

## THE CANUTILLO COMPLEX

### EVIDENCE OF PROTOHISTORIC MOBILE OCCUPANTS IN THE SOUTHERN SOUTHWEST



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#### ABSTRACT

Early Spanish documentary sources refer to a number of mobile groups in southern Arizona and southern New Mexico, including but not limited to the Jano, Jocomé, Manso, and Suma. These groups have remained unidentified archaeologically, and their history is often conflated with that of ancestral Apachean groups. Investigations aimed at identifying and distinguishing the suite of mobile and semisedentary groups who occupied the southern Southwest have resulted in the identification of an archaeologically definable complex that likely belongs to one or more of these historically referenced groups. Brief presentation of this suite of traits is designed to elevate the evidence of these mobile groups from obscurity and to encourage further investigations into the distribution and nature of this complex. Absolute dates, artifacts, and features on open sites and in rock shelters provide the basis for definition of this complex that has remained invisible because of its general similarity to and mixing with Archaic assemblages. This article focuses specifically on the expression of this complex in the southern Southwest.

#### RESUMEN

*Antiguas fuentes en documentos españoles hacen referencia a varios grupos móviles del sur de Arizona, incluyendo pero no limitado, a los Mansos, Sumas, Janos y Jócomes. Estos grupos siguen sin ser identificados arqueológicamente y comúnmente su historia es anexada a la de grupos ancestrales Apaches. Investigaciones con el objeto de identificar y distinguir la comitiva de grupos móviles y semisedentarios que ocuparon la zona sur del Sudoeste, ha tenido como resultado la identificación de un complejo definible arqueológicamente, que probablemente pertenece a los grupos mencionados en estos documentos históricos. Una breve presentación del acervo de características es diseñada para elevar la evidencia de estos grupos móviles de la oscuridad y así alentar más investigaciones sobre la naturaleza y distribución de este complejo. Fechas absolutas, artefactos, y atributos en sitios abiertos y aposentos de piedra, proveen la base para definir este complejo que ha permanecido invisible debido a sus semejanzas generalizadas, e intercalación, con agrupamientos Apaches arcaicos. Este artículo se enfoca específicamente en la expresión de este complejo en la zona sur del Sudoeste.*

In the first half of the previous century when the primary culture groups of the American Southwest were being defined, a distinct lapse occurred after the prehistoric ceramic period. For what is commonly labeled the Proto-historic period, a series of historically referenced mobile groups have remained undefined archaeologically. Rouse (in Kidder 1975:42) recognized this problem decades ago when he noted that "archaeologists have been too preoccupied with the task of working out the nature and history of the Sedentary traditions to pay much attention to the Nomadic remains, and so we still know relatively little about them. They constitute one of the great unsolved problems of Southwestern archaeology."

This condition remains true after more than three quarters of a century of cultural historical reconstruction. After all of these decades, one must ask if the reason we have not yet identified remains of most of the mobile groups who occupied this region stems from the way we perceive the problem (Seymour 2002). Clearly our techniques of recognition are in need of refinement, but more importantly the conceptual frameworks surrounding this issue require examination, as does our perception of the terminal prehistoric period.

These issues are made directly relevant by the occurrence of late dates (A.D. 1400s through 1700s) found in association with a formal biface-oriented technology embedded in a larger constellation of traits. The late dates occur in a number of contexts throughout the southern Southwest and are consistently associated with a set of unique house types, flaked stone, groundstone, and occasionally plainware ceramics. The association of late dates with a definable set of material culture attributes, which are distinctive from those used by preceding ceramic-using sedentary groups and contemporaneous protohistoric ones, presents the possibility that these remains relate to a subset of the ethnohistorically mentioned mobile groups. The co-occurrence of features with portable artifacts in this complex suggests a migration of people with this tradition and a distinct way of life rather than simply movement of artifacts through diffusion or down-the-line trade.

This article presents recently obtained evidence for the identification of a non-Athapaskan mobile group archaeological complex. In doing so it offers a revised interpretation of the terminal prehistoric period in the extreme southern Southwest. Evidence of the Canutillo complex is clearly visible but has not been recognized for its significance and distinctiveness because, owing to similar technology, landscape use, and behavioral economy, it has been shuffled in with Archaic materials. This evidence has also been conflated with the Sobaipuri-O'odham because it is often found on and near their sites. The timing and nature of the appearance of this complex in the terminal prehistoric period has implications for the disposition of the potentially contemporaneous ceramic period sedentary culture groups as well as Sobaipuri-O'odham and early Athapaskan populations.

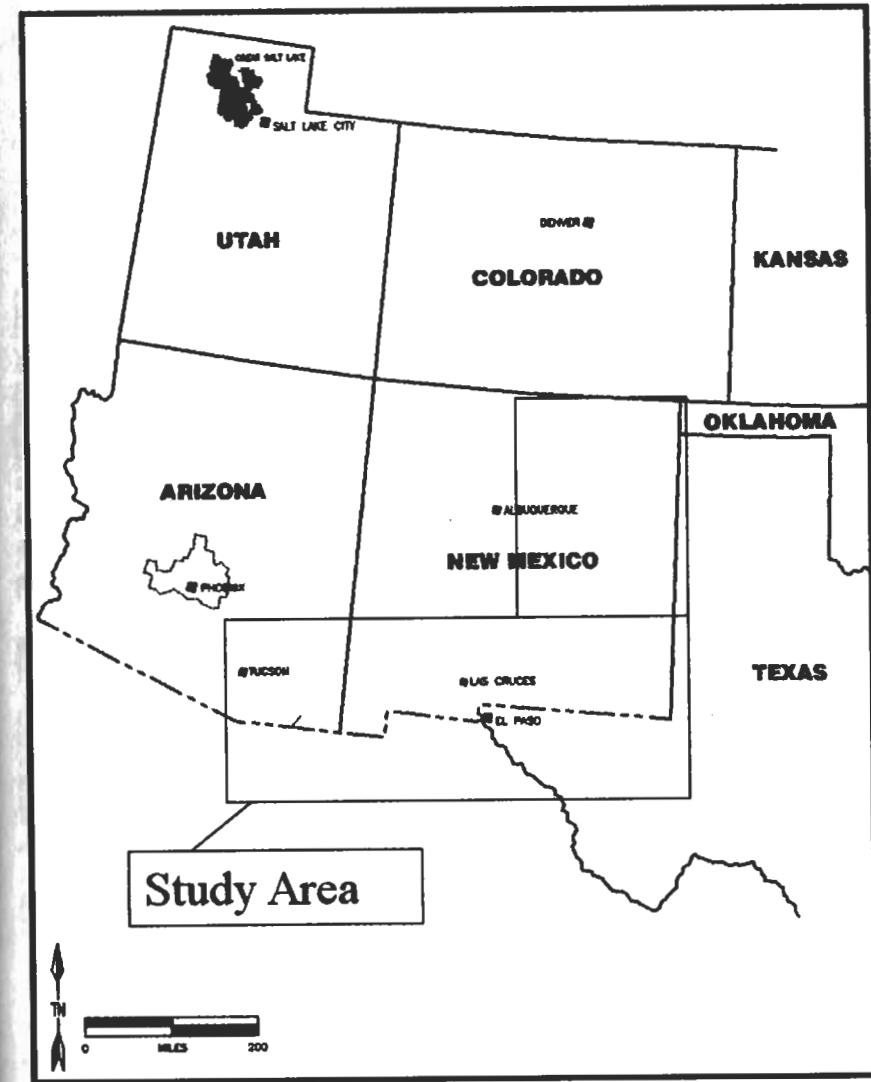


FIGURE 1. Study Area in the southern Southwest.

The geographic area of consideration is the southern portion of the American Southwest, essentially between the Pecos River in southern New Mexico and Texas and the Tohono O'odham reservation in southwestern Arizona (Figure 1). The Canutillo complex is the southwestern expression of a terminal prehistoric

and early historic adaptation that is found throughout this area as well as in northern Chihuahua and Sonora.

### FRAMING THE PROBLEM

Although documentary sources mention mobile groups in the southern Southwest, these groups have defied archaeological identification. Recently, however, two new mobile group complexes have been recognized: one is inferred to represent proto-Apache (Cerro Rojo), and the other is inferred to represent non-Athapaskan-speaking peoples (Canutillo). An explicit methodology is required to establish a link between these archaeological complexes and the historically referenced groups. It is reasonable to infer that evidence of such groups has been identified when an archaeological find (1) dates to the correct period, (2) lies within the specified geographic area, (3) is consistent with the descriptions of adaptation and landscape use in the documentary record, and (4) differs from material and spatial remains of culture groups that precede it and surround it. All of these conditions must be met, and once they are met there is a reasonable basis to infer that archaeological evidence of one such historically referenced group has been identified. This is where the Canutillo complex stands.

Archaeological practice has a protracted record of defining cultural units based on a constellation of traits occurring in unique and stable configurations of space and time that were subject to change as a result of diffusion and migration. While the notion of discrete and rigid cultural units has long since fallen from favor and much more robust explanations for cultural change have been devised, such culture group renderings are essential as an initial methodological step for preliminary definitions of the subject of study.

Classification on the basis of a unique constellation of linked traits is followed by independent explanations for the introduction of this new constellation of traits, especially when distinctive configurations imply divergent organizational systems and lifeways. The uniqueness of this new archaeological attribute set suggests that Canutillo complex mobile groups arrived from elsewhere in the terminal prehistoric period to populate the southern Southwest. Showing that the migrating group is an intrusive unit in the host region is consistent with Rouse's (1958:64) criteria to demonstrate the movement of groups. The Canutillo complex represents a newly introduced flaked-stone technological organization and associated features that are without ceramic-period precedent in the southern portion of the American Southwest (Seymour 2002, 2004a, b).

Rouse's conditions also state that it must be possible to trace this intrusive unit back to its homeland, as also suggested by Haury (1958:1) (for recent examples, see Stark et al. 1998; Woodson 1999). The Canutillo complex preserves "unmistakable elements" (Haury 1958:1) of a homeland that link it to groups inhabiting the plains, hill country, and coastal plains of Texas (and north-

ern Sonora and Chihuahua), with affinities to the Toyah, Soto, and Cielo complexes (Black 1989; Boyd 2001; Hester 1995; Johnson 1994; Kelley 1986; Mallouf 1987, 1990, 1999; Phelps 1987, 1998; Prewitt 1981, 1985). Variations in house types, projectile points, and plainware pottery (with respect to attributes not found here, such as bone tempering, Perdiz points, and relative durability of structures) are expected among mobile groups who practiced differing degrees of residential mobility, had access to different resources, participated in different social networks, and developed local traditions.

To qualify as providing evidence of migration, all occurrences of the unit intrusion must also be contemporaneous. All of the traits associated with the Canutillo complex are present by the A.D. 1400s and occur across a number of sites, with dates consistently falling between A.D. 1400 and 1700 (Table 1). Rather than comprising a slow in situ development, gradual accumulation of traits, or transformation from earlier traditions, the Canutillo complex seems to arrive full blown.

Rouse suggests that favorable local conditions for migration must exist. There is nothing to suggest that conditions were unfavorable. In fact, other groups (proto-Apache and Sobaipuri) first show up in the regional archaeological record at about the same time.

Finally, it must be demonstrated that some other hypothesis does not better fit the situation.

There are only so many potential transmission mechanisms: (a) movement of people, (b) movement of just the portable items (tools), or (c) independent and parallel invention or copying (Willey and Phillips 1958). When whole complexes rather than individual elements appear, a movement of people rather than an overlay or independent invention is suggested (Willey and Phillips 1958). The Canutillo complex is more than the appearance of a single tool form or a new technological organization, which would be suggestive of diffusion, trade, or independent invention. Instead, it is a constellation of co-occurring traits, suggesting that it represents a movement of people as opposed to other forms of transmission.

### HISTORICALLY REFERENCED GROUPS

Southeastern Arizona and southwestern New Mexico were the historically recorded territory of the natives referred to as the Jocomé and Jano. According to Spanish historical documents and maps, Jocomé territory was much farther west than the other non-Athabaskan mobile groups (Jano, Suma, and Manso) mentioned in the southeastern portion of the American Southwest in the early historic period. This group is said to have occupied the region east of the Sobaipuri-O'odham (e.g., along the San Pedro River) in southern Arizona, including in the Chiricahua Mountains and south into Sonora. The Jano are mentioned east and southeast of this group and are focused on the Janos Presidio area and Casas Grandes, although

TABLE 1. Chronometric Dates for Canutillo Complex

Site No.	Sample No. C14, OSL	Material/Context	Calibrated Date (2-sigma)	Measured Radiocarbon Age	Conventional Radiocarbon Age
Private NMH1	Beta-167025	Charred material, wood charcoal. Thermal feature with Soto point.	A.D. 1420–1500 (B.P. 530–450)	420 ±40 B.P.	440 ±40 B.P.
San Simon Bison Site	Beta-179882	Bison bone in association with Canutillo tool.	A.D. 1440–1530 (B.P. 530–450) and A.D. 1560–1630 (B.P. 390–320)	130 ±30 B.P.	380 ±30 B.P.
AZ DD:8:44	OSL: X2549	Plainware sherd lying flat on house floor, Feature 3.	A.D. 1456 ±40;		
AZ DD:8:44	Beta-190621	Charred wood, Feature 33.	A.D. 1416–1496 A.D. 1450–1650 (B.P. 500–300)	340 ±40	350 ±40
AZ DD:8:44	Beta-191895	Charred wood, Feature 21.	A.D. 1430–1520 (B.P. 520–430) and 1580–1630 (B.P. 380–320)	200 ±40	410 ±40
AZ DD:8:44	OSL: X2068	Rio Rico Plain, Tubac variety.	A.D. 1524 ±40; A.D. 1484–1564		
AZ DD:8:44	OSL: X2069	Whetstone Plain, Amado variety.	A.D. 1524 ±60; A.D. 1464–1584		
AZ DD:8:44	OSL: X2070	Whetstone Plain, Baca Float variety.	A.D. 1604 ±40; A.D. 1564–1644		
AZ DD:8:44	OSL: X2071a	Whetstone Plain, Arivaca variety.	A.D. 1574 ±40; A.D. 1534–1614		

Calibrated by Beta Analytic, Inc. Beta = Beta Analytic, Inc. Miami. OSL = Optically Stimulated Luminescence, Oxford Laboratory.

both the Jocomé and Jano, along with other mobile groups, wandered throughout a much larger area raiding, trading, and interacting with one another and more settled groups. For this reason, it will not necessarily be possible to separate these groups archaeologically based upon isolated geographic distributions of material culture in the way researchers have done in the past for more sedentary groups with more distinct territorial boundaries.

The Jocomé and Jano were often mentioned together, indicating that they sometimes roamed together, that observers could not distinguish between them, that these labels had little basis in reality, and that chroniclers were uncertain as to which of the mobile group indigenous to the area in question was responsible for an act of interest. The Jocomé and Jano were mentioned, sometimes along with other mobile groups, as raiding throughout northern Chihuahua, Sonora, and what is now southern New Mexico and southern Arizona (Naylor and Polzer 1986:585, *passim*). They were also named in an attack of a village of settled cultivators, the Sobaipuri-O'odham, at Santa Cruz de Gaybanipitea on the San Pedro in 1698 (Burrus 1971). Throughout the documentary literature there are numerous references to Apache, Jocomé, Manso, Suma, and other mobile groups living (or trading) with settled native populations, however temporary. At least once the Jano or Jocomé (accounts are unclear) attempted to settle in or near riverside Sobaipuri-O'odham settlements and cultivate (Bolton 1960 [1936]), and apparently some subset of the Jano settled in missions in the El Paso area (Karns 1954; Seymour 2007a, 2008a).

Beckett and Corbett (1992:48) are of the opinion that the Jano, Jocomé, and Manso are part of a larger tribal grouping, a stance that the archaeology of the Canutillo complex seems to support. Clearly these groups are reported within each other's territories and interacted with and fought alongside one another between the sixteenth and eighteenth centuries. It is understood from the published record that by 1773 the identity of these mobile groups was extinguished through intermarriage and decimation owing to disease (Hackett 1937:507; Beckett and Corbett 1992:16) and warfare and that they "increasingly merged toward a single identity" with the Apache (Naylor and Polzer 1986:639; see also Seymour 2002, 2007a, 2008a).

Forbes (1959, 1960) referred to the Jano, Jocomé, Manso, and Suma as being related to the Apache and of Athapaskan linguistic affiliation. This position has been largely discounted, although other researchers, such as Opler (1974:137–140), were also of the opinion that the Manso and Suma were Apachean based on the researchers' interpretation of the historical accounts and linguistic reconstructions. Opler (1974:138) even noted, citing Bandelier's 1883 observations, that the Manso were formerly using "a house type and carrying on economic and religious activities characteristic of the Apache." Yet mobile groups of a variety of origins constructed shelters that were similar to the ancestral Apache because shelter types are closely linked with mobility (Seymour 2008d, 2009). Archaeological

evidence indicates that the Canutillo complex cultural tradition was initially distinct from the Athapaskan one, and this has been inferred to represent all or a subset of these other mobile groups (see Seymour 2002, 2003a, 2004a, 2004b).

The documentary record indicates that the Janos "shared many traits with the Manso, Suma, and Jcome and allied themselves with them and the raiding bands of Apaches" (Naylor and Polzer 1986:507n6), whereas "The Jcomes were probably related to the Suma and Janos. . . . They very quickly became assimilated by Apaches" (Naylor and Polzer 1986:528n2). In this perspective the Apache and these other groups started out as distinct but slowly transformed in identity and adaptation throughout the historic period. This is a widely shared perspective.

The documentary records present hints as to the lifeways (or behavioral economies) of these groups and the changing nature of their interactions. This provides a basis for inferring what types of tools they needed, what portions of the landscape were relevant, and how technology and landscape use might have changed as a result of intergroup strife and alliances and of degrading or improving environmental qualities.

### THE NATURE OF THE COMPLEX

The Canutillo complex is one of two new archaeological complexes defined recently in the southern Southwest during research undertaken specifically to address questions of the archaeological correlates of these late groups and the implications for culture process (see Seymour 2002, 2004a, in prep 2004). Because the other complex (Cerro Rojo) can be attributed to the early Athapaskan occupants based on a variety of evidence (see Seymour 2002, 2003a, 2004a, 2008b), this Canutillo complex is credited in a generic way to non-Athapaskan mobile groups. (Further differentiation may be in order, but as an initial conceptualization these two archaeological divisions are sufficient.)

First defined (Seymour 2002, 2004a, in prep 2004) as a result of efforts in the El Paso–Las Cruces area, where it takes its name from a town along the Rio Grande (and from historical mention), the complex was concurrently traced throughout the southern Southwest and adjacent portions of northern Mexico. It was recognized as distinctive and important to a wider area because elements of it are found among the historic Sobaipuri of southern Arizona (Seymour 2002, 2008a). It intrudes upon the existing ceramic period El Paso-phase Jornada Mogollon, Classic period Hohokam, and Salado occupations in about the A.D. 1400s.

The Canutillo complex flaked-stone assemblage is composed of a relatively consistent set of tool forms including distinctive bifacial knives, unique retouched perforators, small triangular arrow points with indented bases, distinctively formed steep-edge end scrapers, and a biface technology. It is accorded an association with contemporaneous groups on the southern plains and hill country of southern and western Texas who had a similar tool kit that was made using a similar tech-

nological organization (Black 1989; Boyd 2001; Hester 1995; Johnson 1994; Kelley 1986; Mallouf 1987, 1990; Phelps 1987, 1998; Prewitt 1981, 1985). Although many of these traits are Toyah-like, the Perdiz points and bone-tempered pottery typical of Toyah are not included in the Southwest assemblage (at Bloom Mound, Perdiz-like points result from an A.D. 1300s attack; Speth 2004).

Canutillo complex people occupied rock shelters and constructed small dwellings in open terrain, such as on hills, terraces, and playa and river margins. Mobile group structures are similar across the southern Southwest and are represented by small vague outlines of rocks or clearings on a rocky surface that vary to some degree in size as well as in the number and mode of stacking of the rocks and in the types of rocks used, depending on local terrain characteristics (Figure 2). They are unlike Sobaipuri structures, which tend to be oval, elongate, or rectangular with rocks purposefully set in the ground, but they are made in a way that is similar to other mobile group structures, including the ancestral Chiricahua Apache (Seymour 2009). Outlines of Canutillo huts are generally too small to be conceived of as structures in the sense that most southwestern archaeologists would view them but are consistent in size (often 1.25 m to 1.50 m in diameter), with some of the small semisubterranean houses used by the Jornada Mogollon and by some mobile southern Texas, Trans-Pecos, and northern Mexican groups. Ethnohistoric reference to groups along the Rio Grande refer to these as "straw huts" (Hammond and Rey 1966:217, 218), probably referring to materials used in their construction and to their flimsy surface character.

A variant of cairn burials may also be typical of this complex; several are known from terminal prehistoric and early historic contexts including those from near a small habitation site west of the Rio Grande near the Robledo Mountains. Others known from southeastern Arizona occur near sites that have produced Canutillo complex tools and debitage (Seymour 2007b). Similar cairn burials are known from Trans-Pecos Texas and northern Chihuahua, where they are definitively associated with various late complexes, such as the Cielo complex that may be a variant of Toyah (see Mallouf 1987).

Dates obtained from Canutillo complex sites consistently place this phenomenon securely in the fifteenth and sixteenth centuries (see Table 1). Included are optically stimulated luminescence (OSL) dates from pottery on house floors and from nonfeature contexts. Radiocarbon dates are from bison bone from an open cienega site in the San Simon Valley in association with a Canutillo complex tool and also from charcoal found in a small well-defined fire pit that contained a temporally diagnostic projectile point. Several later dates from the historic period (A.D. 1600s and 1700s), not shown in Table 1, from other sites include a locus attributed to the Canutillo complex at a large multiethnic hilltop defensive site (Cerro Rojo Site) in the Hueco Mountains near El Paso (Seymour 2002, 2003a, 2004a, 2008d). Consistent with interpretations of the documentary record of the Jano and Jcome, the distinctiveness of the complex fades in the eighteenth century.

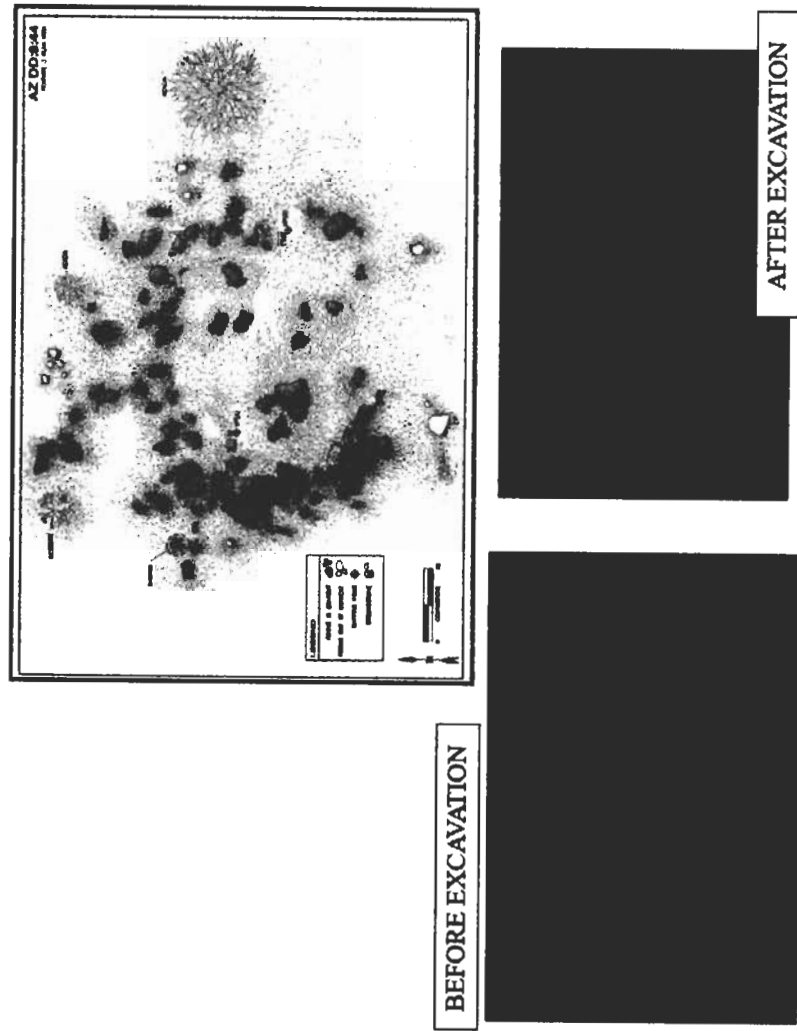


FIGURE 2. Structure of the Canutillo Complex at the Sharples Site (AZ EE:8:44, ASM). (a) Plan drawing of Feature 3, (b) photograph of Feature 3 before excavation, (c) photograph of Feature 3 after excavation.

This fifteenth-century occurrence is later than the earliest known evidence of similar materials in southern and western Texas. However, so few dates have been obtained from the southern Southwest that it is statistically unlikely that the earliest occurring occupations have been identified. In all likelihood, the event of the in-migration had already occurred and was in full force by the fifteenth century, although full force by small, highly mobile groups was not likely to have been imposing or remarkable. The occurrence of materials from this complex during this time frame as far west as the Santa Cruz Valley and Ventana Cave supports this inference as well. The high degree of mobility and the expansive range sizes used probably mean that it did not take long for them to move into this far western territory.

**THE SHARPLES SITE**

The Sharples Site (AZ DD:8:44 [ASM]), located along the Santa Cruz River near Tubac, Arizona, is the most intensively studied site of this complex (Figure 3). Although the complex was first isolated elsewhere, the artifacts indicative of it

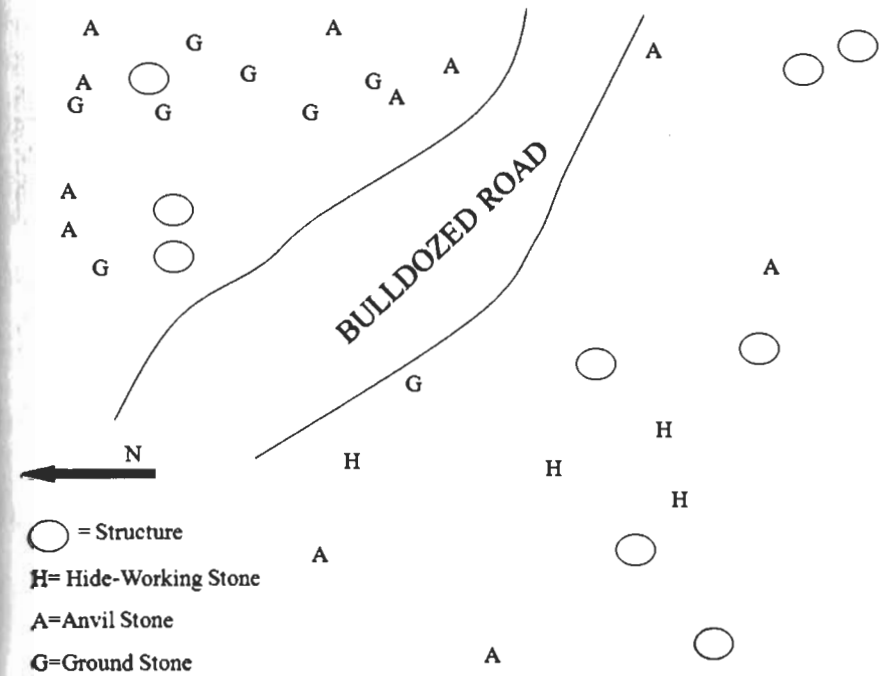


FIGURE 3. Sketch Map of the Sharples Site (AZ EE:8:44, ASM).

were quickly recognized as having been previously attributed to the Sobaipuri and the Archaic period (see Seymour 2002); thus, the complex was defined concurrently by the author in southern Arizona. This led to an expansion of the known distribution of the complex to the west, where some of the best examples are now known. Later comparison to similar manifestations in southern and western Texas revealed that the complex has affinities there as well.

More extensive excavations and chronometric dating have been undertaken at the privately owned Sharples Site than elsewhere. A complete surface collection, site mapping, and excavations of some of the structural features provide a basis for this component assignment. Associated artifacts are scattered across a large area; relevant features extend to the east of a prehistoric habitation-and-compound site boundary and overlap with the rest of the site, where Canutillo features incorporate prehistoric structural debris and abandoned adobe walls. A scattering of Canutillo artifacts over melted prehistoric adobe compound walls reveals the lateness of the occupation, as do projectile points and debitage in the upper post-occupational fill layers of an earlier (A.D. 1100s) feature. Dates on numerous sherds and from thermal features, as shown in Table 1, confirm the late occupation suggested by stratigraphy.

Several feature types are present at the Sharples Site, including small rock-ringed structures (see Figure 2). These are circular and small (1.25–2 m across) and lack interior features other than large boulders and cobbles that may have functioned as impromptu furniture or facilities. Cobble-size rocks and slabs were intentionally placed on the ground surface to form the structure perimeter. Here and at other sites where the surface is rocky, structure outlines may represent little more than the moving of rocks aside to form a clearing, sometimes with one rock stacked on or pushed against another. A date run on a flat-lying sherd recovered from a structure produced a date of A.D. 1416–1496 (see Table 1).

The anvil stone is a distinctive feature type that is referred to as such because examples show evidence of focused pounding and battering. They are widely dispersed in the eastern portion of this site where numerous large embedded boulders have minimal use wear, suggesting use for a limited duration. In some instances these are surrounded by fresh-looking fine-grained chert shatter and debitage, suggesting their use as in the initial stages of lithic reduction.

Numerous instances of expedient groundstone cobbles and boulders cluster in the portion of the site with the anvil stones and the densest concentration of Canutillo complex flaked stone. These consist of mostly relatively fine-grained boulders with flat working surfaces. Unidirectional grinding facets broadcast their use as groundstone.

Four thin stone slabs placed upright, perpendicular to the ground surface, reveal evidence of purposeful edge modification (Figure 4). Protruding ends have been flaked to form a rough edge that would create resistance when scraped with a hide. These are inferred to be hide-working stones because they are similar to



FIGURE 4. Hide-working stone at the Sharples Site (AZ EE:8:44, ASM).

the much larger versions found on the Plains. Processing of smaller hides here may account for the diminutive size of these stones. Excavation of a 2 × 2 m unit around one of these stones produced a bifacial knife consistent with others from this complex. From this association we may conclude that this tool was lost or left in place in this work area after concluding hide-working activities, an inference that seems to be confirmed by residue analysis on this tool that produced rabbit and fish along with other residues (Cummings et al. 2008).

The pottery present on this site represents a wide range of plainware varieties including thin-walled nicely executed O'odham wares. These were likely obtained either through raiding from or trading with Sobaipuri-O'odham neighbors who occupied southern Arizona's rivers at the time. Numerous other contemporaneous plainwares are also present on this site in low frequencies and will be described in forthcoming volumes. It is not yet clear which, if any, of these other plainwares were actually made by Canutillo complex groups. Most seem to be constructed using riverine clay and temper sources, whereas mobile group ceramics are often self-tempered clays from inland zones where many of the groups lived, although perhaps not these Canutillo people (Seymour 2002, 2008e). Yet so few of the brownwares from neighboring Sonora have been studied that it is difficult to ascertain origins with certainty. Limited petrographic analyses have been conducted, and many more samples are needed so that they can be considered in the context of a sourcing model appropriate to mobile groups.



**FIGURE 5.** Projectile points from the Sharples Site (AZ EE:8:44 [ASM]).

The flaked stone associated with this complex is most densely concentrated in the eastern locus, although chipping stations are present overlying the prehistoric portion of the site. Several large fine-grained chert cores are present in the eastern locus. These were likely transported to this location from nearby areas, as they are of materials not found on the site. Much of the debitage scattered across the site is of the same material as these cores.

The flaked-stone assemblage for this complex is distinctive and includes numerous small, basally indented, triangular arrow points (Figure 5); finely crafted bifacial knives of a couple of different shapes (as distinct from flake knives or expedient knives on flakes); and a series of other tool forms including backed knives, bulbous-based perforators with bifacially retouched bits, and multipurpose tools including scraper-graver combinations, teardrop-shaped to oval steep-edge end scrapers, and unifacial side scrapers. This distinctive style of flaking distinguishes these tool forms, as does the uniqueness of the final forms. These tools were clearly manufactured for their durability. Points and other tools are almost exclusively made on fine-grained materials such as chert, rhyolite, chalcedony, and sometimes obsidian.

Small triangular arrow points with indented bases and sometimes with serrated margins are widespread throughout the southern Southwest. Variations occur from southern and western Texas to southern Arizona. The widespread nature of projectile point distributions (side-notched and basally indented) has been referred to by others simply as horizon styles without further reference to

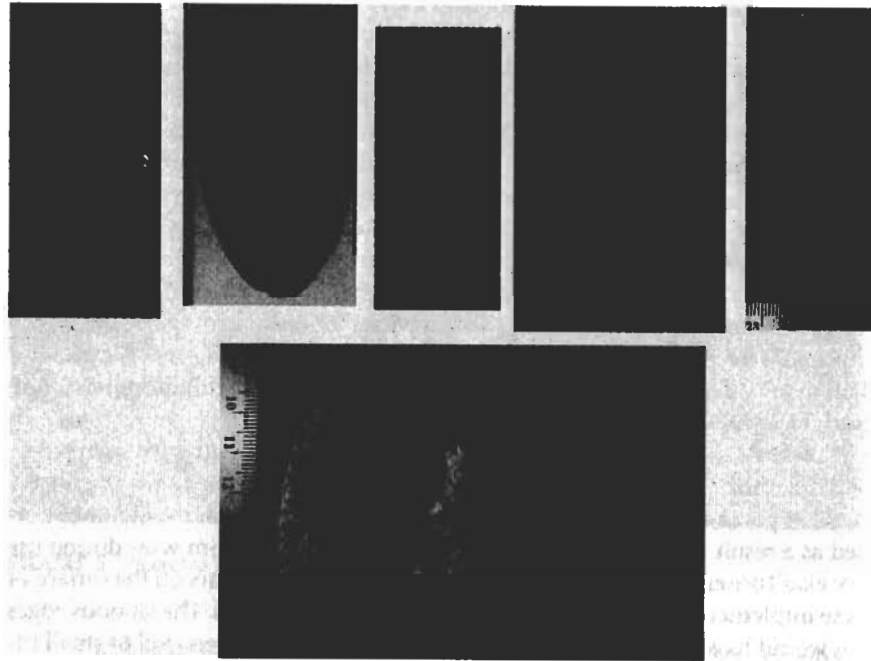
the explanatory basis for the widespread distributions. Recurved or sinew-backed bows may provide one explanation, as might the two-piece nature of the arrow shafts to which they were attached. I have argued elsewhere (Seymour 2002) for their prominence during this time period because of their lethal nature owing to the prevalence of violence, including serrated edges that, according to the historic missionary record, were anointed with poison (see Treutlein 1949:202–203). Subtle variations throughout the southern Southwest suggest that they may be of value in differentiating some of the groups who occupied the area (for example, Lott points from western Texas and Soto points from northern Chihuahua and the Trans-Pecos are distinct as a group from Huachuca points found on Cayetano-complex-Sobaipuri sites), but as I have previously noted, arrows and the points attached were widely traded and were lost during use, making them less useful than many other attributes for distinguishing geographic distributions of culture groups (Seymour 2002, 2007b).

Several distinctive thin chert bifaces and biface fragments have been recovered from the Sharples Site and from other Canutillo complex sites (Figure 6). These implements are bifacially reduced, often leaf-shaped, and sometimes beveled as a result of extensive resharpening and presumably from wear during use (see also Turner and Hester 1999:274–276). Negative flake scars on the surface of these implements indicate that broad flat flakes were removed. The sinuous edges that would have facilitated cutting were created through the removal of small triangular flakes in a parallel fashion along the margins.

Because of the nature of the tools being produced, the debitage associated with this complex has a distinctive character. Not only do the flakes look fresh or recent, with sharp edges and surfaces that are unmarred by weathering, but they also are reflective of a bifacial reduction technology. Long-expanding bifacial thinning flakes on fine-grained cherts and rhyolites were removed with a soft hammer, as indicated by diffuse bulbs, a lack of a bulbar scar, and less pronounced ripple marks. These flakes often terminate in a feathered edge with a minimal margin, which is a by-product of precision collateral flaking. These are likely related to the production of the bifacial knives and other formal tools that required practiced reduction skills. Small triangular flakes of fine-grained materials of a variety of colors are typical as well, also indicating soft hammer percussion and pressure flaking. These exhibit many of the same characteristics as the larger biface-thinning flakes but are smaller and triangular. Many of these small triangular flakes are waste products from biface sharpening, but larger flakes seemingly produced by the same means served as blanks for the production of points.

#### **WHY THE CANUTILLO COMPLEX HAS NOT BEEN RECOGNIZED**

It may be difficult to conceptualize artifacts in the Canutillo complex assemblage as different from the Archaic because early efforts to characterize different cultures



**FIGURE 6.** Canutillo complex bifaces. Top row, westernmost to easternmost in distribution: (a) Ventana, (b) Cienega Creek, (c) Second Canyon, (d) Pintada, (e) Cerro Rojo. Bottom row: (f) Sharples.

in the Southwest mistakenly included items from this complex in the Archaic. For example, Sayles and others (1983) erroneously illustrate a Canutillo complex biface as representative of artifacts from the Chiricahua stage of the Cochise culture (see Figure 6). In that volume, the biface shown in Figure 9.4gg that relates to the protohistoric and historic use of the rock shelter is the specimen that Haury (1975 [1950]:264:Figure 52) noted as "showing the best workmanship of all" recovered in the uppermost layer (0–.05 m) at Ventana Cave. (The full extent of the Canutillo complex occupation at Ventana Cave cannot be discerned from the once-curated artifacts because they have been repatriated, and debitage descriptions sufficient to draw affiliation inferences are not included in the report.)

This type of biface is not indicative of an Archaic presence, but it does occur on single and multiple component Canutillo complex sites. It is noteworthy that in the Ventana report Haury (1975 [1950]:266) commented with reference to this biface: "Strangely enough, Sayles does not list them for any of the stages of the Cochise Culture and there are none in a large collection of artifacts from a surface site of the San Pedro Stage (Arizona FF:5:3) in the Arizona State Museum

Survey." My examination of the original Cochise culture type collections at the Arizona State Museum confirms Haury's observation of their absence, which relates to their association with a later (non-Archaic) occupation.

When these original culture group definitions were constructed, archaeologists such as Sayles searched for patterns in artifact and feature traits throughout broad geographic regions. In the process of categorizing sites, many items of material culture relating to other time periods and culture groups were swept up along with the genuinely Archaic items. This is because most sites have one or two items on them that are indicative of other phases of occupation, and many are characterized by multicomponent occupations. Thus, the one or two items collected as grab samples have great potential to mislead archaeologists as to the affiliation and temporal association of the full sequence of occupation, and they can also be inadvertently subsumed into the wrong culture group complex. Later efforts to characterize the Archaic have unfortunately continued to collapse terminal prehistoric materials into the Archaic framework, even rejecting late dates as anomalous as occurred at Pintada Rockshelter (MacNeish 1998; Seymour 2009b; Seymour and Church 2007).

#### COMPARISONS TO ARCHAIC ASSEMBLAGES

Despite past and continuing practices of lumping these later materials with those of the Archaic, there are clear quantitative and qualitative distinctions between them. Canutillo complex bifaces and their resulting debitage may look superficially like Archaic materials simply because they are formal tools. The discontinuation of a focused formal tool technology with the advent of the ceramic period has led to the erroneous grouping of many formal tools into earlier preceramic stages. Yet with the rise of mobility in the terminal prehistoric a formal biface-based technological organization appears again, and a variety of measures allow these to be distinguished from their earlier counterparts. The goals of production were similar (biface-oriented technologies aimed at producing durable cutting implements) in both earlier and later times, but the products are quite different. When comparing Archaic bifaces to those of the Canutillo complex, one is immediately struck by basic differences in technology, visual quality, and a number of physical attributes including the freshness of the flake scars on the Canutillo material.

These distinctions, as isolated through analyses too detailed for presentation here, include (1) differences in materials used (silicified limestone and fine-grained basalt for Archaic versus fine-grained silicates for Canutillo along the same drainages); (2) differing degrees in patination and dullness versus sharpness of edges related to age; (3) stylistic differences including clunky, thicker, and asymmetrical Archaic bifaces versus the symmetry, high-quality flaking, and thinner Canutillo ones as reflected through visual inspection as well as in number of

marginal flake scars; (4) the distinctiveness of shape between the thin ovate or leaf-shaped Canutillo bifaces (and other forms, not shown in Figure 6) versus San Pedro bifaces, for example, that are triangular in form, with a broad or expanded base that tapers toward the opposing end; and (5) the distinction of Canutillo complex and the Archaic San Pedro and Chiricahua materials also apparent with regard to biface length, width, and thickness.

By a variety of measures and considerations the Canutillo complex materials are distinctive from the Archaic assemblages that are found in the same geographic areas, often in similar environmental and physiographic settings and, many times, on the same multicomponent sites. These bifaces are but one of the many tool types found on these Canutillo complex sites, but they serve as an example of the uniqueness of this protohistoric assemblage from the Archaic assemblage with which they have been confused.

### THE BEHAVIORAL ECONOMY BEHIND THE TOOL KIT

As distinctive as is the tool kit, the complex has remained hidden because it is so reminiscent of the technological assemblage that characterizes the Archaic period and because the features are unobtrusive and outside of expectations with regard to their small size and inconspicuous nature. This similarity to the Archaic might be expected for those who consider that technological approach to tool production is bound closely with adaptation and the desired performance characteristic of durability for mobile groups (Bamforth 1991; Shott 1986). In portions of the Southwest, it is generally accepted that expedient technologies correspond with sedentary agricultural economies, while those that are biface-oriented or more formal tend to correlate with mobile groups because of the extended use life and greater durability of the tools. This focus on behavioral economy is fundamental to understanding and explaining the geographic distribution of this complex. These widespread similarities imply that these small mobile groups of the terminal prehistoric and historic periods throughout a broad geographic area had similar technological requirements for their tools.

These requirements emerged about the time bison became abundant in southern Texas owing to climatic changes (see Ricklis 1992), and so it is thought that Toyah and related complexes arose in southern and western Texas as a bison-adapted technology. Tomka (2001) has suggested that durability is the operative performance characteristic of these bifacial tool forms and accounts for their widespread use among those who hunted and processed large game. He and Seymour (2002, 2007a, 2008a) are both of the opinion that the broad geographic distribution of these tools may be related to the spread of the hide trade involving bison and, in the Southwest, probably other large game species. This was during a time characterized by high mobility and permeable social boundaries, perhaps accounting for the wide geographic distribution of these tool forms among mobile

hunters and the more stationary groups with whom they associated (e.g., the Sobaipuri).

New evidence (and compilation of scattered existing evidence) of bison exploitation in the terminal prehistoric and early historic periods in southern Arizona and southern New Mexico suggests a potential reason for the initial distribution of the Canutillo complex material culture assemblage (Seymour 2002, 2003b, 2004b). A Canutillo tool recently found in association with bison bones, one of many individual kills at this site in the San Simon Valley, has been radiocarbon dated to cal A.D. 1440–1530 (cal B.P. 530–450) and cal A.D. 1560–1630 (cal B.P. 390–320) (Beta-179882) (see Table 1; see also Seymour 2004b). This along with other evidence indicates that Canutillo complex groups were this far west and that they were initially exploiting bison as a portion of their diet, partially explaining the presence of this unique assemblage (Seymour 2004b). Evidence from other sites farther west, including the Murray Springs Paleoindian site on the upper San Pedro, has produced late evidence (after A.D. 1200) of bison (Agenbroad and Haynes 1975), and Di Peso (1953, 1956) noted the presence of possible bison (or cow) bone in historic contexts on the San Pedro and Santa Cruz. More recently, Mead and Johnson (2004) reported evidence for late bison in the San Rafael Valley. Although Agenbroad and Haynes (1975) presented evidence for widespread late prehistoric bison in southern Arizona at a number of sites, archaeologists have had nowhere to compartmentalize this information because it did not fit with models of late prehistoric or protohistoric subsistence practices. Consequently, it comes as a surprise when more recent evidence is presented of bison kills in southern Arizona in association with Canutillo materials and late dates.

Although the tool kit so characteristic of this period may have been initially adapted to bison exploitation, in the Southwest bison were probably not sufficiently dense to explain its occurrence, and there is evidence that these western groups had a relatively broad subsistence base. As noted by Fritz (1977, 1989), mountain sheep may have been the preferred large game resource in portions of Arizona, and certainly deer, antelope, and elk were exploited as well. It is clear too that the Canutillo complex subsistence base was quite diversified, a finding that is consistent with the pattern noted for related sites in Texas (Johnson 1994). One common attribute of many of the Canutillo complex sites in northern Chihuahua and southern New Mexico is the presence of small shattered and splintered rodent and bird bones (burned and unburned).

Documentary sources indicate that those groups inferred to be responsible for the Canutillo complex exploited the playas, marshes, and lakes for lacustrine species (Hammond and Rey 1966). Thus, it is not surprising that certain classes of Canutillo complex sites tend to be situated near the margins of playas, around cienegas, and along rivers. During the wet season watercourses would have flooded, spilling over into riverside marshes and oxbows and stranding and providing a

fresh supply of fish. Grasses, cattails, and other riverside plants could have been harvested there as well, but further archaeological investigations will be required to know if such resources were collected. Many playas (dry lakes) found in inland basins throughout the southern Southwest and Trans-Pecos fill seasonally with water and host a surprising diversity of usable resources, including numerous plant and animal species (Church 2002a, 2002b). A number of reliable playas and cienegas that are present in southeastern Arizona, southern New Mexico, and northern Chihuahua and Sonora seem to have drawn these populations. Living near and extracting resources from the lakes, playas, marshes, and ponds along the major rivers might explain the relatively high population densities for the mobile groups reported by Espejo in southern New Mexico (Hammond and Rey 1966:169). Coalescence during productive collecting and fishing times might bring several groups together temporarily. The documentary statement that "they fish much in the pools with small dragnets" indicates that some of these groups had adapted their technology to the extraction of fish and perhaps toads and shrimp (see Church 2002a, 2002b).

It is likely that many of the local Canutillo complex groups lost their connection to this particular part of their subsistence adaptation after they settled down in longer-term villages. For example, the documentary, ethnographic, and archaeological records suggest that some settled in and near Sobaipuri-O'odham villages along the San Pedro in southern Arizona (see Bolton 1960 [1936]:247; Sauer 1934:75; Forbes 1960:210), eventually intermixing with local groups (Bolton 1960 [1936]:248–249n2; Underhill 1939; Seymour 2003b, 2005a, 2005b, 2007a, 2008a), and large percentages of them went to live with various Apachean groups beginning with the Gila Apache (Forbes 1960:162–163). Others found shelter at the Nuestra Señora de Guadalupe mission near El Paso in 1659 (Forbes 1960), settling in with the Piro, Tompiro, and others. These latter mobile group factions made this initial adjustment during a period of extended and severe drought that may have dried up the playas and riverside lakes, reducing subsistence options. Furthermore, the Spanish actively discouraged the mission-settled natives from participating in their old subsistence habits, which may have eventually resulted in the loss of this knowledge. Those who later left the missions during uprisings may not have had the option to return to the old ways; exploitation of lakeside and riverside resources on the open basin floors would have left them vulnerable to Spanish aggression, so they, like the Apache, would have had to retreat to the mountains, learning new economic strategies (Seymour 2002).

### SUMMARY OF CANUTILLO COMPLEX

The Canutillo complex is widespread throughout the southern Southwest during the fifteenth through the eighteenth centuries. It is inferred to represent a mobile group adaptation, initially related to large-game hunting and exploitation of river

and lake resources. The introduction of this new technology represents a break from lithic traditions associated with the local ceramic periods. The technology has affinities to tool kits in southern and western Texas and northern Mexico. The lack of local precedent in the Southwest and an eastern parallel tradition support the notion that these mobile hunters migrated west or north in or before the fifteenth century.

The Canutillo complex is not coterminous with any one prehistoric culture area. The technology is foreign to the prehistoric culture groups (Hohokam, San Simon Mogollon, Mimbres, and Jornada Mogollon) that it overlies. Its distribution is not as widespread as the historically documented Athapaskan occupation. It is not made in the later O'odham tradition, nor is it fully represented in the contemporaneous O'odham traditions. The single exception is in relation to the Cayetano complex materials referred to as Sobaipuri, where there are strong similarities to the Canutillo lithic technology. I have argued that one or more of these mobile groups mixed with the Sobaipuri (Seymour 2003b, 2004a, 2005a, 2005b, 2007a, 2008a), in part because the documentary record makes reference to this coresidence (Bolton 1960 [1936]:248–249n2; Underhill 1939). Sobaipuri ethno-genesis likely involved the mixing of O'odham and one or more mobile groups to create their unique character relative to other O'odham groups. The Sobaipuri were viewed as different and more warlike during their day (Underhill 1939: 16–17), and they possessed remnant traits that suggest a Plains or Apache affiliation (Underhill 1939). Their flaked-stone assemblage reflects this mobile-group association as well, particularly with the adoption of the new technological organization. On the other hand, occurrences of some Canutillo complex materials on and near Sobaipuri sites unmistakably postdate the Sobaipuri occupation and in other cases clearly represent a separate, perhaps contemporaneous, locus of occupation.

The Canutillo complex represents a unique constellation of traits that co-occur with and are functionally related to their mobile lifestyle. Structures and other feature types are consistent with the mobile adaptation, as is their distribution within sites and across the landscape (Seymour 2008c). Features are found in association with flaked stone and sometimes with unique plainwares, sometimes with the traded or raided plainwares of contemporaneous groups. Both open sites and rock shelters are known and have been chronometrically dated. Although more dates are needed, suites of dates from sites that are widely dispersed throughout this region indicate that this complex appears in the southern Southwest by the A.D. 1400s.

Documentary sources mention several mobile groups for which a distinctive material culture set should be definable. Two new and very different mobile group complexes have been defined that date to this late period. The Canutillo complex is fundamentally different than the complex attributed to the early Athapaskan speakers, suggesting that one or more of these other mobile groups

are responsible for the Canutillo complex. The Canutillo complex is inferred to be a widespread supraethnic phenomenon, and it is suggested that a number of groups at least initially shared a similar adaptation.

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### REFERENCES

- Agenbroad, L. D., and C. V. Haynes  
1975 Bison Remains at Murray Springs, Arizona. *Kiva* 40(4):309-314.
- Bamforth, Douglas B.  
1991 An Empirical Perspective on Little Ice Age Climatic Change on the Great Plains. *Plains Anthropologist* 36:359-366.
- Beckett, Patrick H. and Terry L. Corbett  
1992 *The Manso Indians*. COAS Publishing and Research, Las Cruces, New Mexico.
- Black, Stephen L.  
1989 Central Texas Plateau Prairie. In *From the Gulf to the Rio Grande: Human Adaptation in Central, South, and Lower Pecos Texas*, edited by T. R. Hester, S. L. Black, D. G. Steele, B. W. Olive, A. A. Fox, K. J. Reinhard, and L. C. Bement, pp. 17-38. Arkansas Archeological Survey Research Series 33. Arkansas Archeological Survey, Fayetteville.
- Bolton, Herbert E.  
1960 *Rim of Christendom*. Russell and Russell, New York.  
[1936]
- Boyd, Douglas K.  
2001 Querechos and Teyas: Protohistoric Hunters and Gatherers in the Texas Panhandle-Plains, A.D. 1540-1700. *Bulletin to the Texas Archeological Society* 72:5-22.
- Burrus, Ernest J.  
1971 *Kino and Manje, Explorers of Sonora and Arizona: Their Vision of the Future, a Study of their Expeditions and Plans, with an Appendix of Thirty Documents*, Sources and Studies for the History of the Americas, vol. 10 (Rome: Jesuit Historical Institute; St. Louis, Mo.: St. Louis University).
- Church, Tim  
2002a The Role of Playas in Prehistoric Subsistence Systems in the Northern Chihuahuan Desert. Prepared for the 2002 Society for American Archaeology Symposium: Rethinking the Prehistory and History of the Northern Chihuahuan Desert.  
2002b The Role of Playas in the Subsistence Systems of the Northern Chihuahuan Desert. In *Prehistoric Land Use and Functional Correlations*, pp. 115-133. Lone Mountain Report 513. Conservation Division, Directorate of Environment, Fort Bliss, Texas.
- Cummings, Linda Scott, Chad Yost, and David V. Hill  
2008 Protein Residue and Organic Residue (FTIR) Analysis for a Hafted Biface Recovered from AZ DD:8:44 (ASM), Arizona. Paleo Research Institute Technical Report 08-07. Paleo Research Institute, Inc., Golden, Colorado.
- Di Peso, Charles,  
1953 The Sobaipuri Indians of the Upper San Pedro River Valley, Southwestern Arizona. Dragoon, AZ: Amerind Foundation Publication No. 6.  
1956 The Upper Pima of San Cayetano del Tumacacori: An Archaeohistorical Reconstruction of the Ootam of Pimeria Alta. The Amerind Foundation, Inc. Dragoon, Arizona.
- Forbes, Jack D.  
1959 Unknown Athapaskans: The Identification of the Jano, Jocomo, Jumano, Manso, Suma, and Other Indian Tribes of the Southwest. *Ethnohistory* (6)2:97-159.  
1960 *Apache, Navaho, and Spaniard*. University of Oklahoma Press, Norman.
- Fritz, Gordon  
1977 The Ecological Significance of Early Piman Immigration to Southern Arizona. Manuscript on file at the Arizona State Museum Library, University of Arizona, Tucson.  
1989 The Ecological Significance of Early Piman Immigration to Southern Arizona. *Artifact* 21(1):51-109.
- Hackett, Charles W.  
1937 *Historical Documents Relating to New Mexico, Nueva Vizcaya, and Approaches Thereto to 1773, Volume 3*. Carnegie Institute of Washington Publication No. 330.
- Hammond, George Peter, and Agapito Rey  
1966 *The Rediscovery of New Mexico, 1580-1594: The Explorations of Chamuscado, Espejo, Castano de Sosa, Morlete, and Leyva de Bonilla and Humana*. University of New Mexico Press, Albuquerque.
- Haury, Emil W.  
1975 *The Stratigraphy and Archaeology of Ventana Cave*. University of Arizona Press, Tucson.  
[1950]  
1958 Evidence at Point of Pines for a Prehistoric Migration from Northern Arizona. In *Migrations in New World Culture History*, edited by Raymond H. Thompson, pp. 1-6. University of Arizona Bulletin 29(2). Social Science Bulletin 27. University of Arizona, Tucson.
- Hester, Thomas R.  
1995 The Prehistory of South Texas. *Bulletin of the Texas Archeological Society* 66:427-459.
- Johnson, Leroy  
1994 The Life and Times of Toyah-Culture Folk: The Buckhollow Encampment Site 41KM16, Kimble County, Texas. Office of the State Archaeologist Report 38. Texas Department of Transportation and Texas Historical Commission, Austin.
- Karns, Harry J.  
1954 *Unknown Arizona and Sonora 1693-1701*. Arizona Silhouettes, Tucson.
- Kelley, J. Charles  
1986 *Jumano and Patarabueye: Relations at La Junta de los Rios*. Anthropological Paper 77. University of Michigan, Museum of Anthropology, Ann Arbor.
- Kidder, Alfred Vincent  
1975 *An Introduction to the Study of Southwestern Archaeology*, Eighth Edition. Yale University Press, New Haven.
- MacNeish, Richard S.  
1998 Excavation of Pintada Rockshelter on McGregor Firing Range in New Mexico. Publications in Anthropology No. 12. El Paso Centennial Museum, University of Texas at El Paso.

- Mallouf, Robert J.  
 1987 *Las Haciendas: A Cairn-Burial Assemblage from Northeastern Chihuahua, Mexico*. Office of the State Archeologist Report 35. Texas Historical Commission, Austin.  
 1990 A Commentary on the Prehistory of Far Northeastern Chihuahua, the La Junta District, and the Cielo Complex. Translation of La Prehistoria del Noreste de Chihuahua: Complejo Cielo y Distrito La Junta in *Historia General de Chihuahua I: Geología Geografía y Arqueología*, edited by Arturo Marquez-Alameda. Universidad Autónoma de Ciudad Juárez y Gobierno del Estado de Chihuahua, Juárez.  
 1999 Comments on the Prehistory of Far Northeastern Chihuahua, the La Junta District, and the Cielo Complex. *Journal of Big Bend Studies* 11:49–92.
- Mead, Jim I., and Catherine B. Johnson  
 2004 Bison and Bos from Protohistoric and Historic Localities in the San Rafael Valley, Arizona. *Kiva* 70(2):183–194.
- Naylor, Thomas H. and Charles W. Polzer, S.J.  
 1986 *The Presidio and Militia on the Northern Frontier of New Spain, 1570–1700*. University of Arizona Press, Tucson.
- Opler, Morris E.  
 1974 *Lipan and Mescalero Apache in Texas*. Apache Indians X. Garland Publishing Inc., New York and London.
- Phelps, Alan L.  
 1987 Soto: A Distinctive Projectile Point Type. *Artifact* 25(4):7–22.  
 1998 An Inventory of Prehistoric Native American Sites in Northwestern Chihuahua, Mexico. *Artifact* 36(2):.
- Prewitt, Elton R.  
 1981 Cultural Chronology in Central Texas. *Bulletin of the Texas Archeological Society* 52: 65–89.  
 1985 From Circleville to Toyah: Comments on Central Texas Chronology. *Bulletin of the Texas Archeological Society* 54:201–238.
- Ricklis, Robert A.  
 1992 The Spread of a Late Prehistoric Bison Hunting Complex: Evidence from the South-Central Coastal Prairie of Texas. *Plains Anthropologist* 37(140):261–274.
- Rouse, Irving  
 1958 The Inference of Migrations from Anthropological Evidence. In *Migrations in New World Culture History*, edited by Raymond H. Thompson, pp. 63–68. University of Arizona Bulletin 29(2). Social Science Bulletin 27. University of Arizona, Tucson.
- Sauer, Carl  
 1934 *The Distribution of Aboriginal Tribes and Languages in Northwestern Mexico*. University of California Press, Berkeley.
- Sayles, E. B., Ernst Antevs, Emil W. Haury, Terah L. Smiley, Raymond H. Thompson, and William W. Wasley  
 1983 The Cochise Cultural Sequence in Southeastern Arizona. University of Arizona Anthropology Papers No. 42, Tucson.
- Seymour, Deni J.  
 2002 Conquest and Concealment: After the El Paso Phase on Fort Bliss. Report submitted to Conservation Division, Directorate of Environment, Fort Bliss. Lone Mountain Report 525/528, Albuquerque. On file at the Arizona State Museum, University of Arizona, Tucson, and Zimmerman Library, University of New Mexico, Albuquerque.  
 2003a The Cerro Rojo Complex: A Unique Indigenous Assemblage in the El Paso Area and Its Implications for the Early Apache. Proceedings of the XII Jornada Mogollon Conference in 2001. Geo-Marine, El Paso.

- 2003b Additional Aspects of the Jumano Problem. Paper presented at the Jornada Mogollon Conference, El Paso.
- 2004a A Ranchería in the Gran Apachería: Evidence of Intercultural Interaction at the Cerro Rojo Site. *Plains Anthropologist* 49(190):153–192.
- 2004b Before the Spanish Chronicles: Early Apache in the Southern Southwest. In *Ancient and Historic Lifeways in North America's Rocky Mountains*, edited by Robert H. Brunswig and William B. Butler, pp. 120–142. Proceedings of the 2003 Rocky Mountain Anthropological Conference, Estes Park, Colorado. Paper presented at the 2003 Athabaskan Migrations Conference, 6th Biennial Meeting of the Rocky Mountain Archaeological Conference, Estes Park, Colorado. Available on CD.
- 2005a Material Culture Consequences of Kinship and Residence Patterns in the Protohistoric Southwest. Paper presented in a symposium titled "Engendering Households in the Prehistoric Southwest" at the Annual Meeting of the Society for American Archaeology in Salt Lake City, March 2005.
- 2005b The Myth about the Hohokam-Piman Continuum. Paper presented to the Arizona Archaeological Society, Sierra Vista Chapter, Arizona, January 4, 2005.
- 2007a Delicate Diplomacy: Seventeenth-Century Sobaipuri Social and Economic Relations in Northwestern New Spain, Part I. *New Mexico Historical Review* 82(4):469–499.
- 2007b Sexually Based War Crimes or Structured Conflict Strategies: An Archaeological Example from the American Southwest. In *Papers in Honor of John A. Hedrick and Carol P. Hedrick*, edited by Reggie N. Wiseman, Thomas C. O'Laughlin, and Cordelia T. Snow, pp. 117–134. Chapter in Texas and Points West, Papers of the Archaeological Society of New Mexico Publications in Anthropology, Albuquerque.
- 2008a Delicate Diplomacy: Seventeenth-Century Sobaipuri Social and Economic Relations in Northwestern New Spain, Part II. *New Mexico Historical Review* 83(2): 171–199.
- 2008b Despoblado or Athabaskan Heartland: The Safford Area in the Athabaskan Settlement Scheme. In *Crossroads in the Southwest: Culture, Identity, and Migration in Arizona's Safford Basin*, edited by David E. Purcell, pp. 119–161. Cambridge Scholars Press, New York.
- 2008c Distinctive Places, Suitable Spaces: Conceptualizing Mobile Group Occupational Duration. *International Journal of Historical Archaeology* 13(3).
- 2008d Surfing behind the Wave: A Counterpoint Discussion relating to "A Ranchería in the Gran Apachería." *Plains Anthropologist* 53(206):241–262.
- 2008e Apache Plain and Other Plainwares on Apache Sites in the Southern Southwest. In *Serendipity: Papers in Honor of Frances Joan Mathien*, edited by R. N. Wiseman, T. C. O'Laughlin, C. T. Snow, and C. Travis, pp. 163–186. Papers of the Archaeological Society of New Mexico No. 34. Archaeological Society of New Mexico, Albuquerque.
- 2009 Nineteenth-Century Apache Wickiups: Historically Documented Models for Archaeological Signatures of the Dwellings of Mobile People. *Antiquity* 83(319):157–164.
- 2009b Contextual Incongruities, Statistical Outliers, and Anomalies: Targeting Inconspicuous Occupational Events. Accepted at *American Antiquity*.
- In prep Thirty-Two Degrees North Latitude: the Protohistoric Period in the Southern Southwest. Book manuscript.
- 2004
- Seymour, Deni J., and Tim Church  
 2007 Apache, Spanish and Protohistoric Archaeology of Fort Bliss. Historic and Natural Resources Report 03-06, Cultural Resources Program, Directorate of Environment, Fort Bliss, Texas.
- Shott, M.  
 1986 Technological Organization and Settlement Mobility: An Ethnographic Examination. *Journal of Anthropological Research* 42:15–51.

Speth, John D. (editor)

2004 *Life on the Periphery: Economic Change in Late Prehistoric Southeastern New Mexico*. Memoir 37, University of Michigan, Museum of Anthropology, Ann Arbor.

Stark, M. T., M. D. Elson, and J. J. Clark

1998 Social Boundaries and Technological Choices in Tonto Basin Prehistory. In *The Archaeology of Social Boundaries*, edited by M. T. Stark, pp. 208–231. Smithsonian Institution Press, Washington, D.C.

Tomka, Steve A.

2001 The Effect of Processing Requirements on Reduction Strategies and Tool Form: A New Perspective. In *Lithic Debitage: Context, Form, Meaning*, edited by W. Andrefsky Jr., pp. 207–223. University of Utah Press, Salt Lake City.

Treutlein, Theodore E.

1949 *Ignaz Pferfferkorn, Sonora: A Description of Province*. University of New Mexico Press, Albuquerque.

Turner, Ellen Sue, and Thomas R. Hester

1999 *A Field Guide to Stone Artifacts of Texas Indians*. Gulf Publishing, New York.

Underhill, Ruth Murray

1939 *Social Organization of the Papago Indians*. AMS Press, New York.

Willey, Gordon R., and Philip Phillips

1958 *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.

Woodson, M. K.

1999 Migrations in Late Anasazi prehistory: The evidence from the Goat Hill Site. *Kiva* 65: 63–84.



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