions were often frantic, and usually at events that I had gotten him and C. K. Chandler into, and from which they had to rescue me.

Jimmy encouraged me to begin the "Notes on South Texas Archaeology" series in 1985, though he and subsequent editors, Evelyn Lewis and Shirley Van der Veer, may have doubted the wisdom of that decision since they have always had to "remind" me when each "Notes" manuscript was due in their hands. Of course, I never thought I would devote one of these articles to a memorial for Jimmy. To me he was timeless. I had known him since our correspondence began in 1972, worked with him in the STAA, at UTSA and UT-Austin, co-authored papers with him, engaged in numerous arguments and debates over topics of great importance or none at all, delighted with him in the growth of STAA and its reputation (Jimmy also organized and promoted the 10th, 15th, 20th, and 25th anniversary celebrations of the STAA). We will all miss his friendship, his dedication, and, maybe most of all, his raucous laughter.

My personal perspective is that, during his 27 years in the STAA, Jimmy was the glue that bound the organization together. Let us make sure that his legacy will be a Southern Texas Archaeological Association that continues to embody his enthusiasm, his vision and, most of all, his spirit.

Thomas R. Hester

EDITORS' NOTE:

With this issue Shirley and Van pass on to others the editorship of *La Tierra*. It is not without some feelings of sadness that this is being done–editing and producing this Journal has been a pleasure for both of us. As Van says "Now how will we spend our time?" But we know we will find something (probably relating to archaeology) to do!

One of the challenges we faced was in receiving new manuscripts for the Journal. We know conclusively that many STAA members have interesting thoughts to pass on to the rest of the membership by documenting and recording artifacts and sites both historic and prehistoric. The trouble is, so many people think they are not capable of writing a good paper. Our answer to that feeling is "just start, we can help." Your new editor(s) can do the same–but they have to have something to begin with! Please contact them and get going on documenting the sites and artifacts you have been finding. *La Tierra* was started, 'way back in 1974, as an outlet for documenting our South Texas archaeology. It's been doing a good job so far so let's keep it going. There's a lot more archaeology out there to be recorded!

Shirley & Van Van der Veer

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ON THE ASSOCIATION OF CARACARA ARROW POINTS WITH LATE PREHISTORIC BURIALS IN THE FALCON RESERVOIR AREA

James B. Boyd and Timothy K. Perttula

ABSTRACT

Caracara arrow points, believed to date from the Late Prehistoric period, occur with numerous burials in the Falcon Reservoir area. At least five instances of this type of projectile point have been found in recent years in association with burials on both sides of the reservoir, located on the lower Rio Grande. Each burial is described, along with the context of the associated Caracara arrow points. The associated arrow points may be grave goods, or are evidence of personal violence.

THE CARACARA ARROW POINT

The Caracara point was first defined by Saunders and Hester (1993:22-31), although it was known to artifact collectors in South Texas for decades before that. Specimens of this type were previously (erroneously) called "Harrell," "Scallorn," etc., for lack of any other name, by those collectors. Caracara points are now generally recognized as a distinctive arrow point type in South Texas and adjacent northeastern Mexico, and are characterized by their triangular outline and side notching. This type of point varies

Figure 1. Examples of Caracara arrow points recovered in various sites in the Falcon Reservoir area. Note the range of variability in the type and size. Specimen at lower left is unusually large (L=4.84 cm). Some specimens have straight edges, some have slightly convex lateral edges, and some are serrated. The bases are straight, concave, and convex. The basal "ears" are squared or rounded.

considerably in size and shape (Figure 1) in the Falcon Reservoir area, where they are very commonly found in numerous sites (Boyd n.d.a) believed to date to the Late Prehistoric period (ca. 1200 to 700 years ago).

In hundreds of site surveys conducted over a period spanning nearly 20 years, the senior author has tentatively identified the core region where Caracara points are most frequently found, namely the geographically specific area where Falcon Reservoir is now located.

Falcon Reservoir was formed in 1954 subsequent to the building of Falcon Dam on the lower Rio Grande, approximately 100 km south of Laredo, Texas. The area is significant because the Rio Salado, a major perennial tributary stream, merges with the Rio Grande just west of Zapata, Texas, in the northern portion of the reservoir (Figure 2). There are no other major rivers flowing into the Rio Grande for several hundred kilometers to the north of the Rio Salado, on either the U.S. or Mexican sides of the Rio Grande. Of further possible significance is that another river, the Rio Sabinas, joins with the Rio Salado approximately 32 km west of Zapata, Texas. Caracara arrow points are frequently found in sites along these two Mexican rivers (Boyd n.d.a). However, they are found in greater frequency in sites immediately adjacent to the Rio Grande (and lower Rio Salado), where they are the most commonly found arrow point type (Boyd n.d.a). Caracara arrow points are not found in artifact assemblages of the Brownsville and Barril Complexes of the lower Texas and northern Tamaulipas, Mexico gulf coastal sites (Mike Krzywonski, personal communication 2000). Indeed, based on explorations carried out by the senior author, the practical southern extent of the distribution of the Caracara type seems to be the Los Olmos Creek drainage basin in Starr County, Texas, near Rio Grande City. Although the northern extent of the type is somewhat nebulous, Caracara points are also found with some frequency in Webb County sites north of Laredo, Texas (Boyd n.d.a). Saunders and Hester (1993:28) indicate that the distribution of Caracara points east of the Rio Grande may not extend more than a few miles inland from the river.

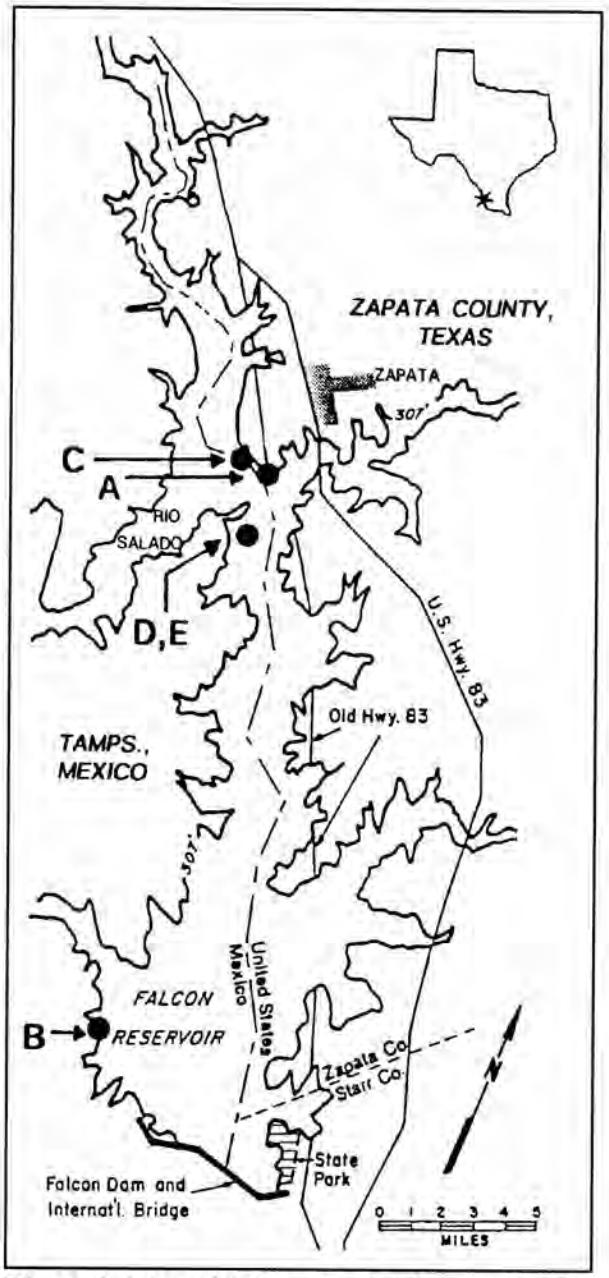

Figure 2. Map of Falcon Reservoir, showing the approximate locations of the five burials discussed in the text.

CARACARA POINTS WITH FALCON RESERVOIR BURIALS

Caracara arrow points have been found in direct association with at least four burials in the conservation pool area of Falcon Reservoir, and *possibly* associated with a fifth burial (Boyd n.d.a). These are discussed below. In one instance, a Caracara point was found deeply imbedded in a vertebra of a burial dated to the Late Prehistoric period, later determined to have been the cause of this individual's death (Boyd et al. 1997:387-425). In the other instances where Caracara points have been found with burials, it is currently undetermined whether the projectile points contributed to the cause of death of the respective individuals, or were included as mortuary offerings. Contextual evidence suggests, however, that in at least some of the cases, the positioning of

arrow points within the skeletal remains indicate they may have been there as a result of violence. Reinhard et al. (1989:139) report that there is a high incidence of evidence of projectile point wounds in burials on the South Texas coastal plain and the Central Texas prairie. The region around Falcon Reservoir lies generally between these two areas.

During the Late Archaic, burial sites with evidence of violence occur near the Edwards Plateau escarpment in the Blackland Prairie of Central Texas, in some numbers along the lower Colorado-Brazos rivers, in the inland central Coastal plain, on Corpus Christi Bay, and into riverine settings along the San Antonio and Nueces rivers. Such sites (whether dating to the Late Archaic or Late Prehistoric periods) are notably absent west and south of the Nueces River, and in the Oak Woodlands and Blackland Prairie strips well south of the Edwards Plateau, and north of the coastal prairies. As Helen Dockall (1997:158, 273) has noted, Late Archaic and Late Prehistoric sites with evidence for violence appear to cluster along river valleys, especially the Brazos, Colorado, and Nueces rivers. The notable frequencies of burial sites with violence are on the lower Brazos-Colorado rivers and along the middle sections of the Nueces-San Antonio rivers, suggesting that these areas mark "zones of competition and conflict" (Story 1990:241) during the Late Archaic period. It is unclear whether that conflict was between or within groups (Hall 1988). Hall (1988:16) also considers the possibility that the intensity of violence may have been the result of aggregation during times of maximum population density, when social institutions were not capable of handling tensions between or within groups. Dockall (1997: 16; see also Dockall and Baker 1995) suggests that violence was "triggered by territorial disputes over food resources."

Late Prehistoric burial sites with evidence of violence are not as common as they were during the Late Archaic (see Perttula 2000: Table 18 and Figure 10), indicating a general and fairly successful accommodation between groups across much of the region relative to competition for food and resources. The 1530s narratives of Cabeza de Vaca (Pupo-Walker 1993) do suggest, however, that feuds and small-scale warfare were still prevalent, and quarrels were always ready to erupt (Ibid.:82). Cabeza de Vaca commented that the tribes in this area were "the readiest to use arms of any I have seen in the world" (Ibid.:82). Nevertheless, based on the archaeological evidence, the extent of the feuding and warfare in Central and southern Texas was probably much more intensive and long-standing 1000-1500 years earlier than it was during Cabeza de Vaca's time.

Conflicts between groups during the early part of the Late Prehistoric period (ca. 1200 to 700 years ago) were widespread in Central Texas, particularly in sites along and immediately south of the Edwards Plateau, as several burial sites have bodies pierced with Scallorn arrow points. Johnson and Goode (1994) suggest that the violence was the result of competing communities battling each other for resources that were becoming scarce, while Prewitt (1985) argues for violent changes between groups brought on by population or cultural expansion in the region.

Other Late Prehistoric burial sites with evidence of violence have been documented in the Corpus Christi Bay area, on the Lower Guadalupe River, and near the confluence of the Rio Salado and Rio Grande in the Falcon Reservoir area, the latter the subject of this paper. Each of these places are areas with highly productive plant, animal, and water resources (see discussion in Hall 1998, 2000), and different groups had begun to compete over them. Significantly, neither of these areas had been characterized by violence during the Late Archaic period, although Late Archaic cemeteries were present in each. This suggests significant differences across the region in the timing and sustaining of population growth, resource competition, and territorial conflicts.

The Beacon Harbor Lodge (41ZP7) burial.

The first known instance of Caracara arrow points being found in direct association with a burial at Falcon Reservoir was the discovery and salvage of a burial by the senior author in April 1984 (Boyd n.d.b). This burial was found on a small, peninsular landform near a fishing lodge then known as Beacon Harbor Lodge. The burial was a single male individual, found eroding from the deposits in the site following a rapid drop in the elevation of the reservoir. The site is in west-central Zapata County, Texas (see Figure 2A), approximately 5 km west-southwest of the city of Zapata.

The skeletal remains were examined by Diane Wilson in the Department of Anthropology at the Texas Archeological Research Laboratory, The University of Texas at Austin. Wilson's analysis revealed that the remains were those of a young adult male, 22-34 years of age at the time of death. The remains of an infant, approximately 24 months of age, accompanied the adult. The radiocarbon analysis of the adult skeletal remains has a calibrated age

span (2 sigma) of A.D. 1278-1437 (Boyd et al. 1997:419).

The burial was in the flexed-fetal position, and was accompanied by a large number of mortuary offerings. These included 7 marine shell beads, hundreds of tubular bird bone beads, 7 perforated human teeth "beads," a small multi-colored chert scraper, and 3 Caracara arrow points. Two of the arrow point specimens are complete, and one is fragmentary (Figure 3). All three specimens were found within the rib-cage area of the adult skeletal remains (Wilson and Hester 1996:12).

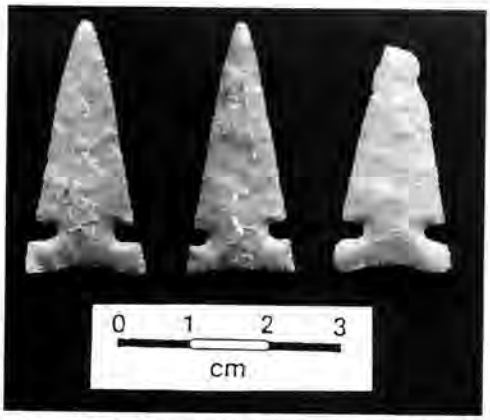

Figure 3. Caracara arrow points found with the Beacon Harbor Lodge (41ZP7) burial in Zapata County in 1984. Note the similarities of the specimens at left and center: straight lateral edges, very slight concave bases, and squared "ears."

The positioning of the arrow points may be because (1) the arrow points were within the chest cavity of the individual at the time of burial; that is, the arrows had pierced the chest of the individual, possibly causing his death; or (2) the arrows with the attached Caracara points were placed over the chest of the individual at the time of burial, possibly a ritual offering. The difficulty with this supposition is that one of the specimens is fragmentary, exhibiting what appears to be an impact fracture (see Figure 3). It should be noted that an examination of the skeletal remains by Diane Wilson failed to definitively reveal any traumatic cause of death of this individual. Also, when initially discovered, the burial was just beginning to erode out, and minimal displacement of the skeletal remains or associated artifacts by wave action had occurred. Therefore, the context of the three Caracara arrow points appears to be undisturbed. Reinhard et al. (1989:139), in their discussion on South Texas burials, states: "Sometimes projectile points were found imbedded in bone or were lying between skeletal elements in a way indicating that a projectile was thrust into the body. This incidence was counted as evidence of projectile wounds." Although no definitive evidence was found that the associated Caracara points were used as weapons against this individual, as opposed to simply being grave goods, it is likely a possibility because of their placement on the body, and the fact that one of the points has an impact fracture.

The Arroyo Salinillas cremation burial.

This burial was also found eroding from a site on the Arroyo Salinillas, a large tributary on the Tamaulipas, Mexico, side of Falcon Reservoir, near the south end of the lake. This is about 35 km south-southwest of Zapata, Texas (see Figure 2B).

The burial was the cremated and fragmentary remains of a younger middle-aged adult, but of indeterminate sex (Boyd and Wilson 1999:4-7). When found by the senior author, the burial had already been disturbed by looters, and only those remains visible at the surface were salvaged.

In contrast to the Beacon Harbor Lodge burial, the solitary Caracara arrow point at the Arroyo Salinillas cremation burial was found approximately 1 meter from the main surface cluster of skeletal remains. Its possible association with the burial is presumed because the site otherwise contains artifacts that date almost exclusively to the Archaic period. The Caracara found near this burial has an unusual extra notch on the lower basal lateral "ear" (Figure 4).

Figure 4. Caracara arrow point found in proximity to the Arroyo Salinillas cremation burial. Note the unusual extra notch in the basal "ear" at lower right in photo.

It is uncertain whether any additional artifacts accompanied the burial, or whether the looters that had partially destroyed the burial feature removed any associated artifacts prior to its being found. In this instance, all that can be stated about the Caracara arrow point is that it *may* have been associated with the cremation burial.

The Old Zapata (41ZP85) burial.

This burial was found in the summer of 1994 by an artifact collector from Zapata, Texas, during an episode of low water at Falcon Reservoir (Boyd 1997:8-14). The site is on a terrace within the confines of the old city of Zapata, about 5 km southwest of the present-day city of Zapata, Texas (see Figure 2C), and about 2 km northwest of the Beacon Harbor Lodge burial (41ZP7).

Since no skeletal remains were documented, little or nothing is known about it other than that an informant stated that looter(s) had discarded the remains on the surface of the site, and they appeared to be those of an adult (Boyd 1997:9).

Altogether, 13 Caracara arrow points were reportedly found with this burial, including eight complete specimens and five that were fragmentary. Unfortunately, the eight complete specimens, some reportedly unusually large (over 5 cm in length), were soon afterwards sold to a private artifact collector and are not available for study. The five broken specimens, including 4 proximal fragments and 1 distal fragment, were acquired by an avocational archaeologist who made them available for study. These specimens are stylistically similar (Figure 5). In addition to the projectile points, a single marine shell pendant was also found with the burial.

According to the collector that discovered the burial, several of the Caracara points were recovered from the rib cage area of the skeletal remains. Due to the method by which these points were recovered, and the absence of documented skeletal remains, it is impossible to determine whether the associated Caracara arrow points were mortuary offerings or were, in fact, instruments of the individual's death. The suggestion that the Caracara points at the Old Zapata burial were in the rib cage area parallels the findings at the Beacon Harbor Lodge burial in 1984.

Southern Island Burial #2.

This burial has been previously reported in detail by Boyd et al. (1997:387-425) as one of eight burials from a previously unknown cemetery site on the Mexican side of Falcon Reservoir, approximately 8 km south of Zapata, Texas (see Figure 2D). The burial, along with the others in this Late Prehistoric cemetery site, was exposed during a rapid drop in the elevation of Falcon Reservoir.

Burial #2 appeared as a pile of bones within a small area about 0.5 meters in diameter. The remains were examined by Diane Wilson, and determined to be those of a young adult male, aged 18-29 years at the time of death (Boyd et al. 1997:405).

Large numbers of associated artifacts accompanied the remains. These included very large numbers of tubular bird bone beads, as well as a substantial number of perforated coyote teeth used as beads. Additionally, several arrow point fragments were found directly intermixed with the remains. These included two Caracara proximal fragments, and quite interestingly, the matching distal fragments. When reconstructed, these fragments form two large, complete Caracara arrow points (Figure 6). One of the specimens has a broken lower lateral basal edge, or "ear." Along with the Caracara specimens, a fragmentary Cliffton arrow point preform and a fragmented Toyah arrow point, were also recovered.

In the case of this burial, the issue to consider again is whether the associated arrow points were grave goods or were a possible causative factor in the individual's death. If the Caracara points are to be considered as grave goods, it is curious why both specimens were broken in two pieces. On the other hand, there were no apparent osteological indications of a traumatic death (e.g., skeletal remains pierced with arrows) in the burial.

Southern Island Burial #3.

Perhaps the most significant of the Falcon Reservoir burials where Caracara arrow point(s) have been found in association is Burial #3 from the Southern Island site (Boyd et al. 1997:407-409). It was located approximately 91 meters south of Burial #2 (see Figure 2E).

The burial consisted of the nearly complete remains of an individual in the flexed-fetal position. During the cleaning process, a Caracara arrow point was found deeply imbedded in the second lumbar vertebra (Figure 7). The Caracara point exhibited a fragmented lower lateral "ear," like one of the Caracara points found with Southern Island Burial #2 (see Figure 6).

Diane Wilson's examination of the remains indicated that they were of an adult male who died between the ages of 34-44 years. Although the individual suffered from various pathological conditions, the apparent cause of death was the deeply imbedded Caracara arrow point (Boyd et al.

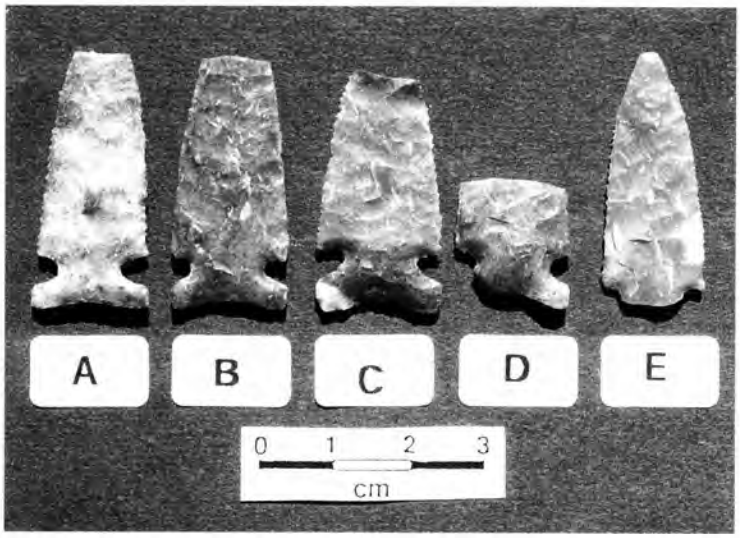

Figure 5. Five fragmentary Caracara arrow points of the 13 found with the Old Zapata (41ZP85) burial. Specimen at right is missing the proximal end below the notches.

Figure 6. Two reconstructed Caracara arrow points recovered with Southern Island Burial #2. Both specimens were found broken in two pieces. Specimen at right is missing one lower lateral "ear."

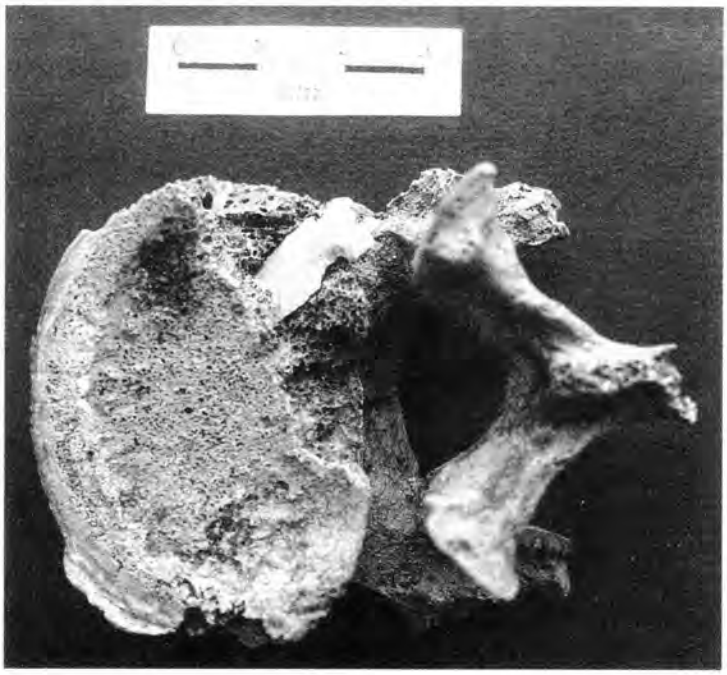

Figure 7. Second lumbar vertebra from Southern Island Burial #3, showing the deeply embedded Caracara arrow point. Overhead view.

1997:407-409). According to Wilson, there is no evidence of healing at the site of this wound. Wilson also contends that when this individual was shot in the back with the arrow, he must have been bent or stooped over in a forward direction, otherwise the adjacent vertebra would have also sustained damage (Diane Wilson, personal communication 1996).

Samples of bone from Burial #3 were later radiocarbon dated to cal A.D. 1250, with a 2-sigma range of A.D. 1025-1292 (Boyd et al. 1997:417). This clearly indicates that the Caracara point is a temporal marker of the Late Prehistoric period. Later, when the vertebra containing the Caracara point was subjected to X-ray scrutiny, it was noted that the distal portion of the specimen had been snapped off, probably at the time of impact with the vertebra.

Other than the Caracara point found in Burial #3's second lumbar vertebra, no grave goods accompanied the interment. A distally beveled Dimmit stone tool was found in the grave fill. However, it does not appear to have been associated directly with the burial.

SUMMARY AND INTERPRETATION OF THE CONTEXT OF CARACARA POINTS IN FALCON RESERVOIR BURIALS

Low water levels within the conservation pool area of Falcon Reservoir exposed all of the burials discussed herein. Three of the burials (41ZP7 and Southern Island Burials #2 and #3) were adult males, while the Arroyo Salinillas cremation burial was an adult of indeterminate sex. No skeletal remains were studied from the Old Zapata burial, although an informant stated that the remains appeared to have been those of an "adult." Two of the burials (41ZP7 and Southern Island Burial #3) were in the flexed-fetal position, the Arroyo Salinillas burial was a cremation, and Southern Island #2 appeared to be a secondary burial. Since the 41ZP85 burial was completely destroyed by looters, the burial context is unknown.

Three of the burials (41ZP7 and Southern Island Burials #2 and #3) were fully excavated, and the skeletal remains and associated artifacts collected. The Arroyo Salinillas cremation burial was left intact, other than the damage caused by looters prior to its discovery. It is quite unfortunate that no skeletal remains from the Old Zapata burial were available for study.

The five burials contained a total of 20 associated Caracara arrow points, some complete and some fragmentary. The burial at 41ZP85 (Old Zapata) had the most specimens by far, with 65% of the 20 points. In the burial at 41ZP7, the associated Caracara arrow points were found within the rib cage of the skeletal remains. This was also reportedly the case with the Old Zapata burial. The two Caracara points found with Southern Island Burial #2 were found within the "bone pile" portion of the feature. The single Caracara point found with Southern Island Burial #3 is the most significant contextually, as it was found deeply imbedded in the second lumbar vertebra and appears to have caused the individual's death. In the Arroyo Salinillas cremation burial, the Caracara arrow point found in proximity to the feature may or may not have been associated.

Whether the Caracara points were grave goods, or contributed to and/or caused the death of the respective individuals, is uncertain except in the case of Southern Island #3. However, it is interesting to note that at least one of the Caracara specimens with the 41ZP7 burial had a broken distal end, and five of the specimens with the 41ZP85 burial were fragmentary. Also, the two Caracara points found with Southern Island Burial #2 were both broken in half. This is notable, since the X-ray image of the Caracara imbedded in Southern Island Burial #3's vertebra is also broken in half, apparently caused upon impact with the bone.

Two of the five burials (41ZP7 and Southern Island Burial #2) were accompanied by large numbers of associated artifacts other than Caracara points. One burial (Southern Island Burial #3) apparently had no grave goods. It is unknown whether the Arroyo Salinillas burial had any other grave goods other than the *possibly* associated Caracara point found near the burial feature. Other than the 13 Caracara arrow points, the 41ZP85 burial had only one marine shell pendant as a mortuary inclusion.

The occurrence of a particular style of projectile point – namely the Caracara – with several burials in the Falcon Reservoir area is notable for several reasons. First, no other arrow point type has been found with any burial in the region (Boyd n.d.a). However, dart points have been found in association with burials in the same geographic region. In a burial salvaged in the early 1950s at 41ZP2, a Falcon Reservoir site near Zapata, Texas, several lithic specimens, including at least five Tortugas points, were recovered (Cason 1952:240; Hester 1997:4-8). The 'Rio Salado burial,' discovered by an artifact collector on the Mexican side of Falcon Reservoir in 1989, yielded an unspecified number of projectile points, as many as 15 or more, of the Tortugas type

(Hester 1997:7; n.d.). In another burial found in 1990 by a Rio Grande Valley artifact collector, 13 thin triangular bifaces similar to the Tortugas type were recovered with the burial (Boyd et al. 1997:401). The site where this burial was found is on the northern part of the Mexican side of Falcon Reservoir. Burial #1 at Southern Island yielded over a dozen lithics, including several dart points of the Catan, Matamoros, and/or Tortugas varieties (Boyd et al. 1997:400-402). None of these dart points or thin bifaces was found in contexts that suggest they were the cause of death.

Caracara arrow points have been found with two burials in the region that have been directly radiocarbon–dated: the 41ZP7 burial and Southern Island Burial #3. The 41ZP7 burial yielded a calibrated radiocarbon date (2 sigma range) of A.D. 1278-1437, while Burial #3 from Southern Island has a calibrated 2 sigma age range of A.D. 1025-1292. The dates overlap between A.D. 1278-1292, but span the period between cal A.D. 1025-1437.

Based on studies conducted by Reinhard et al. (1989:129-140), it is not surprising that one or more instances of the occurrence of Caracara arrow points with Falcon Reservoir burials is the result of "interpersonal violence."

Violence and hostility within and between aboriginal groups was a notable feature of the Late Archaic and Late Prehistoric periods in Central and southern Texas. The available archaeological evidence does not suggest that there was a uniform increase in conflict over time, or a consistent geographical area within which conflict occurred, but rather there were punctuated periods of hostility at different times and places, usually along frontier areas. The overall low frequency of violent deaths in this part of Texas – and the few known Late Prehistoric burials with evidence of conflict in the Falcon Reservoir area – indicates that group conflicts were in the form of small-scale hostilities, probably as competition for available resources, and probably violence "did not play a large role in disturbing the quality of life" (Dockall 1997:264), in contrast with the archaeological evidence reviewed by Milner (1999) for eastern North America.

Data collection efforts should fully document in space and time all burials and burial sites along the lower Rio Grande that have evidence of violence, including projectile point wounds and embedded points, unhealed traumas, and severe head and parry fractures. Examining the distributions and ages of these sites, and estimating the intensity of violence (cf. Reinhard et al. 1989) among populations in riverine and non-riverine settings, should permit the definition and correlation of different zones of conflict with long-term cultural changes in settlement, subsistence, group movements, establishment and expansion of territories, and population dynamics. Were there changes in the nature of violent conflicts through time in this region?

Another approach is to look more closely at different dimensions of violence and group conflicts among southern Texas and northeastern Mexican aboriginal populations. For example, is there regional bioarchaeological evidence of scalping and body dismemberment? Were males and females, or adults and children, both victims of violence, or were there sex- and age-related risks involved among the native Texan groups exposed to situations of conflict? It will also be important to ascertain which groups were in conflict, or if the conflict was within a single related group, and this is best conducted by an analysis of the kinds of projectile points (and the raw material they were manufactured on) that were the cause of death. If Caracara arrow points were the cause of death of individuals living in the Falcon Reservoir area, and this is the area where Caracara points appear to have primarily been made and used, it will be important to sort out specific stylistic differences or diversity in raw material across the lower Rio Grande. This information can then readily suggest likely areas where two hostile but neighboring populations lived, thus linking the weapons with aboriginal groups in this part of southern Texas and northeastern Mexico.

Continued research into the mortuary practices of the former peoples of the lower Rio Grande region, centered around the present day Falcon Reservoir, and the study of additional burials, will inevitably lead to a more refined understanding of violence and group conflicts between indigenous populations during the Late Prehistoric period.

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COMMENTS ON A STUDY OF MCFADDIN BEACH ARTIFACTS

Leland W. Patterson

ABSTRACT

Comments are given on a report in 1999 which analyzes a large sample of redeposited artifacts from McFaddin Beach on the eastern coastal margin of Southeast Texas. Subjects covered are lithic materials identification, lithic tool functions, temporal placement of artifact types, and spatial analysis of artifact distributions. Spatial analysis attempted to find locations of original sites before destruction, and to find potential locations of undisturbed sites. Several problems are discussed concerning lithic materials identification and temporal placement of artifact types.

INTRODUCTION

McFaddin Beach (41JF50) is a long section of beach on the upper Texas coast that extends from Sabine Pass to High Island, approximately 35 km in length (Turner and Tanner 1994:319). This location is best known for a large number (70+) of Clovis points (ibid.:324). A conference was held in November 1991 to observe 27 collections from this area. Long's (1977) report is a primary source of information on artifacts from McFaddin Beach.

This paper is a review of a report by Stright et al. (1999) that utilizes 880 artifacts from five collections made at McFaddin Beach, which represent about one-third of the artifacts known to have been collected from McFaddin Beach. The main subjects covered by this study are lithic materials identification, lithic tool functions, classification of artifact types, temporal placement of artifact types, and spatial analysis of artifact distributions. There is a chapter on the paleoenvironmental setting of the study area. All artifacts were redeposited from archaeological sites that have been destroyed by rising sea level and wave action. Sea level reached its present position at about 3000 BP. The earliest artifacts are from sites that would have been inland at the time of occupation.

Although three authors are named for this report, it is obvious from the use of "I" throughout the report that Stright is responsible for the writeup and conclusions, except for much of the lithic materials identification which is covered in an appendix by Larry Banks. This review has been done because of the high publicity that McFaddin Beach has received, the wide distribution given this report by the Minerals Management Service, and several problems regarding Southeast Texas archaeology that are apparent in the report conclusions.

LITHIC MATERIALS IDENTIFICATION

Most, but not all, of the lithic materials identification was done by Larry Banks (Stright et al. 1999, Appendix E). There are several problems with the conclusions reached on this subject.

In this report, lithic materials have been identified from 59 source locations (Stright et al. 1999: Table 4). The great detail given for lithic sources gives an impression of precision that is not warranted. Banks (1990) is recognized for his study of lithic sources, but the correct identification of lithic materials at a location remote from sources is difficult. Many lithic source areas have a variety of chert types, such as the Edwards Plateau and adjacent Lampasas Cut Plain in Central Texas. Also, lithic materials from different sources can have similar

appearances. It is doubtful that any analyst can correctly identify lithic materials from 59 sources by using only visual inspection, without use of trace element analysis. Many types of lithic materials do not have distinctive patterning.

Banks (p. 95 in Stright et al. 1999) defines "exotic" materials as being from sources at distances of over 1000 km. This definition defeats the purpose of the term "exotic." Exotic materials are materials too far from a site to be normally obtained by direct procurement, but instead are usually obtained by trade. It is more appropriate to use a distance of about 150 km to define the breakpoint between local and exotic materials.

This report identifies sources of lithic materials for the total collection as 52.4% Edwards Plateau, 21.3% river gravels, 7.7% petrified wood, and 18.6% other sources. However, Banks (p. 727 in Stright et al. 1999) does admit the possibility that many of the specimens identified as from the Edwards Plateau could be from river gravels derived from the Edwards Plateau, because of the lack of cortex on many specimens that would identify river gravel sources. This report has overlooked the extensive publication of sites in Southeast Texas where data show that most cherts used at sites in this region come from chert cobbles found in the lower Brazos and Colorado River Basins (Patterson 1999). Many published sites in this region have large quantities of debitage where all remaining cortex on flakes is of the weathered type found on chert cobbles from the Colorado and Brazos River Basins. For example, at site 41HR182 in Harris County (Patterson 1985:13), 57.7% of lithic flakes had remaining cortex, all of the weathered type. No reports for prehistoric sites in Southeast Texas show significant quantities of debitage with remaining cortex of the carbonate type typical for Central Texas cherts.

On finished projectile points without remaining cortex that I have made, I cannot often distinguish between chert that I have used from Central Texas and from the lower Colorado River. Because there are few specimens of debitage in the McFaddin Beach collections, there is no way to make a complete study to distinguish between cherts imported directly from Central Texas and river gravels derived from sources in Central Texas (Edwards Plateau and Lampasas Cut Plain). The Indians of Southeast Texas had no need to import cherts from Central Texas, when much closer chert sources were available in the lower Colorado and Brazos River Basins. Chert cobbles with maximum dimensions over 200 mm can be found in the lower Colorado River Basin, and chert cobbles with maximum dimensions up to about 80 mm can be found in the lower Brazos River Basin.

The 7.7% of specimens made of petrified wood in the McFaddin Beach collections seems low, compared to the extensive Andy Kyle collections (Kindall and Patterson 1986) from the eastern part of Southeast Texas, where well over half of the specimens were made of petrified wood. Petrified wood is the nearest type of lithic material in the eastern part of Southeast Texas, from sources such as the Trinity River Basin. It should be noted, however, that the McFaddin Beach collections are highly skewed toward a high percentage of Paleoindian points, where chert was the prefered material for projectile point manufacture.

Banks (p. 726 in Stright et al. 1999) states that only 9% of Edwards cherts show signs of heat treatment. This percentage is not reliable, however, because there were few specimens of debitage for analysis. Heat treatment often gives evidence that can be found only on the surfaces of pieces that have been heat- treated. Removal of original surfaces during lithic manufacturing removes evidence of heat treatment in many cases. Also, artifacts from McFaddin Beach have surface abrasion from sand that might obscure the waxy luster often observed on heat-treated chert.

Banks (p. 726) states that 3.4% of specimens are made of Tecovas materials from the Texas Panhandle. It is doubtful that this type of material was actually traded over the long distance from the Texas Panhandle to McFaddin Beach. Any Tecovas materials at McFaddin Beach are likely to be from river gravels in the lower Brazos River Basin.

Banks (p. 644) states that most arrow points on the coastal margin of Southeast Texas were made from alligator gar scales. There are few published examples of gar scale arrow points on the coastal margin of Southeast Texas, however (Patterson 1994). Although the coastal margin of this region is a lithic-poor area, arrow points made of chert are often found here (Patterson 1996:Table 9), with bone arrow points often used as a substitute for stone points (Aten 1983:Figure 13.3; Patterson and Ebersole 1992:Figure 2).

Banks (p. 644) seems to accept Aten's (1983: Appendix B) concept that alligator gastroliths were used on the coastal margin of Southeast Texas to make flakes for manufacturing arrow points and tools. While alligator gastroliths may have been used occasionally, it is very difficult to do controlled flaking of small rounded pieces of stone. It is likely that most arrow points on the coastal margin of Southeast Texas were either obtained by trade with

inland Indians or made from scavenged flakes from older sites now located on the coastal margin after rise in sea level.

In summary, the conclusions in this report regarding lithic materials identification cannot be used as a model for lithic procurement for the eastern part of Southeast Texas, because of several reasons given above.

LITHIC TOOL FUNCTIONS

This report (Table 3) classifies 342 stone tools by function, with 13 projectile points having been used for other functions such as scrapers, knives, and spokeshaves. No descriptions of edge-wear patterns are given, however, that would identify alternate uses of projectile points. The report (p. 290) concludes that stone tools in these collections represent activities such as lithic manufacture, woodworking, food processing, and hide processing. This conclusion seems reasonable, because these are all activities that would be expected at hunter-gatherer campsites.

ARTIFACT TYPES AND TEMPORAL PLACEMENTS

After artifact classification, time-diagnostic artifact types have been grouped by time periods. Time periods used were those of Turner and Hester (1993) which generally apply to Central Texas. Time periods given by Patterson (1995:Table 3; 1996: Table 4) for Southeast Texas have not been used. The Transitional Archaic (2300-1300 BP) of Central Texas used in this report is approximately the same time interval used for the Early Ceramic period (1900-1400 BP) in Southeast Texas. The lack of recognition in this report of an Early Ceramic period is important because no ceramics are present in the McFaddin Beach collections that would identify occupations during this time period. It should also be noted that the projectile point types placed in the Transitional Archaic (Early Ceramic) period in this report (Table 16) also occur in the Late Archaic period in Southeast Texas (Patterson 1995: Table 3; 1996:Table 4), and are therefore not diagnostic for the Early Ceramic period alone. It is likely that the occupation level at McFaddin Beach during the Early Ceramic period was much lower than indicated in this report (Figure 8). Therefore, the main occupations at McFaddin Beachwere from the Early Paleoindian through the Late Archaic periods.

Time-diagnostic artifacts in these collections are highly skewed toward a high proportion of Early and Late Paleoindian projectile points, with 43% of diagnostic artifacts being related to these time periods (p. 112). This contrasts with only 9.4% Early and Late Paleoindian points in a tabulation of over 6000 points in Southeast Texas (Patterson 1996: Tables 7,8). Only a small number of sites in Southeast Texas that have long occupation sequences have high proportions of Early and Late Paleoindian points, including site 41FB249 in Fort Bend County with 33% Paleoindian points (Patterson 1997:Table 1), site 41HR343 in Harris County with 71.6% Paleoindian points (Patterson et al. 1992: Tables 1,2), and site 41WH19 in Wharton County (Patterson et al. 1987:Tables 2-5) with 50.0% Paleoindian points. The chronological placement of projectile point types in this report (Figure 8) cannot be used as an indication of the general population dynamics for the eastern part of Southeast Texas. McFaddin Beach was simply a favored area for Paleoindian occupations when this was an inland area.

Only 6% of the diagnostic artifacts from these collections have been placed in the Early Archaic period. This has been interpreted to indicate that Early Archaic occupations in this area were focused around a nearby large estuary that was then removed by rising sea level, with Early Archaic sites now drowned and buried (p. 288). This report has not considered data from the inland portion of Southeast Texas, however, which indicate a low population level during the Early Archaic period throughout eastern Southeast Texas. The large Andy Kyle collections (Kindall and Patterson 1986:Table 2) from eastern Southeast Texas show gaps in long occupation sequences in the Early Archaic period at 22 of 25 site clusters. The 1998 contents of the computerized data base (Patterson 1989) for the eastern part of inland Southeast Texas also shows a low population level during the Early Archaic period. There may have been a low population level in the eastern part of Southeast Texas during the Early Archaic period, but it is just as likely that the apparent low population level is caused by identification problems for projectile point types of the Early Archaic period.

It is especially easy to confuse some early straight-stem point specimens from the Early Archaic period with some specimens of Bulverde and Kent points from later parts of the Archaic period. An analytical problem specific to McFaddin Beach projectile point specimens is that these specimens have edge abrasion from sand and wave action. Therefore, it would be difficult to judge if stem edges have been purposefully ground, as is common for Paleoindian and Early Archaic points in South-

east Texas. It should be noted that the definition of the Early Stemmed point as used in Southeast Texas (Patterson 1995:Table 3, 1996:Table 4) is not the same as the definition of the Early Stemmed point used by Turner and Hester (1993:106). The Early Stemmed point as used in Southeast Texas follows the classification by Shafer (1977:Figure 4) for straight-stem points with ground stem edges. In contrast, Turner and Hester (1993:106) define the Early Stemmed point as a side-notched type.

I would not agree with the classification of every projectile point specimen in this report, but this is a minor point that may not affect any major conclusions in this report. Most projectile points seem to have been classified consistent with descriptions given by Turner and Hester (1993).

SPATIAL ANALYSIS

I have been critical of some sections of this report, but the most important section on spatial analysis appears to have been done in a good manner within the limits of available data. The results of spatial analysis of artifacts found on the long stretch of McFaddin Beach gave clusters of artifacts that represent redeposited materials from sites that have been destroyed by rising sea level and wave action.

It was assumed that artifacts with only slight mechanical wear were probably found close to the original site locations, and that lighter artifacts will tend to have moved farther from original site locations than heavier artifacts eroded out of the same site. However, when the relationship of mechanical wear to artifact weight was plotted for McFaddin Beach artifacts (Figure 29), a strong correlation was not found between artifact weight and amount of mechanical wear.

Spatial analysis was used to find clusters of artifacts that might indicate locations of original archaeological sites. Artifact locations were plotted on maps of McFaddin Beach, and nearest-neighbor statistical analysis was also used. The end result of spatial analysis was a series of maps showing potential locations of sites, from Paleoindian through Historic Indian periods. The most important conclusion seems to be shown on a map (Figure 99) with four areas that may indicate general locations of buried late Wisconsinan/early Holocene fluvial channels, where archaeological sites may have been located, and where undisturbed sites might be located somewhat off the beach edge. Physical testing would be necessary to determine the potential for future research in these four areas.

It was generally observed that artifacts found on McFaddin Beach were scattered over two long intervals on the eastern and western parts of the beach, with a gap in the middle section of the beach. Spatial analysis of artifacts did not determine the exact number of prehistoric sites along the 35 km length of McFaddin Beach. Sites were probably located near freshwater streams in the same manner as most prehistoric sites in Southeast Texas.

SUMMARY

This report analyzed 880 artifacts from five collections made at McFaddin Beach, on the eastern part of the coastal margin of Southeast Texas. It was not determined how representative this sample is for the 27 known collections from this area.

The analysis included four major parts, including lithic materials identification, lithic tool functions, classification of artifact types and temporal placement, and spatial analysis of artifact distributions. There are several problems with the identification of lithic materials, as discussed above. Lithic materials identified in this report cannot be used as a reliable lithic procurement pattern for the eastern part of Southeast Texas. The analysis of lithic tool functions seems resonable compared to types of activities by hunter-gatherers that would be expected.

The sample of artifacts is highly skewed toward a high percentage of Paleoindian artifacts. This sample gives information on the occupation sequence of the McFaddin Beach area, but is not representative of the general population dynamics for the eastern part of Southeast Texas. As discussed above, there are some problems in the placement of artifact types in the various prehistoric time periods.

The spatial analysis of geographic distributions of artifacts shows two main scatters of artifacts on the eastern and western sections of McFaddin Beach, with a gap in the central section. Some clusters of artifacts were found by map plots and nearest-neighbor analysis that may represent sites that were destoyed by rising sea level and wave action. Four locations were identified that may be the locations of buried late Wisconsinan/early Holocene fluvial channels with potential for further research to find undisturbed early archaeological sites.

This report gives the most detailed inventory of artifacts from McFaddin Beach that has so far been published. Because all artifacts found here have been redeposited, with little lithic debitage present, the research potential for McFaddin Beach is limited. Significant future reseach at this location would depend on whether or not undisturbed archaeological sites can be found.

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ARCHAIC AND LATE PREHISTORIC PROJECTILE POINTS FROM THE J-2 RANCH SITE (41VT6)

E. H. (Smitty) Schmiedlin

ABSTRACT

In an earlier paper, Norman Flaigg documented the J-2 Ranch Paleo-Indian artifacts. This paper will document various Archaic and other artifacts found at the site providing a broader view of the long term utilization of this locality.

INTRODUCTION

Norman Flaigg has already reported a description of the site, 41VT6, and previous investigations (Flaigg 1995). The site is located in northeastern Victoria County, on Arenosa Creek. The Southern Texas Archaeological Association (STAA) weekend field schools tested the site in 1976-1977 and were reported by Fox, Schmiedlin and Mitchell (1978). All artifacts described herein are from the Birmingham, Schmiedlin and Studer collections.

UNSTEMMED PROJECTILE POINTS

Triangular Points

The triangular biface represents 13% of the surface artifacts recovered from 41VT6. This does not include those illustrated by Flaigg (1995) as Early Triangular. Forty-two of the artifacts fit the Tortugas point type (Turner and Hester 1985) with all specimens having right-hand beveling. Seven of the specimens fitting the description of Tortugas and having right-hand beveling are shown in Figure 1.

The specimens varied considerably in their measurements. The overall length of the complete specimens varied from 3.4 cm on 1G, to 6.1 cm on 1D, while the width at the base varies from 1.7 cm on 1F, to 3.8 cm on 1C. In addition, two specimens, 1A and E, have what appear to be impact fractures, while another, 1B, has been snapped near the distal end. This artifact has a longitudinal flake that extends away from the fracture toward the base and may have been caused by impact. This artifact also has a heavy smear of asphaltum covering much of one side. This specimen may be a Paleo-Indian point remnant, but no basal grinding was observed.

Likewise, the artifact with the widest base, Figure 1C, might be a reworked Early Triangular except that it is very thick at its mid-section, and has been right-hand beveled like the other Tortugas points. The two smallest specimens, 1F and 1G, may well be classified as Matamoros, but since they are the only small specimens in this entire collection they will be called Tortugas in this paper (Taylor and Highley 1995).

In addition, nine specimens in this collection fit the Tortugas description and had left-hand edge beveling. Two of these artifacts are shown in Figure 2, C and D. There is less variation in length and width in these specimens with the artifact with the greatest width, 2D, at 2.8 cm, also being the shortest in length at 5.5 cm. The longest specimen, 2C, at 6.4 cm, is also the narrowest, at 2.3 cm. There were no impact or snap fractures to any of these items.

The last seven specimens again fit the overall description of Tortugas with the exception that they are alternately beveled. Two of these artifacts are shown in Figure 2, A and B. These specimens show very little variations in width and length. The longest, 5.1 cm, 2A, is also the narrowest at 2.8 cm,

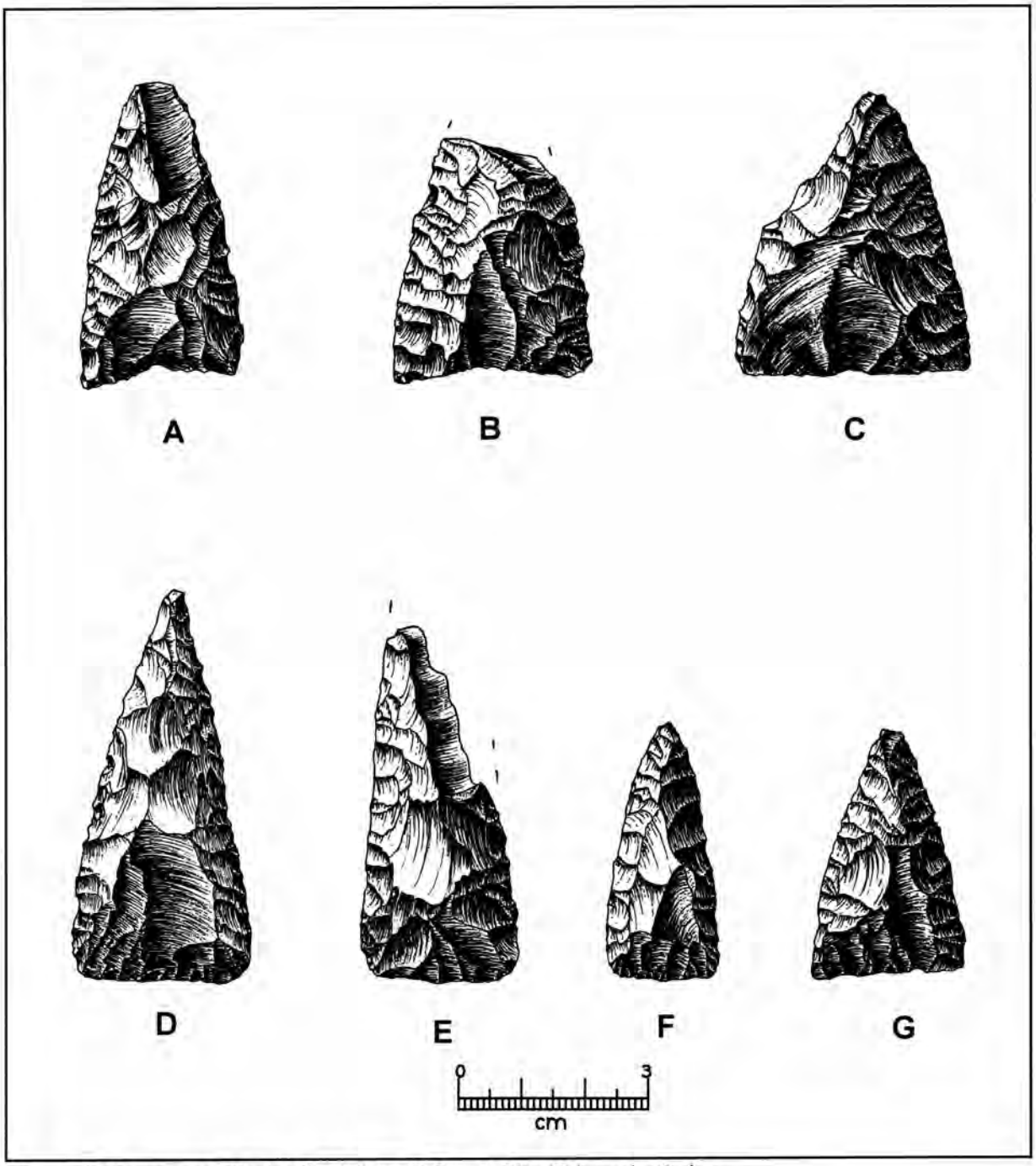

Figure 1. Unstemmed Projectile Points, J2 Ranch Site: Triangular Points.

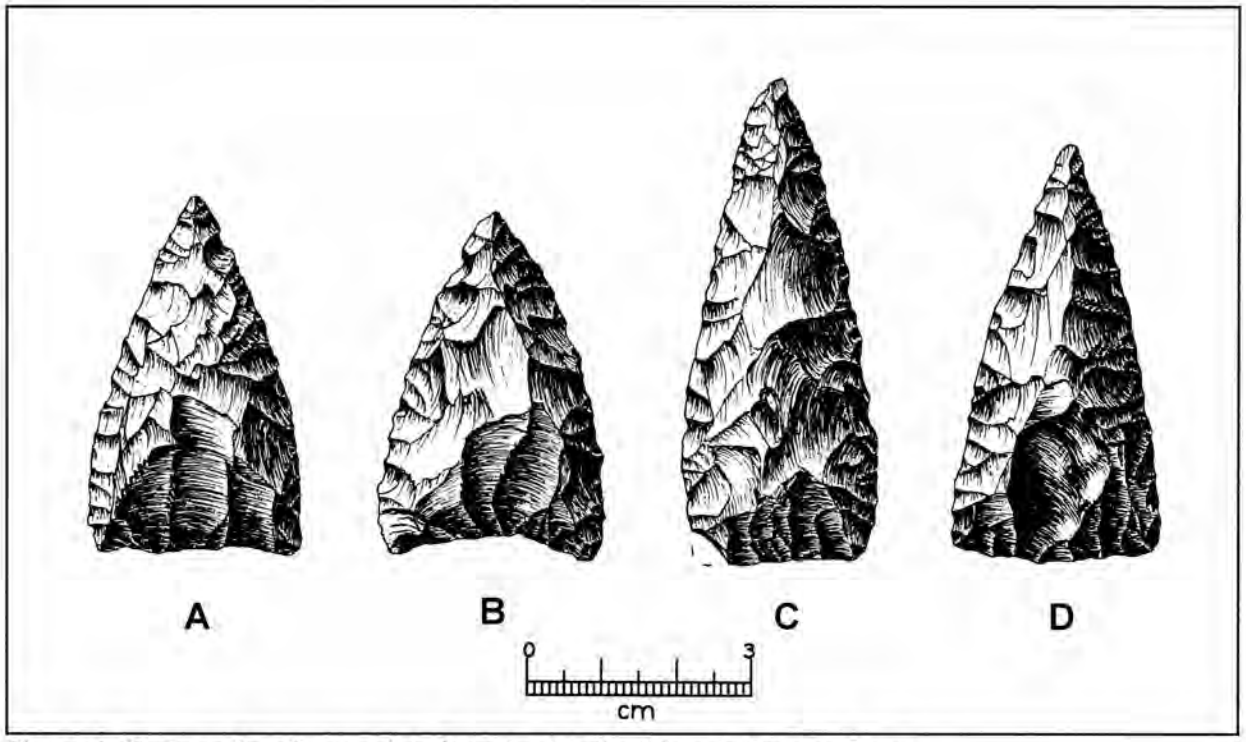

Figure 2. Tortugas Specimen points from the J-2 site, Victoria County, Texas.

while the shortest, 2B, at 4.5 cm, is also the widest at 2.9 cm. One of the remaining five specimens has a snap fracture near the distal end. If the six artifacts representing the abnormal sizes in the collection are disregarded, the remaining triangular artifacts fall well into the point description of Tortugas as described by Turner and Hester (1985).

Whether these point types were used as projectiles or as knives cannot be easily determined, although the limited amount of tip damage and the evidence of multiple edge retouch would indicate that their service caused considerable edge dulling and required frequent resharpening. Microscopic examination would be useful, but was not part of this study.

Elongate Points

A series of 16 artifacts from 41VT6 exhibits the characteristics of the Refugio and Lerma point style as identified by Turner and Hester (1985). Fourteen of these artifacts meet the type description of Refugio being pointed on the tip and having a rounded base. Three of these artifacts are shown in Figure 3, A, B, and C. The largest, 3A, is 9.4 cm in length and 3 cm in width, and the smallest, 3C, is 5.5 cm in length and 1.6 cm in width; 3B is 7.1 cm in length, and 3 cm in width. Three specimens, 3 D, E. and F, resemble Lerma, being pointed on both ends. The largest of these specimens, 3F, is 8.4 cm in length and 2.7 cm in width; 3E is 6.1 cm in length, and 2.3 cm in width, while 3D is 5.5 cm in length and 2.1 cm in width. It is possible that the larger of these artifacts were utilized as knives, while the smaller could very well have been used as projectile points.

STEMMED POINTS

The largest number of projectile points from this site is stemmed, with 186 complete or nearly complete specimens representing 40 percent of the total surface collections.

Parallel Stem - Concave Base

Ten of the stemmed points fit the description of Pedernales (Turner and Hester 1985). Six of these points are shown in Figure 4. They range in length from 8.9 cm on 4D, to 6.6 cm on 4B. The width varies only .2 cm from 3.1 cm on 4D to 3.3 cm on 4C. Three of these specimens, 4D, E and F, exhibit the deep concave notches that characterize the point

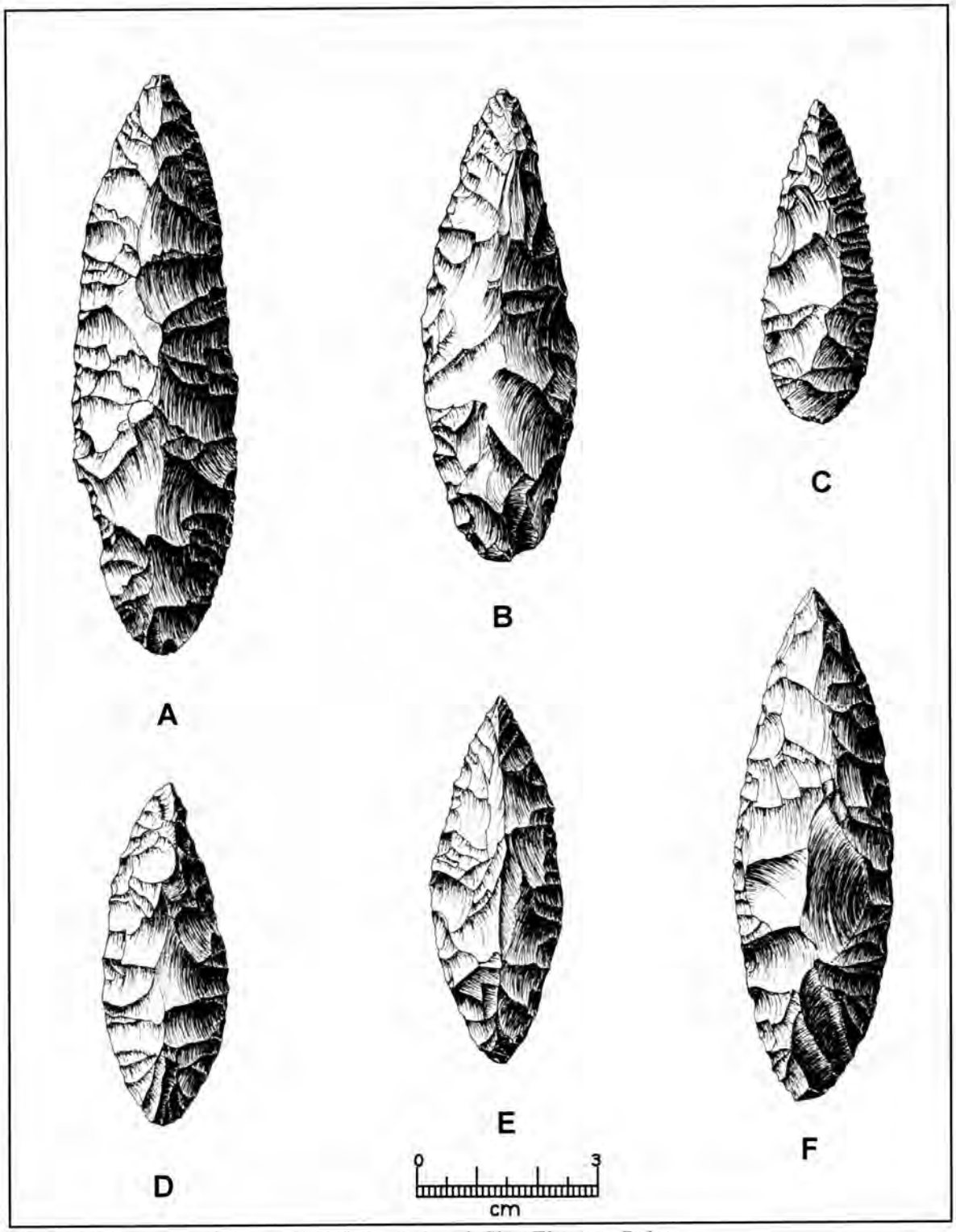

Figure 3. Unstemmed Projectile Points, J2 Ranch Site: Elongate Points.

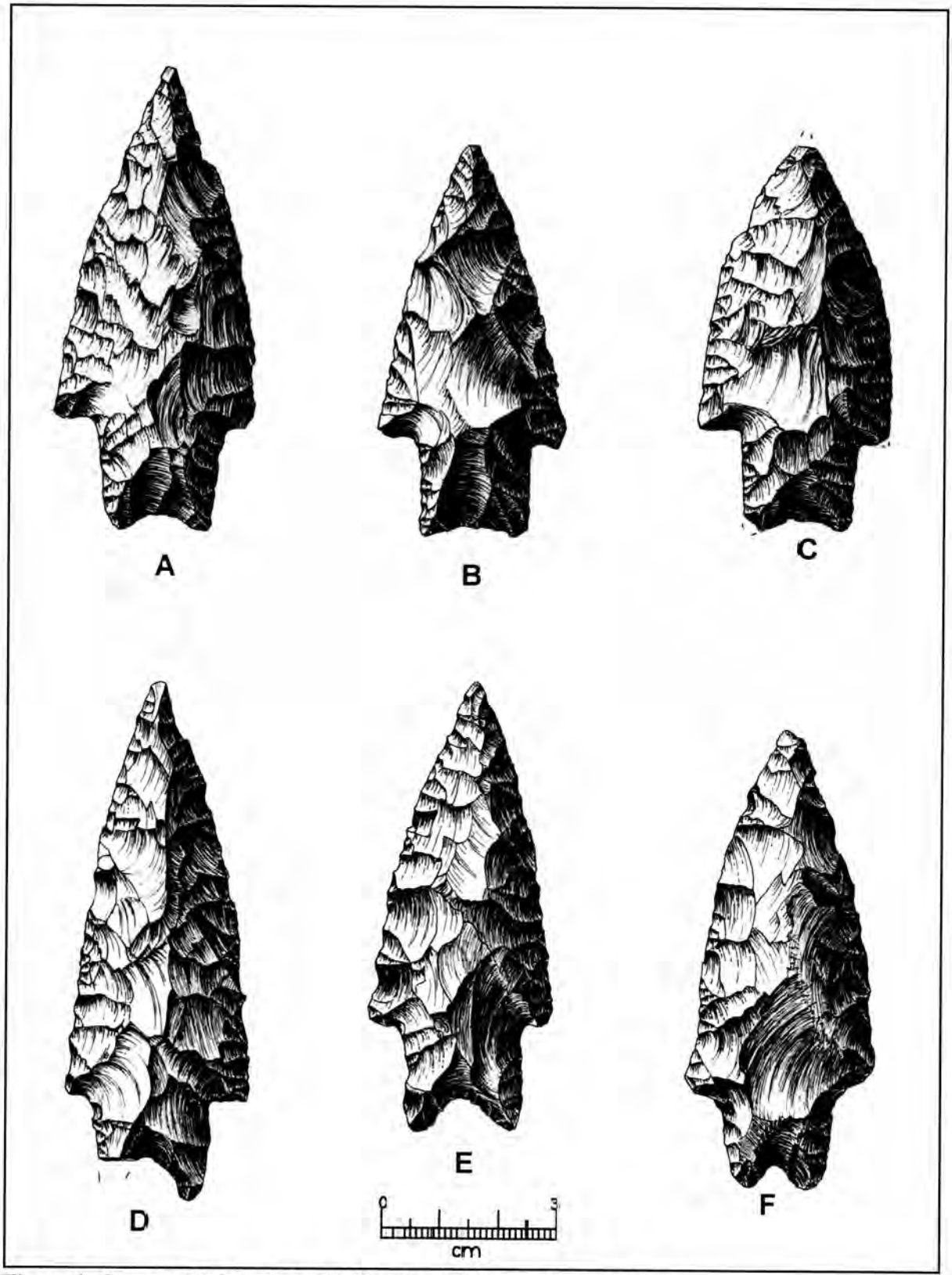

Figure 4. Stemmed Points, J2 Ranch Site: Parallel Stem - Concave Base.

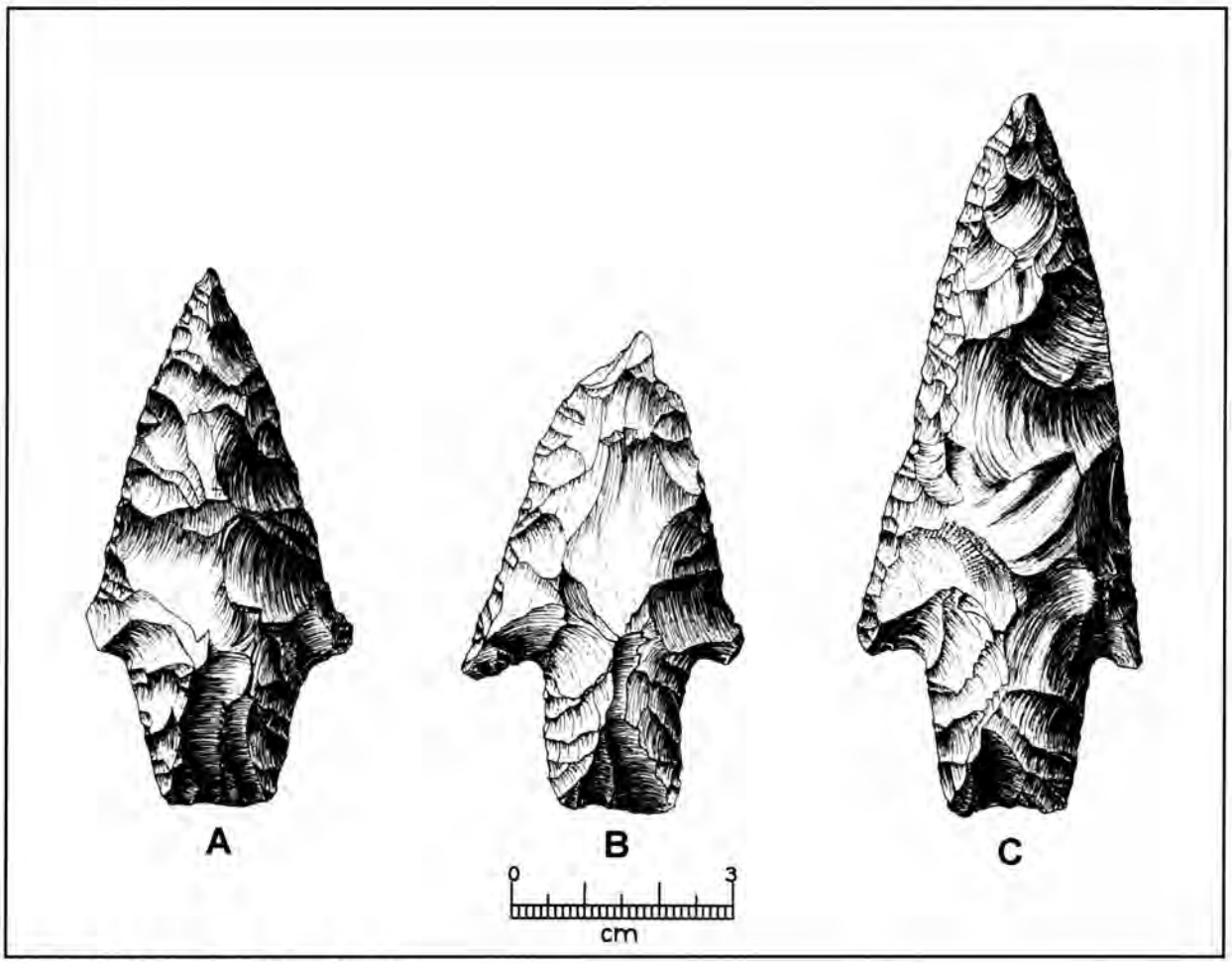

Figure 5. Contracting Stem Points.

type described by Turner and Hester (1985), while the remaining three, 4A, B and C have a straight and slightly concave base (see Suhm and Krieger 1962, p. 119–C and E) similar to the Bulverde or Marshall point style, but lack the prominent barbs of the Marshall or the thinned base of the Bulverde. This point type is found clearly in the same context as Pedernales in local area sites and is possibly a variant. The Pedernales point styles are sometimes the predominent point style at other Middle Archaic sites in the area while being in the minority at this site.

Contracting Stem Points

Three specimens, Figure 5, exhibit the characteristics of the Bulverde point type (Turner and Hester 1985). The largest in length, Figure 5C, measures 9.6 cm while the shortest (complete), 5A, measures 7.2 cm. The width varies only slightly: 3.9 cm on 5C, to 3.5 cm for 5A. The bases on 5A and 5C are thinned with large flakes being removed from the proximal end resulting in a fluting of the base. Specimen 5C has a smear of asphaltum on the base, indicating its use for hafting. Specimen 5B has two short flakes taken from opposite sides near the point possibly to resharpen or to use as a drill. Specimen 5C appears not to have been resharpened and probably represents the original size of the point type.

Expanding Base Points

Five specimens (Figure 6) have the traits of the Williams point style (Turner and Hester 1985). The length (on complete specimens) varies from 5.8 cm on 6A to 4.8 cm on 6E. The width varies from 2.9 cm on 6D, to 3.3 cm on 6C. All have expanding bases with prominent shoulders. Specimen 6B has an impact fracture.

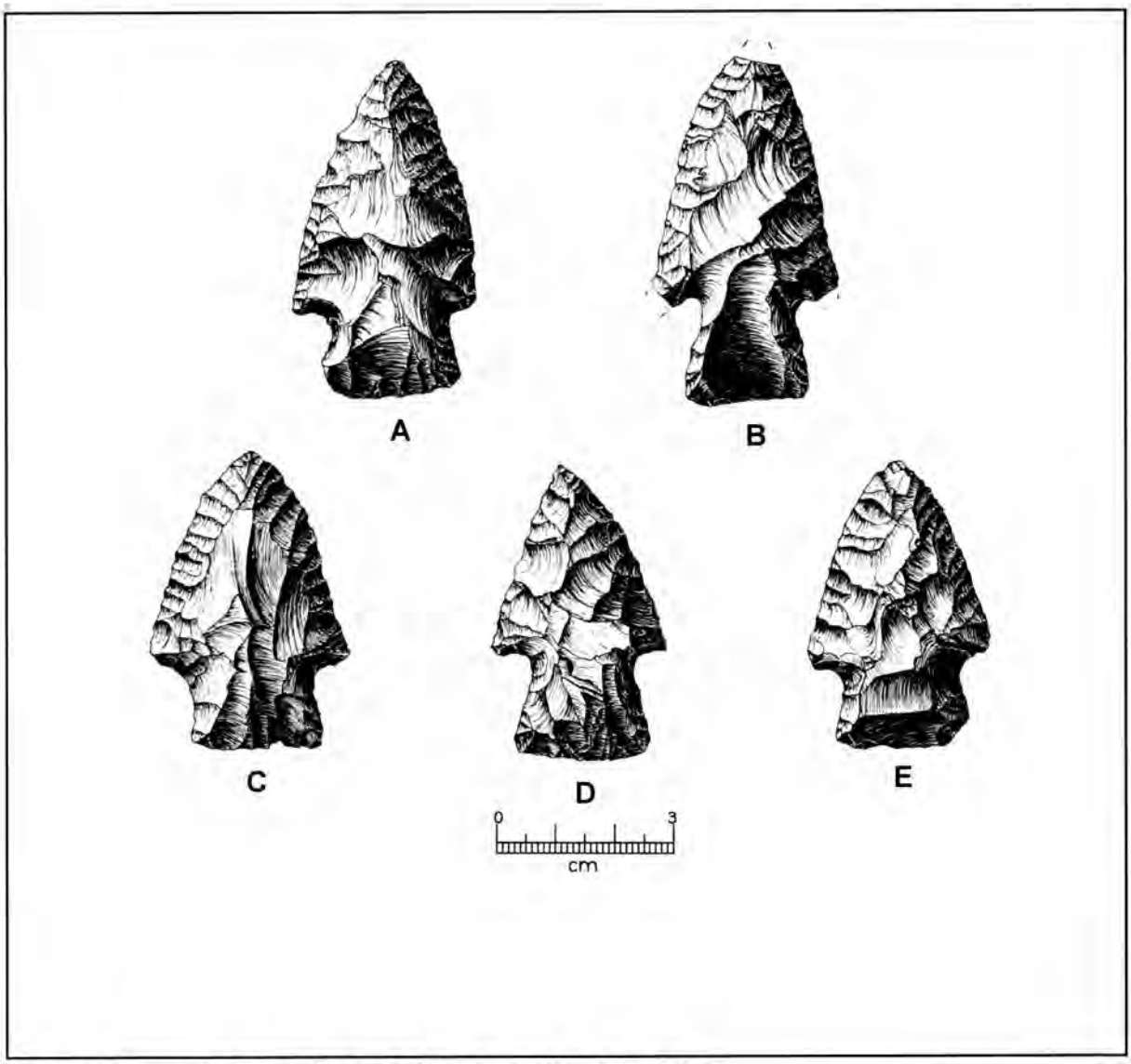

Figure 6. Stemmed Points, J2 Ranch Site: Expanding Base Points.

Side-Notched Expanding Base Points

Nineteen specimens represent the side-notched expanding base style of point. This terminology fits several point forms such as Elam, Edgewood, Frio and Ensor (Turner and Hester 1985). The Ensor point type best fits the description of the ten point styles shown in Figure 7. The points vary considerably in size, with the largest, 7G, being 6 cm in length and the shortest, 7D, being only 4.5 cm in length. The width also varies with 7H being the widest - 3 cm - (measured at the basal ear) and 7J at 1.8 cm. Specimens 7C, 7F, and 7I, have what appears to be an impact fracture. All specimens appear to have been resharpened except 7G and 7H. Three specimens not shown have snap fractures near the distal end. Specimen 7C has a slightly concave base and may be an Edgewood or some other variation of the Ensor type.

Side-Notched Expanding Base (ground) Points

Twenty-nine specimens fit the criteria of the Darl point type (Turner and Hester 1985). Eleven representative examples are shown in Figure 8. The length varies from 6 cm on 8H to 4 cm on 8K. The width measured at the shoulders varies from 2.1 cm on 8C, to 1.4 cm on 8E. Almost all of these specimens have been reworked/resharpened many times. Specimen 8H is probably the only unaltered specimen while 8A and 8E show the greatest amount of alteration. All 29 specimens have basal smoothing and most have beveled blades and stems. When the stem is beveled to the right as on 8A and 8E the blade is beveled to the left, and vice versa on 8G and 8H. Two specimens, 8A and 8B, show impact fractures. Two specimens 8J and 8K, have a trace of asphaltum on the base. It appears that the stem may also have been reworked, as the point blade is reduced on some specimens. Some of the heavily ground specimens resemble Hoxie, while others appear to have some of the features of Pandale, but would be far out of its known boundaries.

Side-Notched Convex Base Points

Sixteen points in this collection fit the general description of Godley (Turner and Hester 1985). Six of the specimens are shown in Figure 9. This point style does not have the fine flaking exhibited by some of the other point styles described, but seems to have served its purpose just as well with five out of 16 showing impact fractures similar to 9E. The points are thickest near the base and have a high medial ridge on each side of the blade making a diamond-like cross section. This is probably from repeated resharpening. The longest of the complete specimens is 7.1 cm on 9D, and the shortest is 4 cm on 9F. The widest is 2.8 cm on 9F, and the narrowest is 2 cm on 9C. Specimens 9A-9C and 9F have very large side notches and show some smoothing of the stem edges. Figure 9E has a very large impact fracture.

Narrow/Parallel/Rounded Base Points

Six specimens shown in Figure 10, fall into the description of Kent (Turner and Hester 1985) with straight, slightly rounded bases. The length varies from 6.2 cm on 10D, to 4.2 cm on 10B. The width varies from 2.4 cm on 10F to 2.2 cm on 10D. Flaking tends to be crude, but some of the blades show polishing on the medial ridge. Three of the specimens, 10A, 10C, and 10D, have traces of asphaltum on the basal edges with 10A having a smear starting at the base and extending three-fourths of the way up the blade edge. Specimen 10F may be the only point that has not been resharpened.

Expanding/Deeply Notched Base Points

Thirteen specimens are Martindale-like points (Turner and Hester 1985). Seven of this point style are shown in Figure 11. The length of these points varies from 5.8 cm on 11D, to 4 cm on 11B. The width (measured at the barbs) varies from 2.6 cm on 11B to 1.8 cm on 11A. Points 11A, 11B and 11C have steep right-hand beveling due to resharpening. Specimen 11F has asphaltum stains on the base. There is some smoothing on all of the stems. Specimen 11A is Darl-like, likewise specimens 11B and 11C have some of the characteristics of the Gower point while 11F could be a Uvalde. The resharpening that these projectiles have undergone makes classification difficult.

Broad Rounded Base Points

Five specimens, Figure 12, A, B, C, D, and E, have the characteristics of the Morhiss point style (Turner and Hester 1985). The Morhiss is the most common Archaic dart point found in this area and it

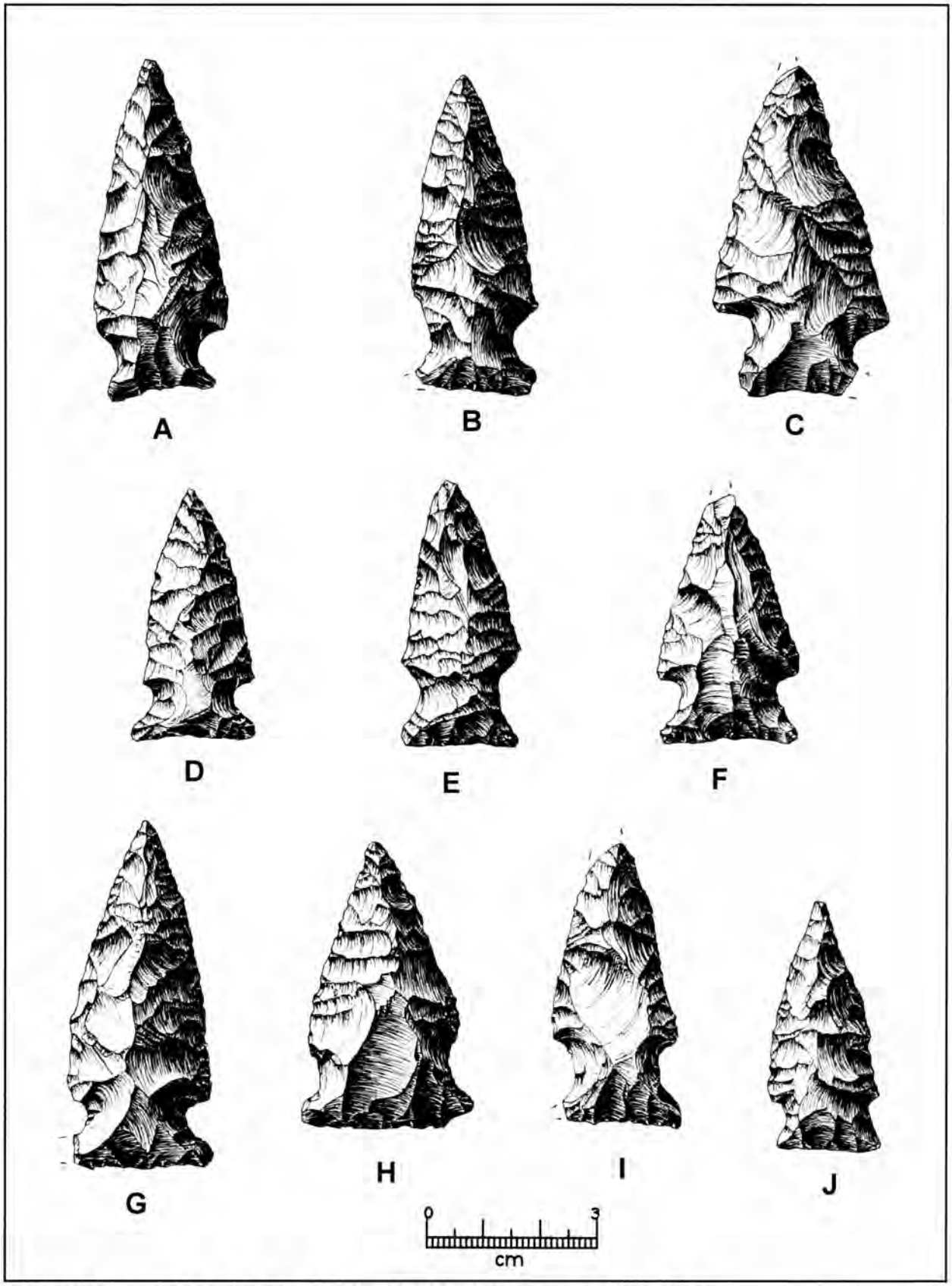

Figure 7. Stemmed Points, J2 Ranch Site: Side-Notched Expanding Base Points.

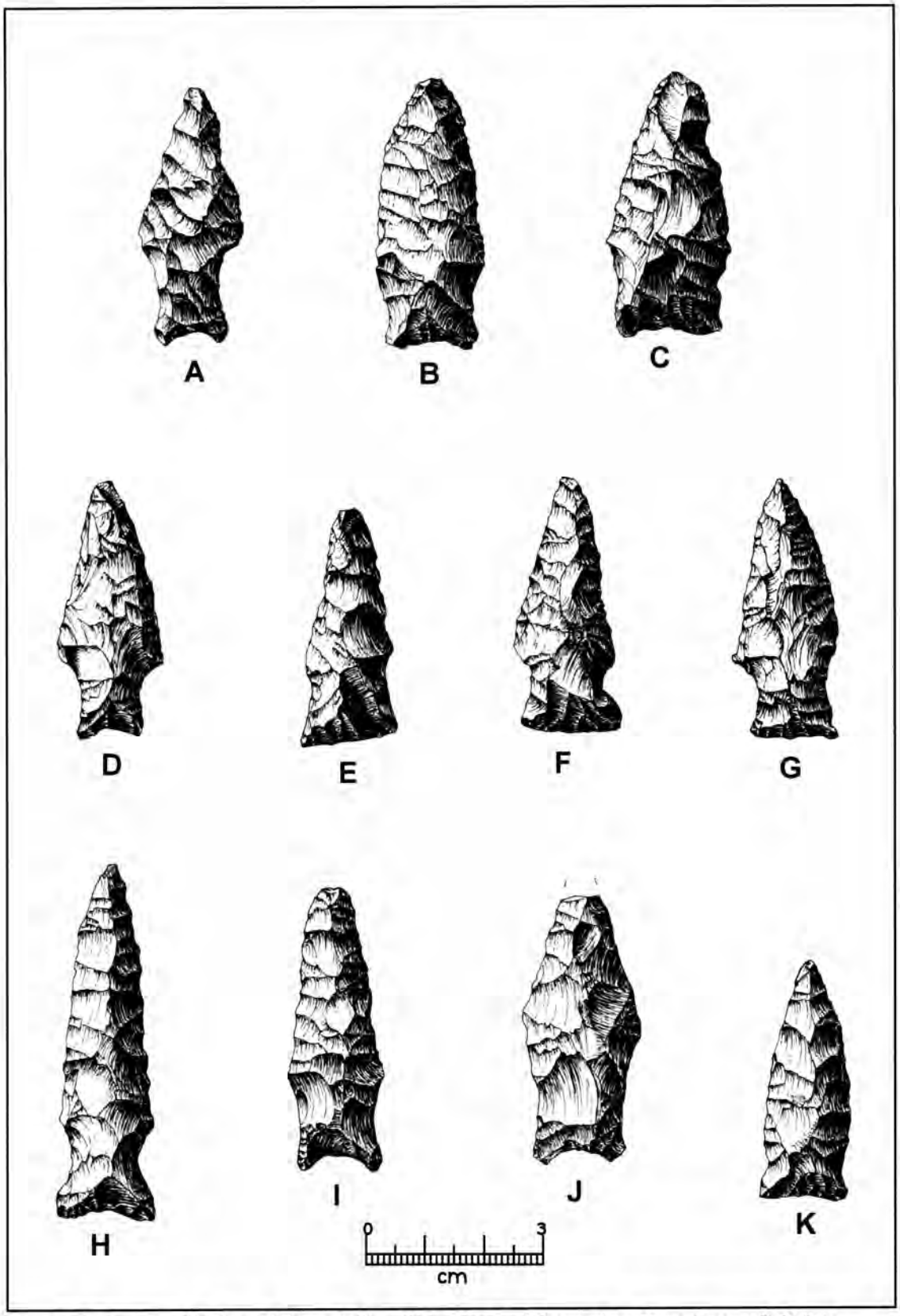

Figure 8. Stemmed Points, J2 Ranch Site: Side-Notched Expanding Base (ground) Points.

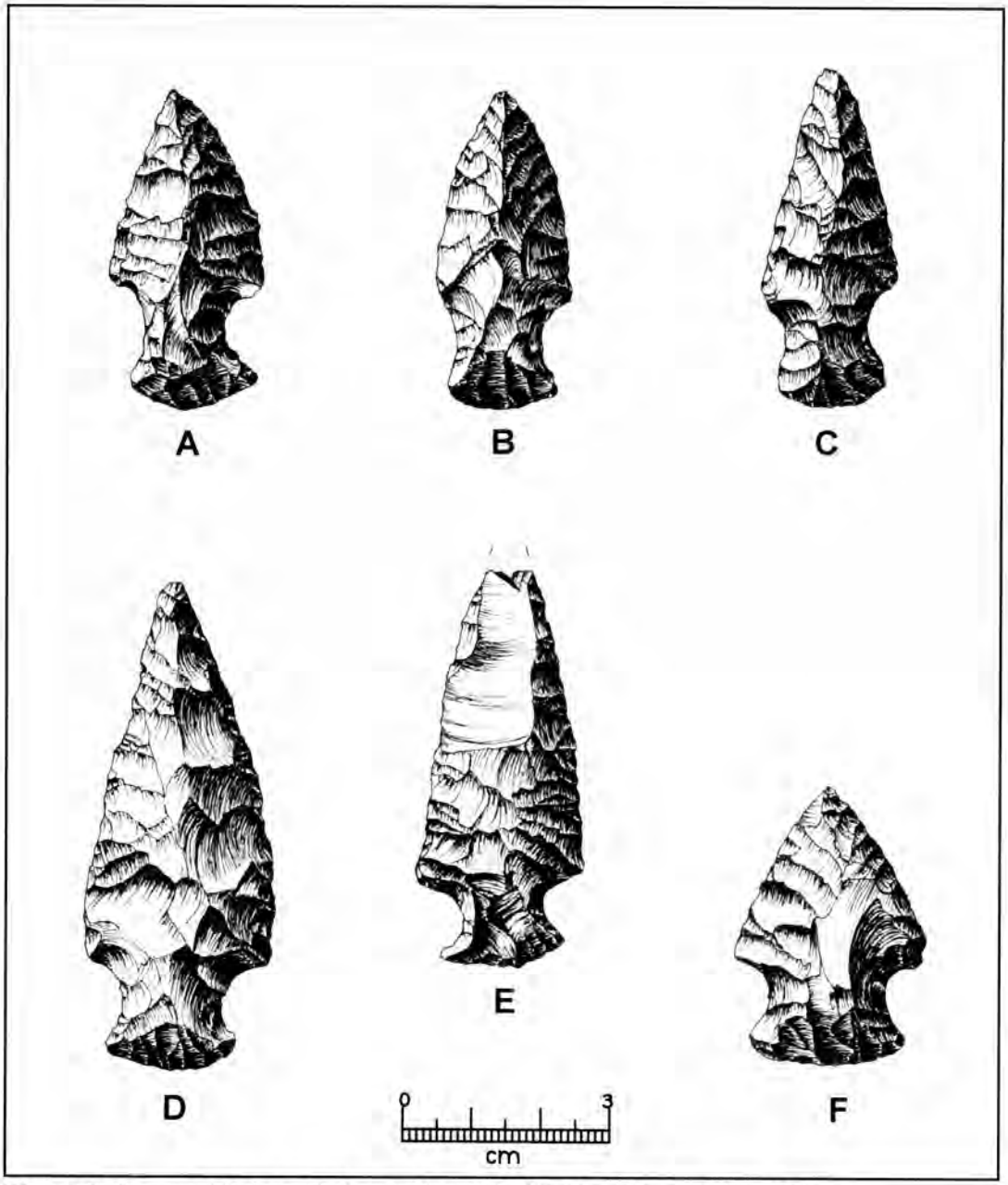

Figure 9. Stemmed Points, J2 Ranch Site: Side-Notched Convex Base Points.

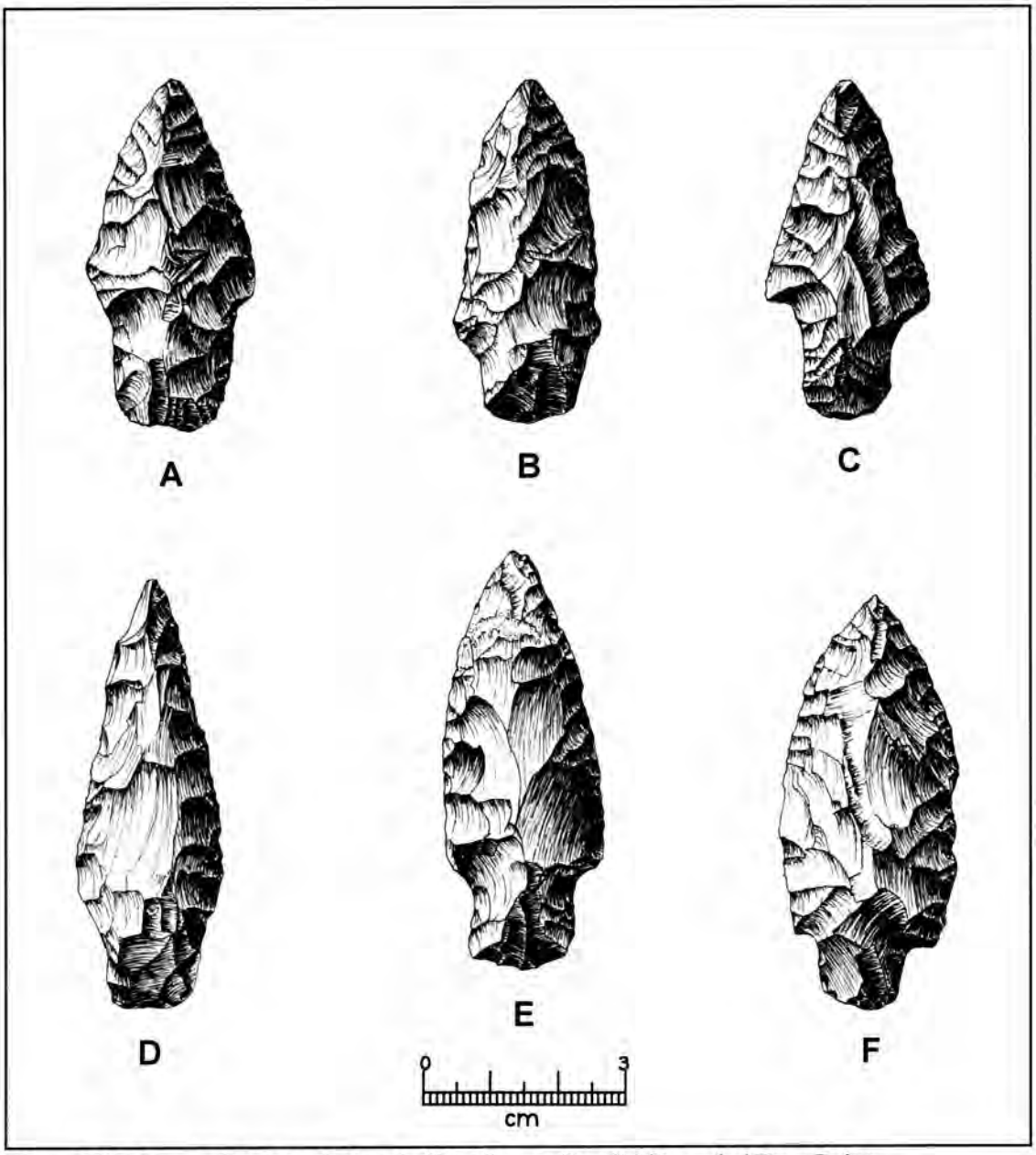

Figure 10. Stemmed Points, J2 Ranch Site: Narrow/Parallel/Rounded Base Points.

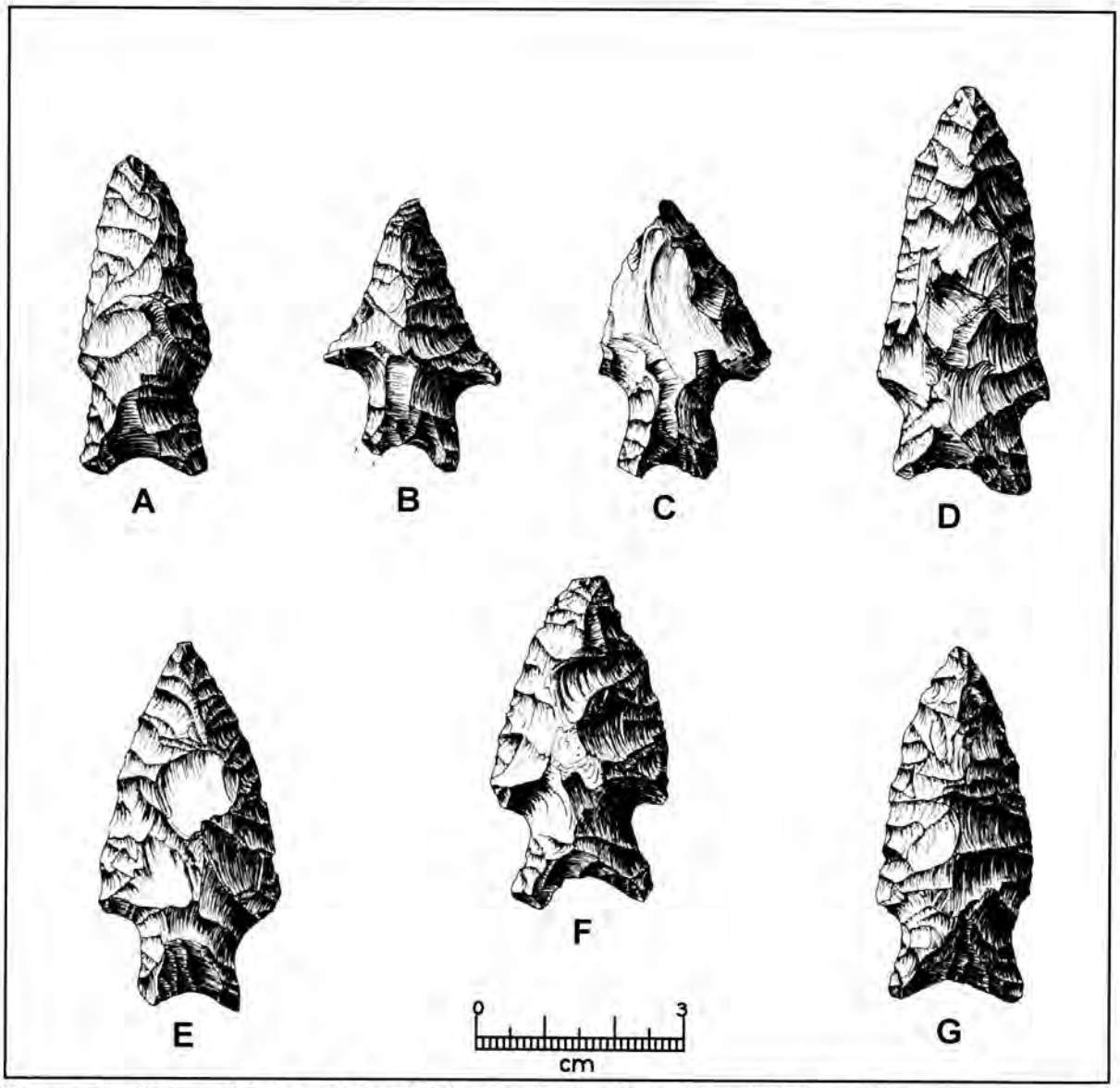

Figure 11. Stemmed Points, J2 Ranch Site: Expanding/Deeply Notched Base Points.

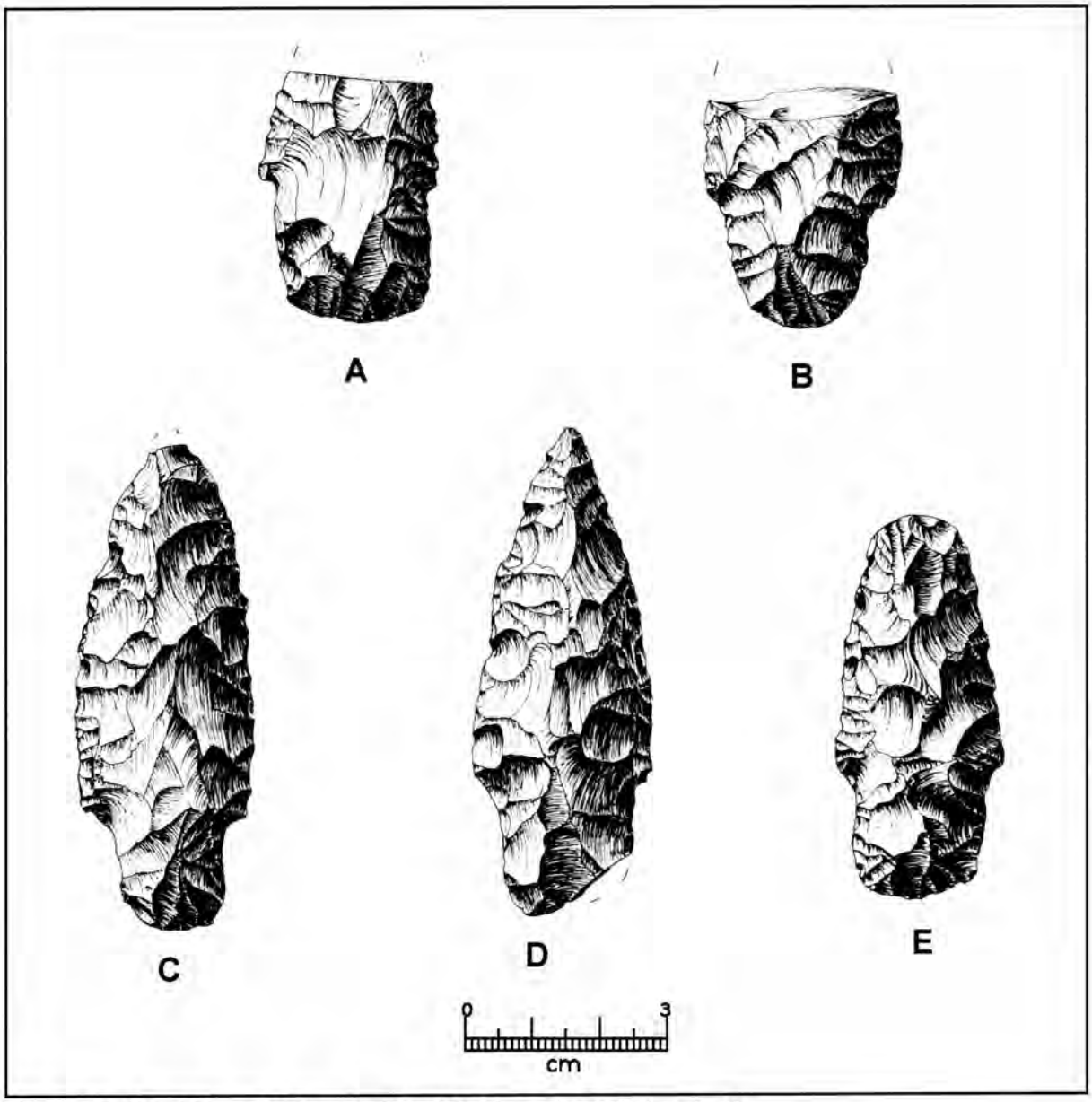

Figure 12. Broad Rounded Base Points--Morhiss point style (see text).

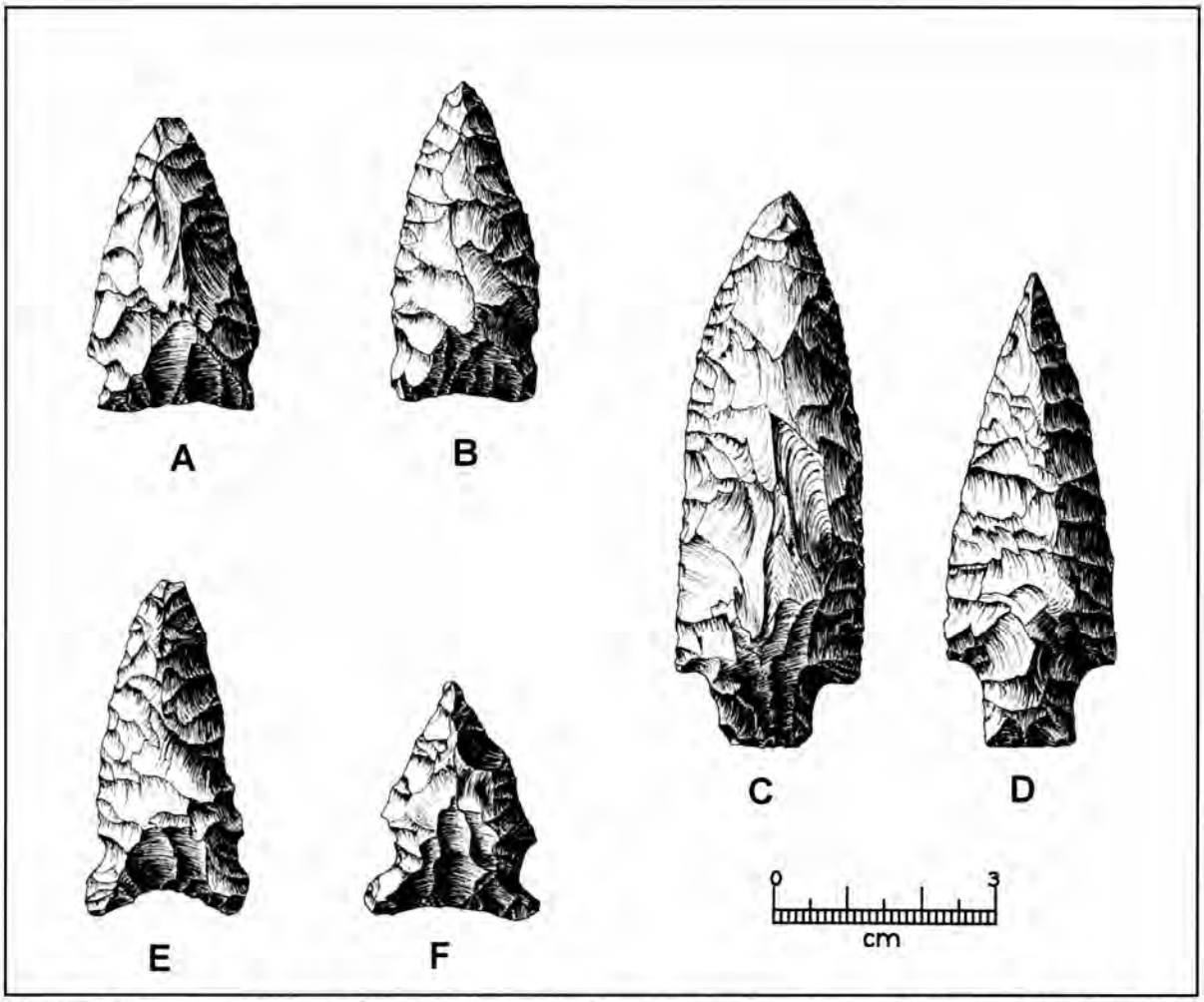

Figure 13. Stemmed Points, J2 Ranch Site: A, B, Broad Expanding Stem with Shallow Notches; C, D, Parallel Straight Base; E, F, Broad Expanding Convex Base.

is very surprising that only five specimens are in this collection. The type-site for the Morhiss point is only some 20 miles distant. The three complete specimens vary in length from 7.2 cm on 12D to 5.2 cm on 12E. The width varies from 2.9 cm on 12B to 2.5 cm on 12A. Specimens 12A and 12B have snap fractures and 12E has a blunt point possibly due to resharpening or repair of an impact fracture. Another unusual feature of these specimens is the lack of asphaltum, as almost all Morhiss points elsewhere in this area are heavily smeared with asphaltum on the base.

Broad Expanding Stem with Shallow Notches Points

Two specimens shown in Figure 13A and 13B resemble Trinity (Turner and Hester 1985). Although beyond the expected range of these points, they are triangular with very shallow notches and expanded base. The length is 4.2 cm on 13B, and 4.1 cm on 13A; the width varies from 2.3 cm on 13A to 1.9 cm on 13B.

Parallel Straight Base

Two specimens shown in Figure 13, C and D fit the general description of Morrill (Turner and Hester 1985). The points are well made and the stem edges are finely serrated. The bases are parallel-sided and square and the stems are very short. The length varies from 7.4 cm on 13C, to 6.3 cm on 13D. The width varies from 2.6 cm on 13C to 2.4 cm on 13D.

Broad Expanding Convex Base Points

Two specimens, Figure 13E and 13F seem to fit the description of Frio (Turner and Hester 1985). The length varies from 4.5 cm on 13E, to 3.1 cm on 13F. The width varies from 2.3 cm on 13F to 2.1 cm on 13E. Both specimens show extensive rework on the blade edges.

Slender Parallel Biface Round Base

Two bifaces, Figure 14A and 14B do not fit any known point description, but are unusual in that they are both long (7.1 cm) and narrow (1.8 cm) yet fairly thick (1.3cm). Specimen 14A is finely serrated on both blade edges from the base to near the tip where a burin has either been struck off or possibly caused by an impact fracture. Specimen 14B is serrated from the base to the middle of the blade where crude resharpening has been attempted; it appears this was to repair an impact fracture or possibly a failed burin

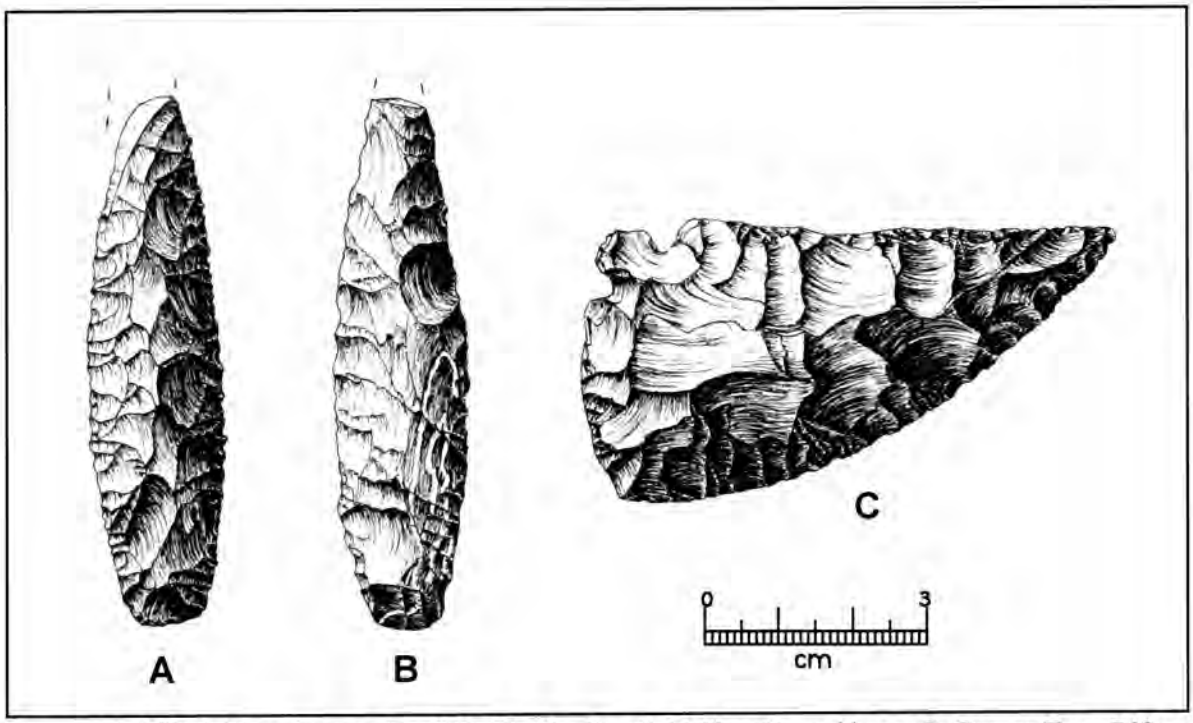

Figure 14. Bifacial Specimens: A and B, Slender Parallel Biface Round base; C, Corner-Tang Biface.

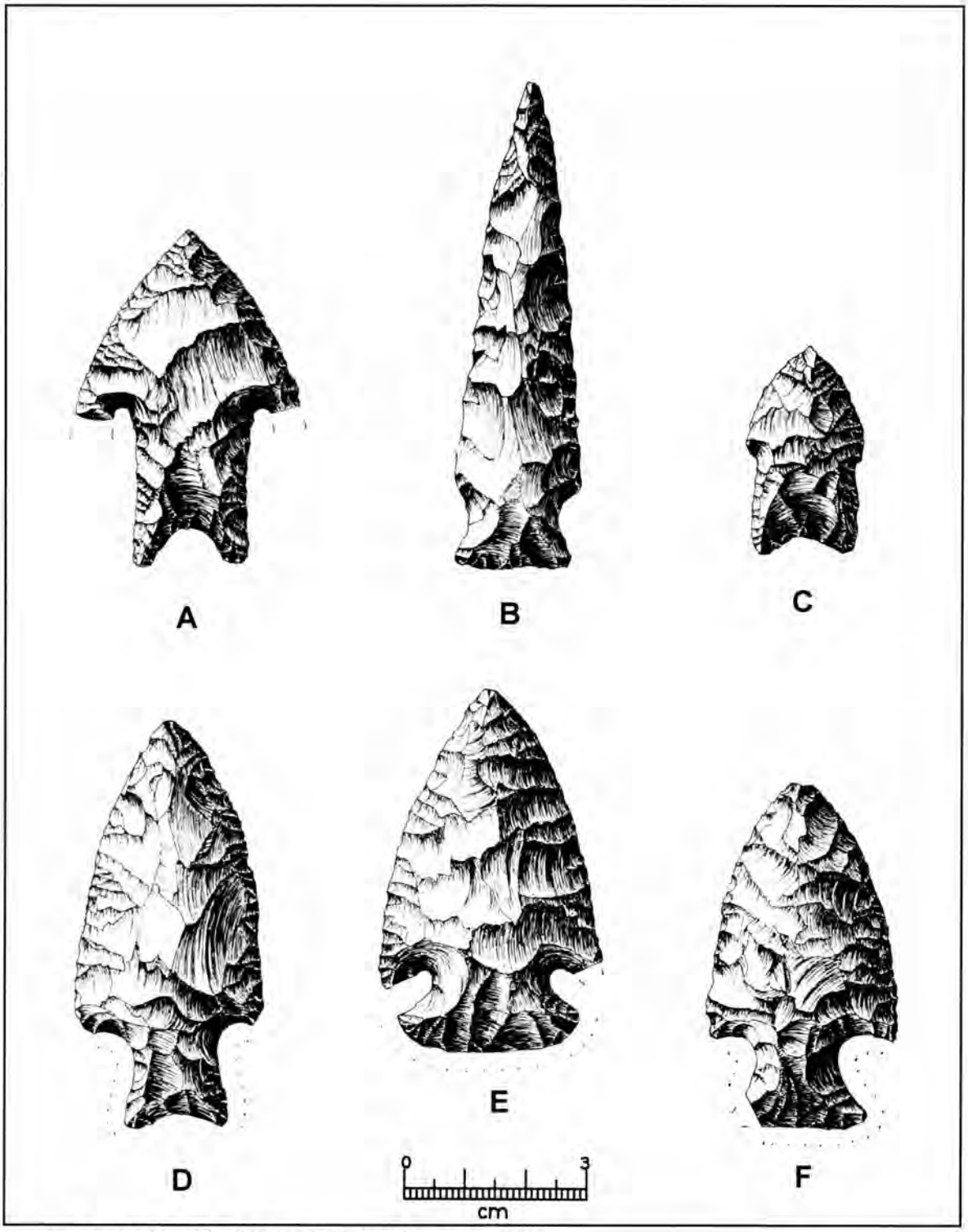

Figure 15. Unidentified Points (see text for comments).

attempt. Specimen 14A is made from very good chert, exhibits a slick feel and is glossy, possibly from heat-treating. Specimen 14B is made from a poorer grade of chert and is dull and rough in appearance.

Corner-Tang

One specimen shown in Figure 14, C, meets the criteria for the Corner-Tang biface form. (Turner and Hester 1985). As with most corner-tangs this is an exceptionally well-made biface. It measures 7.5 cm in length and 3.8 cm in width. The edges are finely retouched and the tip is needle pointed. One blade edge is straight while the other curves sharply from the base to the point.

UNIDENTIFIED POINTS

There are 123 points that could not be linked to a name or type (this does not include the hundreds of distal/medial/and proximal fragments). No attempt has been made to illustrate all of these, but six specimens (Figure 15 A-F) that appear rather unusual were selected. Specimen 15D is 6.8 cm long and 3 cm wide. It has a stem and base that are ground totally smooth, it has a glossy appearance and is finely serrated. A burin has been struck from the left edge of the stem running three-fourths of the length of the blade. Specimen E is everyone's idea of what a dart point should look like. It is extremely well flaked and serrated. It has been smoothed from the barbs along the entire base. The specimen is 6 cm long and 3.8 cm wide; one barb is partially missing. Specimen 15F is another well-chipped point finely serrated on both blade edges. It has exaggerated large side notches, and measures 5.8 cm in length and 3.1 cm in width. The base is ground and one barb is missing. Specimen 15A is one of the best flaked points in the collection with a length of 5.3 cm and a width of 3.7 cm. The specimen is .4 cm in thickness and apparently had barbs extending toward the base. The base comprises one-half the length and is ground with a steeply concave indention. Specimens 15B and 15C are the long and short of the stemmed collection. Specimen 15B is 8.2 cm in length and 2 cm in width, while 15C is 3.4 cm long and 2 cm wide.

ARROW POINTS

The four arrow points from this site shown in Figure 16 suggest a very light occupation of the site during the Late Prehistoric. Specimen 16A fits the description of the Perdiz type (Turner and Hester 1985). It measures 3.5 cm in length and 2.2 cm in width (one barb missing). This specimen is unusual in that it is made from a flake and has parallel oblique flaking on both blade sides. The specimen measures only .2 cm in thickness. Specimen 16B resembles Alba but lacks the barbs. This specimen is 4 cm long and 1.5 cm wide; it is thick. .5 cm, for its

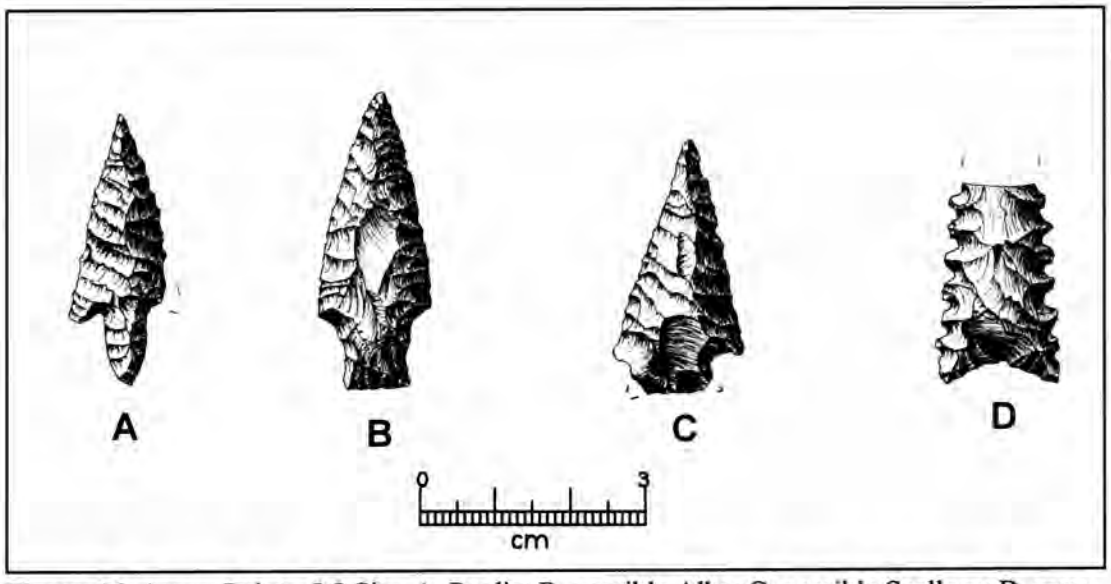

Figure 16. Arrow Points, J-2 Site. A, Perdiz; B, possible Alba; C, possible Scallorn; D, may be new, unnamed point.

size. Specimen 16C measures 3.3 cm long and 1.7 cm wide; it has weak barbs and apparently had an expanding base. It may be Scallorn. Specimen 16D is another as yet unnamed triangular arrow point with delicate "square" serrations similar to Scallorn and Fresno arrow points found in this area. There is no evidence of it being a Scallorn that has been reworked. Cecil Calhoun (personal communication) and the author feel this is a new, as yet unnamed arrow point style.

COMMENTS

This paper, along with Norman Flaigg's 1995 paper on the Paleo-Indian points from this site indicates 41VT6 was a favorite hunting site from the Early Paleo-Indian to the Late Archaic, and even may have had visitors up to the Late Prehistoric period. Five specimens, 5C, 6C, 8D, 8G, and 11A, fluoresce yellow/orange under a black light, which may indicate Uvalde gravels as the source for some of the chert.

A total of 465 projectile points has been found on the surface of the site as well as an unknown amount from excavations. The majority of the artifacts are from gravel bars that have formed downstream from the earthen dam (destroyed in the early 1900s) originally built to divert water into an adjacent lake on the Arenosa Creek (seasonal). The dam was apparently built from dirt removed from a playa lake (now dry) nearby that contained significant Paleo-Indian and Archaic campsites.

Surface searches and subsurface excavations have failed to locate intact deposits. The soils in the area are sandy loam overlaying heavy black gumbo and Pleistocene clays. The dark gumbo soils seem to hold the majority of the artifacts as evidenced by STAA week-end excavations in 1976-1978 on both sides of the Arenosa Creek and the edges of the adjacent lake (see *La Tierra* Volume 5, No. 3). Unfortunately the excavations did not reach basal clay in the undisturbed area near the lake due to time constraints.

The presence of small aquatic animals as well as beaver bones in the 1977 excavations indicates a running stream bordered by a large lake and swampy areas (Glen Evans, personal communication) when the artifacts were deposited. Asphaltum on the bases of some of the Archaic artifacts indicates possible contact with coastal tribes.

The majority of the Paleo and Archaic projectile points from this site exhibit a very glossy and distinctive dark color that is not seen on other sites in the area; it may be that the iron rich deposits in the clay have caused this phenomena.

The property is no longer accessible, but perhaps in the future there may be a possibility of renewed investigation. This site could be the most significant Paleo-Indian site in Victoria County and might also reveal much about the Archaic era. The archaeological community of the future should not forget site 41VT6.

ACKNOWLEDGMENTS

My sincere thanks to Richard McReynolds for the superb drawings and recommendations. Also to Dr. Tom Hester who suggested various changes; to Jimmy Mitchell who gave me encouragement during this lengthy project, and to Cecil Calhoun for his assistance.

As noted above, the classification of the artifacts in this article is solely the responsibility of the author, and is based on information from many sites in the Victoria area, not necessarily the same as described in some publications from other areas of the state.

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COMING UP:

The Rock Art Foundation, Inc. is sponsoring the reissue of Pearce and Jackson's 1933 classic: *A Prehistoric Rock Shelter in Val Verde County, Texas.* This account of excavations in Fate Bell Shelter has been out of print for decades and will be made available again in March.

INITIAL OBSERVATIONS FROM THE McMULLEN BRASADA STUDY

James M. Greer

ABSTRACT

This paper provides an initial overview of a four-year study at a locality in McMullen County, southern Texas. Selected artifacts are illustrated, including Clear Fork tools and a variety of dart and arrow points.

INTRODUCTION

McMullen County is located on the South Texas Plains, with Tilden, its county Seat, located 70 miles south of San Antonio (Figure 1). The major drainages are the Frio and Nueces Rivers, which join the Atascosa River near Three Rivers.

The McMullen Brasada Project is an ongoing investigation and study being conducted on a ranch principally overlooking the Frio River drainage. The terrain in the study area is gently rolling brushland, with abundant mesquite and cactus. During the survey, such animals as dove, quail, turkey, deer, javelina, armadillo, coyotes, and feral hogs, have been observed. Native grasses are sparse, but sufficient to support a few cattle.

HISTORY OF THE PROJECT

The investigators have included the author, his brother, Don Greer, and friends Tom Curry and Kennie Passmore. Artifacts were first collected in the study area in 1972, including both lithics and bone-tempered pottery. For a number of years now, field notes have documented the locations of sites, along with the dates of fieldwork and the conditions under which it was done. The author's brother, Don, assisted in the study of the collections in 1995 and 1996.

With the aid of Turner and Hester (1993), a review was made of all pre-1996 artifacts that had been found. Next, site inspection was conducted, maps were drawn, field notes assembled, and interviews were done with others who had collected from the study area. Projectile point analysis forms (based on the El Paso Archaeological Society form) were completed.

Following these efforts, the "McMullen Brasada Study" was initiated in 1996, continuing up to the present time. In October, 1998, Don Greer and the author attended the Texas Archeology Fair held at the Texas Archeological Research Laboratory (TARL) at The University of Texas at Austin. At the fair, we showed various TARL staff members the notes and records we were keeping and they helped in artifact identification. This only furthered our enthusiasm, and we joined the Southern Texas Archaeological Association, as well as the Friends of TARL program. Our experience with these groups has strengthened our determination to carry out systematic recording of data in the study area. We corresponded with Dr. Thomas R. Hester, who provided suggestions and recommendations, and we began to submit to TARL copies of all of our archaeological site data forms, artifact recording forms, etc.

ARTIFACTS FOUND IN THE STUDY

For this initial paper, a representative sample of artifacts has been selected for illustration. These indicate the kinds of chipped stone artifacts that are found, and continue to be recorded, in the study area.

Figure 1. Location of McMullen County, Texas.

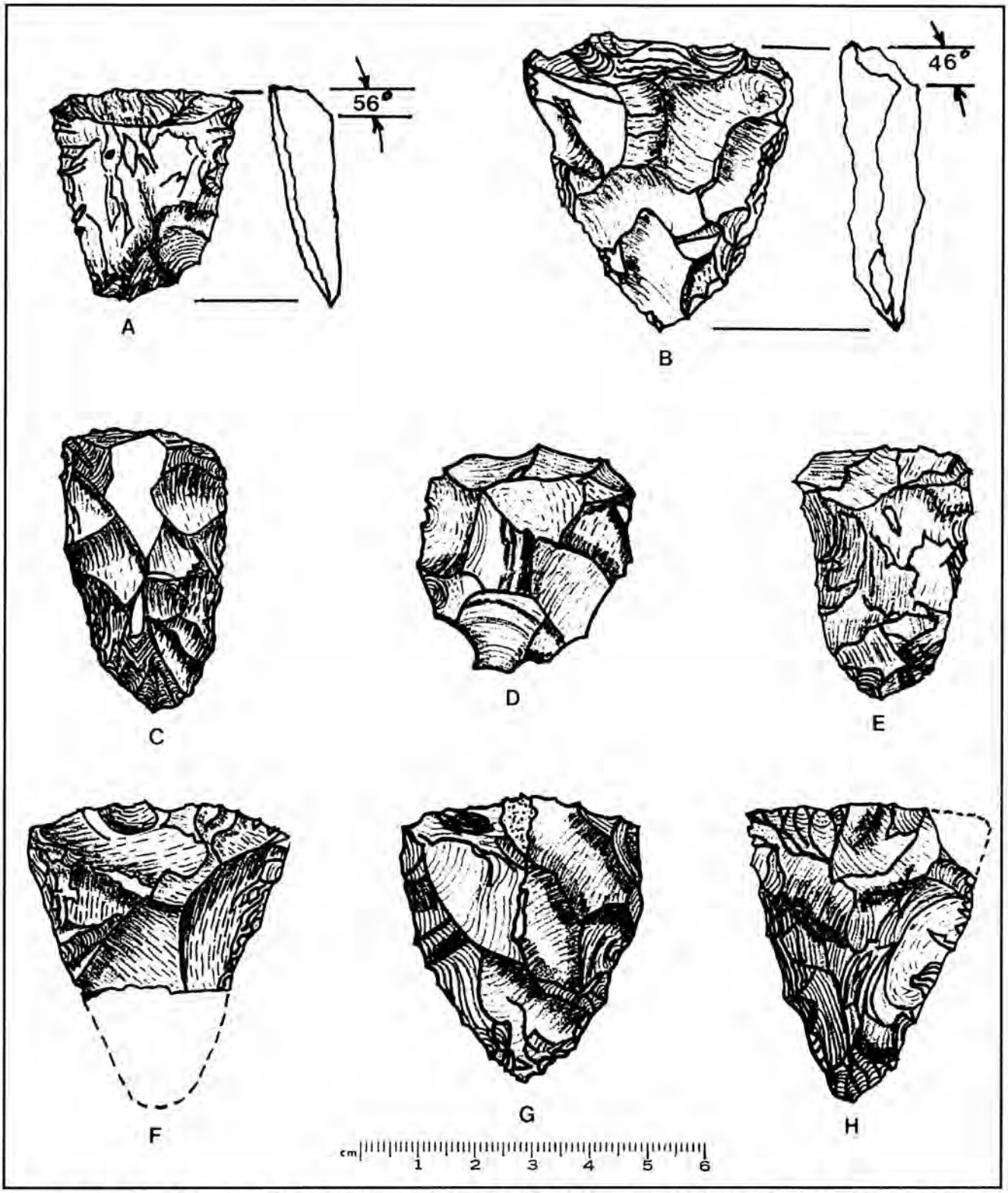

Figure 2. All above Clear Fork Tool specimens are from the McMullen Brasada Study, McMullen County, southern Texas. Working edge/bit views are illustrated for specimens A and B. Drawings by Mickey Greer.

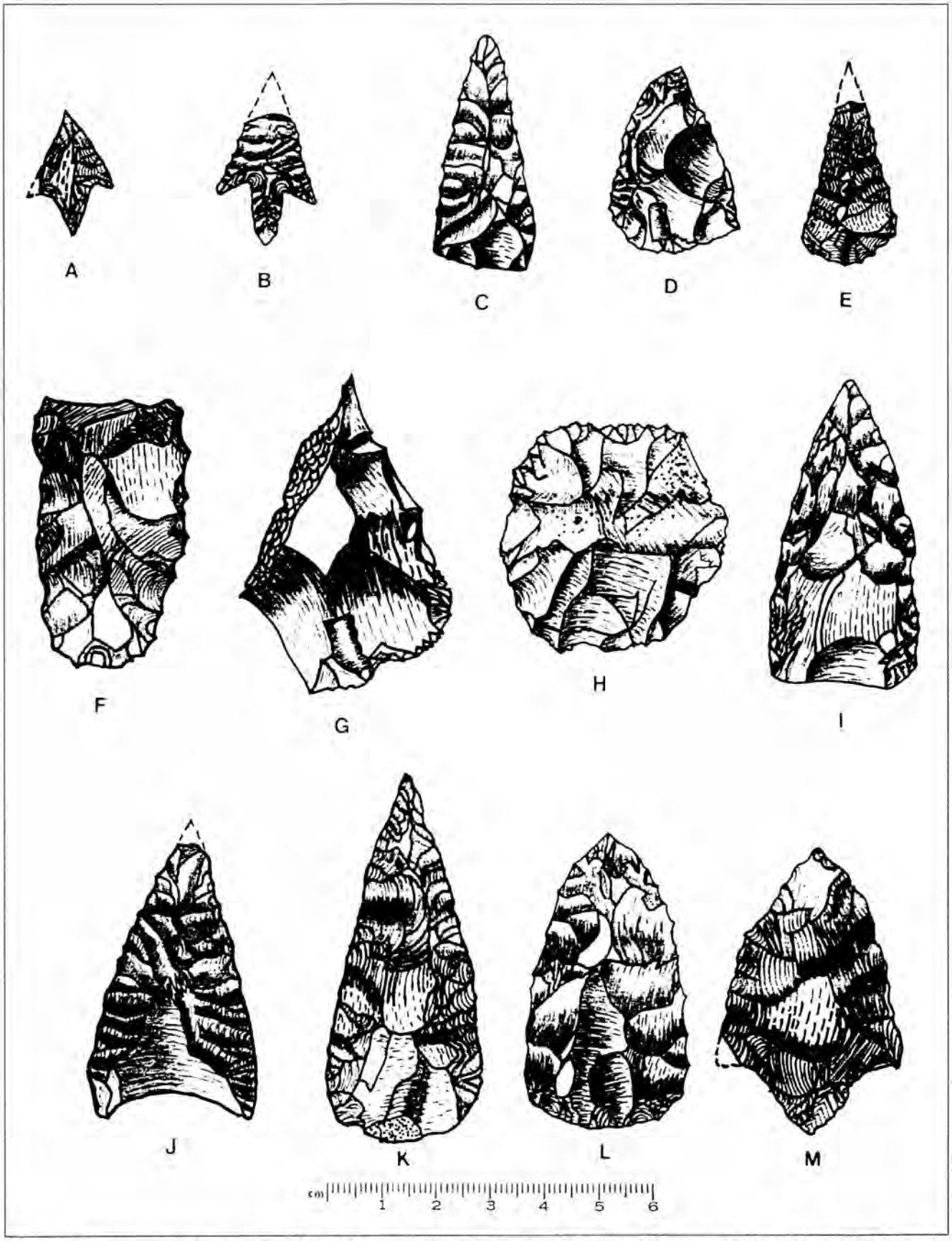

Figure 3. Selected specimens from the McMullen Brasada Study, McMullen County, southern Texas: A, B, Perdiz points; D, Young; C, E, arrowpoint preforms; F, end scraper; G, graver; H, uniface scraper; I, Tortugas; J, Kinney; K, L Abasolo points; M, Almagre. Drawn by Mickey Greer.

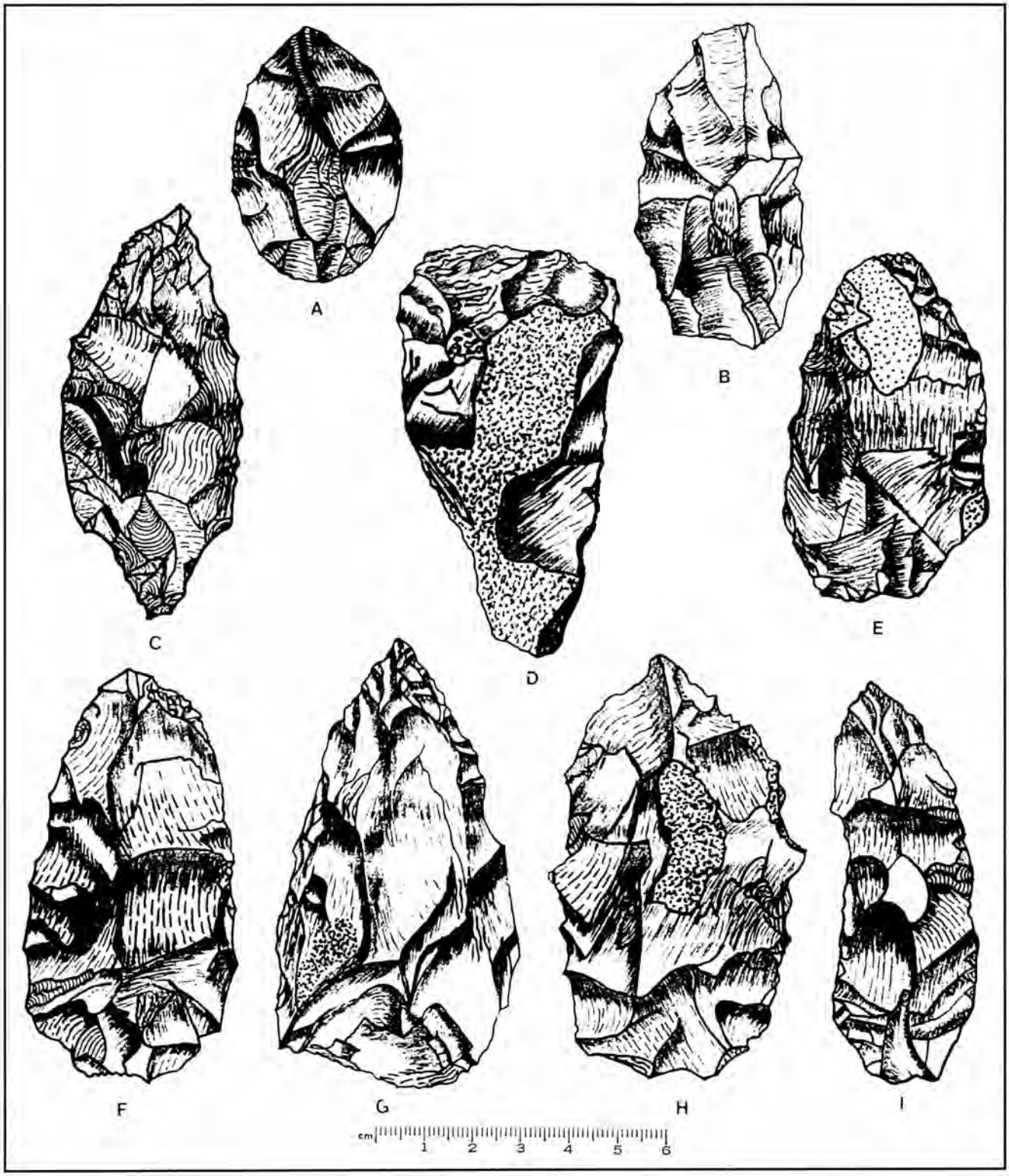

Figure 4. Selected biface specimens from the McMullen Brasada Study, McMullen County, southern Texas: A, small biface or dart point preform ?; B, C, core bifaces; D, Guadalupe biface preform?; E - G, larger bifaces; H, quarry blank; I, crude biface. Drawings by Mickey Greer.

Figure 2 illustrates eight Clear Fork tools. Two are unifacially flaked (Figure 2, C,H), while the balance of the tools are bifacial. Specimen A in Figure 2 is made of petrified wood. All of the rest, except Specimen F, are of good quality chert, ranging in color from light honey to chocolate brown (F is a low-grade chert, sandy brown in color). Fractures indicating breakage during use are found (Figure 2, F) and others have been reworked or resharpened through their use-cycle (Figure 2, D, E).

A wide range of projectile points has been collected from sites in the study area (see Figure 3 for some examples). These include a possible Angostura and what may be Paleoindian gravers on end scrapers. A Guadalupe biface and an Andice (?) point reflect the Early Archaic, while Middle and Late Archaic diagnostics include Abasolo, Tortugas, Almagre, Kinney, Pandora, Refugio, a barb from a Castroville (?) point, and a possible corner-tang biface fragment. Additionally, a Pandale point, rare in this part of South Texas, has also been found. The Transitional Archaic is represented by Ensor and Matamoros points. The Late Prehistoric artifacts include Perdiz, Cliffton (?), and Young (both of the latter two types may actually be preforms), end/side scrapers, flake tools, and cores.

The artifacts have been surface-collected at sites that are best characterized "temporary campsites" on high terraces above the Frio-Nueces drainage system. Some were probably also used for lithic procurement and stone-tool reduction activities. Figure 4 illustrates some of the unfinished bifaces or preforms that come from these temporary sites. Intact hearths, scattered burned rocks, or other cultural debris is absent at these sites, reaffirming our belief that they represent short-term use.

CONCLUSIONS

Our systematic effort to record archaeological materials at a ranch in McMullen County—the McMullen Brasada Project—has only begun to yield information, and this paper should be considered as highly preliminary. We are going to continue the project, mapping sites and artifacts found in or near them, and documenting all collected materials. As the data are reviewed in coming months and years, there should be sufficient information to make useful comparisons with other nearby studies (such as Choke Canyon; Hall et al.1986). Our focus on these temporary sites will hopefully add new information on the activities that took place in such locales in the prehistoric past.

ACKNOWLEDGMENTS

The author and his three colleagues wish to thank Dr. Thomas R. Hester and his staff at TARL for the assistance provided in the editing of this paper. Further, the publications and references dealing with McMullen County provided by Dr. Hester, will be of great aid as the project goes forward. The author owes a debt of gratitude to the three avocationals involved in the study, Don Greer, Tom Curry, and Kennie Passmore, for their diligent work.

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ANDICE/BELL RESHARPENING ATTRIBUTES

Carey D. Weber

ABSTRACT

Qualitative attributes for resharpening of Andice/Bell points are described. Tabulations of these attributes for 371 prehistoric Andice/Bell points are presented. A schematic for morphological variation of Andice/Bell points caused by resharpening is presented.

INTRODUCTION

Little substantial research has been done for attributes of projectile point morphology resulting from resharpening. Sollberger (1971) presented one of the earliest studies of morphological changes resulting from serial resharpening for four-beveled knives. Goodyear (1974) presented one of the best use morphology studies in his report on Dalton points from the Brand Site (3PO139). Bradley and Frison (1987) noted changes in projectile point morphology caused by reworking. Weber (1984) conducted an experiment to document the effects of resharpening on corner-tanged bifaces. Weber (1994) distinguished qualitative manufacturing flake scar attributes from qualitative use flake scar attributes to develop a late stage manufacturing sequence for Andice/Bell points.

This report focuses on the use attributes identified in the latter study. The scope of this study did not include microscopic analysis of use wear or experiments to replicate use wear. The term "resharpening," as used in this report, includes rejuvenation of dulled edges, as well as reflaking of the blade necessary to recycle damaged points.

RESHARPENING ATTRIBUTES

Thirteen attributes represent the Andice/Bell resharpening technique. They include reduction of blade size by resharpening, resharpening scar type, blade edge of final resharpening series, blade asymmetry, serrations and bevels, blade shoulders, blade twisting, blade thinness, blade ridges, intrusion of resharpening scars into terminal notching scars and barb loss scars, and multiple notches (see Figure 1).

A subjective estimate of potential original size of artifacts that appeared to have been resharpened was made based on stem thickness and degree of modification of original contours and manufacturing scars. The degree of reduction by resharpening was described as absent, early, moderate or late, depending on the difference between the estimated original size and the actual size. Categorization of Andice/Bell artifacts by degree of postmanufacture reduction by reflaking from original size was used to analyze detailed attributes at different points along the utilization continuum. Weber (1984) described the limits of this technique for use with corner-tanged bifaces.

In addition to reduction from original size, flake scar overlaps were used to identify the sequence of flake removals. Manufacturing scars are the earliest flake scars produced. Manufacturing scars were identified by comparison with those on manufacture failures and relatively unaltered finished pieces (Weber 1994). More recent scars that intrude into manufacturing scars, particularly those that resulted in width reduction, were identified as resharpening scars. Resharpening scars are often removed in a series, either unifacial or bifacial. While flakes used to remove platform remnants of larger flakes, scars are generally confined to the flake scar ridges near the blade edge and are removed toward the same face as the larger flakes, resharpening scars commonly intrude into the negative scar between the ridges of larger flakes and are removed from the opposite face.

Resharpening scars were documented as microflakes (Figure 1a2), short flakes (Figure 1a3), or long flakes (Figure 1a4) as defined by Weber (1994). The final resharpening series on each face was recorded relative to the blade edge as bifacial, unifacial left, unifacial right, and unifacial to one face. Blade asymmetry resulting from resharpening (Figure 1a1), serrations, and bevels were also recorded. An attribute originally defined for Calf Creek points (Bell 1958) is blade shoulders (Figure 1a5), noticeable changes in edge alignment which form at angles above the notch terminations on the lateral blade edges. Another diagnostic attribute of resharpening, intrusion by resharpening scars into terminal notching scars (Figure 1a6) and barb loss scars (Figure 1a7) was documented to evaluate the effects of

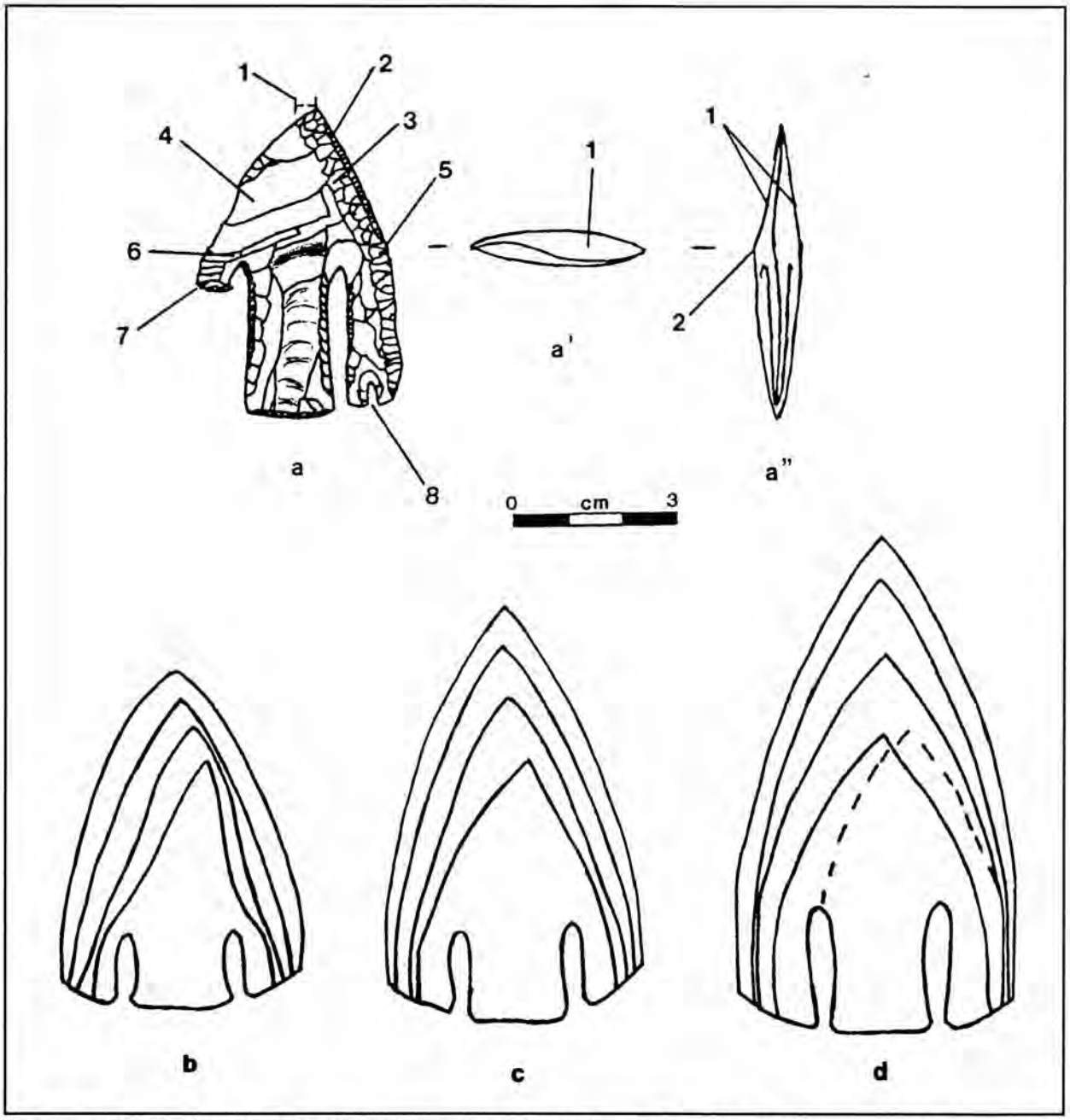

Figure 1. Qualitative attributes for resharpening and breakage of Andice/Bell points:. a - 1, assymetry; 2, microflakes; 3, short flakes; 4, long flakes; 5, shoulder; 6, intrusion into terminal notching scar; 7, intrusion into barb loss scar; 8, multiple notch. a' - 1, blade twisting. a" - 1, blade thinning; 2, ridge at blade/stem juncture. b-d, Idealized reduction sequences for Andice/Bell points by discriminant function value groups. b, 20.54 - 35.04. c, 35.04 - 44.04. d, 44.04 - 60.54. Beginning with the exterior and ending with the interior, outlines depict mean size of specimens with no resharpening, early resharpening, moderate resharpening and late resharpening, respectively.

resharpening on the original manufacturing and breakage scars.

Blade twisting (Figure 1a'1), blade ridges (Figure 1a2), and blade thinness or acuteness (Figure 1a"1) are specific blade resharpening features associated with repetitive series of long flake resharpening. Twisting results when repetitive series of long flakes are removed from both left edges or both right edges of each face, causing a shift in the horizontal blade centerline relative to the stem/barb centerline. As the blade becomes thinner and more acute from continued long flaking, ridges form between the thinned blade and areas that have been avoided, such as the notch terminations and upper stem areas.

The presence of notches other than those forming the stem (see Hester 1990) is a peculiar trait occasionally observed in Andice/Bell points, which very likely represents practice notching because the craftsman can gain experience without risking a whole preform. The notches may enter from barb bases (Figure 1a8) and lateral blade edges, and they may bisect the stem and the distal tip. Only three specimens in the entire study sample exhibited this attribute.

OBSERVED RESHARPENING SEQUENCE

Effects of resharpening are most apparent in artifacts that have not sustained critical damage. The idealized model in Figure 1 b-d uses outlines of undamaged forms, and the descriptions and drawings are based on mean qualitative and quantitative data. Individual specimens may be found that are intermediate or extreme in form. The graphs shown in Figures 2, 3 and 4 categorize specimens using discriminant function values (Weber 1986, Weber and Patterson 1985). In vernacular terms, the smallest discriminant function value range (20.54-35.04) has been referred to as Bell, the middle range (35.04-44.04) as Calf Creek, and the upper range (44.04-60.54) as Andice (Turner and Hester 1985:72). The reader is cautioned that these separations are arbitrary, and they are referenced only because they are familiar terms. No conclusive technological, geographical or chronological data has been found to support them.

No Resharpening

This use sequence represents 15 percent of prehistoric Andice/Bell points, including discarded manufacturing failures and broken points that were not recycled (Figure 5). The mean size and shape of this form is indicated by the largest (exterior) outline in Figure 1, b-d. The artifacts show no use attributes other than breakage. This form is important because the manufacturing attributes have not been altered, allowing reconstruction of preform sizes and shapes, reduction techniques, and flake scar sequences. Blades tend to be large with convex lateral edges, and maximum thickness usually exceeds maximum stem thickness. Some attributes, such as shoulders, asymmetry, blade twisting, ridges, blade thinning and intrusion into terminal notching scars, which result primarily from use, were also found to be manufacturing attributes of a few artifacts (Figures 3 and 4).

Early Resharpening

The mean size and shape of this form is indicated by the second largest outline in Figure 1, b-d. Resharpening at this sequence is represented by 21 percent of Andice/Bell points, and it is limited to very minor repair and rejuvenation of dulled edges (Figure 6). Most of the original manufacturing scars and form of the artifacts are unaltered. As shown in Figure 2, a, b, and d, unifacial microflakes and short flakes from the right (face up, tip forward) blade edges were the preferred technique of performing this work, probably because the newly manufactured blade edges are thin and acute. On some artifacts the flaking is limited to the distal blade sections, while on others it extends all the way to the barb bases. When minor tip damage is repaired, reflaking down the blade is sometimes necessary to make the new distal section acute. Uncommon attributes for Andice/Bell points, serrations (1.9%) and bevels (3.5%) are produced by removal of microflakes and short flakes, and they are most likely to occur during this resharpening sequence.

Moderate Resharpening

The largest group of Andice/Bell points (42 percent) is represented by this resharpening sequence. Noticeable reduction has occurred in artifact size, as indicated by the second smallest outline in Figure 1, b-d, and the original contours and flake scar attributes resulting from manufacturing are altered (Figures 7 and 8). Goodyear (1974) and Sollberger (1971) have previously noted that blade edges become less acute when microflakes and short flakes are used to rejuvenate damaged and dulled

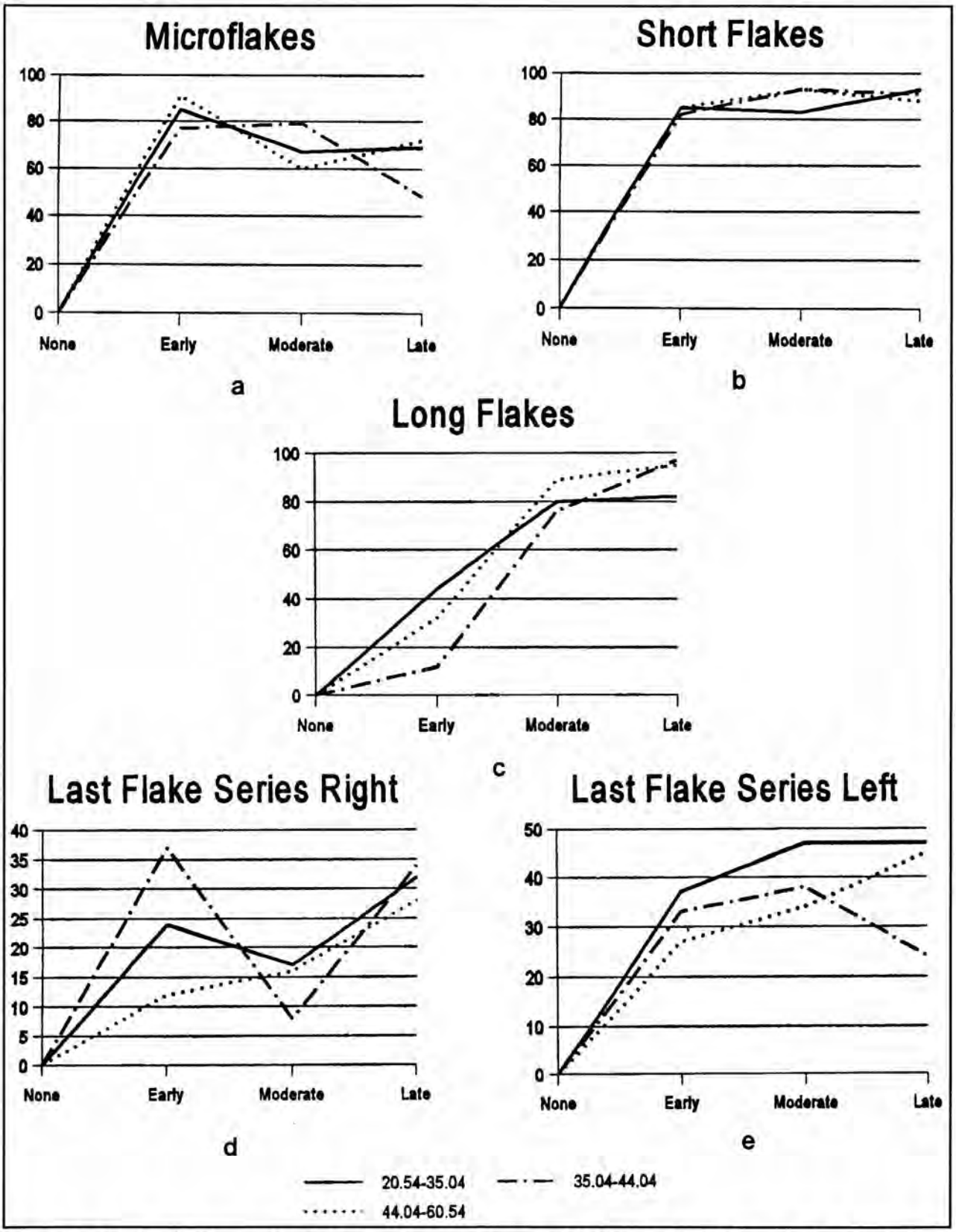

Figure 2. Graph of resharpening flake scar frequencies on prehistoric Andice/Bell points by discriminant function value groups and resharpening sequence. a, microflakes; b, short flakes; c, long flakes; d, last unifacial series from right blade edge; e, last unifacial series from left blade edge.

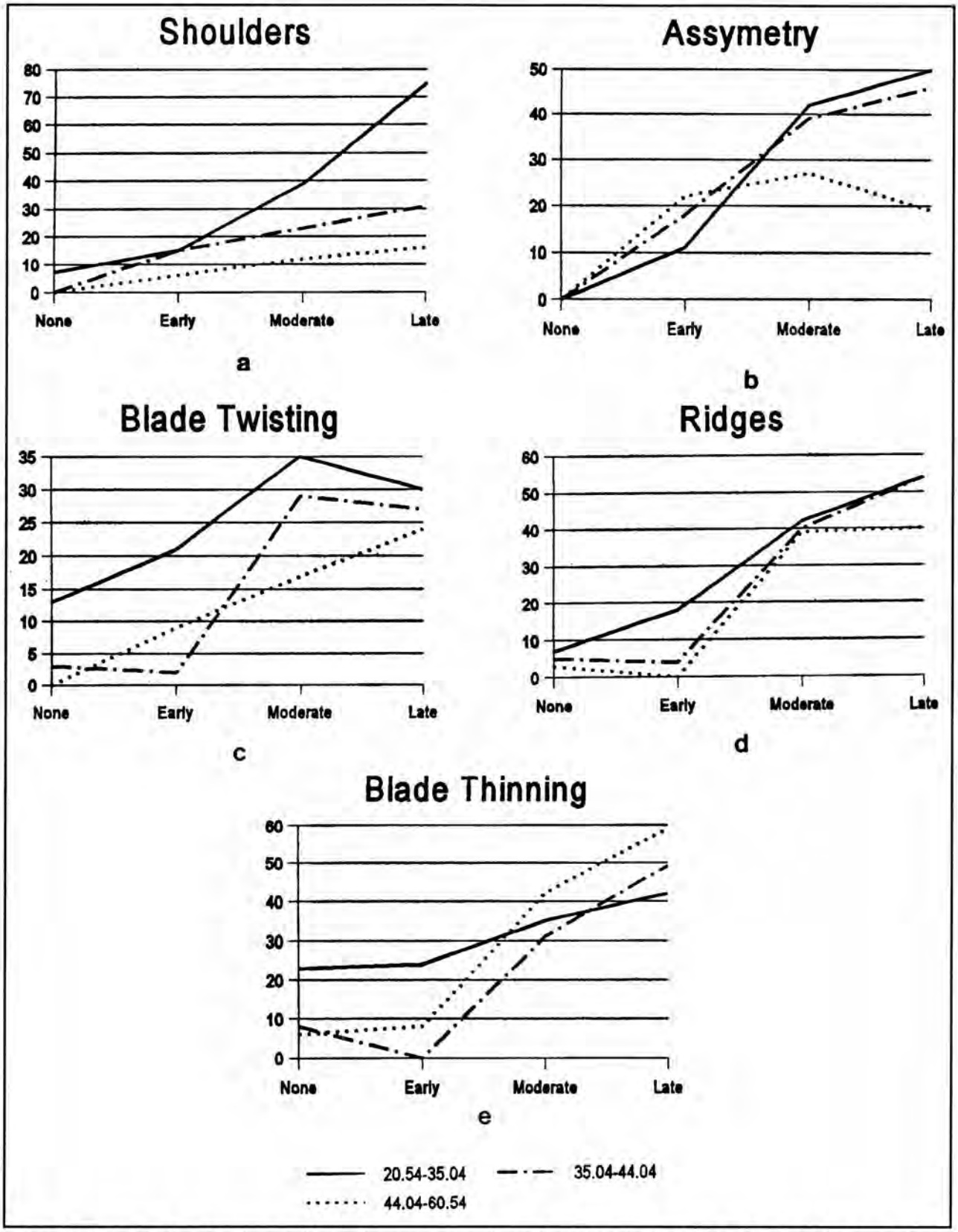

Figure 3. Graph of qualitative attributes from resharpening of prehistoric Andice/Bell points by discriminant function value groups and resharpening sequence. a, shoulders; b, assymetry; c, blade twisting; d, ridges; e, blade thinning.

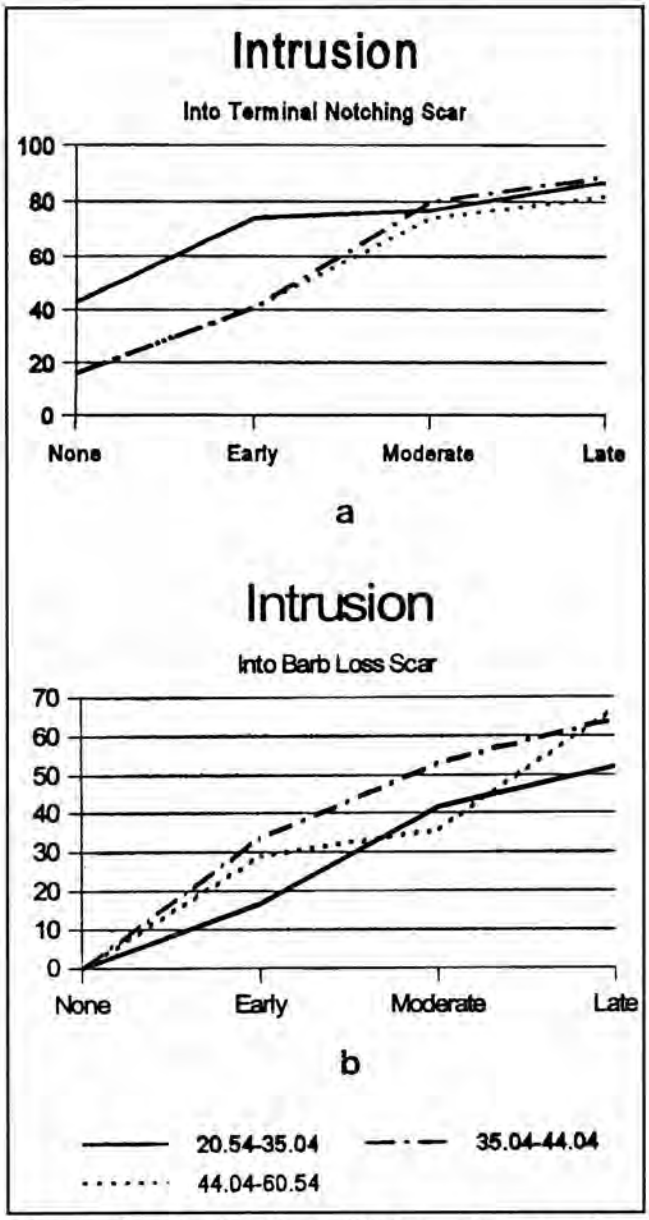

Figure 4. Graph of qualitative attributes from resharpening of prehistoric Andice/Bell points by discriminant function value groups and resharpening sequence. a, intrusion of resharpening scars into terminal notching scars; b, intrusion of resharpening scars into barb loss scars.

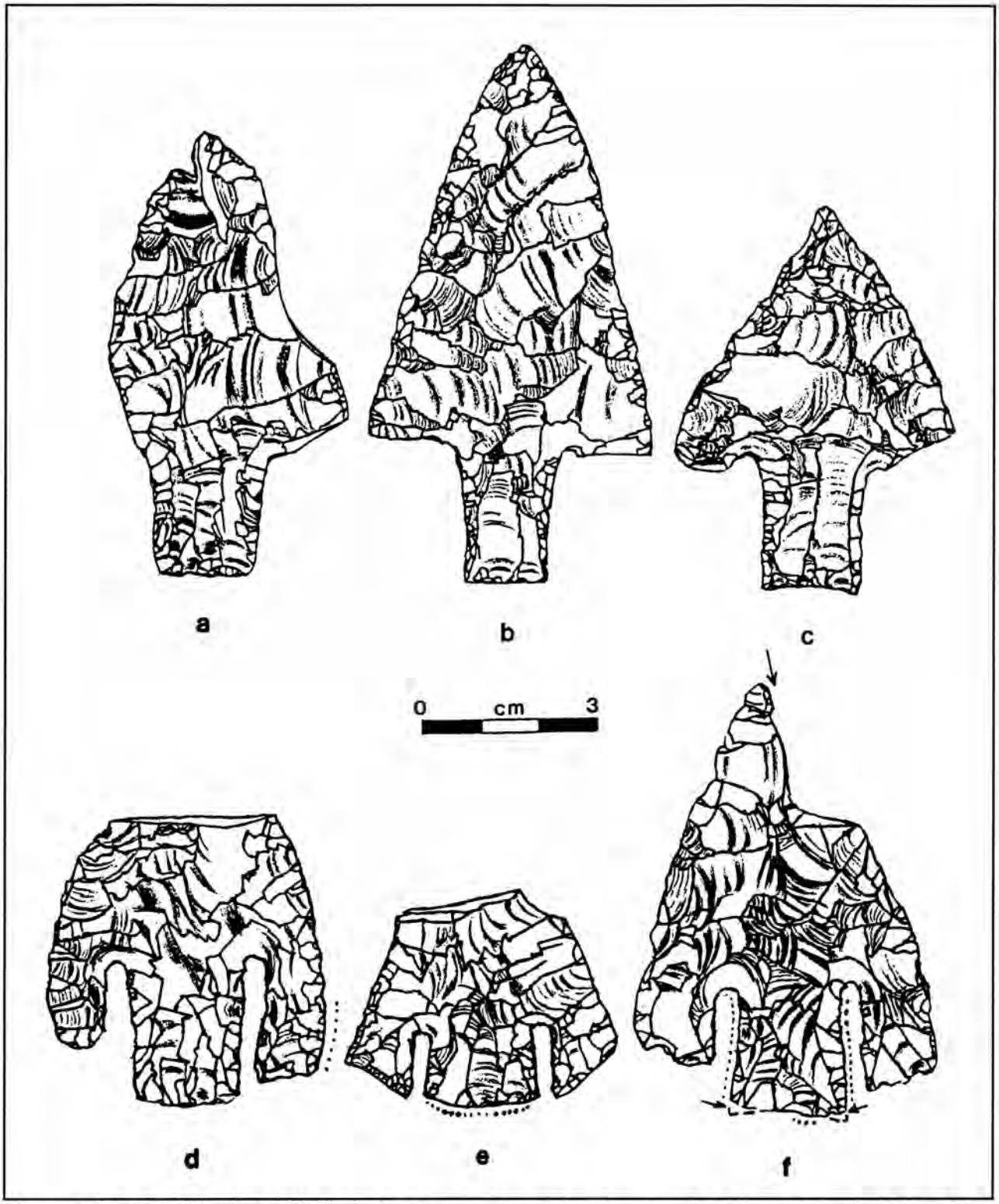

Figure 5. Prehistoric Andice/Bell Points showing no resharpening. Specimen a is a manufacturing failure. Note impact burin on Specimen f. Arrows indicate burin scars. Dots indicate extent and degree of edge dulling. See Table 1 for detailed provenience and morphological information.

Table 1. Provenience and Morphological Data of Illustrated Specimens.

Figure	Provenience	Discriminant Function Value	Variation	Breakage Type
5a	41BL	39.69	2	Transverse Barb Snap/ Vertical Barb Snap
5b	Central Texas	46.42	2	Transverse Barb Snaps
5c	Central Texas	46.27	2	Transverse Barb Snaps
5d	41BL	47.42	4	Transverse Blade Snap
5e	41BL	31.17	3	Transverse Blade Snap
5f	41BN	42.74	1	Impact Burin/Base Burins
6a	41GL	34.46	3	Distal Tip Impact Burin/ Transverse Barb Snap
6b	41BL323	59.71	1	Transverse Blade Snap/ Transverse Barb Snap/ Barb Thermal Fracture
6c	41BL/WM	-	-	Transverse Blade, Barb Stem Snaps
6d	41GL/KM	42.16	1	Distal Transverse Snap/Impact Burin/Transverse Barb Snap
6e	41BN	43.61	1	Impact Roll Snap, Multiple/ Base Corner Snap
6f	41BL323	39.44	1	Distal Tip Transverse Snap/ Barb Burin
7a	41GL/KM	46.45	3	Resharpened Barb Loss Scar
7b	Central Texas	40.45	3	Resharpened Barb Loss Scar
7c	41BL	35.74	3	Resharpened Barb Loss Scar
7d	Central Texas	27.01	6	Transverse Barb Snap
7e	Central Texas	33.54	4	Transverse Barb Snap
7f	41GL	47.93	3	Transverse Barb Snap/ Barb Burin
7g	Central Texas	37.40	3	Distal Tip Lateral Overshot/ Lateral-in Barb Snap/ Transverse Barb Snap
7h	Central Texas	33.09	6	Transverse Barb Snap
7i	41BL	40.64	2	Barb Burin/ Resharpened Barb Loss Scar
7j	41BN	40.46	2	Transverse Barb Snap/ Lateral-in Barb Snap
8a	Central Texas	53.06	1	Transverse Barb Snap/ Barb Burin
8b	41BL/WM	50.71	1	Transverse Barb Snap
8c	41BL	49.74	1	Transverse Barb Snap/ Barb Burin/Stem Burin
8d	Central Texas	39.80	1	Transverse Barb Snap
8e	Central Texas	41.12	1	Remnant Impact Scar/ Verticlal Snap
8f	Central Texas	47.82	2	Transverse Barb Snap/ Corner Base Snap
8g	41GL	50.59	1	Transverse Barb Snap/ Barb Burin
8h	Central Texas	50.92	1	Distal Tip Resharpened/ Transverse Barb Snap/ Lateral-in Barb Snap
8i	41BN	44.50	2	Distal Tip Roll Snap/ Transverse Barb Snaps
8j	41BL/WM	42.09	1	Transverse Distal Tip Snap/ Transverse Barb Snap/ Vertical Snap

NOTE: Table 1 Continued on next page.

Table1 1 (Continued) Provenience and Morphological Data of Illustrated Specimens.

Figure	Provenience	Discriminant Function Value	Variation	Breakage Type
9a	41BL	49.14	2	Transverse Barb Snap/ Resharpened Barb Loss Scar
9b	41WM	50.51	2	Barb Burin
9c	Central Texas	45.65	2	Lateral-in Barb Snap
9d	41BL	48.29	2	Barb Burins
9e	Central Texas	57.84	1	Resharpened Barb Loss Scar Barb Burins
9f	Central Texas	45.82	1	Lateral-out Barb Snap/ Resharpened Barb Loss Scar
9g	41BQ17	44.43	1	Remnant Impact Scar/ Lateral-in Barb Snap/Barb Burin Resharpened Barb Loss Scar Stem Burin
9h	41BL	35.80	1	Lateral-end Barb Snap/Barb Burin Base Snap
9i	Central Texas	50.87	1	Transverse Barb Snap
9j	41BL323	56.58	1	Resharpened Distal Tip/ Transverse Barb Snaps
9k	Central Texas	37.47	2	Transverse Barb Snaps/ Vertical Snap
9l	41BL323	54.74	2	Distal Tip Transverse Snap/ Vertical Snap/ Resharpened Barb Loss Scar
10a	Central Texas	51.67	3	Barb Burin/ Resharpened Barb Loss Scar
10b	Central Texas	46.80	3	Distal Tip Transverse Snap/ Transverse Barb Snap/ Base Burin
10c	Central Texas	40.48	3	Distal Tip Roll Snap/ Transverse Barb Snap/ Resharpened Barb Loss Scar/ Base Snap
10d	41BL	37.27	3	Transverse Barb Snap/ Resharpened Barb Loss Scar
10e	Central Texas	38.79	3	Transverse Barb Snap/ Base Snap
10f	Central Texas	39.51	3	Resharpened Barb Loss Scar
10g	41BL	39.23	3	Transverse Barb Snap/ Barb Burin
10h	41BL	34.66	3	Barb Burin/ Resharpened Barb Loss Scar
10i	41GL	44.94	3	Transverse Barb Snap/ Base Snap
10j	41BL	32.31	3	Transverse Barb Snap/ Barb Burin

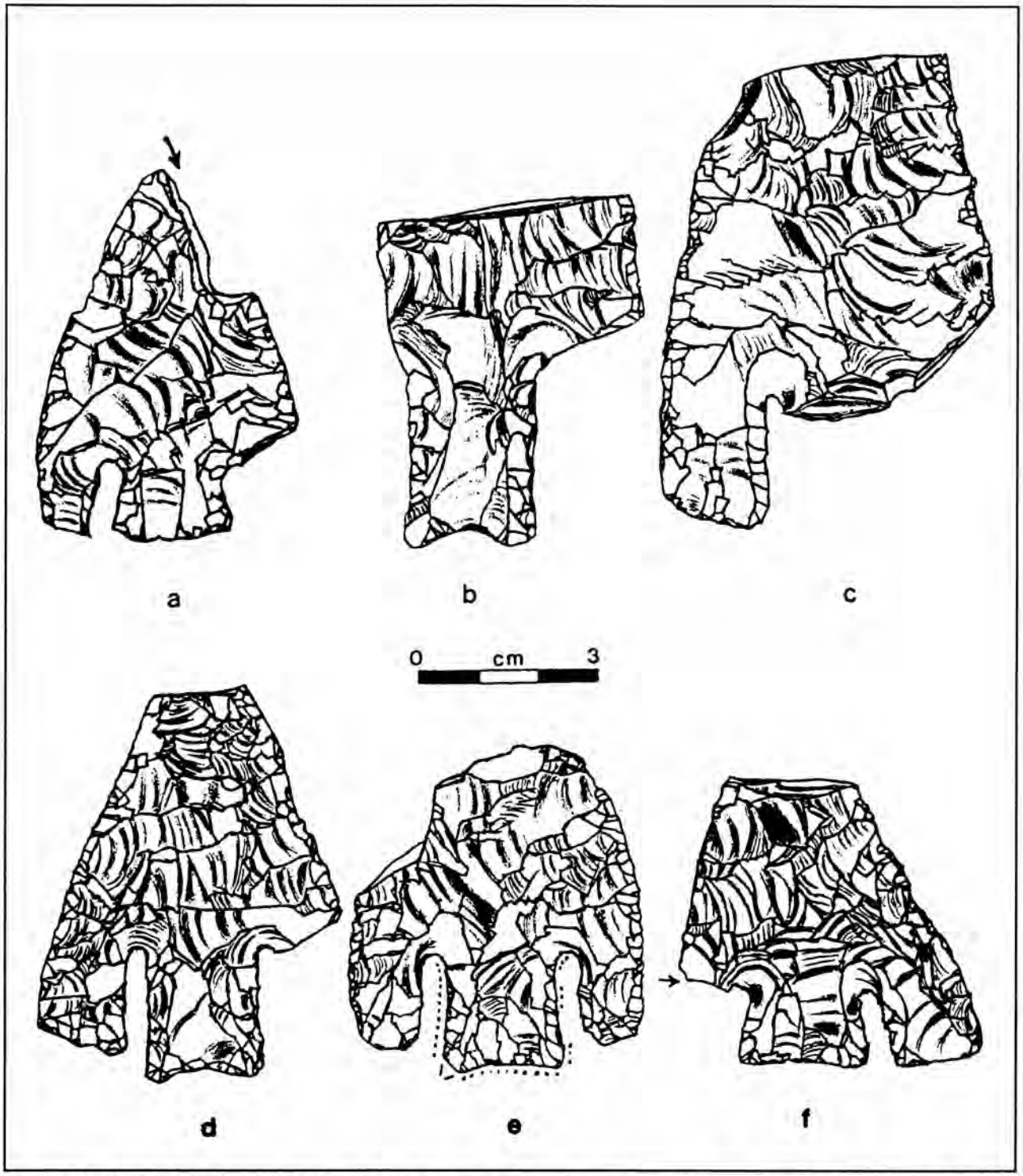

Figure 6. Prehistoric Andice/Bell points showing early resharpening. Note unifacial microflakes and short flakes from right blade edges and impact burin snap on Specimen d. Arrows indicate burin scars. Dots indicate extent and degree of edge dulling. See Table 1 for detailed provenience and morphological information.

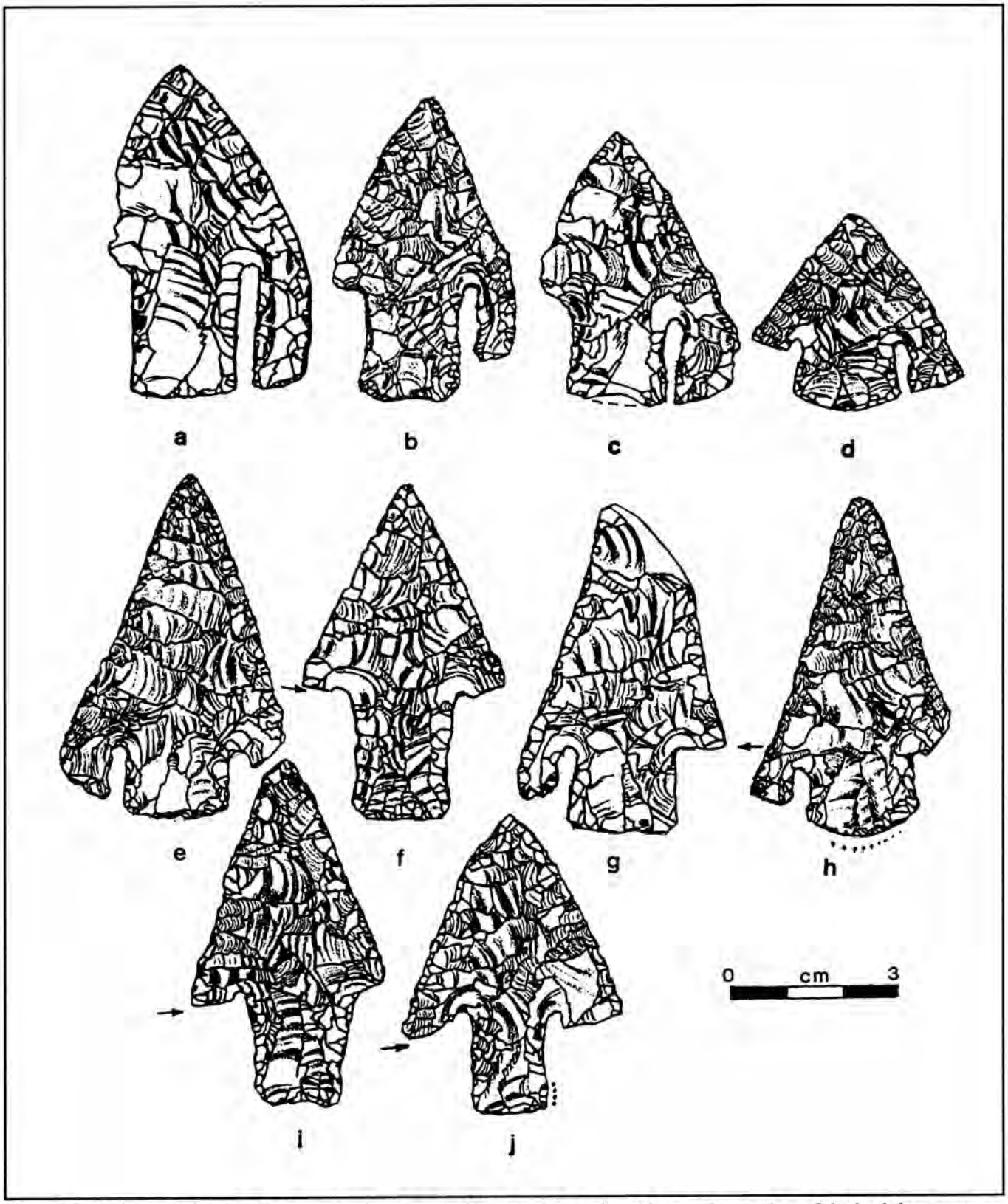

Figure 7. Prehistoric Andice/Bell points showing moderate resharpening. Note resharpening of the barb loss scars on Specimens a-c, shoulders on Specimens b, c, e, f, and i, and asymmetry of Specimen i. All show classic long flake rethinning from left blade edge and micro-short flakes from right blade edges. Arrows indicate burin scars. Dots indicate extent and degree of edge dulling. See Table 1 for detailed provenience and morphological information.

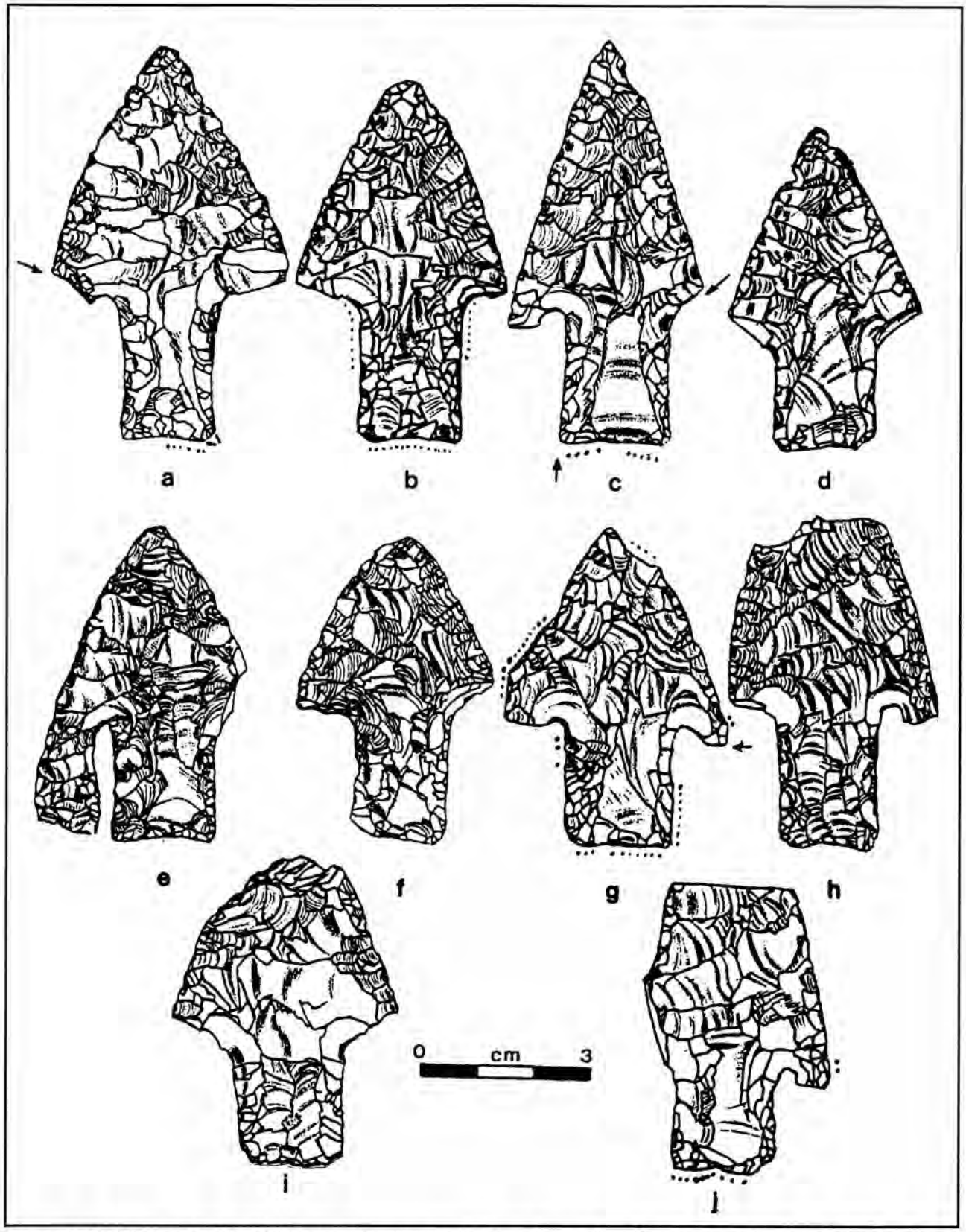

Figure 8. Prehistoric Andice/Bell points showing moderate resharpening. Note remnant impact scar on Specimen e, pronounced shoulders on Specimens f-g, and fish-tail base of Specimen j. Arrows indicate burins. Dots indicate extent and degree of edge dulling. See Table 1 for detailed provenience and morphological information.

lateral edges. In Andice/Bell points a shift occurs from use of short and micro flaking (Figure 2, a-b) as the primary technique of early resharpening to removal of long flakes (Figure 2c), which are most frequently removed unifacially from left (face up, tip forward) blade edges. For cutting edges long flake thinning reestablishes acute edges to permit further use of the more conservative microflakes and short flakes. For repointing broken projectile points long flakes thin the blade to allow formation of the new distal tip. Repeated intervals of long flake rethinning remove more material, increasing the salience of the dependent attributes, blade twisting, thinning and ridges (Figure 3, c-e). The ridges are the break point where the reflaked blade meets original manufacturing scars near the barbs and stem.

Barbs are narrowed before the blade is reflaked to balance them to the intended alignment of the refurbished blade. For projectile points, oversized barbs break more easily and impede penetration. For knives, they create uneven cutting edges. Barb reflaking begins near the base and progresses toward the distal tip, avoiding the weak barb/blade juncture near the notch termination. As barbs become narrower and more fragile, reflaking is more delicate to lessen the danger of breakage. Intrusion by barb reflaking scars reduces the size of notching flake scars, which appear steep and narrow on some specimens. Intentional avoidance of the barb/blade juncture produces shoulders, which become more pronounced with each flake removal series and subsequent shortening of the blade (Figure 7, b-f, i; Figure 8, e-g). Most shoulders are not formed when the point is manufactured, as suggested for Calf Creek points by Bell (1958). Shoulder formation is directly proportional to the length of the blade relative to its width. Shoulders are less likely to be formed on relatively long blades.

Several manufacture failures with barbs removed by notching flakes and small vertical snaps were found that represented this blade use sequence. It is interesting to note that manufacture failures that resulted in short stems or loss of barbs were used, while those that removed a significant part of the blade edge in addition to the barb, such as large vertical snaps and split fractures, were usually discarded. The specimen shown in Figure 8j is an exception to this practice.

Late Resharpening

This sequence represents a form in which resharpening processes that were begun earlier have been selectively employed until only minimal use life of the artifact remains (Figures 9 and 10). The mean size and shape of this form is indicated by the smallest outline in Figure 1, b-d. Twenty-two percent of Andice/Bell points represent this sequence. The dominant form is characterized by small, thin blades, which accentuate the large stems that are mostly unaltered by use. The salience of the basal thinning scars is enhanced by subsequent loss of the barbs, reduction of the blade from its original size, and obliteration of the original lateral scars by smaller resharpening scars. The majority of scars on the blade result from resharpening, and they have removed most of the basal thinning, notching and blade manufacturing scars on the blade except in areas near and below the notch termination axis. In some cases obliteration of basal thinning scar terminations above the notch termination axis makes them appear to have terminated at the notch termination axis. Measurements of quantitative attributes, such as maximum thickness, relation of basal thinning scar terminations to notch termination, and blade thickness above the notching platform, may be significantly less than when originally manufactured (Table 2). Asymmetry (except in the largest specimens) and shoulders are at their peak (Figure 3, a-b). Terminal notching flake scars and barb loss scars are significantly reduced in size, and some have been completely removed.

DISCUSSION

Changes in quantitative and qualitative attributes occur during use that must be considered when developing typologies, manufacturing and replication techniques and use sequences. While most quantitative data tend to decrease as blades are reflaked into smaller sizes, qualitative data increase as well as decrease, depending on whether they represent manufacturing or use processes. The increasing frequency of use attributes takes place at varying rates, with some peaking at median points on the utilization continuum while others peak in the final sequences. The variance is the result of association of attributes with specific flaking techniques or use patterns, as well as the number of series required to make the attribute salient.

When attempting to infer function from qualitative attributes, all events, whether intentional or unintentional, must be considered, and the number of experimental repetitions must be statistically signifi-

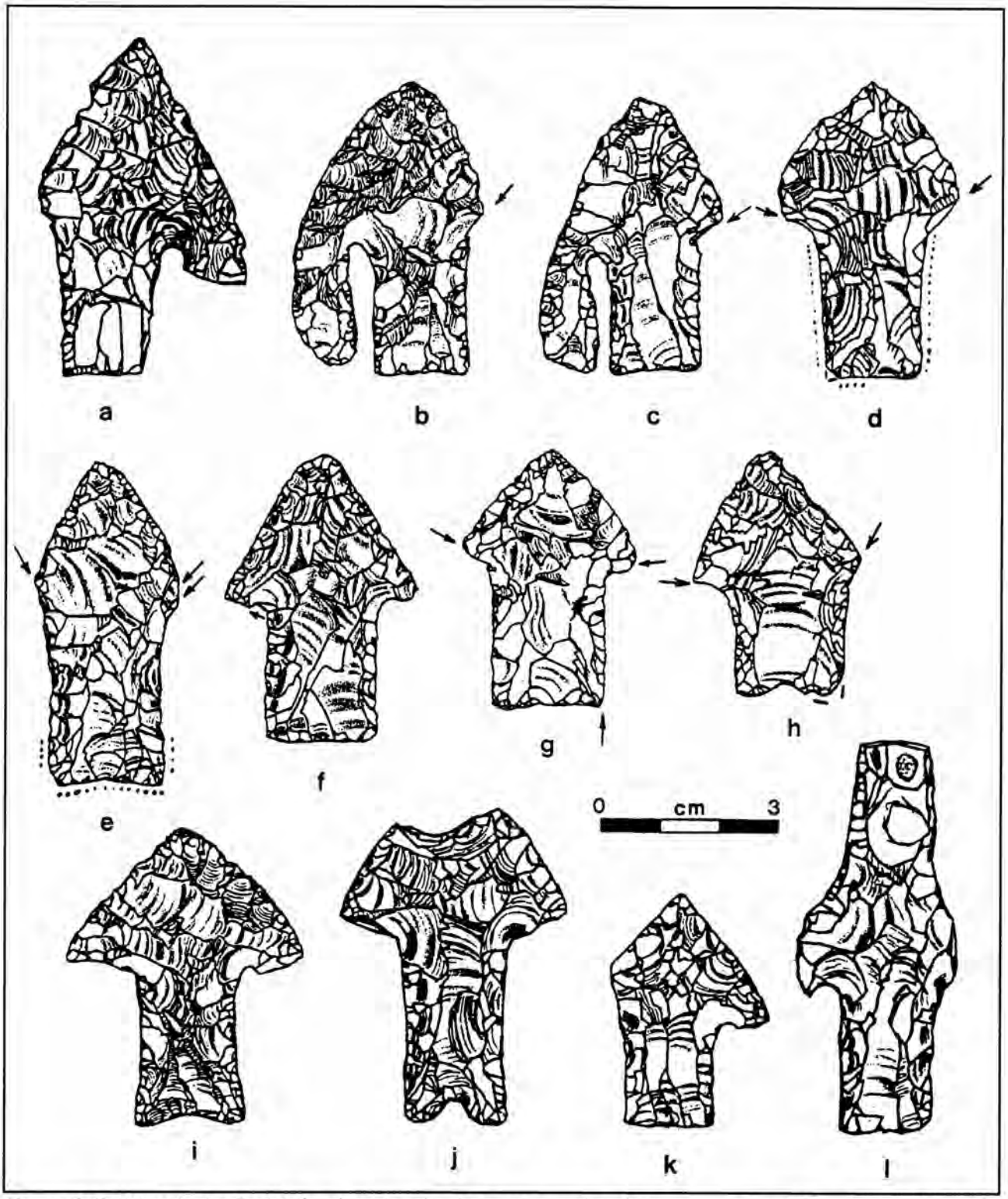

Figure 9. Prehistoric Andice/Bell points showing late resharpening. Note asymmetry of Specimens a, h and k, resharpened barb loss scars on Specimens a and e, remnant impact scar on Specimens c and g and beveled distal end of Specimen j. Arrows indicate burin scars (b,d,e,g) and lateral-in barb snaps (c,g,h). Dots indicate extent and degree of edge dulling. See Table 1 for detailed provenience and morphological information.

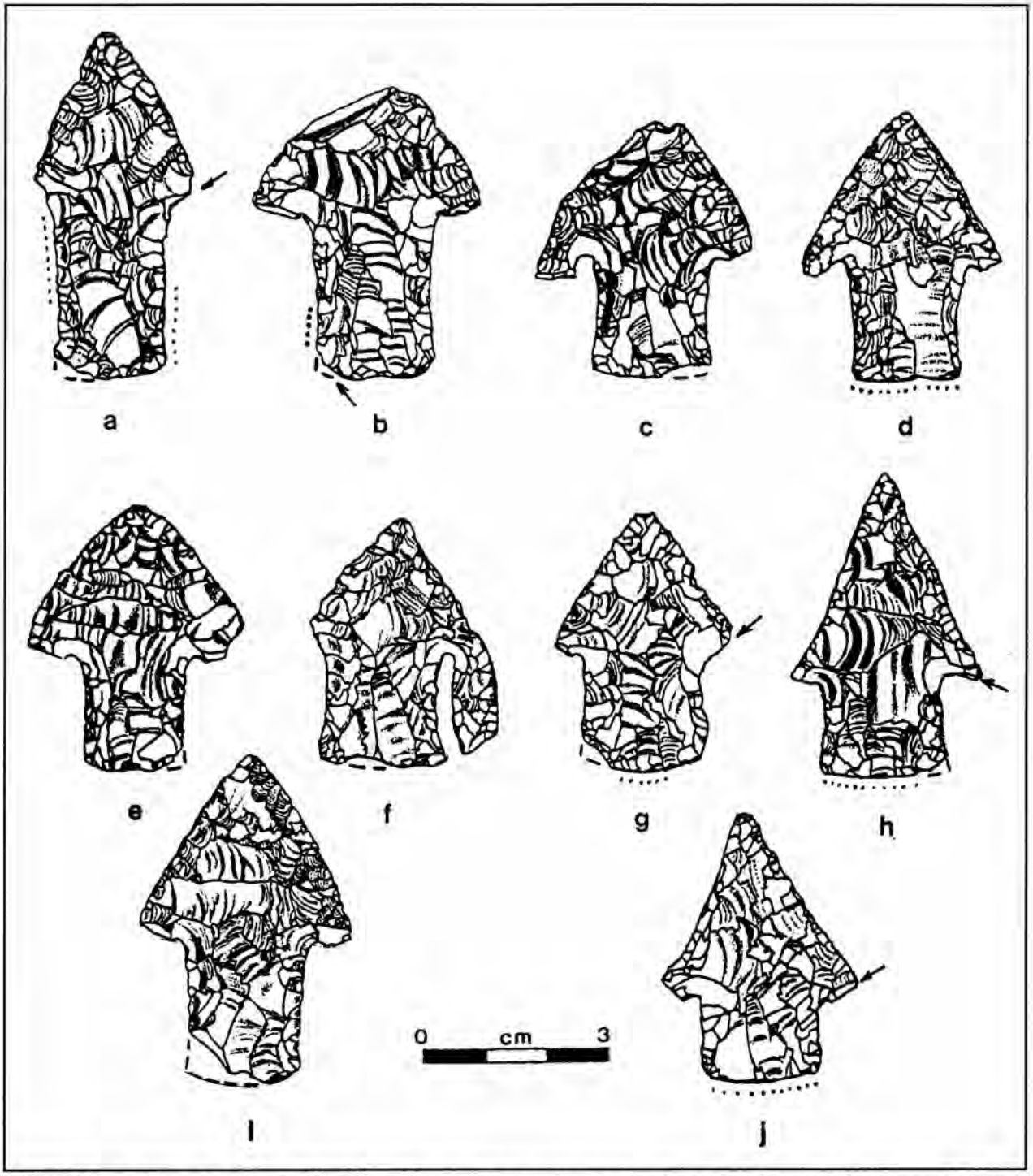

Figure 10. Prehistoric Andice/Bell points showing late resharpening. Note shoulders on Specimens b, c, e, f, and j, asymmetry of Specimens f, h, i and j. Arrows indicate burins. Dots indicate extent and degree of edge dulling. See Table 1 for detailed provenience and morphological data.

Table 2. Reduction of Mean Quantitative Attributes of Prehistoric Andice/Bell Points by Resharpening

Resharpening Sequence	Maximum Thickness	Location		Maximum Length*	Maximum Width*	Notch Thickness*	Relation Basal Thinning to Notch Termination*
	Thickness*	X*	Y*				
Absent	6.90	0.86	7.84	75.20	48.62	5.53	2.31
Early	6.66	0.37	5.67	68.60	44.34	5.31	1.73
Moderate	6.57	0.25	4.24	60.23	41.87	5.25	1.73
Late	6.59	0.24	3.05	49.14	36.17	5.08	1.02
Total Reduction							
(mm)	0.31	0.62	4.79	26.06	12.45	0.45	1.29
(%)	4.5	72.1	61.1	34.65	25.60	8.10	55.80

* millimeters

NOTE: See Weber and Patterson (1985) for a description of maximum thickness location. The Y axis bisects the stem. The X axis runs between the notch terminations. The X and Y values in the table show that the point of maximum thickness is moved closer to the intersection of the X and Y axes as the blades are resharpened.

cant. Not every artifact was used in the same manner. Whether points are recycled depends on the natural environment in which they are made and used, the traditional use strategy of the culture, and the personal use strategy of the owners.

Andice/Bell points that appear to be similar may have evolved through different means, such as extended, gradual dulling and resharpening versus one-time damage repair. Inference of function based on flake scar attributes is made difficult by the tradition of prehistoric Andice/Bell craftsmen to perform reflaking in the same sequence. Substantial damage may result in extensive reflaking early in the use life, which severely limits future recycling. Systematic, sequential reflaking of blades does not necessarily indicate use as knives. Use as a projectile point does not preclude use as a knife, and vice-versa. Function must be verified by use wear analysis of individual specimens and use replication experiments.

Regardless of stem shape or original size, by the final episodes of use 40-50% of the blade surface area on Andice/Bell points had been removed by systematic repair and resharpening. Nearly identical flaking techniques were employed at selected intervals during the use life of the artifact for all three of the discriminant function value ranges during resharpening of the blade. The basic technique for reflaking the blades included repetitive series of removals of microflakes and shortflakes from right blade edges and long flakes from left blade edges, which continued well after barb loss. The flake removals produced small, thin, twisting blades relative to the larger stems. The systematic and traditional resharpening technique indicates very close cultural ties. How much of the resharpening can be attributed to flaking new projectile point tips, and how much of it can be attributed to resharpening knife blade edges? It is possible that some Andice/Bell points were used only as projectile points and others only as knives. It is also possible that use of Andice/Bell points converted at some point in their use life from projectile points to knives or vice versa, or that they are multifunctional from creation to discard. Multifunctionality suggests use with foreshafts.

Recycling of Andice/Bell points for uses other than projectile points and knives included modified

tools (reflaked blades) such as end scrapers or gouges (<1%; Figure 9j) and drills (<1%; Figure 9l), unmodified tools (use of fracture edges) for cutting, scraping, rasping and gouging (6.9%) and practice notching pieces (<1%). The low frequency of occurrence suggests that these were tools of convenience.

CONCLUSION

Very little is known of the Andice/Bell lithic tool kit other than the points themselves. No other bifacial knife form has been identified for this culture. The points themselves or simple flake tools must have been used. There is sufficient morphological evidence to suggest that some Andice/Bell points were used as knives and that some were used as projectile points; however, without use wear analysis of individual specimens combined with empirical data, there is no clear relation of function to size, resharpening sequence or stem variant. Manufacturing difficulty and extensive reflaking of Andice/Bell points indicate a conservative use strategy that is consistent with other late Paleo-Indian/Early Archaic types, such as Angostura, Gower, Jetta, Golondrina and early triangular points, but which contrasts with the less conservative use strategies of later Archaic and Late Prehistoric cultures. While individual specimens may vary, Andice/Bell points are resharpened in generally the same manner regardless of stem shape or size.

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E. H. "SMITTY" SCHMIEDLIN has most recently worked with the Office of the State Archeologist (OSA) in field and archival research on Spanish sites in the Victoria area. He has worked with City officials to allow work at Victoria City Park (Hester, Collins, et al.) and with private landowners to allow testing at Mission Espíritu Santo mission (Hester, Walters, et al.). He located and recorded quarry site for Espíritu Santo Mission on Guadalupe River (1726-1749) and located and recorded earthen dam on tributary of Guadalupe River (age undetermined). He was given (with Bill Birmingham) the 1998 Outstanding Archaeologists of the Year Award. Smitty is a charter member of STAA, a member and past regional Vice President of Region 6 for the Texas Archeological Society, past president of STAA, member of the Texas State Historical Association, steward for the Texas Historical Commission/OSA 12 years, crew chief on various field schools since 1967, and publisher of articles in *La Tierra* and in OSA*Cache* publications. He is presently retired from Union Carbide (38 years) as supervisor.

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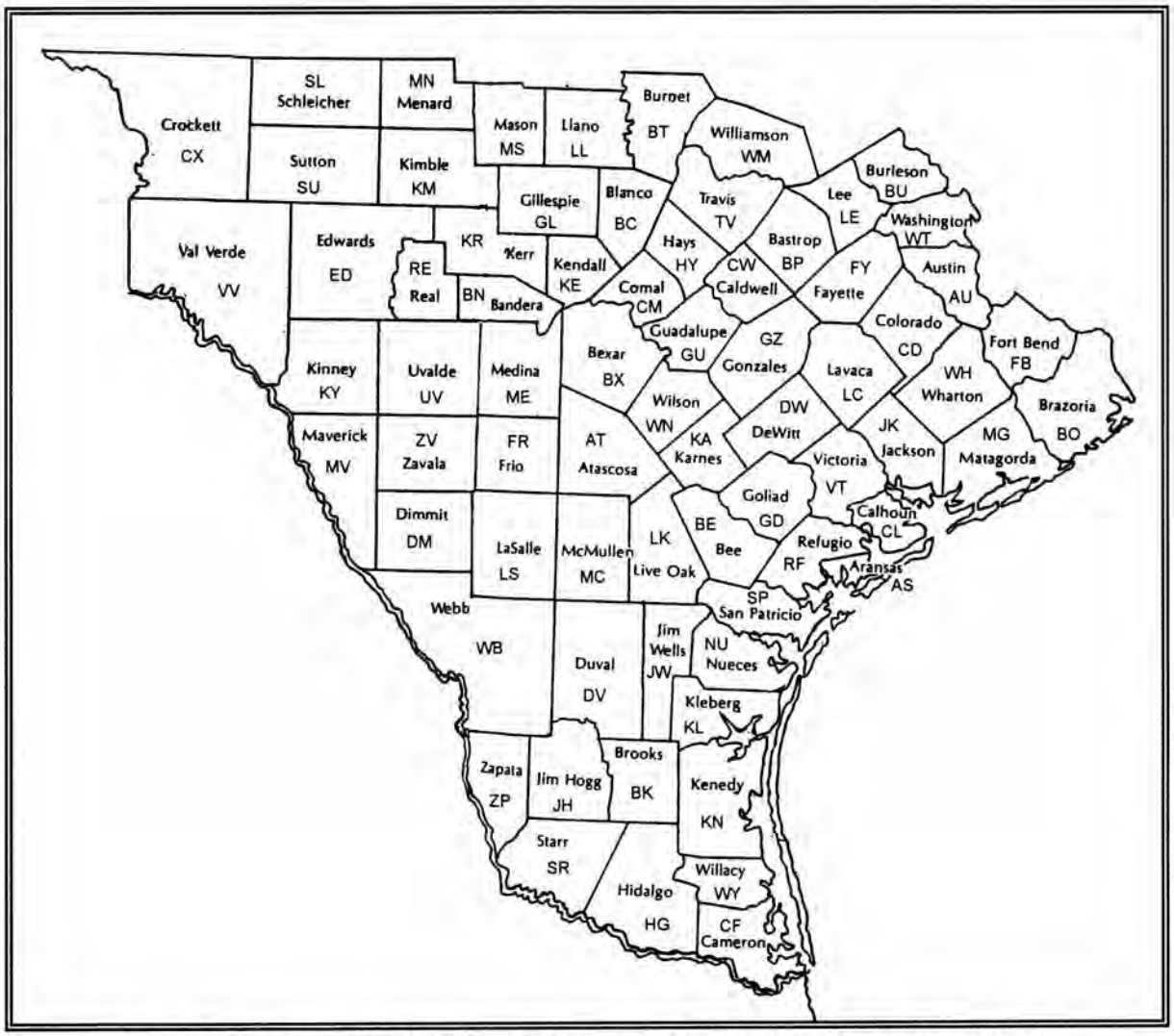
APPENDIX A



South Texas counties with symbols for archaeological site designations.

CONVERSION CHART

Multiply	By	To Get	Multiply	By	To Get
millimeters (mm)	0.0394	inches	inches	25.4	millimeters
centimeters (cm)	0.394	inches	inches	2.54	centimeters
centimeters	0.0328	feet	feet	30.48	centimeters
meters (m)	3.281	feet	feet	0.3048	meters
meters	1.094	yards	yards	0.9144	meters
kilometers (km)	0.621	mile	mile	1.609	kilometers
hectares (ha)	2.471	acres	acres	0.4047	hectares

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La Tierra publishes original papers and selected reprints of articles involving the historic and prehistoric archaeology of southern Texas and adjacent regions. Original manuscripts are preferred. Articles involving archaeological techniques, methods, and theories are also considered.

The main objective of this quarterly journal is to provide a way for STAA members and others interested in the archaeology of southern Texas to share the information they have with others. We encourage your full participation through submission of your information for publication; we are particularly interested in receiving manuscripts from those in the less well-known counties of our region, to document even surface finds and old collections. Only through such total member participation can we, as a group, build up a comprehensive picture of the archaeology of our area!

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