Andice/Bell/Calf Creek Points From Frio, Medina, and Uvalde Counties

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Abstract

Distribution and descriptions of Andice/Bell/Calf Creek points are reviewed. Andice/Bell/Calf Creek points collected from the surface of sites in Frio, Medina, and Uvalde Counties are documented and illustrated. Site locales are described. A detailed qualitative analysis of the specimens is presented, as well as a detailed material analysis of one specimen made of non-local flint.

Distribution

Andice/Bell/Calf Creek points are distributed throughout Texas, Oklahoma, Arkansas, and Missouri. Adams (1950) first distinguished these deep basal-notched points from other forms in the Tablerock Reservoir basin in southwestern Missouri. In Oklahoma most of the sites cluster in the south central part of the state, with two in the panhandle area (Wyckoff, 1994b, 1995). In Texas Andice/Bell/Calf Creek points are most common in the central and southern areas of the state. However, they are widespread, having been found in Wheeler County in the Panhandle on the Oklahoma border (Joe Miller, personal communication), in Crosby County (Parker and Mitchell, 1979) and Lubbock County (Weber, personal files) in the Cap Rock area, Tarrant County (Larry Banks, personal files) and Dallas County (W.W. Crook collection, Dan Prikryl, personal communication), Lamar County (J. B. Sollberger, personal communication) and Van Zandt County (Johnson, 1962) south of the Red River, San Augustine County in deep East Texas (O.D. Bounds, personal communication), Anderson County on the Trinity River (Raymond Dolezel, personal communication), Wharton County in Southeast Texas (Patterson, n.d.), San Patricio County (Chandler, 1983) and Victoria County (Schmiedlin, 2000) on the Texas coast and Val Verde County in Southwest Texas (Johnson, 1964). Petroglyphs of Andice/Bell/Calf Creek points have been found in Brewster County (Weber, personal files).

Type Descriptions

Prior to the published type descriptions by Sorrow, Shafer and Ross (1967) and Perino (1968) Andice/Bell/Calf Creek points were not recognized as a distinct Early Archaic type in Texas collections. As noted by Prewitt (1983) some were included within the Bulverde type description (Suhm, Krieger and Jelks, 1954; Johnson, 1962; Hester, 1971) In their various forms, particularly after barb loss or when they exhibit unusual reflaking, Andice/Bell/Calf Creek points still are sometimes not recognized in collections (Schmeidlin, 2000, Fig. 15a).

Currently the most widely available reference for Texas type descriptions is the *Field Guide to Stone Artifacts of Texas* by Turner and Hester, latest edition (1999). Their descriptions of Andice and Bell points are based on earlier descriptions by Sorrow, Shafer and Ross (1967) and Prewitt (1983). They describe Andice points as large, broad, triangular points with convex lateral edges and long, essentially rectangular, stems and prominent, massive barbs that extend downward and are narrowest at the juncture with the body. They state that Andice points closely resemble Bell points morphologically, but are distinguishable by their greater size, stem length, and barb length.

Turner and Hester (1999) describe the Bell point as a wide, thin, triangular body and long, narrow barbs formed by basal notching. They further state that Bell points are similar to Andice points, but smaller, and that they share attribute similarities with Calf Creek and perhaps Cassattot River points of Oklahoma and Arkansas. However, the Cassattot River points illustrated in Volumes 40 and 42 of the Bulletin of the Oklahoma Archeological Society appear to be more dissimilar than similar.

Attempting to offer a more objective means of classifying Andice and Bell points, Weber and Patterson (1985) developed a discriminant function to distinguish quantitatively between Andice and Bell points, only to find (Weber 1986) that most Texas specimens are midrange between the idealized Andice and Bell descriptions previously presented and that the entire spectrum likely represents a single type. Wyckoff (1994a) considers the three types to be "greatly overlapping varieties of a single biface form." Wyckoff goes farther to say, "Much of the more obvious variation results from different amounts of blade resharpening and reshaping…whether used as knives or projectiles or both, the blades were the most dynamic (i.e. alterable) parts of these bifaces. For this reason, blade size and shape comprise inappropriate attributes for defining different biface types. Thus, the continued recognition of Andice, Bell and Calf Creek as separate types needs reevaluation, especially through a process by which combinations of more stable attributes (such as stem form, size and thinning practices) are analyzed to see if they have particular distribution through time or space." Paralleling Wyckoff's ideas, Weber (2000, 1994, 1991, n.d.) has shown that Texas Andice/Bell points are manufactured, resharpened and broken in the same manner, with individual specimens representing fossilized sequences of the technological continuum.

Study Area

Artifacts described in this report were collected from the surface of sites in the watershed of the San Miguel Creek in Frio and Medina Counties, and the Leona River in Uvalde Co. The general area is a transitional zone between the Balconian and Tamaulipan Biotic Provinces (Blair 1950). The San Miguel Creek's headwaters, the Francisco De La Perez and Chacon creeks, originate directly on the landform that divides the Medina River drainage from the Frio River drainage, between Castroville and the small community of Quihi. Both tributaries and the San Miguel itself drain areas of enormous lithic resources. The San Miguel empties into the Frio River in McMullen County.

The Leona River drains directly off the Balcones Escarpment in Uvalde County west of the Frio River. It also drains an area full of high quality lithics. The Leona River joins with the Frio River in Frio County just north of the IH 35 crossing of the Frio River.

Lithic Resources in the Study Area

For general classification purposes lithic resources found within the study area of this paper can be lumped into two groups, Edwards flints and Uvalde gravels. Edwards flints outcrop all along the Balcones Escarpment between Del Rio and Georgetown, generally north of U.S. Hwy 90 and west of I.H. 35. In the area around Uvalde, the Nueces River is full of high quality flint nodules, especially downstream from the 19 Mile Crossing at Hwy 55 northwest of Uvalde. Two Edwards flint sub-types, Salmon Peak Flint and tabular flint, are found in the bed load of the Nueces River.

Salmon Peak Flint

This material occurs in fist to watermelon-sized, amoeba shaped nodules. The cortex is smooth, thin, tan, and chalky. Micro fractures immediately beneath the cortex are very distinctive, thin, short, curved black lines. The texture grades from fine and glassy to coarse; however, it is generally a highly knappable material. Material coloring is white to tan, light brown and lavender.

Tabular Flint

Tabular flint found in the Nueces River is generally of very high quality, although it is usually broken up into smaller pieces. The cortex is thin, smooth and light brown. Few micro fractures exist beneath the cortex. Modern knappers who have collected flint from the Nueces River with the author have commented that the Nueces tabular flint is very similar to tabular flint found in and around the Pedernales River. This flint is usually a very high grade, glassy material, ranging from tan to dark brown in color.

Uvalde Gravels

Some Uvalde gravels can be found in the Nueces River. The gravels grade from course to fine and range from gray to brown, and even red in color. The cortex is thin and usually dark brown to light brown. Many of these gravels are unsuitable for knapping large bifaces because of many large micro fractures beneath the cortex, in addition to interior stress fractures. The outside texture of the cortex is rough and pitted. This surface characteristic is often attributed to collisions with other stream rolled cobbles. However, the author has examined thousands of Uvalde gravel specimens and has observed these same characteristics on Uvalde gravels eroding from caliche deposits the author presumes these gravels were formed in.

Uvalde gravels are found in large sporadic patches from San Antonio to near Del Rio, generally south of the Balcones Escarpment. In the Geologic Atlas of Texas – San Antonio Sheet, produced by the Bureau of Economic Geology at the University of Texas at Austin, these deposits are described as "Caliche-cemented gravel; some boulders up to one foot in diameter; well rounded cobbles of flint, some cobbles of quartz, limestone, and igneous rock; occupies topographically high areas not associated with present drainage; forms extensive deposits in Medina and Uvalde Counties; may correlate with the Willis Formation of the Seguin Sheet; thickness ranges from several feet of gravel lag to 20+ feet. Most intervening scarps between the Uvalde Gravel and the Leona Formation are covered by several feet of gravel slope wash."

The Francisco De La Perez and the Chacon creeks both drain off an extensive deposit of Uvalde gravels that lies in a basically triangular area between the South Texas communities of Castroville, Hondo and Devine. The gravels in this area can be separated into two groups based on cortex characteristics. U.S. Hwy 90 is the general boundary between these two groups of gravels. North, and in some places, just south of U.S. Hwy 90 most of these gravels have a whitish cortex , and many have a thick, soft, chalky white cortex, which is easily ground off with an abrading stone to expose flint. A significant percentage of this material is of a very fine glassy, dark brown flint known to modern knappers as "root beer flint". It is an excellent knapping material and usually does not require any heat-treating, but it does requires strong striking platforms as the material will easily crush under direct percussion. When heat-treated, this material will usually potlid and stress fracture at temperatures higher than 350 degrees. This material was at times throughout prehistory apparently a preferred material as evidenced by the nearly three (3) feet of ash and reduction flakes observed by the author at 41ME100 near the small community of Quihi. This site is at the very beginning of the Francisco De La Perez Creek in a field full of chalky white cobbles.

South of U.S. Hwy 90 the cortex appearance of Uvalde Gravels change from a high percentage of chalky white cortex to a thin, hard orange to orangish-brown cortex. The percentage of "root beer flint" drops as well and is replaced by flints with a variety of colors ranging from whites to tans, and dull brown to brown with light red streaks. Often these cobbles are extremely fossiliferous or have many inclusions and lighter colored patches. Cobbles in this area are very hard, and usually well rounded. These cobbles can be very difficult to fracture initially, and frequently will benefit from heat treatment, sometimes requiring nearly 500 degrees to accomplish the desired effect. The author has observed many artifacts collected in

Medina, Frio and Uvalde that he believes were manufactured from this material. Sites 41ME3, 41ME9, 41ME10, 41ME11, 41ME17, 41ME96, 41ME93, 41ME99 and 41ME104 in Medina Co. and 41UV408 in Uvalde Co. are all locations where these Uvalde Gravels were extensively utilized.

Description of the Sites

41FR34 is an upland site approximately one mile east of the San Miguel Creek and two miles south of the northern Frio County line. The site is on a high point for the area, at 610 ft. above mean sea level, while the San Miguel Creek, one mile due west, is at 570 ft. above mean sea level. The site has a commanding view of the San Miguel Creek valley.

A variety of Archaic and Late Prehistoric projectile points and stone tools have been collected from the surface of the site, including Andice, Bulverde, Edwards, Frio, Montell, Palmillas, Pedernales, Perdiz, Scallorn, Tortugas, and one possible Midland. Seven Guadalupe and five Guadalupe-like bifaces have also been collected, but only two Clear Fork gouges and one Nueces biface. In addition, one bison tooth, mussel shell and a mano have also been collected. Snail shells of the species Rabdotus are present, but they are thin and scattered. Small pieces of well-ground, red ochre are also present at this site. No lithic material that is suitable for knapping occurs naturally at this site; so man has introduced all of the lithics.

The site is now in coastal pastures. It should be noted that this site is on the senior author's property and therefore a much more thorough survey of this site has been conducted than of other sites in this report. In addition, the remoteness of the site relative to San Miguel Creek and the nearest farm-to-market road make it likely that the site was previously unknown and that collecting has been minimal at worst.

41ME97 is an open campsite on the first terrace above the flood plain of the Francisco Creek in south central Medina County. The site is bisected by C.R. 664 and sits on the west side of the creek. The site actually sits on the southern tip of this terrace. Artifacts collected from this site include Andice, Edwards, Langtry, Perdiz, Guadalupe bifaces, Clear Fork gouges, and various untyped scraping tools.

Field Site # 042 is an isolated find site. No evidence was apparent to the author of any cultural debris at this site. The site is an upland location approximately one mile east of the Francisco Creek in south central Medina Co.

41UV351 is situated on a high spot on the northwest bank of the Leona River at the Two Mile Water Hole. An Andice/Bell/Calf Creek specimen was collected from the site after a fiber optic cable was trenched through the site. Since the site was previously known to consist only of Late Prehistoric period artifacts, the Andice/Bell point represents a previously unknown buried component to this site. Other artifacts salvaged from the construction debris include a Guadalupe biface, as well as a Perdiz point, an untyped bifacial knife form, some very large, high quality flint blades, and some faunal material (deer jawbone?). With these artifacts recovered, the time period this site was occupied can now be recorded as Early Archaic to Late Prehistoric.

Description of the Artifacts

Qualitative descriptions follow the criteria presented by Weber (2000, 1994, 1986) and Weber and Patterson (1985). Flint colors were identified using the Munsell Soil Color Chart. Transluscency was measured approximately 30 cm. from a 75-watt light bulb.

Specimen #1, 41 UV 351 (Figure __)

The frequency of occurrence of this resharpening and breakage form is about 1 in 9. The color of the material ranges from 10R 3/2 dusky red to 10R 4/2 weak red with occasional .5-11.5 mm. 10R 5/3 weak red spots. It is transluscent to 4.0 mm. Even though the material is reddish, it does not appear to have been heat-treated.

The specimen was originally a fairly large, wide and thin biface. Face 2 was the flatter face, but both faces appear to have been well contoured. A large pressure flake from the Face 2 left blade edge carried to the right edge, and it may have overshot slightly, removing a small portion of the right blade edge. The blade appears to have been damaged somewhat, and both barbs were likely lost concurrent with the blade damage. To repair the damage to the blade, Face 1 was reflaked from both edges using long pressure flakes, causing a moderate reduction in size. These flake scars intrude into and have reduced the terminal notching flake scars. Three long flake resharpening flake platforms from the Face 1 right edge were excessively strong for the very thin blade edge, and detachment of the flakes removed a significant part of the blade edge. The blade edges are very thin and sharp.

The Face 1 stem contouring is very good, with a wedge-shaped long section and precise, clean basal thinning and notching flake scars. Mean notching flake scar expansion is greatest from the right stem edge on Face 1 and it is equal on Face 2. Notching flake scars show best alignment and spacing on the Face 1 left stem edge. The basal thinning scars on Face 1 were removed after notching had begun. On the Face 1 left stem edge basal thinning scars intrude into all adjoining notching flake scars, indicating that this notch was complete when the last basal thinning flake was removed. On the Face 1 right stem edge basal thinning scars intrude into notching flake scars ½ the way up, and the final notching flake scars intrude into the same basal thinning scar. This indicates that the Face 1 right/Face 2 left notch was half complete when the last basal thinning flakes were removed. Basal thinning on Face 2 of the stem failed, so the contour is not evenly tapered. This caused the stem to be the maximum thickness of the biface. The Face 1 right/Face 2 left notching platform was crushed, and that notch is not as deep as the Face 1left/Face 2 right notch. The stem shape is Variation 3, with incurvate, more or less parallel lateral edges tapering to a slightly expanding, convex base. Basal alignment is very good. Final basal microflakes were removed toward Face 2.

Specimen # 2, 41 FR 34 (Figure __)

The frequency of occurrence of this resharpening and breakage form is about 1 in 8. The material color is 5YR 3/4 dark reddish brown. It is transluscent to the maximum thickness of the point, 5.7 mm.

The original point was fairly small and thin relative to width. The blade has been resharpened to a late stage of reduction. The final sequence of resharpening flake removals is typical of Andice/Bell/Calf Creek points in Texas, with microflakes and short flakes from the right blade edges and long flakes from the left edges. The final microflake removal series is unifacial to Face 1. It is uncertain whether damage to the Face 1 left blade edge is incidental to use or the result of removing a resharpening flake from an excessively strong platform. Use of long flake resharpening and development of ridges, blade twisting and thinning was limited by the thinness of the original blade; however, these features are present to some degree on both faces. Original thinness also limited intrusion into terminal notching scars; however, the Face 2 left barb loss scar and terminal notching scar have been completely removed by resharpening.

Notching flake scars on the Face 1 right/Face 2 left stem edge are classically excellent. Spacing and shape are very uniform, indicating precise control of notching flake platforms and removals. These scars show almost no retouch. Those from the Face 1 right edge show classic slightly forward expansion and simple curvature, while those from the Face 2 left stem edge show classic lateral expansion and S-shaped curvature. The stem shape is Variation 3 with incurvate lateral stem edges and a slightly expanding, convex base. Stem thinning has produced only a somewhat wedge-shaped long section. This is because the original preform was thin relative to width and because of intrusion into the interior of the stem face by lateral scars without subsequent basal scars (the stem was already too thin). The basal edge is thin with good edge alignment, and it has been slightly dulled.

Specimen # 3, 41 FR 34 (Figure __)

The frequency of occurrence of this resharpening and breakage form is about 1 in 8. Although the original flake scars are covered with heavy patination, recent damage on the point reveals the color of the material to be 10YR 4/3 brown to dark brown. The thin edges are transluscent to 0.3 mm.

This specimen has been resharpened to a late stage of reduction, and it is covered almost entirely with manufacturing and resharpening pressure flake scars. Four edges of the point have sustained recent (post-patination) damage/reflaking. The blade is covered almost entirely with resharpening flake scars. On Face 1 limited thinning, twisting and ridges are present from the left edge, while the Face 2 blade face is not significantly different from the stem face.

Remaining terminal notching flake scars have been reduced in size by blade resharpening. The Face 2 right terminal notching flake scar has been removed by a burin from the blade edge. The angle of the burin scar is acute in relation to the long axis of the point, indicating that the flake was detached after barb loss and after the blade had been considerably shortened, although the last series of resharpening scars intrude slightly into the burin scar.

While notching flake scar expansion is limited, almost none of the classic notching flake scar attributes are present. Lateral stem scars are somewhat atypical of Andice/Bell points in irregularity of removal, and on the Face 2 left stem edge, beveling, nearness to Face 1 and reduction of notching flake scars by unifacial stem edge alignment scars are atypical. This indicates poor control of notching flake platforms and removals, and it suggests that the finished notches may have been somewhat wider than usual, especially the Face 1 right/Face 2 left notch. The stem shape is typical of Variation 4, with more or less parallel lateral stem edges and a convex base. Basal thinning is typical post-lateral large pressure. Final basal edge alignment is poorer than usual, especially considering that edge damage (Face 1 left basal corner) that existed on the preform prior to finishing was not completely removed.

Specimen # 4, 41ME 97 (Figure __)

The frequency of occurrence of this resharpening and breakage form is about 1 in 9. The material color is mottled 10YR 6/2 light grayish brown to 5YR 5/1 gray flint with .5-1.0 mm. diameter white spots and one 2.5YR 2/2 very dusky red inclusion. It is transluscent on the thin edges to 1.0 mm. The material is relatively coarse and appears to have a waxy luster, which may be evidence of heat-treating. If true, this would be the first evidence of heat-treating in Andice/Bell/Calf Creek technology in Texas. However, it may also have been caused by exposure and patination. The material, overall shape and size and the manner in which the resharpening was performed give this point a different look and feel than the typical Texas Andice/Bell/Calf Creek.

The blade has been reduced moderately in size by microflake and short flake resharpening. There is minor roll snap damage at the tip on Face 2 that has not been resharpened. Blade resharpening has produced slight asymmetry relative to the stem axis. Short flake resharpening scars have intruded into and reduced, but not greatly altered, original manufacturing scars. Only two possible long flake resharpening scars are present, one from Face 1 right and one from Face 2 right. The direction of these removals is upper right to lower left. The location and low number is atypical, but not unknown for Texas Andice/Bell/Calf Creek points. The final microflake series is from right blade edges, which is typical for Andice/Bell/Calf Creek points. Because long flake resharpening was limited, there is no blade thinning, twisting or ridges. The Face 1 left barb was removed by a lateral-in snap, and the Face 1 right barb was removed by a transverse snap. The Face 1 left barb loss scar shows minor intrusion by subsequent flakes; however, the lack of pronounced shoulders and lack of major intrusion and reduction in size of the barb loss scars indicate that barb loss occurred after the point reached its present size and shape. While the Face 1 left/Face 2 right terminal notching scars have been removed by the lateral-in barb snap, those on Face 1 right show intrusion, and those on Face 2 left show reduction by resharpening flakes.

The stem shape is classic Variation 1, with an expanding stem and incurvate to fishtailed basal edge. Notching flake expansion is limited, and those from the left stem edges show some regularity; however, most other classic attributes, such as differential expansion and curvature, are not present. Pre-lateral percussion basal thinning produced a generally wedge-shaped stem long section, which was not greatly enhanced by subsequent pressure flaking. Basal edge alignment is good to very good, but not very thin and sharp. The final microflake alignment is unifacial toward Face 2. It is uncertain whether the flake

that primarily formed the fishtailed appearance was intentional or incidental. The Face 1 right half of the basal edge is dulled.

Specimen # 5, 41 ME (042) (Figure __)

The frequency of occurrence of this resharpening and breakage form is about 1 in 370. The material color cannot be determined because the artifact is completely covered with heavy white patination. Transluscency of the thin edges reaches 1.5 mm.

This specimen has been only slightly reduced from its original size by resharpening. It is essentially whole, with minor snap damage at the center of the base and transverse snap damage of the Face 1 right barb tip. Both of these fractures were contemporary with original manufacture and use of the point (pre-patination). About 2/3 of each blade face retains original manufacturing scars, which include lateral percussion thinning, lateral large pressure contouring and final pressure edge alignment scars from the left edges. Numerous serial microflakes and short flakes from right edges indicate early resharpening. Incipient shoulders are present on the blade edges where the last series of resharpening flakes stopped. The blade is slightly asymmetrical, partially because it was made that way and partially because the asymmetry has been accentuated by the resharpening. The faces are not well contoured, and Face 2 is more convex than Face 1. This is probably because the preform was not greatly larger than the size of the finished point (the maker wanted to get as large a piece he/she could out of the preform). The blade forward of the point of maximum thickness was manufactured to be thinner than the stem and slightly twisted.

Notching flakes show some classic attributes; however, overall they are somewhat irregular. Mean notching flake scar expansion is greatest from left barb and stem edges, with the exception of two reversed scars on the Face 1 right edge of the left barb near the notch termination. The terminal notching scars show S-shaped curvature from left edges, and notch edges are irregularly zigzagged. Alignment and spacing of notching flake scars is irregular. The stem shape is typical Variation 3.

Specimen # 6, 41 FR 34 (Figure __)

The frequency of occurrence of this resharpening and breakage form is about 1 in 93. The material color is 7.5YR 3/1 to 3/2 dark brown, commonly known as “root beer”. It is transluscent to 4.9 mm.

This specimen was originally a relatively small, thin biface. It has been extensively resharpened to a late stage of reduction, when its apparent use as a projectile point caused roll snap impact fractures that reduced the blade size to the degree that the damage could not be repaired, and the point was discarded. Burins have removed both barb loss scars, and the Face 1 left scar was reflaked after the burin was removed. The burin removals and reflaking indicate that the barbs were likely missing prior to final use of the point as a projectile point.

The stem shape is Variation 4, with more or less straight, parallel lateral stem edges and a straight to slightly convex base. Face 2 is the more convex and more well contoured face. The stem is not evenly tapered (wedge-shaped) on Face 1, but it is classically excellent on Face 2. Notching flake scars show typically greater mean expansion from left stem edges. Notching flake scars from the Face 1 left/Face 2 right notch edge are classically excellent. The notching platforms were precisely controlled and the flakes were cleanly detached to produce uniform spacing, shape, and alignment and zigzag notch edges. On the Face 2 right stem edge the notching flake scars show typical forward expansion and simple curvature, while those from the Face 2 left edge show typical lateral and reversed expansion with S-shaped curvature. Notching flake scars from the Face 1 left/Face 2 right notch edge are irregular.

Specimen #7, 41 FR 34 (Figure __)

This is a barb fragment removed by transverse snap. The material color is 10YR light brownish gray transluscent to 3.7 mm.

It is a typical Andice/Bell/Calf Creek barb in four ways: 1) it is wider at the base than near the notch termination; 2) it shows flake scars from the barb base; 3) it shows typical notching flake scar

attributes; 4) it has been narrowed by delicate resharpening using microflakes and short flakes, primarily from the right edge. Notching flakes show greater mean expansion from the left edge, and the notch edge is closer to Face 1. The Face 1 right terminal notching scar shows reversed expansion.

Specimen # 8, 41 FR 34 (Figure __)

This specimen was originally thought to be an Andice/Bell/Calf Creek point; however, detailed examination of qualitative attributes indicates that it is a Pedernales point. It is included in this report to emphasize the importance of projectile point flake scars and contouring in typology. The fragmentary nature of the specimen contributes to its Andice/Bell/Calf Creek appearance. However, for an Andice/Bell/Calf Creek point to have this shape and size, it would have to be moderately reduced in size by resharpening. On this point there is no evidence of resharpening. The original size, shape and manufacturing scars remain except where removed by damage that was contemporary with original manufacture and use, and where two pressure flake scars from the broken stem edge have been removed post-patination. The manufacturing scars are typical of the Pedernales manufacturing tradition, even though techniques vary widely within the type. Both faces of this specimen are covered almost entirely with percussion flake scars. Minimal random, shallow pressure flaking has been used to perform final alignment of blade edges. Large pressure flake scars, one of the hallmarks of Andice/Bell/Calf Creek manufacturing, are not present on either face. There is no evidence of resharpening, indicating that this is the original size and shape of the artifact. The blade width and curvature do not suggest that this artifact ever had wide, long barbs.

The stem is atypical of Andice/Bell/Calf Creek points in several ways: 1) the shape is classic Pedernales, 2) the maximum notching flake expansion is high, 3) the depth of the basal concavity is high, and 4) the lateral stem edge scars do not show any of the classic Andice/Bell/Calf Creek attributes.

Specimen # 9, 41 FR 34 (Figure __)

Frequency of occurrence of this resharpening and breakage form is about 1 in 75. However, this is not the original form of the artifact at the time it was abandoned. Although the original surface shows lightly moderate patination, recently damaged surfaces show the material color to be 5YR 5/3 reddish brown. On thin edges it is transluscent to 1.8mm.

This specimen was originally very thin and very well contoured by large pressure flakes. Its makers likely abandoned it in an almost whole, unresharpened condition. While recent (post-patination) damage has altered most of the edges, there are no apparent resharpening scars on the interior of the faces. The stem shape has the narrow, more or less straight base of Variation 2; however, the base also expands slightly like Variation 3 and has been included in this category. The basal edge has been lightly ground or dulled. Notching scars on both left edges show classic S-shaped curvature. Those from the Face 2 left stem edge are classically excellent in spacing and alignment.

Raw Material Analysis of Specimen # 4, 41ME 97

An attempt was made to identify the raw material source for Specimen #4. Flints that originate in the Edwards Plateau and the Lampasas Cut Plain areas of Texas are commonly referred to as Edwards flint, although there are many variations that vary widely in color and texture. The flint from which the point is made macroscopically resembles a variety of fossiliferous Edwards flint from the Georgetown, Williamson County, Texas vicinity, but in comparison to microscopic analysis and ultra-violet light fluoresence (UVL), the artifact and the Edwards did not match at all. In particular, the UV light fluoresence was dramatically different. While the use of UVL has not always been found to be a conclusive type of discrimination between some flint types, it has proven repeatedly to be reliable in distinguishing Edwards materials from other flints. In trying to match the flint type of the point with others in the comparative collection of the author, materials as far away as the Ozarks that shared superficial similarities also proved to be incompatible under careful examination.

Gary White, who often collected specimens of flint from numerous locations world wide where he was sent as a welder, had collected some flint materials from a creek and workshop area north of Brownwood, Brown County, Texas in the late 1980s. In this collection of materials, several of the pieces of flint were similar to the point, but one specimen exhibited all of the same physical characteristics, and the UVL fluoresence in both long and short wave radiation were an identical match. The geological source of the origin for the material collected from the creek north of Brownwood has yet to be conclusively identified, but the comparative macro and UVL analyses strongly suggest that the two rock types are from the same source that contributes gravels to the afore mentioned creek, and possibly the rock from which the point was manufactured came from that same creek.

The descriptions of flint apply both to the material from which the point was made, as well as the flint type that so closely matches the artifact. In the collection of flint from the creek reported by White, there are at least ten slightly different types of materials occurring mostly in white and light to medium dark gray and grayish brown; however, only the variety that matches the material Specimen 4 was manufactured from is described in detail. It must also be noted that in the absence of identification of the geologic source of origin there may be any number of other localities closer to the site from which the dart point was recovered, and that are simply unknown at present.

Under natural light and dry conditions the subject flint type reflected in both the artifact and the raw material collected near Brownwood is a mottled white 10YR8/1, light gray 10YR7/2, and light grayish-brown 10YR6/2 with slightly darker gray splotching. Some tiny vugs contain slight degrees of iron oxide stainings around the open edges. It also exhibits early stages of patination that is reflected primarily in the whitish coloring. Under both a 17x hand lens and a 40x microscope, the rock contains numerous small white blebs and clasts of unidentified Paleozoic fossil foraminifera. The rock is opaque even on thin edges. It is not a superlative knapping material, but the fracture patterns in both the raw material and the subject point are essentially identical.

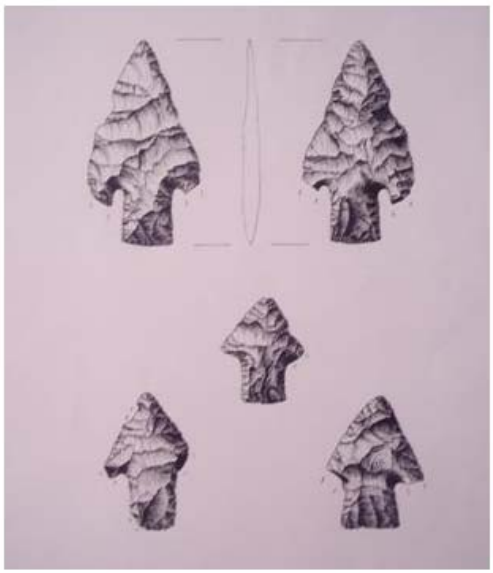
The UVL fluoresence under long wave is a basic matrix of reddish brown and purplish tinged color with greenish yellow splotching. Under short wave the coloration is essentially reversed with background of greenish yellow and purplish red splotching. The fluoresence does not even remotely resemble Edwards materials when either short wave or long wave UVL fluoresence is used.

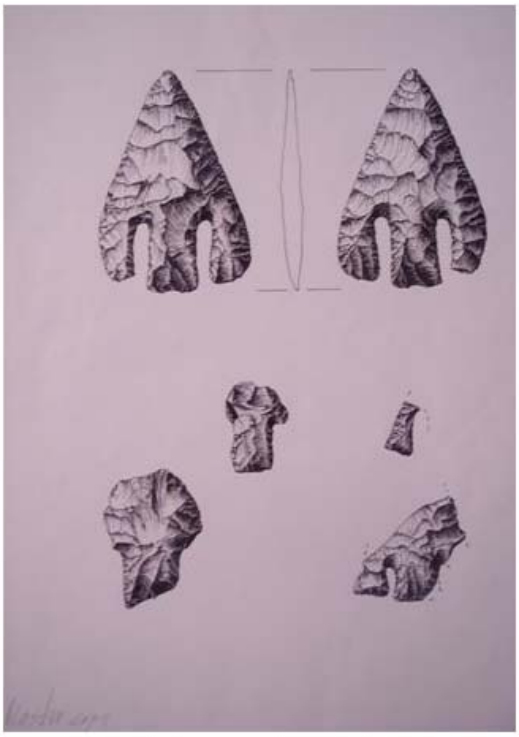
The suspected source of the rock is from an unnamed creek entrenched in the Strawn Group of Pennsylvanian age that is a westerly flowing tributary of Pecan Bayou. According to the Brownwood Sheet of the Texas Geologic Atlas most of the geological formations of the immediate area is the Strawn Group, and within that group the only flint bearing formation is the Ricker Station Limestone. The flint in the limestone is defined as “locally subrounded flint, thin, discontinuous, grayish brown.” It should also be noted that the Ricker Station Formation is fossiliferous. There are no Pennsylvanian rocks anywhere near the Medina County location where the subject point was found. Until more definitive and refined fieldwork can be done to positively identify the geologic source of origin for the flint, the best and only candidate at this time is the Ricker Station flint from the general Brownwood, Texas vicinity.

Summary

Locales with evidence of Andice/Bell/Calf Creek occupation have been described for three South Texas counties. The sites and settings are similar to those found in other areas of Texas, and they supplement the known distribution of Andice/Bell/Calf Creek points in Texas. The known cultural affiliation and stratigraphical depth of site 41 UV 351 has been expanded. Qualitative analysis of flake scars and contouring provided accurate interpretation of manufacturing and use of the artifacts, and it successfully distinguished a Pedernales point that otherwise resembles Andice/Bell/Calf Creek points. A detailed analysis of the raw material of one specimen from south central Medina County suggests possible southern movement, either by trade or traverse, of approximately 300 km.

The culture that produced Andice/Bell/Calf Creek points was widespread, but aside from how the points were manufactured, resharpened and broken, it is poorly known. Accurate documenting, reporting and investigation of Andice/Bell/Calf Creek sites are imperative to revealing who these intriguing, ancient people were.





Specimen	Length	Blade Width	Thickness	Stem Length	Base Width	Neck Width	Basal Convexity/Concavity + -	Notch Width
5	7.9	5.25	0.75	2.6	1.8	1.75	-0.15	0.52
8	4.8	3.45	0.7	1.9	2	2.1	?	
6	3.1	2.1	0.5	1.5	1.45	1.4	0	
7	0	0	0	0	0	0	0	
9	3.75	4.05	0.55	1.1	1.1	1.6	0	0.4
1	7.25	3.95	0.65	1.9	1.75	1.75	-0.05	0.4
3	4.8	2.85	0.7	2	1.55	1.65	0	0
2	3.7	2.85	0.6	1.25	1.5	1.55	-0.05	0
4	4.7	3.45	0.65	1.55	2.1	1.85	0	0

Acknowledgments

The senior author wishes to thank Richard McReynolds for his fine illustrations. Thanks also to Shirley and Van Van der Veer for their work as Editors and years of service to STAA , to the new Editors , Wilson McKinney and Steve Tomka , Dr. Thomas Hester for his enlightenment and encouragement, Dr. Harry Shafer for his opinions on fractures, Carey D. Weber for his qualitative analysis, Mr. Larry Banks for his expert lithic analysis and last but not least, my wife, Debbie Calame, for taking up the slack on home duties while I was working on this report.

References Cited

Adams, Lee M.
1950 The Table Rock Basin in Barry County, Missouri. *Memoir of the Missouri Archeological Society No. 1,* Columbia.

Blair, W.F.
1950 The Biotic Provinces of Texas – The Texas Journal of Science 2(1): 93-113

Hester, Thomas R.
1971 Archeological Investigations at the La Jita Site, Uvalde County, Texas. *Bulletin of the Texas Archeological Society* 42:51-148.

Johnson, L., Jr.
1964 *The Devil's Mouth Site: A Stratified Site at Amistad Reservoir, Val Verde County, Texas*. The University of Texas, Department of Anthropology, Archeology Series No. 6, Austin.

1962 The Yarbrough and Miller Sites of Northeastern Texas, With a Preliminary Definition of the La Harpe Aspect. Bulletin of the Texas Archeological Society, 31:141-284.

Patterson, L. W.
n.d. Early Archaic Projectile Points in Southeast Texas. Houston Archeological Society Journal, manuscript in press.

Parker, W. and J. Mitchell
1979 Notes on Some Bell Points From a Site in Crosby County, Texas. *La Tierra* 6(2): 26-27.

Perino, G.
1968 *Guide to the Identification of Certain American Indian Projectile Points.* Oklahoma Anthropological Society, Special Bulletin No. 3.

Prewitt, E. R.
1983 Andice: An Early Archaic Dart Point Type. *La Tierra* 10(3): 1-6.

Schmiedlin, E. H.
2001 Archaic and Late Prehistoric Projectile Points From the J-2 Ranch Site (41VT6) . La Tierra 27(4) : 20-38

Sorrow, W. M., H. J. Shafer and R. E. Ross
1967 Excavations at Stillhouse Hollow Reservoir. *Papers of the Texas Archeological Salvage Project*, No. 11.

Turner, E. S. and T. R. Hester
1999 *A Field Guide to Stone Artifacts of Texas*. Texas Monthly Press, Austin.

Weber, C. D.
n.d. Andice/Bell Point Use Fractures. Manuscript in press.

2000 Andice/Bell Resharpening Attributes. La Tierra 27(4):45-61

1994 A Replication Technique for Andice/Bell Points. In *Archaic and Late Prehistoric Human Ecology in the Middle Onion Creek Valley, Hays County, Texas* by Robert A. Ricklis and Michael B. Collins, Studies in Archeology 19. Texas Archeological Research Laboratory, The University of Texas, Austin.

1991 Andice/Bell Projectile Point Notching Failures. *La Tierra* 18(4): 23-38.

1986 An Analysis of Discriminant Function Values of Andice and Bell Points. *La Tierra* 13(3): 32-38.

Weber, C. D. and L. W. Patterson
1985 A Quantitative Analysis of Andice and Bell Points. *La Tierra* 12(2): 21-27.

Wyckoff, D. G.
1994a Introduction to the 1991 Bulletin. *Bulletin of the Oklahoma Archeological Society* (for 1991) 40:1-8.

1994b The Calf Creek Horizon in the Osage Savannah. *Bulletin of the Oklahoma Archeological Society* (for 1991) 40:9-10.

1995 The Study Area. *Bulletin of the Oklahoma Archeological Society* (for 1993) 42:3-6.

Quantitative Attributes of Andice/Bell Points

Attribute	No. Obs.	Mean (N=462)	Specimen *Pedernales* UV351-1	FR34-1	FR34-2	FR34-3	FR34-4	ME(042)-1	FR34-5	FR34-6	ME97-1
Maximum Thickness	439	6.72	6.30	4.90	-	5.50	***7.00***	7.50	7.20	5.70	6.30
X Coordinate	417	0.24	-0.90	1.30	-	3.00	***-1.20***	-3.80	0.30	0.50	0.00
Y Coordinate	428	5.11	-8.00	2.00	-	4.50	***2.00***	10.00	3.00	5.20	14.60
Maximum Length	412	62.80	72.50	41.70	-	69.50	***63.00***	79.10	47.80	36.90	47.10
Maximum Width	431	42.64	39.90	31.50	-	46.00	***38.50***	53.00	38.00	35.50	42.50
Maximum Pressure Flake Scar Length	64	29.54	28.50	-	-	25.20	-	31.50	-	-	17.60
Maximum Pressure Flake Scar Width	64	12.18	12.40	-	-	14.50	-	15.50	-	-	9.30
Stem Length	421	18.87	20.00	18.20	-	12.50	***21.00***	25.00	20.50	15.20	17.00
Stem Thickness	444	6.25	6.30	4.80	-	5.20	***6.50***	7.10	6.75	5.00	6.00
Base Alignment	385	0.85	1.60	1.60	-	0.50	***-3.00***	2.25	1.20	1.20	1.00/1.30
Base Width	413	17.33	17.80	12.50	-	17.00	***18.20***	18.15	15.20	14.55	20.90
Maximum Base Width	179	18.13	17.80	-	-	17.00	-	18.15	-	15.00	20.90
Maximum Stem Width	296	18.87	17.50	14.75	-	16.30	***22.30***	18.30	17.20	16.25	18.80
Minimum Stem Width	357	16.69	16.30	13.40	-	15.70	-	16.20	15.30	14.20	17.40
Barb Length	177	13.85	-	-	18.70	10.50	-	22.20/20.30	-	-	-
Barb Base Width	170	9.29	-	-	9.80	11.90	-	14.70	-	-	-
Barb Thickness	209	4.02	2.10/4.05	-	3.90	3.90	-	4.80/4.75	4.70	-	4.00
Basal Thinning Length	798	20.47	17.0	13.5/20.2	-	17.0/11.3	***21.7/13.65***	12.8/17.5	21.3/15.1	22.2/21.2	14.3/33.1
Relation Basal Thinning To Notch Termination	802	1.54	-3.00	-4.70/2.0	-	4.5/-1.2	***0.7/-7.35***	-12.2/-7.5	0.8/-5.4	7.0/6.0	-2.7/16.1
Number Basal Scars	821	2.36	2	1/3	-	2/4	***2/4***	3/1	3/1	1/1	3/2
Notch Thickness	819	5.31	4.4/4.7	4.15/4.5	-	3.9/4.2	***4.4/4.7***	6.0/6.5	6.1/6.2	4.3/3.1	5.9/4.85
Maximum Notch Width	174	4.17	4.40	-	-	3.05	-	5.60/5.30	-	-	-
Point of Maximum Notch Width	172	-5.43	-6.10	-	-	-2.00	-	-4.15/-8.40	-	-	-
Minimum Notch Width	151	2.80	-	-	-	1.90	-	4.10/3.90	-	-	-
Point of Minimum Notch Width	119	-8.90	-	-	-	-8.70	-	-17.40/-17.60	-	-	-
Maximum Notching Flake Expansion Stem	442	6.74	9.30	4.70	-	5.55	***10.00***	7.70	-	-	-

Quantitative Attributes of Andice/Bell Points (continued)

Attribute	No. Obs.	Mean (N=462)	Specimen *Pedernales* UV351-1	FR34-1	FR34-2	FR34-3	FR34-4	ME(042)-1	FR34-5	FR34-6	ME97-1
Maximum Notching Flake Expansion Barb	182	5.10	4.20	-	4.40	5.80	-	7.60	-	-	-
Notch Depth Per Flake	658	1.44	-	1.40/1.82	-	1.25	-	1.14/1.32	2.05/2.93	1.27/1/01	1.55/1.21

Qualitative Attributes of Andice/Bell Points

Attribute	No. Obs.	Mean Percent (N=462)	Specimen *Pedernales* UV351-1	FR34-1	FR34-2	FR34-3	FR34-4	ME(042)-1	FR34-5	FR34-6	ME97-1
Bifacing											
Cortex	5	1.14	-	-	-	-	-	-	-	-	-
Ventral/Dorsal Flake Surface	28	6.38	-	-	-	-	-	-	-	-	-
Flaking Technique											
Percussion Only	56	13.05	-	-	-	-	X	-	-	-	-
Percussion/Pressure	248	57.81	X	-	-	X	-	X	-	X	X
Large Pressure Only	88	20.51	-	X	-	-	-	-	X	-	-
Lateral Pressure Scar Above Notch	78	18.27	X	-	-	X	-	-	-	-	-
Blade Edge Grinding											
Entire	11	2.52	-	-	-	-	-	-	-	-	-
Partial	16	3.67	-	-	-	-	-	-	-	-	Y
Remnant	8	1.83	-	-	-	-	-	-	-	-	-
Stem Contouring											
Wedge-shaped Stem											
Both Faces	258	62.77	-	-	-	X	-	X	-	X	X
One Face	108	26.28	X	X	-	-	X	-	-	-	-
Flaking Technique											
Percussion Only	85	10.29	-	-	-	-	-	-	-	X	-
Percussion/Pressure	139	16.83	-	X	-	X	X	X	-	-	X
Large Pressure Only	555	67.19	X	-	-	-	-	-	X	-	-
Flake Sequence											
Prelateral	223	26.61	-	-	-	-	-	X	-	X	-
Pre/postlateral	95	11.34	-	X	-	X	X	X	-	-	X
Postlateral	425	50.72	-	-	-	-	-	-	X	-	-
Prelateral/Postnotching	6	0.72	-	-	-	-	X	-	-	-	-
Postlateral/ Postnotching	23	2.74	X	-	-	-	-	-	-	-	-
Postnotching	13	1.55	-	-	-	-	-	-	-	-	-

Qualitative Attributes of Andice/Bell Points (continued)

Attribute	No. Obs.	Mean Percent (N=462)	Specimen *Pedernales* UV351-1	FR34-1	FR34-2	FR34-3	FR34-4	ME(042)-1	FR34-5	FR34-6	ME97-1
Stem Contouring (continued)											
Basal Pressure Scar											
Above Notch	102	23.83	X	-	-	-	-	-	-	-	-
Basal Pressure Scar											
On Barb Face	192	51.89	-	-	X	-	-	X	-	-	-
Barb Base Grinding	9	6.12	-	-	-	-	-	-	-	-	-
Remnant	1	0.68	-	-	-	-	-	-	-	-	-
Notching											
Stem Grinding											
Base Only	107	25.18	-	-	-	X	-	-	-	X	X
Remnant Base	11	2.59	-	-	-	-	-	-	-	-	-
Base/Lateral	25	5.88	-	-	-	-	-	-	-	-	-
Base/Remnant											
Lateral	3	0.71	-	-	-	-	-	-	-	-	-
Lateral/Remnant Base	4	0.94	-	-	-	-	-	-	-	-	-
Lateral Only	24	5.65	-	-	-	-	-	-	-	-	-
Remnant Lateral	4	0.94	-	-	-	-	-	-	-	-	-
Reversed Notching											
Flake Expansion	117	26.96	-	X	X	X	-	X	-	X	X
Maximum Notch											
Flake Expansion											
Left	158	37.09	-	XX	X	-	-	XX	X	-	X
Right	44	10.33	XX	-	-	-	-	-	-	-	X
Even Notch Flake Spacing											
Left	301	23.93	-	X	-	X	-	-	-	XX	XX
Right	247	19.63	XX	X	-	-	-	-	-	XX	-
Uniform Notch Flake Shape											
Left	227	18.00	-	-	-	X	-	-	-	X	X
Right	187	14.83	-	X	-	-	-	-	-	X	-
S-shaped Notch Flake											
Left	181	23.66	-	XX	-	XX	X	-	X	XX	-
Right	32	4.18									

Qualitative Attributes of Andice/Bell Points (continued)

Attribute	No. Obs.	Mean Pecent (N=462)	Specimen *Pedernales* UV351-1	FR34-1	FR34-2	FR34-3	FR34-4	ME(042)-1	FR34-5	FR34-6	ME97-1
Notching (continued)											
Notch Flake Acute											
Left	93	21.63	-	XX	-	-	X	XX	-	X	-
Right	13	3.02	XX	-	-	-	-	-	XX	-	-
Zigzag Stem Edges											
Both	54	28.42	-	X	-	-	-	X	-	X	-
One	56	29.47	-	-	-	-	-	-	-	-	X
Stem Edge Closer to Face Opposite Notch Flake											
Left	77	35.65	XX	-	X	-	X	X	XX	-	-
Right	54	25.00	-	X	-	-	-	-	-	-	-
Unifacial Stem Edge Alignment											
Left	73	16.74	XX	-	-	-	-	-	XX	-	-
Right	97	22.25	-	-	-	-	-	X	-	-	-
Unifacial to 1 Face	28	6.42	-	-	-	-	X	-	-	-	-
Resharpening											
Reduction Sequence											
None	79	17.83	-	-	-	X	X	-	-	-	-
Early	92	20.77	-	-	-	-	-	X	-	-	-
Moderate	176	39.73	X	-	-	-	-	-	-	-	X
Late	96	21.67	-	X	X	-	-	-	X	X	-
Resharpening Scar Type											
Microflake	10	2.29	-	-	-	-	-	-	-	-	-
Short Flake	16	3.67	-	X	-	-	-	-	-	-	-
Micro/Short Flake	77	17.66	-	-	X	-	-	X	-	-	-
Micro/Short/Long Flake	171	39.22	X	-	-	-	-	-	X	X	X
Micro/Long Flake	7	1.61	-	-	-	-	-	-	-	-	-
Short/Long Flake	50	11.47	-	-	-	-	-	-	-	-	-
Long Flake	23	5.28	-	-	-	-	-	-	-	-	-

Qualitative Attributes of Andice/Bell Points (continued)

Attribute	No. Obs.	Mean Pecent (N=462)	Specimen *Pedernales* UV351-1	FR34-1	FR34-2	FR34-3	FR34-4	ME(042)-1	FR34-5	FR34-6	ME97-1
Final Flake Series											
Left	111	31.81	-	-	-	-	-	-	-	-	-
Right	68	19.48	-	X	X	-	-	X	-	-	X
Bifacial	51	14.61	-	-	-	-	-	-	-	-	-
Unifacial to 1 Face	75	21.49	X	-	-	-	-	-	X	X	-
Left and Bifacial	2	0.57	-	-	-	-	-	-	-	-	-
Right and Bifacial	2	0.57	-	-	-	-	-	-	-	-	-
Blade Twisting	97	22.93	-	-	-	-	-	X	-	X	X
Ridge Above Notches	139	31.59	-	-	-	X	-	-	X	X	-
Blade Shoulder	94	22.02	-	-	-	-	-	-	-	-	-
Asymmetry	123	29.08	X	-	-	-	-	X	-	-	X
Blade Thinning	130	30.66	X	-	-	X	-	X	-	X	-
Serration	7	1.60	-	-	-	-	-	-	-	-	-
Beveling	16	3.66	-	-	-	-	-	-	-	-	-
Multiple Notches	4	0.90	-	-	-	-	-	-	-	-	-
Remnant Impact Scar	31	7.13	-	-	-	-	-	-	-	-	-
Terminal Notching Scar											
Intrusion											
None	555	34.10	-	-	-	XXX	-	-	-	-	-
Intrusion	659	40.49	XX	X	-	-	-	XXXX	-	XX	X
Reduced	357	21.92	XX	X	-	-	XXXX	-	XXX	-	X
Obliterated	42	2.59	-	-	-	-	-	-	-	-	-