

A Syndetic Approach to Identification of the Historic Mission Site of San Cayetano del Tumacácori

Deni J. Seymour

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Abstract This article explores the methodological considerations of a syndetic approach to archaeological inquiry. This multi-evidential approach involves crossing interdisciplinary boundaries to exploit data that reside with other specialists. The material evidence of a historically referenced place is sought in the archaeological record and evaluated using historical documentary data, ethnographic information, as well as data from other sources including assessment of occupational duration, intensity of residence, erosional patterns, and chronological placement. The case study involves location and verification of the 1690s through 1750s Sobaipuri-O'odham village of San Cayetano del Tumacácori in southern Arizona.

Keywords Colonialism · Sobaipuri-O'odham · Missionization · Kino · Micro-stratigraphy · Arizona

Introduction

For some, the fields of prehistoric archaeology and historical archaeology are separate endeavors that utilize different field methodologies, rely on distinct theoretical frameworks, and use different sources of data. This perspective derives in part from Deetz' (1967) emphasis on post-colonial literate societies rather than on indigenous groups, whether in the pre- or post-colonial periods. These later groups are the focus of my interest, and, because the archaeological record of these particular native groups is so subtle and scant, it is necessary to reach across many disciplinary boundaries to seize all the tools and data sets available to assist with discovery, analysis, inference building, and verification. In this ever-specializing scholarly world it takes skillful practitioners to tease the data from the archaeological record, just as it is the lifetime work of paleographers to accurately bring forth the bounty of historical

D. J. Seymour (✉)
University of Colorado Museum,
2916 Palo Alto Drive NE, Albuquerque, NM 87112, USA
e-mail: denijseymour@aol.com

documents, and the unique training of ethnographers to obtain sensitive information from native informants.

This syndetic approach to understanding indigenous peoples is not simply a rich interplay “between word and object, text and artifact” (Andrén 1998; see Hall and Silliman 2006)—an antiquarians fascination with objects—but rather an integrated multi-evidential approach (Deagan 1988) that critically applies all relevant available data within an archaeological theoretical framework to seek the solution of a research problem. As an archaeologist I see an opportunity for unique insights and rich specificity not offered by prehistoric research and a diachronic perspective not available to those tethered to an archive. The advantage of this approach is that it is possible to investigate how unique events are intertwined in deep process, how key figures (exceptional men) are swept up in the larger theater of action, and how the complex web of behavior, intent, memory, symbolism, and survival are reduced to materially and spatially observable remnants. Rather than a haphazard application of disparate data sources, the syndetic approach follows an explicit methodology that allows integration of a number of resources. It is far more encompassing than many historical archaeological methodologies and is specifically appropriate to a much more synthetic endeavor. This integrative methodology uses archaeological data and theory along with historical documents and ethnographic literature (as well as linguistic, oral histories, traditional stories) to reconstruct the past, deconstruct disciplinary biases, and to understand larger processes of human behavior, sometimes obtaining otherwise unobtainable results (Seymour 2004, 2007).

Fundamental to this approach is the acknowledgement that *historically referenced native groups* are a distinct subject of study on par with archaeological culture groups and ethnographic ethnic groups. These *historically referenced groups* and the passages attendant to them have no greater reality than their archaeologically identifiable counterparts, though they are sometimes treated as more real and truthful. Each provides a contrasting face of human behavior at any given moment.

A syndetic approach serves as a basis for inference building (one of its many applications). Use of historical documents provides a framework for how to look at things, where to look for things, and what things might be present to be found. The most obvious example of this is when an association can be made between historically noted people, places, and events and on-the-ground evidence (e.g., an archaeological site, historic property, or cultural place). This application uses historical descriptions to assess where sites might be found, to determine how the landscape was used, and to suggest when a specific historically referenced place has been encountered. To accomplish this, certain aspects of the historic and ethnographic records must be tangible so that they can be extracted, such as the specific topographic details of a settlement (on a hill overlooking the river) or behavior (500 people were settled together, each group set apart from the others). Direct observations, which are extracted as potentially verifiable facts about a place, are applied in way that is a distinct from use of the linking statements or interpretations provided by the historian or ethnographer. Use of the historical statement as data to be verified, and seeing facts about these data as distinct from the interpretations, are fundamental precepts of this approach. Archaeological data are transformed into inferences by means of these rich historical and ethnographic data points that are potentially factual within their contextual and diachronic setting.

Conversely, archaeological data serve as an independent source of evidence that provides a means to externally criticize the content of historical documents and ethnographic treatises. One of its most valuable contributions is that archaeological input helps resolve inconsistencies that are sometimes introduced by collapse of historical or ethnographic data into a synchronic package. Mergence of issues applicable to the archaeological record of great-great-grandfather with those of Underhill's (1969) paragon of 20th-century Tohono O'odham womanhood may present an inaccurate profile, just as the direct historical approach is often not quite so direct.

The historic and ethnographic records contribute elements for a framework for investigation, but archaeology often reveals the portion of the story that was hidden from view. After several interpretative iterations the absence of information in a historical text is sometimes taken as an indication of absence in the real world. Yet, lack of mention of settlements north of a known geographic or political locality requires verification by on-the-ground work, as is relevant to this paper in the case of the historically referenced San Cayetano del Tumacácori and its inferred archaeological location. So little about past lifeways is actually accessible that it is incumbent upon us to use all sources at our disposal. Some data are accessible archaeologically, whereas other information is conveyed in an offhand ethnographic observation or in politically laden or socially motivated historical passages.

In this article this methodology is applied to the solution of a specific problem: the identification of a historically referenced place, confirmation of its location and nature, comparison of the nature of historic and archaeological records, and the difficulties of reconciling documentary and archaeological records. Specifically, the Sobaípuri-O'odham village of San Cayetano del Tumacácori is examined. History records that in January 1691 native emissaries traveled south from this settlement to meet Father Eusebio Kino and Father Visitor Juan Maria Salvatierra in what is now Sonora, Mexico—"carrying crosses" and "pleading on their knees"—to request that the Jesuits visit them in the north (Burrus 1971, p. 43). This act initiated sustained and focused contact between Hispanic-European culture and the O'odham north of the current international boundary. This early settlement of San Cayetano del Tumacácori is the namesake of the modern mission complex and National Monument overseen by the National Park Service, which after 1751 was relocated to its presently known position, renamed San José de Tumacácori, and elaborated.

Yet, after the passing of more than three centuries, the on-the-ground location and nature of the original native settlement of San Cayetano del Tumacácori have remained a mystery. There is no doubt that the initial San Cayetano del Tumacácori is situated along the Santa Cruz River between Nogales and Tucson, Arizona (Fig. 1) but its actual placement is still in question. Respected scholar Charles Di Peso (1956) of the Amerind Foundation believed he had discovered the site (now referenced as Paloparado; AZ DD:8:12, ASM) and conducted extensive excavations there. This identification has been thoroughly disputed and dismissed by a number of scholars (see in particular Phillips 1992; Schroeder 1957; Wilcox 1987), and summarized repeatedly by a host of others too numerous to mention (including Doyel 1977; Robinson 1976, p. 12).

The nature of the criticisms are diverse, ranging from the fact that the early San Cayetano del Tumacácori was, according to maps and documents, situated on the

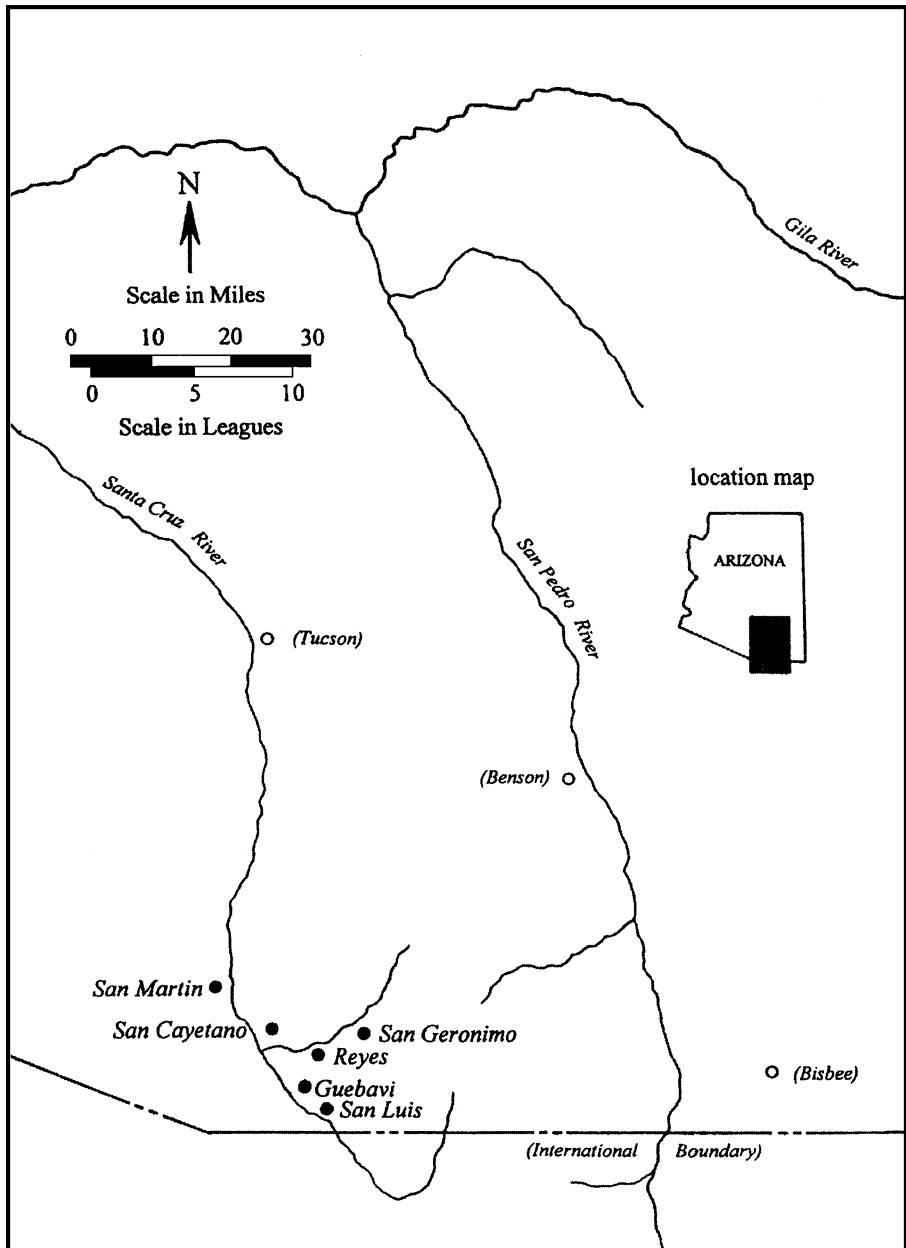


Fig. 1 Location of San Cayetano del Tumacácori relative to modern political places and key geographic locations

east side of the Santa Cruz River (see Fig. 1), whereas Di Peso's site (Paloparado) is on the west bank. The material culture is diagnostic of a prehistoric occupation, which I have independently luminescence dated at Oxford using optically stimulated luminescence (OSL) to the A.D. 900s using a plainware sherd and Phillips (1992, p. 25)

dated to the A.D. 890–1250 period, although, probably correctly, Wilcox (1987) argues for three components. The site also possesses an intrusive set of late O’odham burials. Significantly, the O’odham did not bury the dead on occupied residential sites (Russell 1975), a point also raised by Masse (1981) and Brew and Huckell (1987, p. 183–184), so the presence of burials on this site also argues against Paloparado being San Cayetano del Tumacácori.

This circumstance begs the question, if Di Peso’ site (Paloparado) is not San Cayetano del Tumacácori as claimed, where is the historically referenced location? In this article I present evidence that argues in favor of a different site (AZ DD:8:19, ASM) being the historically referenced location of San Cayetano del Tumacácori. It is relevant to note that my initial impressions at that time of my original survey were that this site was not San Cayetano del Tumacácori because I thought it too far north (from the confluence of Sonoita Creek and the Santa Cruz River) and too small (Seymour 1993a), despite the fact that Phillips (1992, p. 17) thought this the most likely candidate of sites recorded in the Arizona State Museum Site Files at the time. Subsequent excavations I have undertaken over the past 4 years have changed my opinion. The evidence and the arguments behind this point of view are presented here and I make an argument that correlates this on-the-ground site to the historically referenced village.

Background Information

The Sobaípurí, a subgroup of the O’odham and ancestors of modern day Tohono O’odham (aka Papago) and Akimel O’odham (aka Gila Pima), occupied the length of the San Pedro River and the Santa Cruz River from just north of Tucson south into Sonora (see Fig. 1). The Spaniards included them in a general class of people they referenced as the Upper Pima, which were those O’odham groups occupying the northern reaches of the Pimeria or the Pimeria Alta (now portions of Sonora and southern Arizona).

Despite the widespread historical distribution of this group, relatively little was known about the Sobaípurí-O’odham archaeologically, other than the important work carried out initially by Di Peso (1953) at Santa Cruz del Pitaitutgam (AZ EE: 8:15, ASM; the site Di Peso incorrectly thought was Santa Cruz de Gaybanipitea), Doyel (1977) at the England Ranch Ruin (AZ DD:8:129, ASM) and the Tinaja Canyon Site (AZ DD:8:128, ASM) on the Santa Cruz, Huckell (1984) east of the Santa Rita Mountains, Masse (1980, 1981) and Franklin (1980) on the lower San Pedro River, and a few additional incidental studies carried out under the auspices of cultural resource management. This lack of understanding was particularly at issue when in the early 1990s I carried out a thematic or purposive survey of a portion of the Santa Cruz between the Tumacácori Mission complex and Nogales, that was specifically designed to identify and record Sobaípurí-O’odham sites (Seymour 1991a, b, 1993a). This followed on the heels of a similar more extensive survey on the upper San Pedro River wherein beginning in the mid 1980s I identified 25 Sobaípurí-O’odham sites (1989, 1990, 2003), and additional surveys along Babocomari River and along Sonoita Creek in search of other Sobaípurí-O’odham sites, including Los Reyes del Sonoita.

During the Santa Cruz River surveys I identified eight Sobaípurí-O’odham sites. One of these, AZ DD:8:19 (ASM), and the subject of this article, had been previously recorded by Danson (1946, pp. 8–9, 36–37; ASM Site Files) during his general survey of the upper Santa Cruz River Valley. Described as a “house ring site,” it was the only one recorded north of the international boundary. He believed these house ring sites to be pre-ceramic in origin but pondered whether they might be related to the historic Sobaípurí-O’odham occupation. As an aside, Gilpin and Phillips (1998), in their overview of Sobaípurí protohistory, incorrectly note that AZ DD:8:19 (ASM) and four other sites were recorded as part of a National Register nomination dated 1976. This statement is in error. The five sites were recorded during this thematic/purposive survey (Seymour 1993a), and I obtained site numbers for three of the five Sobaípurí sites at that time. Site numbers had already been assigned to AZ DD:8:19 (ASM) and AZ EE:9:2 (ASM; Calabasas).

AZ DD:8:19 (ASM) and the other sites are situated on private land, and most are slated for development as part of an on-going widespread land development project. After repeatedly petitioning the landowners throughout the years Avitar/Rio Rico Development finally agreed to allow excavations. Excavations have proceeded over the past 4 years on four of the eight sites. Much of AZ DD:8:19 (ASM) has been left unexcavated in the hope that the site will be acquired and preserved for future generations.

Ethnohistoric Records

What interest surrounds San Cayetano del Tumacácori results from its mention in the chronicles of early missionaries and their military escorts, because such documents provide testimony of the lives of past people as two worlds coalesced, however inelegantly. The attractiveness of the National Monument also contributes to its lingering eminence, yet this also makes it difficult to appreciate the unassuming nature of the original native settlement. The hallowed ground where historical giants, such as Father Kino, were greeted by processions of devoted and cheerful converts, according to Jesuit accounts, is all but a field of cobbles and stunted mesquite today. Yet the historical accounts bring a luster and impart grandeur to such locations. According to Kino, in 1691 the natives of San Cayetano del Tumacácori traveled south into Soba territory (in Sonora) to beg for visitation from the priests. Kino and Salvatierra were greeted by couriers from the north who “came carrying crosses, and, pleaded on their knees, that they would also visit their settlements. The missionaries could not refuse the native’s request” (Burrus 1971, p. 43). The first stop in what is now Arizona was at San Cayetano del Tumacácori where “The villagers had prepared three arbors or brush shelters for the visitors, ‘one in which to say Mass, another in which to sleep, and a third for a kitchen. There were more than 40 houses close together’” (Bolton 1960, p. 264–265; also see Kessell 1970, p. 25).

Being along the Santa Cruz River, San Cayetano del Tumacácori was on the route Kino and others traveled as they ventured northward and so is mentioned repeatedly throughout this period. On November 26, 1697, Kino’s military escort Captain Juan Mateo Manje noted “we came when it was already night to San Coietano [sic] del Tumacácori where there are 150 souls.... We slept in the house of adobe with an earthen roof which had been made. The lands are fertile and under irrigation like

those of Bac” (Crockett 1918, p. 100–101; Karns 1954, p. 94; Manje 1926). Again on March 11, 1699, they traveled south from San Xavier del Bac: “When we had gone nine leagues, we could not pass the freshet of the river, and so we travelled four leagues more on the western side until we came out opposite to the ranchería of San Cayetano de Tumagacori [sic]. The Indians of this ranchería brought us a sheep in order that we might make a stew from it for the sick father [Kino], whom they came to see, and they grieved greatly at his illness and weakness” (Crockett 1918, p. 133; Karns 1954, p. 126; Manje 1926).

Archaeological evidence of this resting place may have already been found for there is a known site that lies directly across the Santa Cruz River from AZ DD:8:19 (ASM). The Tinaja Canyon Site (AZ DD:8:128, ASM), excavated by Doyel (1977), contains two Sobaipuri-like structures. There is no direct evidence for their contemporaneity with San Cayetano del Tumacácori, but I believe their positioning is suggestive, given this known historical event. Unusual circular boulder structures were also present on Doyel’s site and I have also noted structures seemingly representing contemporaneous mobile groups positioned behind the Tinaja Canyon Site, perhaps providing evidence of other mobile visitors to San Cayetano del Tumacácori.

Later that same year (October 27, 1699) Manje noted that “We continued north after having preached to them, along the valley, down stream, toward the north and after four leagues more, we stopped for the night at the ranchería of San Caietano de Tumagacori [sic], whose Indians surpassed [the rest] in demonstrations of rejoicing at our coming with dances, songs, crosses and entwined arches, and we gave them instruction concerning the many mysteries of our holy faith” (Crockett 1918, p. 142; Karns 1954, p. 136; Manje 1926). Manje also commented that, “The land is suitable for planting....The town nestles in the half-moon bend of the river lined with shady cottonwoods” (Burrus 1971, p. 251). Phillips (1992, p. 17) insightfully references this passage to argue that AZ DD:8:19 (ASM) is positioned in just such a location in a bend of the river. He also cites Kino’s maps (see Burrus 1965) that show San Cayetano del Tumacácori situated north of a key tributary drainage, which as he notes, there is only one such major side drainage in this area and this is Josephine Canyon, where AZ DD:8:19 (ASM) is located.

The next reference to this settlement occurs in April 11, 1701 at which time Manje notes: “we took leave of the Indians and started out, taking the road to the south, up the river, over plains and pastureable fields. After 20 leagues, we spent the night in the house of adobe with an earthen roof made by the Indians of the settlement of San Caxetano del Tumagacori [sic] for the time when they should be given a padre, who would minister to them. They feasted with us with joy and songs” (Crockett 1918, p. 178; Karns 1954, pp. 168–169; Manje 1926).

Di Peso (1956, pp. 63–65) argues, perhaps soundly, that the site was deserted after the Pima-O’odham Revolt of 1751, but reference is made to this settlement with the same name for some time afterward. When native occupants and missionaries moved en masse or gradually to the new and presently celebrated location of Tumacácori, now marked by the extravagant Franciscan cathedral and complex, is not known with certainty. In 1763 Juan Nentvig’s *Rudo Ensayo* noted that Tumacácori was located one league south of the presidio of Tubac and seven leagues north of Guevavi (Di Peso 1956, p. 64; Pradeau and Rasmussen 1980, p. 99). This is

consistent with a league being 4 or 4.8 km (2.5 or 3 miles) and would suggest that by this time the location of Tumacácori had shifted north and to the west side of the river. In fact Di Peso (1956) points out that the league distances between settlements changed after the Pima Revolt. Prior to the revolt in 1751 Tumacácori is five or six leagues north of Guevavi, but is seven leagues north afterward (see Pradeau and Rasmussen 1980, p. 99).

As noted by Kessell (1970, p. 137), in 1754 Utera noted that Tumacácori is listed as a *visita* without houses or churches and with only ten families. This suggests that after the revolt population gradually declined at the original native settlement (AZ DD:8:19, ASM), with the greater part of the population shifting to the better-known site west of the river. This scenario seems to be supported by slightly later information. For example, in 1756 Tumacácori is reported to have had 199 people, suggesting that this passage references the vicinity of the National Monument, where the bulk of the native population now lived, rather than AZ DD:8:19 (ASM). This argument is bolstered by the fact that it is not until July 1757 that a church is mentioned at Tumacácori and the foundations of this church seem to have been identified at Tumacácori National Monument (Kessell 1970, p. 144). Prior to this there is mention only of the initial brush shelter for saying Mass provided in 1691 and later an adobe and flat roofed house that housed visitors.

It is also potentially relevant that of the 199 people mentioned at Tumacácori in 1756, 87 were O'odham (Pima) and Tohono O'odham (Papago) families (Di Peso 1956, pp. 64–65). If organic-tempering originates with the Tohono O'odham rather than with the Spaniards or other native group from the south (see Masse 1981 for a discussion), one might expect organic-tempered pottery at Tumacácori as an indication of a Tohono O'odham presence (or as an indication of the loss of native technology). None was encountered at AZ DD:8:19 (ASM) but such pottery is present at the National Monument location. The absence of organic-tempered wares at AZ DD:8:19 (ASM) lends strength to the argument that the residents of this site had already moved to the National Monument location by 1756 when the first mention is made of Tohono O'odham residents. This inference rests on the assumption that organic tempering is a legitimate ethnic identifier and that its origin is associated with the correct (e.g., Tohono O'odham) ethnic group. In any event, organic-tempered wares do not occur on other sites in the area until the 1770s indicating that the move occurred sometime between the 1750s and 1770s because there are no organic-tempered wares at AZ DD:8:19 (ASM).

Site Description

Sandwiched between Pendleton Road and a bulldozer cut on the east, AZ DD:8:19 (ASM) constitutes a 5,000 m² area on a flat terrace overlooking Josephine Canyon, a major tributary to the Santa Cruz (Fig. 2). Distinctly O'odham house rings are present along with outdoor work areas and what have been interpreted as communal workspaces. Five of these house outlines are clearly demarcated in eroded areas and additional possible outlines are present on the north and west before Pendleton Road and Josephine Canyon Road truncate this portion of the site. A portion of the eastern margin of the site extends up slope to the second terrace where roasting pits and other miscellaneous features are present although this is clearly the fringe of the site.

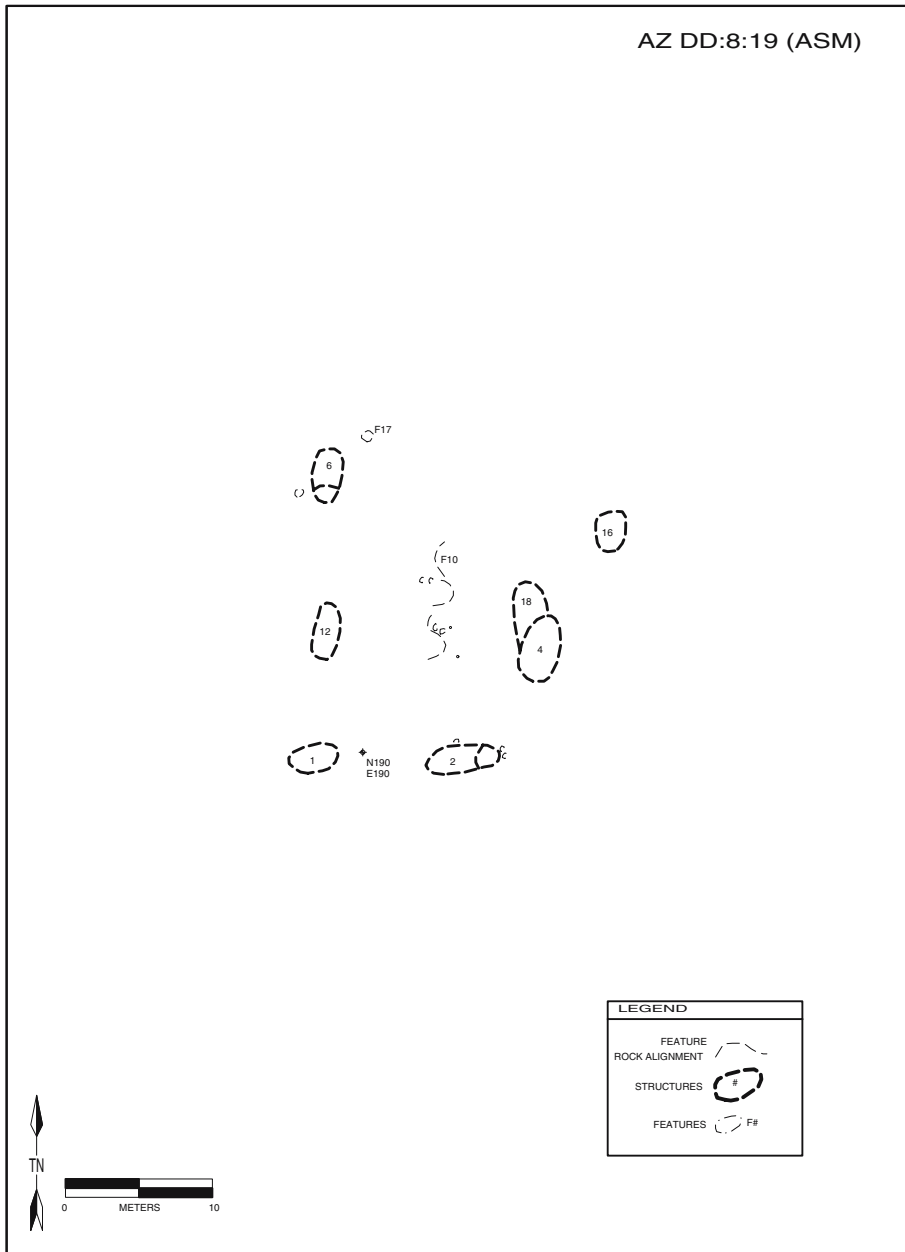


Fig. 2 Plan sketch of AZ DD:8:10 (ASM) showing house arrangements

Another small portion of the site is preserved on a rocky rise to the west of Pendleton Road, under separate ownership where only reconnaissance was allowed. Here there are several additional features including a clear Sobaípurí-O’odham house outline and several large unique features of unknown origin or character, but perhaps fitting for an early church complex.

A variety of artifacts are present on the main part of the preserved site, occurring in relative abundance. Whetstone Plain is considered the trademark pottery type of the Sobaipuri but descriptions of it vary widely; even Di Peso's type collections housed at the Amerind Foundation include examples with widely divergent temper types and surface treatments. Consequently, few scholars feel confident in its identification, with the result that many distinct varieties of plainware tend to be attributed to this type. Whetstone Plain has become a catchall category for thin or crude plainwares of this late era. In reality, the dominant plainware type found on Sobaipuri-O'odham sites on the upper San Pedro and upper Santa Cruz can be relatively narrowly defined, particularly if one acknowledges the likelihood that a series of plainwares manufactured by other groups and perhaps of different functions are also often present on these sites, a suggestion that OSL dating and petrographic analyses are bearing out.

Di Peso (1953, p. 154) described Whetstone Plain as paddle-and-anvil-made with red to red-brown paste, mixed angular and rounded sand particles, course, sandy, and friable paste, and smoothed with no striation marks or indications of polishing on both interior and exterior; interiors show anvil marks, occasional mica with an average 3 mm thickness. Because of subsequent elaborations and variations on specimens present in the Amerind type collection, I find the label Whetstone Plain relatively impotent as a type description because it has become so inclusive as to become meaningless. Consequently, the varieties I have encountered may be regrouped into this type in the future, or not. The following is a description of the sherds found in a floor depression in Structure 2, one of which was submitted for luminescence dating using optically stimulated luminescence (OSL) (see below) and which, for ease of reference, I have labeled as Cayetano variety: jar body sherds, thin (4–6 mm); tan-brown friable paste; abundant fine-grained sand temper with occasional silver mica; occasional voids in the paste seem to represent organic material that was fortuitously present in the paste; no carbon streak; hand-smoothed matte exterior surface; interior surface smoothed but not consistently, uneven showing anvil depressions; inconsistent wiping or scraping with broad strokes; mica shows through; commonly there is occasional dimpling or undulations on interior and exterior surfaces; anvil marks often visible on interior surface.

These sherds are similar in character to some of the Whetstone Plain described by Masse (1981). His observations, like my own, are based upon examination of a wide range of examples from a broad geographic area. These collections examined include all known collections of likely Sobaipuri and O'odham ceramics at the Arizona State Museum, the Amerind Foundation, and Arizona State University as well as private collections from the Rio Sonora and excavations along the San Pedro and Santa Cruz rivers.

The plainware found at AZ DD:8:19 (ASM) differs from earlier O'odham plainwares found along the same portion of the river, but seems to be within the same tradition. There is a visible continuity between the sherds encountered in this house floor depression and those early O'odham wares encountered at the Sharples Site (AZ DD:8:44, ASM) that date to the A.D. 1400s and 1500s and that I have referred to as Amado variety, again for ease of reference and for purposes of comparison. These latter sherds are typical of what are widely accepted by local ceramicists as early O'odham wares. Continuity is lacking between each of these wares and some of those that are included as Whetstone Plain—what I refer to as Di

Peso's Variety B, which are thin with gray or brown paste (depending upon firing atmosphere) and a striated wiped surface, straight neck, and flat rim. My inference is that this is because the latter (Variety B) is not an O'odham-made type, but rather was made by one of the many mobile groups who occupied this region, probably by the early Athabascans, as it is similar to brownwares encountered on early Athabascan sites throughout the southern Southwest (Seymour 2002; also see Ravesloot and Whittlesey 1987 for a discussion of similarity to Western Apache wares, but from a different perspective). These differ from those scored sherds encountered by Doyel (1977) at the Tinaja Canyon Site, which are clear examples of Trincheras wares. These Santa Cruz River examples, both from the A.D. 1450 to 1650 period at AZ DD:8:44 (ASM) (Amado variety) and from the 1600s and 1700s at AZ DD:8:19 (ASM) (Cayetano variety) do exhibit traits sufficiently similar to Whetstone Plain Variety A recovered by Di Peso from Santa Cruz del Pitaitutgam (and others I have examined from the surface of that site) that a relationship in technological tradition can be inferred. I am expecting that some variation in attributes relates to vessel function, location of manufacture, group producing the vessel, degree of interaction/ intermixing with other groups, and temporal association.

The similarity of Sobaipuri pottery to ceramics found in adjacent regions and the apparent widespread distribution of Whetstone-Plain-like sherds is discussed by Masse (1981). He believes that Sobaipuri pottery has its ultimate roots in Sonora (and ultimately with the Mogollon). I attribute the broad distributions partially to the fact that mobile groups traded for these vessels and obtained them through raiding and scavenging, thereby disseminating them throughout their vast territory. In many cases, however, my observations (based upon petrographic analysis, surface treatment, and technological attributes) indicate that many of the similarities cited are superficial. There are only so many ways to make plainware and to the unpracticed eye the southern brownwares share a common basis. Most consider the thinness of the sherd and the surface treatment at the exclusion of other attributes. This accounts for the ubiquitous statements of "Whetstone-Plain-like" or "similar to" or related to" Whetstone Plain, with qualifiers that their color, surface finish or temper "seems to give this assemblage its own distinct character" (Masse 1981, p. 39)—a telltale sign that something is amiss.

Whetstone Plain as found on the Sobaipuri-O'odham sites I have recorded and excavated is distinctive from that made and/or used by Athabascan and non-Athabascan mobile groups in the area (see Seymour 2002, 2004), despite the fact that these wares are so often classed together. I think it is effective to attempt differentiation of these late southern Southwestern brownwares based upon (1) petrographic analysis, Instrumental Neutron Activation Analysis (INAA), and other detailed analytical studies, as well as (2) other classes of material culture, features, and contextual data. Understanding the behavioral context is essential because (despite conventional ethnographically based wisdom to the contrary) mobile groups tended to recruit women (potters) from settled villages thereby causing the amalgamation and modification of pottery-making knowledge. Moreover, mobile group sites often have ceramics from sedentary groups on them and later groups often occupy earlier sites—facts that, because they are disregarded, have confused understanding of late plainwares throughout the southern Southwest. Viewed from an expansive geographic perspective it is possible to see that the distinction between

paddle-and-anvil and coil-and-scrape (and other vessel constriction techniques) is an important one for analysis and interpretation (though for some reason it is not always considered so), as is the difference between paste and temper deriving from riverine deposits and from more inland sources, and a host of other considerations.

Groundstone is present in relative abundance at AZ DD:8:19 (ASM), but is mostly represented by expedient examples scattered around the site. These cobbles and boulders of varying coarseness were in many instances used only lightly. Anvil stones are common on this site, as they are on most Sobaipuri-O'odham sites, and are distributed in work areas near structures and around the perimeter of the site in areas naturally abundant in cobbles and boulders. Flat stones, perhaps for spreading mesquite meal, are predictably present at the perimeter of household work areas. Flat stones and groundstone are commonly present at one end of the floor in general—use structures.

Flaked-stone artifacts include expedient flake tools, cores, and debitage. Not particularly well-executed versions of the finely made tools found in earlier occupied Sobaipuri-O'odham sites are also present. Among these is a formal teardrop-shaped perforator and finely retouched unifaces. None of the finely crafted bifacial knives were recovered, although chert debitage indicative of biface manufacture was found throughout the site including adjacent to interior house walls. Details of the assemblages found on earlier sites and the processes behind the adoption of that more formal technological organization can be found in Seymour (2002, 2004, 2007, 2008).

A relative abundance of projectile points were recovered from this site. All are the small triangular basally indented forms found throughout the southern Southwest (see Seymour 2002). These conform in outline to the generalized O'odham projectile points described by Father Segesser in 1737 as shaped like “snakes’ tongues” (Treutlein 1945, p. 173). A subset of these represent the classic Sobaipuri or Huachuca point (with straight lateral margins, deeply indented base, and often serrated margins) but others have more in common with types previously defined further east and in northern Sonora and Chihuahua, southern New Mexico and south Texas and are likely representative of mobile groups (see Seymour 2002), which would not be surprising given the importance of San Cayetano del Tumacácori in the wider native world. A few are simple triangular forms with a slightly indented base that seem to be common among a number of groups, including the O'odham in general.

Arguments for San Cayetano del Tumacácori

As was alluded to above, I was initially inclined to believe that this site could not be San Cayetano del Tumacácori because of its small (remaining) size and northern position along the river. I thought it most likely that the site would be found in the core of the Rio Rico development northeast of the freeway, and immediately north of Sonoita Creek. I thought this because I assumed that the major tributary shown on Kino's maps (Burrus 1965) was Sonoita Creek rather than Josephine Canyon. Yet, convergent evidence of a variety of types suggests that this site might very well be this historically referenced place. This evidence includes its placement, the nature of the material culture on the site itself, the layout of the site, and dates.

Locational Data

To begin with, the location and setting are appropriate, contrary to earlier impressions. The site is at a substantial bend in the river—as was noted in the historic record—known by locals as a unique characteristic of this segment of the river. If one does not assume that the tributary river shown on the earliest maps (argued to be Josephine Canyon) is necessarily the same through time or that it is necessarily Sonoita Creek on any of the historic maps, then the placement of this site makes sense. In this construction, the rivers shown on historical maps would be dependent upon their relation to the settlements visited, rather than their hierarchy in the geographical watershed or their importance today.

Second, this is the only site of its type encountered north of Sonoita Creek and Josephine Canyon on the east side of the river. The settlement is clearly shown north of a key tributary wash on historic maps. Granted, by the time I carried out my survey in the early 1990s Rio Rico had already been partially developed and many of the house lots in this area had been bulldozed and many houses built, but Danson (1946, p. 37) did not find any “house ring” sites in this area during his survey that predated development. Moreover, I examined the edges of many of the undisturbed locations in this area immediately north of Sonoita Creek that best matched the settlement pattern characteristic of this group and found no evidence for a Sobaipuri-O’odham occupation, except for the site along the southern margin of Sonoita Creek that dates to the A.D. 1424 to 1524 era (AZ EE:9:153, ASM). I cannot say with certainty that there were no other Sobaipuri-O’odham sites present near Sonoita Creek, but the lack of evidence presented by the survey is consistent with the settlement pattern throughout this valley and adjacent valleys. Topographically the terrain on the northern side of the confluence of Sonoita Creek and the Santa Cruz River is inappropriate for Sobaipuri-O’odham settlement because it is much too high and steep. All other known Sobaipuri-O’odham sites are on lower topographic features; the few low areas present along the north edge of Sonoita Creek were less substantially developed by Rio Rico Properties at the time of my inspection and when inspected even these did not have Sobaipuri-O’odham sites.

As will be discussed in detail below, evidence at AZ DD:8:19 (ASM) is indicative of a large, long-term, intensive occupation with evidence of historic contact—one that could not have been missed by European passers-by. This is a critical point because if the historic record is to be given credence, there were no other contemporaneous sites along this side of the river between San Cayetano del Tumacácori and San Xavier del Bac. Thus, the presence of this site must somehow be explained away or its identification as San Cayetano del Tumacácori must be accepted and our assumptions about local geography that derive from historical maps and records must be revised.

Issues of Site Size

The site was not originally so small as it is today. These two small portions of the site that have survived development represent the southeastern fringe of the site (the core of current investigations) and a high point, likely at the northern fringe (under separate ownership). Originally the site probably extended west, along the north edge of Josephine Canyon, toward the Santa Cruz River, yet, this area has been bulldozed to

below the cultural horizon and so this inference cannot be verified. Other Sobaipuri features are present (likely including other structures) in areas not excavated, particularly in an area immediately to the north where, because of minor though significant sediment accumulation, there are only hints of features and work areas.

In this context, it is worth mentioning that excavation at another site to the south (Guevavi) has revealed dozens more native structures than the four that were visible on the surface. These too are arranged in a formal and predictable (but different) pattern. From a methodological standpoint this is important because although the occupational layer is buried only 5 cm or less below the surface there is sufficient sediment build up to obscure a significant number of features. A gradual slope of a few degrees can create sufficient across-surface sediment movement as a result of sheet wash erosion to effect surface visibility of the wall rocks that demarcate these features.

The cumulative knowledge gained from excavating four of these sites along the Santa Cruz River has led me to reconsider certain conclusions regarding the correlation of the number of structures on these historically referenced settlements to specific archaeological sites. In fact, all of the sites examined have revealed much more than was initially thought based upon survey data. On most sites small clusters of structures were expected because of the *ranchería* pattern reported in the historic record. This *ranchería*-style settlement consists of small clusters of structures that are scattered loosely across the landscape—a pattern that had also been observed ethnographically. In this conception, historically referenced settlements were represented by loose clusters of houses that were scattered across the landscape and that moved through time (Seymour 1989, 1997, 2003). Thus, solution to the problem was invoked when archaeological sites of the sizes mentioned in the historic record were not found during survey—it was assumed that cumulatively all the structures on small sites in a general area composed one historically referenced site (Seymour 2003), consistent with the *ranchería* style settlement pattern.

However, more was found at Guevavi and AZ DD:8:19 (ASM) than was expected based on these conceptualizations. For this reason, I am led to the conclusion that, even on these extremely shallow sites, surface evidence may not be as helpful as thought in estimating the number of structures, unless a site is uniformly and substantially eroded or features are placed on bedrock. At a site inferred to be the Sobaipuri-O'odham village of Santa Cruz de Gaybanipitea (AZ EE:8:283, ASM) on the San Pedro River there is a concordance between number of features visible on the site surface and the historical documents. This likely results from extensive cattle grazing in the area that resulted in removal of vegetation and exposure of features in a relatively uniform manner because of the relatively flat character of the hilltop on which the site is situated. Conversely, as Masse has pointed out to me, there is a lack of concordance between the number of structures found at Alder Wash Ruin (8 to 10 structures) and the historically documented number of structures (20 or more), a condition that may be related to surface erosion conditions.

Similarly, I have argued that there is only one location on the San Pedro River where there are a sufficiently large number of structures (scattered in discrete locales) to be the historically referenced Quiburi (which was said to have 100 structures). Still its league distance from other sites is problematic. Yet, I have revised this interpretation given the evidence accumulating from excavations on the

Santa Cruz. On the San Pedro (where excavations have been restricted) there is a relatively small site (AZ EE:4:25, ASM, which should be considered along with adjacent AZ EE:4:5, ASM) just north of Terrenate Presidio that is at the correct league distance from Santa Cruz de Gaybanipitea (AZ EE:8:283, ASM) to be Quiburi (± 5 km or 1 to 1.5 leagues, as reported in the documents; see Seymour 2003 for a discussion). The structures seem to be arranged in a manner (end-to end and in two parallel rows) that is reminiscent of the contemporaneous site of Santa Cruz de Gaybanipitea (AZ EE:8:283, ASM) and at Santa Cruz del Pitaitutgam (AZ EE:8:15, ASM). This village layout is unlike earlier and later sites, each time period having a distinctive site structure. Surface evidence on AZ EE:4:25 (ASM) did not reveal a sufficient number of structures to qualify as the historically referenced Quiburi, but given the data from Guevavi that illustrate surprising numbers of shallowly buried structures positioned very near one another, it probable that dozens more are present than are accounted for by surface evidence alone. It is also possible that rocks have been removed from many of the early structures by later occupants (as has been demonstrated at AZ DD:8:19, ASM and at Guevavi) or that some structures were constructed without rocks to brace the base of the structural poles (although this latter possibility seems to have been practiced largely by non-Sobaipuri O'odham, for example at the Whimsy Flat Site on the Ak Chin reservation south of Phoenix; see Gasser et al. 1991 and at Chum Kihki Ruin on the Tohono O'odham Reservation; see Dart and DeMaagd 1994, p. 248). The presence of additional buried structures at AZ EE:4:25 (ASM) (and also at AZ DD:8:19, ASM) is particularly likely in light of the fact that site layout is consistent with that expected for late 17th-century sites in that valley. Clearly the assumptions we have held about the information content of these sites with thin shallow deposits, low densities of material culture, and subtle features is in need of revision. Further, more in-depth work at these San Pedro sites is warranted to investigate these inferences.

Another important point is that there is no reason to expect the character of the earliest mention of the village to be preserved in the archaeological record. If we assume that occupations were of short duration—as was reasonably assumed based upon scant material culture left—then such an inference is sensible, assuming of course that there was no reoccupation. Yet, excavations at these Santa Cruz River sites suggest that there is a need to change this correlate of occupational duration among groups that do not produce abundant debris but who were stationary. In the case of these historically referenced villages the location was reused through time for five decades or more, structures were remodeled, and locations were revitalized. Consequently changes in the site-scape are expected through time to the degree that the remaining archaeological record may be very different from the earliest village as initially described, unless the settlement drifted through time, leaving a string of well-preserved time-capsule-like occupational loci. Expansive and careful brush and trowel excavations at AZ DD:8:19 (ASM) and at Guevavi around and between structures reveals linear posthole alignments lacking rocks, indicating that the rocks were scavenged for use in later structures and that structure locations were shifted ever so slightly, attesting to the changing nature of these sites.

At AZ DD:8:19 (ASM) it is not surprising that more features were not found in adjacent areas given the degree of earth moving activity, changes through time in native use of the site and number of people occupying it, and the fact that my

excavations were limited to one portion of the site. Though my excavations were extensive at AZ DD:8:19 (ASM), they were largely limited to the area in and around a single courtyard group that seemed to be most complete. My goal was to understand one well-preserved segment of the site at the expense of digging more widely. This is probably the most complete courtyard group remaining at this site because, as was described above, surrounding areas have been bulldozed to below the cultural horizon. Thus, an insufficient portion of the site remains to reveal many additional structures, even if they were once present, as is inferred.

The structures composing the courtyard group were visible on the surface only because erosion was most extensive in this area owing to a gentle southward slope, telephone pole construction, a deep bulldozer cut, and numerous cattle trails. A complete surface collection of the entire southeast sector of the site revealed higher densities and a richer diversity of artifacts in this courtyard group area, a pattern that now seems attributable to this area being more severely eroded. So as might seem logical, there is a correlation between higher surface artifact densities and erosion, on the one hand, and feature visibility and erosion, on the other, rather than higher surface densities being indicative of richer subsurface deposits. Thus, rather than reflecting the true boundaries of the site, surface evidence has demarcated the most severely eroded portion of the site. Given this, I am expecting that an even richer record has been preserved in areas I did not excavate because features are buried and sealed where erosion is less severe. Yet, in these adjacent areas it is likely that only a portion of other courtyard groups remain because, given the horizontal extent of the courtyard group investigated, all others have likely been truncated by one of the roads or completely removed.

Evidence of European Contact

Evidence of many different types converge to support the notion that this is San Cayetano del Tumacácori. Some of the strongest evidence for this site comes from the nature of material culture present. Evidence of Spanish contact and presence is provided by four classes of material culture encountered: The two types of glass beads, two iron artifacts (a knife fragment and a hand-forged iron nail or end to a rattail knife), a sherd from a flat-bottomed vessel, and whitewashed rocks.

Six glass beads consistent with Spanish trade beads were collected. As shown in Fig. 3, two types were found. The clear glass seed bead was recovered from a bush-disturbed area in Feature 6, which is the structure that produced whitewashed gravels in underlying strata. The five large amber-colored faceted glass beads were found in a cluster in an extramural work area (Feature 16) as if dispersed from a necklace. These beads date to the 18th century (Deagan 1987). Marine shell *Olivella* beads obtained from the Gulf of California and common on many Sobaípurí-O'odham sites are present in relatively abundance here.

Two iron artifacts were also recovered (Fig. 4), one seemingly a fragment of a knife found through metal detection at the north end of the site in an area not excavated. The second iron specimen, a fragment of a hand-forged flat nail or end to a rattail knife, was found in one of the structures (Structure 2). None of the olive jar green glaze or majolica sherds found at Guevavi are present at AZ DD:8:19 (ASM). This absence suggests that this site was too early for such items to have become

Fig. 3 Spanish-period beads from AZ DD:8:19 (ASM)



widely distributed among the native populations. Alternatively, being a visiting station rather than the head mission complex, this site was not the focus of these rarer ceramic types that were used in a limited number of contexts, largely by Europeans themselves.

The sherd with a flat bottom represents a plainware that is likely of native manufacture but has incorporated the Spanish-style flat bottom. This trait does not occur on any of the earlier sites studied and seems to reflect the presence of European influence. Flat bottoms are common among the riverside mission settlements in the El Paso area after the Pueblo Revolt (post-1680).

Excavations beneath and around a native structure (Feature 6) revealed numerous small whitewashed pebbles and gravels. Similar whitewashed rocks (cobbles, pebbles, and gravels) were excavated at the native settlement of Guevavi (as part of this same project) where they were found in abundance in the burned fill of a adobe-walled structure with a broad rock and adobe foundation that has been OSL dated to A.D. 1656 to 1716. On the basis of this date it is inferred that this is one of the adobe structures built under the supervision of the Spaniards. Native Sobaipuri-

Fig. 4 Iron artifacts from AZ DD:8:19 (ASM)



O'odham structures were covered with mud (adobe), as indicated by the fill in structures and by the ethnohistoric record. There is no definitive evidence that addresses whether or not they were whitewashed.

It is most probable that the whitewash relates to the finishing technique introduced during the colonial period. The presence of this coating may indicate the former presence of a Spanish-period edifice, such as a structure or a cross that was situated on the plaza, similar to those used today on the Tohono O'odham Reservation. At San Cayetano del Tumacácori this structure would have related to one of the early occupations that predated the latest occupation represented by Feature 6. When visiting Guevavi, Kino requested that the initial chapel be whitewashed (Kessell 1970), suggesting that this was normal practice at this time. The whitewashed pebbles are probably residual materials left from an earlier structure built for the missionary or a chapel. While no such structure foundation was found at AZ DD:8:19 (ASM) (with the possible exception of the odd rock features to the northwest), the presence of this whitewash and tiny gravels indicative of adobe mortar or facing suggests that perhaps one was nearby.

Of all the evidence of European presence, the latter is in my mind most convincing because it demarcates an actual Spanish style of architectural modification or decoration, even in the absence of the preservation of the structures themselves. Artifacts, on the other hand, can be transported to sites that were not actually visited by Europeans (traded between natives, obtained through raiding or scavenging) or they may be intrusive from later occupations. Still, the sheer number of European artifacts relative to other sites contributes to the notion that this is a site visited by the missionaries and that it is likely San Cayetano del Tumacácori.

Intensive Long-term Occupation

A widely understood characteristic of Sobaípuri-O'odham sites is that they are subtle with few artifacts. They possess the remains of insubstantial structures, with few elaborations, lacking trash mounds and middens that typify many prehistoric groups in the area. The sample of previously excavated houses has indicated that while work areas could sometimes be discerned in and near structures, there was no formalization or consistency in space use. This is consistent with what has been reported ethnohistorically (Crockett 1918; Karns 1954, p. 241; Manje 1926; Treutlein 1949, p. 193, 1965, p. 151; Wyllys 1931, p. 133). Consequently Sobaípuri-O'odham sites have been thought to represent short-term occupations, that were inhabited for only part of the year (consistent with the Tohono O'odham model presented by Underhill 1939, 1941) or that settlements shifted every few years, drifting along the river margin as family composition changed and as fields were rested in fallow (Seymour 1989, 1993a, 1997, 2003).

Data of a variety of types seemingly supports this model. Unlike in many prehistoric structures, floors and walls of Sobaípuri-O'odham structures are not plastered and postholes are not generally visible. Houses are indicated by an outline of cobbles and floors are typically represented only by a stratigraphic interface. Rocks that demarcate the perimeter of the structure presumably held the arched poles in place that formed the framework on which mats or mud- or earth-covered grass were placed (Bolton 1991, p. 103; Crockett 1918, pp. 84–86; Hammond and Rey 1940,

p. 297; Karns 1954, pp. 80–82, 241; Manje 1926; Masse 1981; Treutlein 1945, p. 192, 1965, pp. 151–152). Floor assemblages are lacking or at best are poorly represented. Ashy-looking areas or burned patches encountered on house “floors” or in outdoor areas adjacent to houses represent fire pits that are not plastered. Houses are scattered in a ranchería type pattern, typically two to four structures grouped loosely together or linearly arranged along a terrace edge.

Yet, more compact and permanent settlements were encouraged and sometimes imposed by the colonial presence, beginning in the late 1600s. Reduction of dispersed populations into fewer larger settlements is apparent shortly after sustained European contact began and became the norm for converted natives along the Santa Cruz from this time forward. Recalcitrant groups continued to occupy non-riverine areas, and practiced alternative lifeways that expressed different settlement patterns and site layouts.

With the aggregation of friendly native populations into fewer, larger, and more compact settlements other aspects of land use were altered. Arable land was freed up along major portions of the river bottom and that land which was situated near the mission settlements eventually produced bounty for the benefit of the church storehouses. As the native populations forfeited stretches along the river and as pressure from hostile unconverted populations increased, options for settlement movement were diminished. Thus, once reduced, populations on the Santa Cruz seem to have stayed put, contrary to opinions I had expressed earlier (Seymour 1989, 1993a, 2003) and in opposition to circumstances where European presence was less influential. Thus, extended and intensive occupation in one location (with short-term and temporary flights to the hills) seems to characterize population centers after European contact.

There are a number of lines of evidence at AZ DD:8:19 (ASM) that suggest long-term entrenched occupation and therefore lend to the notion that this is San Cayetano del Tumacácori. One of the most obvious indices is the relatively high density of artifacts on the surface of this site, as compared to sites that were not reduced. Densities of up to seven items per square meter characterize this site as opposed to others where perhaps a single item is present in the same area. Artifact diversity is high as well, with shell ornaments, plainware pottery of a diversity of varieties, flaked stone, groundstone, European artifacts, and so on.

The nature of features is also suggestive of an intensive occupation. Features incorporate discarded materials from earlier occupations into their walls. For example, fragmentary groundstone, cores, fire-cracked rock, anvil stones, and other artifacts were incorporated as foundation stones in the walls of the latest structures. Some of these discarded artifacts are clearly typical of the Sobaípurí-O’odham, as opposed to being prehistoric.

Formality in the layout of structures is also an indication of intensive and extended occupation. At earlier sites, structures are paired and are arranged in a linear fashion, end-to-end in conformance with a terrace edge. Here at AZ DD:8:19 (ASM) it seems that, if not the final, at least a late stage of site structure is preserved. Structures are arranged in a courtyard-group-like fashion, reminiscent of that which characterizes the Hohokam (see Fig. 2). Paired structures enclose each side of the rectangle, perhaps with the north side open (it is difficult to tell because of the level of disturbance and erosion which is quite severe here owing to a gradient change). If the origin of this configuration is in antecedent practices, it may represent the default arrangement that was assumed when population density reached a particular level. It

may have resulted from the desire to shield extended household activities from outsiders and for household participants to share demarcated space in a densely populated settlement. This would imply a continuum between prehistoric and historic populations. It may have resulted as a consequence of the Pueblo Revolt or the nativistic movement that arose perhaps shortly after sustained colonial interference and was suppressed in 1737 (see Segesser's account; Treutlein 1945). It is equally plausible that this is a spatial configuration that is more widespread, without implications for a cultural continuum. It is not unimportant that this configuration mimics the Spanish hacienda-style courtyard layout. Yet even among the Spaniards this type of arrangement focuses activities and attention inward while protecting the household from the outsider. Thus regardless of the basis for this configuration it seems apparent that the sharing and sequestering of space was an important product of this type of spatial arrangement and that site structure changed to accommodate greater densities of people.

One other possibility that must be entertained is that this apparent courtyard-group-like layout is all that remains of the end of parallel rows of long linear arrangements of structures, as are seen at some other sites, for example, at Santa Cruz de Gaybanipitea and Santa Cruz del Pitaitutgam. In those cases, a single structure is situated at the end, positioned perpendicular to the two long parallel rows of structures, essentially capping the end. If this is the case, similar principles of sequestering of space may apply, but just on a larger scale.

Structure pairings consist of a general-use structure that contains intramural subdivisions and features and outdoor work areas immediately adjacent to the house. The second structure tends to be devoid of intramural features and outdoor work areas and probably functioned as a storage or sleeping structure, as have been described historically and ethnographically, as was noted above. One of each structure within the pairing is inferred to be a general-use structure because fire areas and work areas are demarcated, whereas the second structure is largely devoid of features (Fig. 5).

The longevity of occupation is specifically indicated by the formality and predictability of work areas, especially those related to the general-use structure or dwelling. Elsewhere I have discussed the relationship between occupational duration and intensity, on the one hand, and space use on the other, explaining that there is a formalization and standardization of work areas with greater occupational duration (Seymour, *Distinctive Places, Suitable Spaces: A Measure of Mobile Group Occupational Duration*. Manuscript in preparation). Here at AZ DD:8:19 (ASM) work areas are not only regularized or standardized but are also specifically demarcated. Partition walls are present inside the general-use structures that separate a small area at the end (see Fig. 5). This divided space contains groundstone and flat rocks suggesting that it served a function similar to that occurring in earlier structures located at other sites, but where the space was not formally distinguished. The difference is that now this space is specially set aside and formally demarcated, reserved for a special set of activities or a particular person or task group.

The outside space immediately surrounding the structure is also expressly reserved (Fig. 6). A small fire pit, groundstone, and various flat rocks or anvil stones along with relatively high densities of artifacts demarcate the space immediately adjacent to the structure. The outer limits of this presumed household-related workspace is often demarcated by a small grouping of discarded fire-cracked rocks. Here rocks are

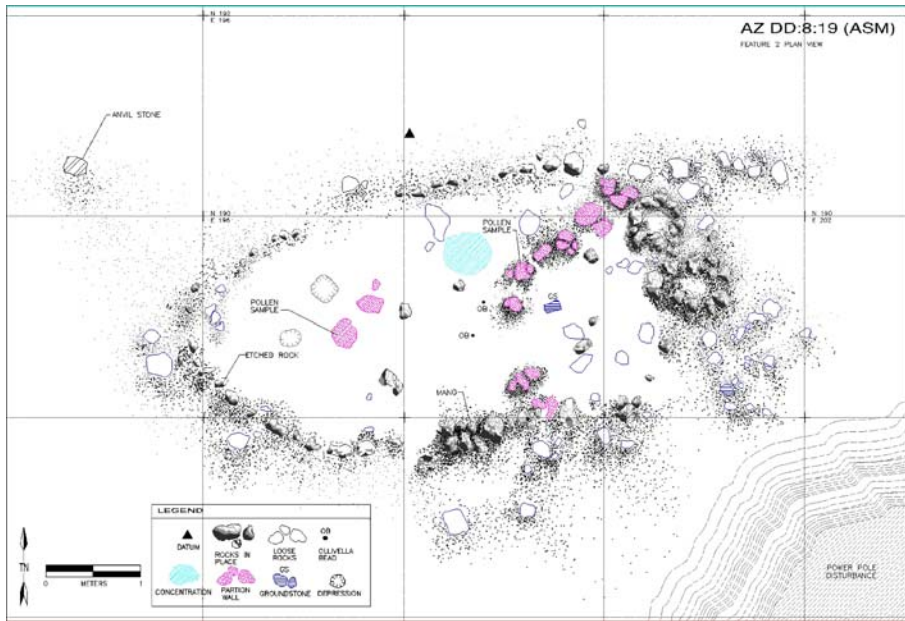


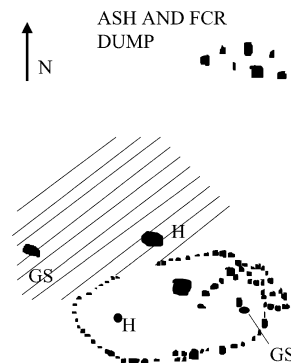
Fig. 5 Plan of house at AZ DD:8:19 (ASM) showing partition wall in general use structure

either in temporary storage for later reuse or are placed out-of-the-way, so as not to obstruct movement and activities, before being removed to a dumping area further away. These work areas occur along the long-axis of the structure and occupy about 50–75 m² of area.

Another manifestation of this formality to the layout of the site is the established nature of extra-household work areas. Set apart from the structures, but still situated in this courtyard space, is what seems to be a communal work area. This is characterized by a redundant set of features: curvilinear rock alignments (possible windbreaks) coupled with groundstone. The regularization of this communal work area again suggests a routine set of activities by the same people occurred in these areas.

Perhaps one of the most telling aspects of extended use is that structures are superimposed on one another (Fig. 7). A clear example (Features 4/18) of this is present at AZ DD:8:19 (ASM) where wall rocks from an earlier structure were

Fig. 6 Stylized drawing of work areas adjacent to general use structures



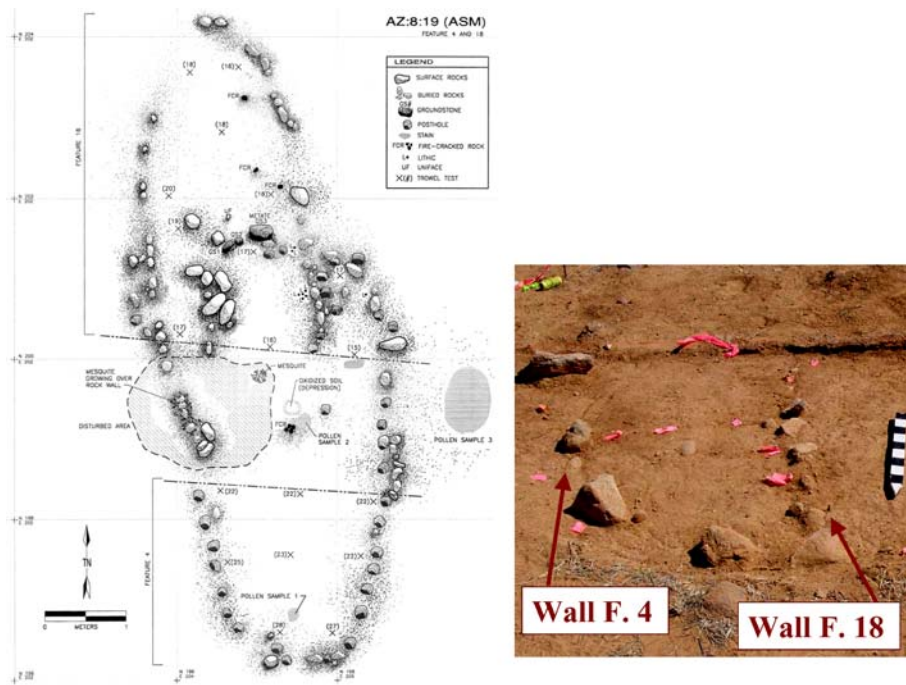


Fig. 7 Superimposed structures (4/18) at AZ DD:8:19 (ASM)

removed for use in the later structure, leaving rock holes to demarcate the south end of the earlier structure. Additional representations are present here and at the native settlement of Guevavi where superimposition is the norm.

This need to build over another structure probably results from two factors. First, complying with the missionary's perspectives of religious conformance, it would have been inappropriate to burn a structure upon the death of the occupant, as was the custom for the O'odham. Instead, a structure might be remodeled "piece by piece to make over the house" to ensure that the spirit of the deceased did not return to disturb the occupants (Treutlein 1965, p. 129). Secondly, although only a small portion of the site remains, it seems clear that structures were somewhat crowded into a limited space, while at the same time preserving comfort or sanitary distance between clusters. Given the formality in layout of the structures there were likely few other places to build, except where structures were already present. While this may provide material evidence of the privatization of real estate, it seems to reflect the realities of preserving order and maintaining spatial proximity in a compact (and perhaps overpopulated) settlement that was used for a long duration.

The degree of remodeling and rebuilding apparent at this site is a reflection of the intensity and duration of occupation. It also explains why a settlement matching the Kino-period description has not been found. Reuse of the location and of the features (or pieces of features) themselves has altered the site. This transformed site represents the latest or near-latest occupation of the site (when population levels were different from initial contact) that incorporates remnants of earlier occupations.

Dates

A series of dates was run from this site (Table 1). These results suggest an extended occupation from the prehistoric into the historic period, consistent with the long-term occupation hinted at by the archeological record. The earliest date likely predates the Sobaípuri-O'odham occupation. This radiocarbon date was taken from a dark charcoal stain in or under two superimposed Sobaípuri-O'odham structures (Features 4/18). Despite the dual intercept both possibilities are quite early: (cal A.D. 1310 to 1370 (cal B.P. 640 to 580) AND cal A.D. 1380 to 1430 (cal B.P. 570 to 520); Beta-201449). The sediments separating occupational episodes are so thin that the stratigraphic position of this particular feature is questioned. The especially dark nature of this feature distinguishes it from other light gray ash-rich features at this site (and other Sobaípuri-O'odham sites), which produced later dates suggesting that this feature is related to a previous (non-Sobaípuri-O'odham) occupation. Moreover, the placement of this feature in relation to the borders of the floor of the house is not consistent with small thermal features found in Sobaípuri-O'odham structures at this and other sites, again suggesting that it predates the earliest structure. It appears, then, to bracket the earliest occupation.

The most precise date obtained is an OSL date from a plainware pot break in a depression on the floor of Structure 2. This date (A.D. 1604–1684; Oxford Sample X1873) predates historic visitation by Kino, suggesting again that this site in some form was occupied for a long time or that the pottery vessel that was dated was made

Table 1 Dates from AZ DD:8:19 (ASM)

Sample no. (C14, OSL, and Archaeomagnetic)	Material and context	Calibrated date (2 Sigma)	Measured radiocarbon age	Conventional radiocarbon age
Beta-201449	Dark ashy soil under, features 4/18 (superimposed structures)	Cal AD 1310–1370 (Cal BP 640–580) and Cal AD 1380–1430 (Cal BP 570–520)	500±40	500±40
OSL: X1873	Whetstone Plain, Cayetano variety on floor	AD 1644±40 AD 1604–1684		
Beta-201450	Brushy wood charcoal from roasting pit, feature 50	Cal AD 1460–1650 (Cal BP 490–300)	290±40	330±40
Beta-201448	Ashy fill in floor of native structure, feature 1	(Cal AD 1670–1780 (Cal BP 280–170) and Cal AD 1800–1950 (Cal BP 150–0))	110±40	110±40
Beta-179881	Charred brushy wood from feature 17, fire pit	Cal AD 1440–1670 (Cal BP 510–280) and Cal AD 1770–1800 (Cal BP 180–150) Cal AD 1940–1950 (Cal BP 10–0)	310±70	320±70
UAZ3189	Archaeomagnetic sample, feature 17, fire pit	A.D. 1760–1890; best fit A.D. 1875, $p=0.98$		

some time earlier and transported to this site. The former is suggested because this OSL date is consistent with a radiocarbon date (Beta-201450) obtained from a large roasting pit (Feature 50) at the margin of the site. This result falls squarely in the protohistoric period, predating Kino's visit by about 40 years: cal A.D. 1460–1650 (cal B.P. 490–300). While this radiocarbon date suffers from the long date range typical of this period, it does clearly overlap with the OSL date.

The final two radiocarbon samples resulted in multiple intercepts and so they are in some ways less useful for demarcating the occupation. Yet in one case (cal A.D. 1670–1780 [cal B.P. 280–170] and cal A.D. 1800–1950 [cal BP 150–0]; Beta-201448) the context of the sample makes it reasonable to assume that the earliest date option is the most reasonable, because structures of this type were not constructed during the post-1800 period in this area and there are no post-1800 O'odham artifacts present. Given this assumption, the A.D. 1670–1780 possibility is most likely. The sample was run on charred material in the fine white ash in a post-sized hole in the lowest floor of a structure (Feature 1). It is relevant that this confidence interval overlaps with the OSL sample result obtained from Feature 2. The positioning of these two structures relative to one another and the way the interior and exterior space was used in each suggests that they were paired, functionally complementary, and contemporaneous. Evidence for the remodeling of these structures suggests they were used repeatedly through time, resulting in the accumulation of dateable material in these contexts. This creates an expectation for the lack of perfect correspondence in the dates, particularly when the likelihood of earlier and later construction events are considered.

The second radiocarbon sample is from Feature 17 (cal A.D. 1440–1670 [cal BP 510–280] and cal A.D. 1770–1800 [cal BP 180–150] cal A.D. 1940–1950 [cal B.P. 10–0]; Beta-179881) which is a unique fire pit. Small fire pits and roasting pits are common, for example at AZ EE:9:153 (ASM), but they tend to contain lighter colored ash and very small bits of charcoal and the walls of those features are less intensively burned than Feature 17 (probably owing to the use of brush or coals in these features). Thus while the earliest intercept is consistent with a Sobaipuri-O'odham occupation and with other dates from this site, the possibility cannot be ruled out that the 1770–1800 date is accurate. If this middle date range is correct this feature could represent a later occupation by a mobile group who reinhabited the site. Most of the Sobaipuri-O'odham sites excavated for this project revealed evidence of at least one later occupation by some other group and the historic record indicates that this site was abandoned sometime in the 1700s. Alternatively the date may represent the final use of the site by the Sobaipuri-O'odham in the early 1770s before abandonment and movement of populations to San José de Tumacácori. The dating technique is simply too imprecise during this later time period to be of much value for discerning events of this scale. Interestingly, an archaeomagnetic sample taken from this feature produced a date range of A.D. 1760–1890, with a best fit at A.D. 1875. This supports the notion that the middle intercept of the radiocarbon sample is the correct one.

When the results of multiple samples and multiple dating techniques are compared and evaluated with respect to the archaeological data it is possible to reconstruct the occupation at the site in a general way. There seems to have been a prehistoric occupation at the site that preceded the Sobaipuri-O'odham occupation,

although an earlier than expected Sobaípuri-O'odham occupation cannot be ruled out. Prehistoric looking sherds were recovered, supporting the notion of a non-Sobaípuri-O'odham occupation. It is also likely that a post-Sobaípuri-O'odham mobile group occupation occurred or that a remnant O'odham population lingered on this site throughout the 1700s, creating the Feature 17 fire pit. The main occupation and the focus of this paper seems to have occurred in the 1600s and perhaps 1700s, with two dates falling in the A.D. 1604–1684 and the 1460–1650 period, and another likely pertaining to the 1670–1780 period. The OSL date (A.D. 1604–1684) and one of the radiocarbon dates (A.D. 1460–1650) indicate occupation in the decades before Kino's appearance. This is not unexpected because other Sobaípuri-O'odham sites along the river have produced early dates in the 1424–1524 interval. That this occupation was continuous (if perhaps intermittent) into the Kino historic period is indicated by the radiocarbon sample from Feature 1. This A.D. 1670–1780 date is consistent with the beads and other European-introduced artifacts recovered from the site. The faceted beads indicate generally a mid-18th-century occupation, whereas the iron artifacts and seed bead suggest an occupation anytime in the historic period. The pairing of Structures 1 and 2 suggests some degree of contemporaneity, although both show evidence of reuse and remodeling over an extended period. This is borne out by the dates obtained from these structures, which are likely dating slightly different events (the initial firing of the storage jar in Structure 2 and the burning of Structure 1, perhaps at abandonment). Together these suggest that at least some of the structures forming this courtyard group were occupied during the later stages of occupation, but not necessarily the last stage. In aggregate, the dates obtained indicate long-term use of a site with a complex use and depositional history, as is consistent with other data. These dates suggest that Sobaípuri-O'odham did not move to this location with the initiation of Spanish presence but that some occupation was already present and that additional people moved here as the historic period proceeded.

Summary and Discussion

The location of the historically referenced site of San Cayetano del Tumaácóri has remained an enigma and much debate has surrounded previous work relating to the placement of this village. In this paper I have argued that AZ DD:8:19 (ASM) is this settlement. Contrary to expectations, it does not match the earliest historic descriptions of the settlement because people lived at this location for decades and changed the layout and number of structures through time (and because disturbance is substantial). Population at the village grew and receded through time, depending upon a variety of factors, perhaps including whether the visiting missionary was on his way. This settlement was never the primary focus of missionary activity, despite the fact that it hosted the first structure for Mass built for the pending visit by Kino and Salvatierra in 1691. Yet, even being a simple visiting station it conformed in important ways to the edicts of the colonial missionization program, not least of which was stationary clustered village life.

Dates from this site indicate that settlement occurred here from the prehistoric period throughout the historic period, possibly until the 1770s, but certainly up to the

O'odham Revolt. This in itself suggests that it was an important settlement for the Sobaípuri-O'odham, but owing to the degree of disturbance it is not possible to know if aggregation and organization into village life occurred earlier, as a result of processes preceding missionization, or if occupation was sporadic or seasonal.

I have discussed this issue of recognizing the location of historically referenced sites in previous works (Seymour 1989, 1993a, b, 2003), specifically with reference to village drift. For example, I noted that the ethnographically documented practice of rancherías shifting locations through time (Ezell 1961; Underhill 1939) might account for the inability to identify large villages noted in the documents. Yet, having excavated this site and others along the Santa Cruz I now believe that while village drift occurred in certain specific circumstances, there is no evidence that it occurred at AZ DD:8:19 (ASM) and may not have been a factor at other sites occupied in this area in the window between roughly 1690 and 1770. One reason I doubt this is that once the missionaries had influence and populations were more stationary, and especially once the missionaries came to stay, land availability became an issue. Moreover, those natives who chose this new way of life seem to have been increasingly the target of hostility from kindred who remained free and from groups of other affiliations that rejected attempts at missionization. Consequently there were advantages for the converted to remain in compact settlements. The degree of rebuilding, refurbishing, and reuse at AZ DD:8:19 (ASM) indicates people lived here for long periods and that this was an important focus of occupation. There can be little doubt that AZ DD:8:19 (ASM) is a historic period Sobaípuri-O'odham site. The question remains, however, is it *the* historic period site of San Cayetano del Tumacácori? I believe a preponderance of the data suggests it is this location.

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