

# ARCHAEOLOGY SOUTHWEST *magazine*

CONTINUE ON TO THE NEXT PAGE FOR YOUR FREE PDF



**Archaeology Southwest** (formerly the Center for Desert Archaeology) is a private 501 (c) (3) nonprofit organization that explores and protects the places of our past across the American Southwest and Mexican Northwest. We have developed an integrated, conservation-based approach known as Preservation Archaeology.

Although Preservation Archaeology begins with the active protection of archaeological sites, it doesn't end there. We utilize holistic, low-impact investigation methods in order to pursue big-picture questions about what life was like long ago. As a part of our mission to help foster advocacy and appreciation for the special places of our past, we share our discoveries with the public. This free back issue of *Archaeology Southwest Magazine* is one of many ways we connect people with the Southwest's rich past. **Enjoy!**

**Not yet a member? Join today!**

Membership to Archaeology Southwest includes:

- » A **Subscription** to our esteemed, quarterly *Archaeology Southwest Magazine*
- » **Updates** from *This Month at Archaeology Southwest*, our monthly e-newsletter
- » **25% off purchases** of in-print, in-stock publications through our bookstore
- » **Discounted registration fees** for Hands-On Archaeology classes and workshops
- » **Free pdf downloads** of *Archaeology Southwest Magazine*, including our current and most recent issues
- » Access to our on-site **research library**
- » **Invitations** to our annual members' meeting, as well as other special events and lectures

Join us at [\*\*archaeologysouthwest.org/how-to-help\*\*](http://archaeologysouthwest.org/how-to-help)

In the meantime, stay informed at our regularly updated **Facebook** page!



# Archaeology Southwest

Volume 18, Number 4

Center for Desert Archaeology

Fall 2004

## The Archaeological Heritage of the Santa Cruz Valley

*Jonathan B. Mabry, Desert Archaeology, Inc.*

**S**TRETCHING ACROSS SOUTHERN ARIZONA into northern Mexico, the Santa Cruz Valley is one of this continent's longest-inhabited regions. Here are preserved traces of human occupation extending back more than 12,000 years, and remains of continuous farming and settlement over the last 4,000 years. Maize agriculture spread north through the valley about 2000 B.C. The early farming culture that flourished here for the next two millennia developed the earliest pottery, canals, and villages in southwestern North America. Centuries later, the valley was a boundary between the Hohokam culture that arose in the Phoenix Basin and the Trincheras culture centered in northern Sonora. When the first Spanish colonists and Jesuit missionaries arrived in the late seventeenth century, they encountered numerous villages of the Sobaipuri Pima (O'odham) along the riverbanks.

Signs of the unique history of this region are everywhere. About 4,000 prehistoric archaeological sites have been recorded in the Santa Cruz watershed. Well-preserved missions and ruins of presidio fortresses are the legacy of Spanish exploration, mission building, and colonization beginning in the late 1600s. Streets lined with Sonoran-style adobe houses recall when this area was part of Mexico after it won independence from Spain in 1821. Ghost towns, abandoned mines, and rustic ranch houses are visible reminders of gold and silver rushes and the rise of a cattle industry after the region became part of the United States in 1854, and then was truly linked to the rest of the

nation by the arrival of the railroad in 1880. There are inner-city neighborhoods and rural communities characterized by Territorial-style architecture built before Arizona achieved statehood in 1912. The valley also has several Na-

tional Historic Landmarks, a large number of historic districts and buildings listed on the National Register of Historic Places, and many working historic landscapes, historic trails, traditional cultural areas, historical museums and parks, annual heritage



*The eroding adobe walls of Guevavi Mission are now part of Tumacácori National Historical Park.*

events, historic lodgings, and heritage organizations.

Understanding that these heritage resources are deserving of national recognition, and that their conservation, interpretation, and continuing use is a way to manage change by preserving a "sense of place," a diverse collection of local interest groups has worked together since 2003 toward congressional designation of a Santa Cruz Valley National Heritage Area. Built on community-based, voluntary partnerships among public and private stakeholders, a National Heritage Area would link related resources to better tell their stories, coordinate preservation efforts that are currently separate, and provide increased opportunities for funding preservation and heritage education. This issue of *Archaeology Southwest* focuses on the archaeological heritage associated with the long, multicultural history of this region.

*Archaeology Southwest*  
is a Quarterly  
Publication of the  
Center for Desert  
Archaeology





# Environmental Changes and Cultural Adaptations

Jonathan B. Mabry, *Desert Archaeology, Inc.*

**T**HE CLIMATE, plant and animal communities, and landscape-shaping processes in southern Arizona have not always been the same. Geological and biological records of environmental changes include floodplain sediments, lake and playa deposits, dune formations, mammal remains, insect fossils, pollen sequences, and the plant remains preserved in packrat middens. Changes in archaeological site locations and artifact types correlate with major environmental shifts since the end of the Pleistocene.

Spear points of Clovis big-game hunters are the oldest known evidence of human presence in the Santa Cruz Valley. Two continent-wide droughts occurred during Clovis times (about 11,500 to 10,900 B.C.), and a combination of drought and overhunting may explain the North American extinctions of mammoths, horses, camels, and other large Pleistocene mammals that occurred during that interval. Following a reversion to nearly Ice Age conditions between about 11,000 and 9500 B.C., a now-extinct form of bison was hunted by later Paleoindian groups in southeastern Arizona and other regions in the Southwest and Great Plains.

Increasing temperatures, a shift to a summer-dominant rainfall pattern, and the retreat of pinyon-juniper-oak woodlands to higher elevations between about 8000 and 7500 B.C. opened the Santa Cruz

Valley to the establishment of desert plants and led to the development of a new hunting and gathering way of life in the Sonoran Desert. Stone grinding tools, plant remains, and animal bones preserved in archaeological sites indicate that the focus of this Archaic adaptation was on smaller animals and the seeds, nuts, and fruits of wild plants.

Various lines of evidence point to a post-Pleistocene peak in temperatures and general aridity between about 6500 B.C. and 3500 B.C., and the lack of any archaeological sites that can be confidently dated to this interval suggests that people abandoned the desert lowlands of the Southwest, including the Santa Cruz Valley. Geological and biological records indicate that current conditions developed between about 5,500 and 4,500 years ago, when temperatures fell and effective moisture increased.

In the Tucson Basin, the floodplain of the Santa Cruz stopped eroding and, in most places, built up with sedi-

ments deposited by regular floods between about 4,500 and 2,500 years ago. This cycle ended with a period of floodplain stability and weathering that formed a soil. Since that time, several cut-and-fill cycles were followed by intervals of soil formation some 2,000, 1,000, and 500 years ago. Along the tributary Cienega Creek, an interval of erosion and soil formation prior to 4,500 years ago was followed by rapid alluvial deposition and repeated formation of marshes between about 4,500 and 1,700 years ago.

The environmental shift to current conditions about 5,000 years ago allowed the return of hunting and gathering groups to southern Arizona after a long abandonment, and set the stage for the transition to agriculture in this region. Agriculture was introduced from Mexico near the middle of a relatively moist interval between about 3200 and 700 B.C., and it increasingly became the focus of subsistence after about 2000 B.C. For the next two millennia, runoff farming and floodwater farming were practiced on regularly flooding alluvial fans and floodplains, dry farming was possible on active sand dunes that dammed springs and conserved soil moisture, and irrigated farming was developed near permanent springs and along perennial reaches of rivers. The spread of cacti and mesquite trees, the formation of grasslands, and the return of bison at the beginning of this time span also increased wild food resources that became important complements to cultigens, as well as insurance against crop failures.



**Cycles of the Santa Cruz River:** Over the last decade, archaeologists have excavated a number of deep trenches in the Santa Cruz floodplain to expose layers of sediments that record the history of the river. The layers show that long intervals of floodplain building have been interrupted by at least eight cycles of widespread downcutting of the river channel over the last 10,000 years.



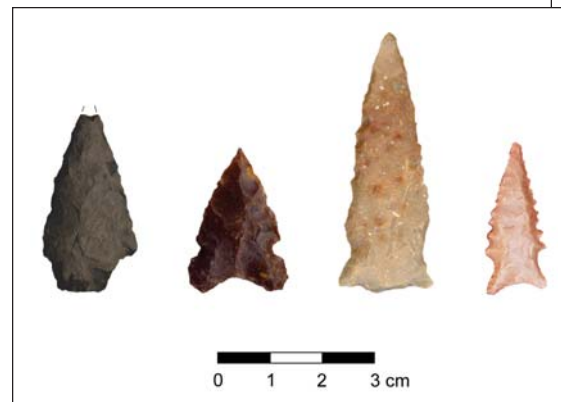
*A Clovis spear point was found just above the Santa Cruz floodplain.*

## Signs of the Prelude to Agriculture

Jane Sliva, *Desert Archaeology, Inc.*

**M**IDDLE ARCHAIC DART POINTS found throughout the Santa Cruz Valley indicate that hunting and gathering groups returned to the region when favorable environmental conditions returned after approximately 3500 B.C. The variety of Middle Archaic dart point styles, with overlapping time spans, may represent the presence of different cultural groups, the use of different hafting techniques, or both.

In this region and in other areas of the Arizona–Sonora borderlands, the diversity of biotic communities and the high productivity of wild plant resources may have supported the development of semisedentary communities prior to the arrival of maize. Evidence for reduced mobility includes pit structures, storage pits, and trash middens documented at some Middle Archaic sites in southeastern Arizona. An important but unresolved question is whether the remains of maize or other cultigens are present at any of these rare and inadequately understood sites.



These four dart point styles—from left to right, Gypsum, Chiricahua, the newly named Esos, and San Jose—were designed by hunters to tip long, composite darts that were thrown using an atlatl (spear thrower).

## Researching Early Agriculture in the Santa Cruz Valley

Jonathan B. Mabry, *Desert Archaeology, Inc.*

**S**INCE THE 1960S, archaeological investigations in the watershed of the Santa Cruz River have played an important role in research on early agriculture in the Southwest. During that decade, maize pollen was identified at San Pedro stage sites along the Santa Cruz tributaries of Pantano Wash and Cienega Creek (see *Archaeology Southwest*, Fall 2001). The first radiocarbon dates obtained from these and other sites in southeastern Arizona indicated a time span of about 1500 B.C. to A.D. 50 for the San Pedro stage. These discoveries led Southwestern archaeologists to associate the San Pedro stage with the spread of agriculture to the desert lowlands from the Mogollon highlands of eastern Arizona and western New Mexico, where maize believed to be older had been found in Bat Cave.

Agriculture was not confirmed as part of San Pedro stage subsistence until the 1980s, when carbonized maize

fragments were directly radiocarbon dated by the new accelerator mass spectroscopy (AMS) method, which allowed dating of much smaller samples. Ranging between

about 1000 and 400 B.C., these dates also provided a more reliable time span for the San Pedro stage, now referred to as a “phase.” Direct AMS dating of some of the oldest maize samples from Bat Cave indicated that they, too, fell within this time range. As additional radiocarbon dates pushed back the age of maize in southeastern Arizona to 1200 B.C., a new theory proposed that flood-water farming in the desert lowlands preceded rain-fed farming in the Mogollon highlands. Recent radiocarbon dates now indicate that

maize arrived in the Santa Cruz Valley by 2000 B.C., long before the San Pedro phase.

Accumulating evidence indicates that, in addition to maize, several other tropical plants, and possibly some



**Buried Early Canals:** Archaeologists are now finding evidence of water control by early farmers in the Santa Cruz Valley. Canals that diverted floods and perennial flows from the Santa Cruz River have been found at several sites dating between 1200 B.C. and A.D. 50. These are among the oldest known canals in the Southwest, and represent a precedent in the Sonoran Desert for the famous canal systems of the later Hohokam culture.



native plants, were also cultivated by early farmers in the Santa Cruz Valley and other parts of the Arizona–Sonora borderlands. Remains of domesticated amaranth and wild or domesticated cotton and tobacco found at early farming sites in this region may indicate that locally domesti-



*Left: Recent excavations in the Santa Cruz floodplain uncovered an unprecedented find: a 3,000-year-old irrigated field with hundreds of maize planting holes. Right: Wells have been identified at a few Santa Cruz Valley sites dating after 800 B.C. This narrow well was cut into floodplain sediments to reach shallow groundwater.*

cated crops were also grown. Like maize, the beans and squash found at these sites are cultigens from warm regions of Mesoamerica, while cotton pollen and tobacco

seeds may represent tropical introductions or local, wild varieties.

There is growing recognition that, on the northern agricultural frontier of Mexico, maize probably spread via both diffusion among native groups and migration by farmers. It is unclear whether irrigation technology spread along with agriculture. There are no known precedents in Mexico for the San Pedro phase canal systems that have recently been found in the middle Santa Cruz Valley. Ditches of roughly equal age have been found in the highlands of central Mexico, but they diverted seasonal floods rather than a perennial river flow. Only through systematic explorations of the floodplains of northern Mexico will we learn whether irrigation tech-

nology was also part of the tropical agricultural complex that arrived from Mexico or was an indigenous innovation in the valleys of southern Arizona.

## Is It Hohokam Yet?

*Henry D. Wallace, Desert Archaeology, Inc.*

**SOME KEY DISCOVERIES** about the origins of the Hohokam culture come from a series of excavations at sites along the Santa Cruz River in Tucson dating between 800 B.C. and A.D. 700, as well as from a reconsideration of data gathered at Snaketown, in central Arizona, and the Hodges Ruin, in Tucson. We now know that growing maize via irrigation agriculture had its genesis far earlier in the Southwest than had previously been assumed. The earliest canals along the Santa Cruz River date to about 1200 B.C. An incipient ceramic industry was present as early as 2000 B.C., and by A.D. 150 to 450, true pottery containers were being made. Other technological advances, such as the bow and arrow, are also known now to predate the Hohokam culture.

Perhaps most important is the evidence that traits significant in the development of the Hohokam appear in the span of time leading up to the defining moments of the culture's inception. For example, trough metates and

pottery for cooking, possibly in conjunction with a new race of flint corn, appeared in the half-century prior to the Hohokam occupation.

These items were closely linked to increased fertility, population expansion, nutritional security, and the potential for less reliance on wild foods. Archaeologists therefore have to ask, "What is Hohokam if the traditional defining traits no longer apply?"

Valencia Vieja, in south Tucson, is providing the answers to this question. In recent excavations by Desert



*One of a series of large, square structures bordering the central plaza at Valencia Vieja. Probably the dwellings of lineage leaders, such structures have also been found around the Snaketown plaza and at other sites.*

Archaeology, Inc., at Valencia Vieja, archaeologists determined that a sequence of events fostered the development of the new culture. Initial settlement by a small group of 5 to 10 families in a setting well above the river floodplain was followed around A.D. 500 by an influx of families that doubled the size of the settlement. With the added population, the farmstead became a village.

Valencia Vieja was not alone: populations all across southern and central Arizona were making the same decision. The choice to reside in one place on a permanent basis together with other social groups is arguably the most important decision in the prehistory of the Southwest. Never before had multiple kin groups chosen to reside together in one place over a long span of time. This choice to band together was probably tied to the need for cooperative labor pools for the construction of canal systems for securing rights to prime agricultural land.

The appearance of a central plaza at the same time that population aggregated at Valencia Vieja at about A.D. 500 is no coincidence. The plazas at Valencia Vieja, Snaketown, and probably all other early villages drew diverse families together. With the appearance of the plaza and the aggregation of settlements at permanent locations, archaeologists can finally say, "It is Hohokam now."

Initially, ancestor veneration, marked by the interment of lauded ancestors in the central plaza and the widespread distribution of clay figurines, aided lineage leaders in cooperative political endeavors. Gradually, more and more power shifted to shamans and lineage leaders (possibly one and the same), who were most adept at making use of the plaza's public stage, and their status was readily apparent, marked by their large, square, gable-roofed dwellings bordering the plazas. Within several centuries of the formation of plaza-centric villages, leadership was no longer signified by a large house fronting the plaza, and the role of ancestor worship was fading from the scene. The village of Valencia Vieja was abandoned at about A.D. 700, the residents moving a few hundred yards away to found the Valencia site in a location with more room to grow.



*Excavations at Valencia Vieja, along the current deeply downcut channel of the Santa Cruz River in southern Tucson, were integral to piecing together the origins of the Hohokam culture.*

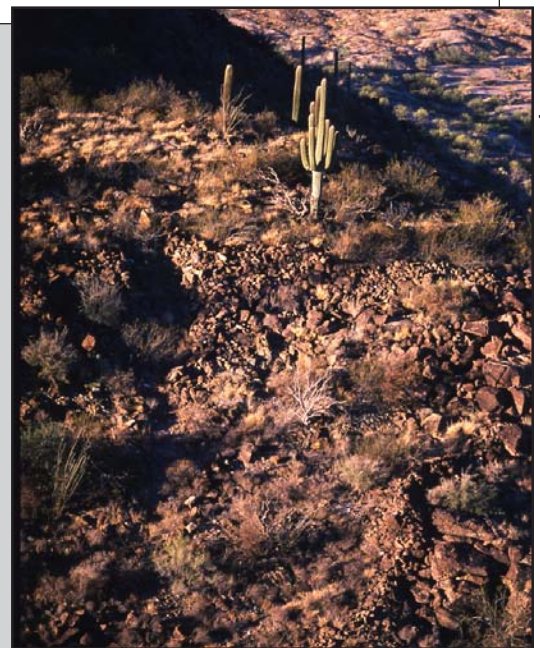
©Adriel Heisey

At about A.D. 800, a new religious expression, referred to by some as a cult, swept through the region, accompanied by ballcourts with raised embankments, new designs on painted pottery and other goods, the inception of a market-related exchange system, and rituals involving the use of small carved stone or ceramic bowls and decorated stone tablets called palettes. More than anything else, these and other markers of the new belief system are the material traits commonly thought to define the Hohokam. We now know that what was Hohokam began much earlier with the coalescence of families into small plaza-centric farming villages early in the sixth century A.D., and perhaps most importantly, we can now identify some of the social, political, religious, and economic

processes that evolved over the formative years of a fledgling culture.

**Cerros de Trincheras:** Across the Arizona-Sonora borderlands are a number of isolated, volcanic hills covered with terraces, walls, and structures built by prehistoric groups. Archaeologists debate whether the primary function of these structures was for defense, agriculture, or settlement. There are several cerros de

trincheras in the Santa Cruz Valley, including Tumamoc Hill (see photograph), a National Historic Landmark. Recent excavations by the Arizona State Museum revealed that occupation began more than 2,000 years ago, and many of the houses were contemporaneous with the occupation of Valencia Vieja.



©Adriel Heisey



# Marana's First Community Center

Paul R. Fish and Suzanne K. Fish, Arizona State Museum

James M. Bayman, University of Hawaii

ONE OF THE LARGER VILLAGES in southern Arizona around A.D. 1250 was located near the present-day town of Marana, Arizona. With its 700 to 1,000 inhabitants, the Marana Platform Mound site was an important Hohokam center during the early Classic period. Over the past 20 years, archaeologists from the Arizona State Museum, at the University of Arizona, have explored the mound site and its associated community.

The mound site was the focal village in a 56-square-mile community of farmers stretching across the northern Tucson Basin from the Tortolita Mountains to the Tucson Mountains. Instead of being situated among long-established populations in the most agriculturally favorable locales along the Santa Cruz River and upland Tortolita flanks, it lay in a more recently settled area lacking both permanent domestic water and prime land for irrigated or floodwater cultivation. The site was at the end of a canal from the Santa Cruz River that also supplied other villages along its six-mile path. With limited opportuni-

ties for raising corn and similar crops, the mound site inhabitants would have worked to maintain a dependable system of resource exchange.

The platform mound was centrally located within a dispersed linear array of 30 to 40 residential compounds, covering nearly one square mile, that appear to have been

occupied simultaneously. These walled compounds, large by Hohokam standards, enclosed rooms of multiple households within an area approximately the size of a modern football field.

The site's adobe rooms were substantial structures, measuring up to 9 feet from floor to ceiling. The builders hauled pine and fir beams 30 miles overland from the Catalina Mountains; not

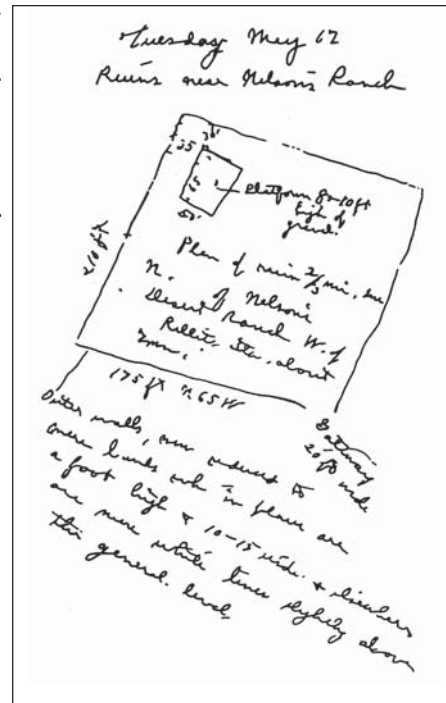
surprisingly, these beams were often removed and presumably recycled during remodeling. Large stones from non-local sources, sometimes weighing more than 30 pounds, were used as doorsteps and for other architectural purposes. Making adobe was also labor intensive: it demanded much valuable water, and even the caliche added to strengthen the mixture had to be collected upslope.

Recent excavations have investigated how the platform mound was constructed and whether activities within its compound reflected occupation by elite leaders, communal ritual, or other public events. A massive, three-part adobe retaining wall more than one and one-half yards wide around the perimeter gave the mound a rectangular shape and vertical sides, and supported at least three

Henry Wallace



Courtesy Yale University Library



Top: Aerial photograph of recent excavations in the platform mound precinct and an adjacent reservoir; platform mound is located at top center of photograph. The berm of a cattle tank runs at an angle across the right center of the photograph. Left: The prominent geographer Ellsworth Huntington first recorded the site and sketched the mound compound in 1910, when some adobe wall segments were still as much as one foot high.

million pounds of earthen fill. Although the platform mound was a relatively modest Hohokam monument, a community-wide effort would have been required. (A local landscaping company estimated that it would require 1,500 person-days to hand-excavate and transport the earthen fill from outside the compound.) An upper wall enclosed four buildings atop the mound, adding to a total vertical height of more than 12 feet. This elevated position would have provided an unobstructed view over much of the surrounding basin as well as a platform for public announcements. Two unusually large adobe buildings in the mound compound and extensive cooking pits in the courtyard also figured into communal activities.

Unlike most Hohokam centers that date from the Classic period, the Marana Platform Mound site has escaped serious damage by modern agriculture and urban development. In recognition of the opportunity to preserve a rare site and portions of an entire Classic period community, Pima County recognized this site as a high priority for preservation in its Sonoran Desert Conservation Plan and Comprehensive Land Use Plan, adopted in 2002. In keeping with this status, Pima County included \$2 million for the acquisition of the Marana Platform Mound in its successful May 2004 historic preservation bond election—a motion which was approved by more than 60 percent of county voters.

## Revealing the First Church at Mission San Xavier del Bac

*Bernard L. Fontana, University of Arizona*

**H**ISTORY—if by that word we mean the past as revealed in the written record—dawned in the Arizona portion of the Santa Cruz Valley in 1691, with the arrival at the Northern O’odham villages of Tumacácori and Guevavi of a pair of Jesuit missionaries, Father Eusebio Francisco Kino and Father Juan María Salvatierra. Not only did their visit inaugurate a documentary chronicle of Europe’s effect on the region’s native peoples, but it also was a catalyst for the material changes soon to follow in diet, tool inventory, dress and ornament, and domestic and religious architecture. Between 1691 and 1828, Jesuit and Franciscan missionaries became responsible for the construction of no fewer than eight churches in five O’odham settlements in the Santa Cruz Valley, stretching from Guevavi in the south to the Tucson *visita* of San Agustín del Tucson in the north. In the eighteenth century, other Spaniards constructed two presidios, one at Tubac and another at Tucson.

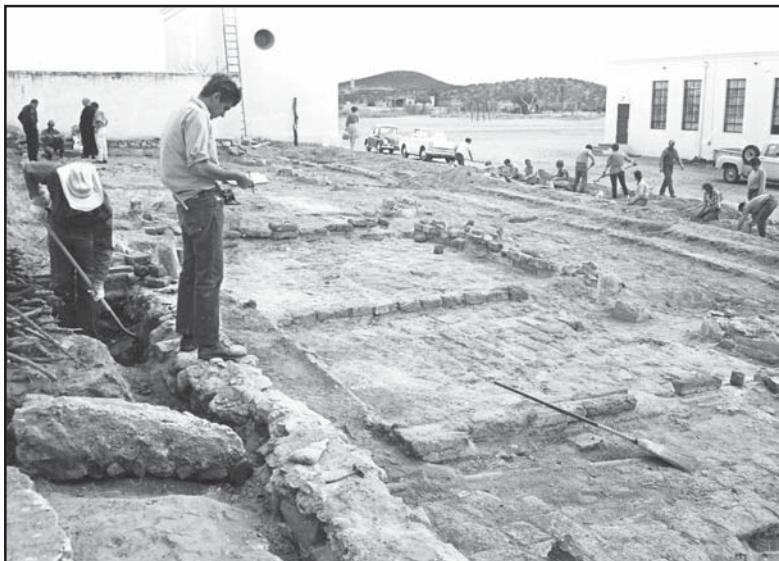
By the twentieth century, Spanish missions had been relegated in the public’s mind to some kind of romantic

past. Only Mission San Xavier del Bac survived as a working church; the ruins of Mission San José de Tumacácori had become a national monument in 1908 (and again in 1917); and the former missions and mission visiting stations at Guevavi, Calabazas, and Tucson were little more than mud walls. They were, however, the standing struc-

tures and mud walls that attracted the attention of Prentice Van Walbeck Duell, a Tucson architect. His 1917 Master’s thesis at the University of Arizona was published in an expanded version in 1919 by the Arizona Archaeological and Historical Society as *Mission Architecture as Exemplified [sic] in San Xavier del Bac*.

The first documented archaeological fieldwork in a Spanish mission site

was conducted in 1934 and 1935, at Mission Tumacácori by archaeologist Paul Beaubien and engineer Walter Attwell. Interest in the Spanish missions of the Santa Cruz Valley was continued by Father Victor Stoner, who, in 1937, wrote his Master’s thesis at the University of Arizona on that subject.



*View to the southwest in 1967 of rooms 1 and 2 inside the walls of the Espinosa Church at San Xavier del Bac. Archaeologist Geoffrey Clark, shown here as a student, is standing on the low-lying buttress on the left, notebook in hand.*

Charles W. Polzer



In 1958, University of Arizona graduate students William J. Robinson and Bernard Fontana, with the tacit support of the Arizona State Museum and volunteer help from other graduate students, began excavations at Mission San Xavier del Bac, hoping initially to uncover a site that would yield information concerning the gap between prehistoric Hohokam remains and those of the historic O'odham. These efforts instead uncovered a complex of architectural remains on the west side of the present (1783–1797) church, remains at first misinterpreted as those of two rooms enclosed by some kind of walled compound and surrounded on its interior by an adobe footpath. Subsequently, discovery of a document written in 1797 by a priest serving at the mission noted that two rooms were being built "in the old church," indicating at once that what had

been excavated were the ruins of San Xavier's first church, a structure erected by Jesuit missionary Alonzo Espinosa between 1756 and 1759. Father Espinosa's church was dismantled in the early nineteenth century, and its salvaged adobes and ceiling beams were used to construct the flat-roofed *convento* wing that abutted the east bell tower of the present church. Using archaeological data and details from the *convento* wing, Center archaeologist Doug Gann has been able to re-create the Espinosa church in a computerized image (see below). Archaeological work at Mission San Xavier, including that undertaken since 1958, has been reported in a 1974 University of Arizona Ph.D. dissertation by Annetta Cheek.

A final report, to be written by Fontana and to include Gann's computer re-creations, awaits completion.

## "Reconstructing" the Espinosa Church

*Douglas W. Gann, Center for Desert Archaeology*



**T**HESE IMAGES SHOW how the church at San Xavier del Bac might have looked around A.D. 1760. The digital model incorporates information from Fontana and Robinson's excavations, along with historical records of the church. The interior rendering displays artifacts listed in an inventory of church property recorded by Espinosa in 1765, as well as an inventory conducted when the Jesuits turned the church property over to Father Garcés in 1768. The unique roof-support structure displayed in the interior rendering was a creative and necessary response to the use of available local materials for roof construction. Beams hewn from mesquite trees were strong, but short. This ingenious wooden structure can still be viewed today, as it was reused in the construction of the San Xavier *convento*.



# Archaeology of the Jesuit Mission at Guevavi

William J. Robinson, *University of Arizona*

**T**HE SANTA CRUZ VALLEY, from its great bend in Sonora to the southern edge of Tucson, holds an incomparable record of Spanish efforts between 1691 and 1821 to bring Christianity and European ways to the local Native Americans. The best-known center of this activity is San Xavier del Bac (see page 7). However, Santa Maria Soamca, San Lazaro, San Luis Bacoancos, Guevavi, Calabazas, and Tumacácori also share, and expand upon, the history of this process. Of these six locations, only Santa Maria and Guevavi were considered missions during Jesuit times; the others were *visitas*.

Between November 1964 and March 1966, I conducted excavations at Guevavi with the help of volunteers from the Arizona Archaeological and Historical Society and students from the Department of Anthropology at the University of Arizona. Our intent was to test areas adjacent to the church and *convento* and to conduct a survey near the mission in order to locate the earlier Native American occupation of the area. I assumed that the mission location, first mentioned by Father Kino in 1691, was chosen for its proximity to a Native American village. Within weeks, however, it became obvious that our tests revealed only ancillary mission buildings, and no evidence whatsoever of the expected village. Even more disappointing was the lack of evidence for such a village within a mile or so radius of the mission. There were, however, numerous scattered areas of undecorated ceramics and chipped stone that might be interpreted as evidence of a population living in widely separated dwellings, reminiscent of the Tohono O'odham lifestyle. But the lack of temporally diagnostic artifacts made attributing an occupation date to these areas impossible. I then studied reports of earlier archaeological surveys.

One possible village upstream from the mission emerged from this research. Unfortunately, I was unable to examine the site, as a part had been removed by river erosion and access to the remainder was denied by a suspicious landowner. This site was situated, as the mission

is not, at a widening of the river, which would have provided ample agricultural fields. A similar area lies a mile or so downstream; as late as 1965, it was under canal irrigation as forage fields for cattle ranching. A survey of Rancho Guevavi, when it was sold to the City of Nogales for its water rights in the early 1990s, revealed more evidence of scattered settlements that preceded the founding of Mission Guevavi. Thus, I am convinced that no concentrated "village" ever, in fact, existed.

As a consequence, the excavations of the 1960s turned to investigating the *convento*, or living area, of the mission complex. Excavation revealed a U-shaped, single-story series of about 15 rooms attached to the river side of the

church. An entry gate to an enclosed courtyard faced upriver and provided access to an outer courtyard of adobe structures, perhaps residences for Native Americans attached to and partially supported by the mission. European artifacts were sparse: a few sherds of majolica (tin-glazed earthenware), pieces of scrap metal, a musket ball or two, glass beads, a single crucifix, and a Spanish coin dated 1771 were the total haul. On the other hand, trash lying outside the *convento* walls revealed abundant amounts of Native American pottery and of butchered domestic animals. The third (and present) church was constructed in 1751, and the *convento* may be a part of the same building episode. However, an architectural misalignment of the church and *convento* suggests that the *convento* may date to an earlier time, perhaps the re-establishment of the mission by German Jesuits in 1732 after the death of Father Kino.

Guevavi Mission lay abandoned soon after the Jesuits were expelled from the New World in 1773. The successor Franciscans transferred all functions downriver to Tumacácori, stripping the church and *convento* of all useful utensils and religious paraphernalia. Today, the mission, having escaped the ravages of Interstate 19, golf courses, and housing developments—but not time—stands as a testament to the Jesuit effort on the Rim of Christendom.



*A silver half real coin minted in Mexico City in 1771 was found in the cloister.*



*This photograph shows that the walls of the church (built in 1751) were much higher in 1889 than they are today.*

George Roskrug

Helga Teiwes



# Pueblo Trade with Santa Cruz Villages, circa 1350-1900

Alan Ferg, Arizona State Museum

A HANDFUL OF ARTIFACTS found at sites in the Santa Cruz drainage, and observations made by historians and various Spanish explorers, make it clear that in late prehistoric, protohistoric, and early historic times there was regular trade among Pueblo peoples of northern Arizona and New Mexico and numerous agricultural tribes in southern Arizona and northern Sonora, Mexico.

Northern pots and potsherds have been found at a number of sites in the Santa Cruz, including Mission Guevavi, the Tubac Presidio, Mission San Xavier del Bac, a small campsite in what is now west Tucson, and the Tucson Presidio.

In the 1930s, near Mission Guevavi, a small decorated bowl, two or three small plainware bowls, and other artifacts were found eroding out of the bank of the Santa Cruz River. The plainware bowls, one of which had a thickened rim coil, were probably locally made, but the decorated bowl had traveled about 400 miles from its place of origin, the Galisteo Basin south of Santa Fe, New Mexico, possibly from Galisteo Pueblo itself. The designs on the bowl are not particularly diagnostic, and the bowl could date to around either 1375-1400 or 1700-1750. The rim coil on the associated plainware bowl suggests these items were buried in the 1700s, when this treatment was most common on O'odham ceramics.

Excavations at the Tubac Presidio in 1974 yielded 19 sherds from trash deposits that came from several vessels of Kiapkwa Polychrome, a Zuni ceramic type manufactured between about 1770 and 1800.

In 1970, a human inhumation was found just south of Mission San Xavier, in the village of Bac. Buried with this aged, arthritic woman was an array of artifacts, including a heavily worn pottery bowl originally identified by archaeologists as Hopi polychrome. More recently, the bowl has been recognized as Matsaki Polychrome, a Zuni type made between about 1450 and 1680.

In 1981, excavations at a small site in west Tucson revealed an artifact assemblage that included sherds from

a Kechipawan Polychrome jar made in the Zuni area around 1350 to 1450. A hearth at the site yielded a radiocarbon date from the late 1700s.

Recent excavations by Desert Archaeology, Inc., in deposits associated with the Tucson Presidio, have recovered five Zuni potsherds from several different vessels; one sherd is Matsaki Polychrome (1450-1680), and the other four come from pottery made in the 1800s.

Until the 1850s, some Rio Grande groups conducted annual trading expeditions to Sonora, while Zunis preferred that southern tribes visit them. Hopi traders, on the other hand, traveled all over the Southwest.

Prior to European contact, tanned deerskins, paint, pottery, baskets, jewelry, turquoise, woven blankets and belts, buffalo hides, marine shells, parrot and macaw feathers, corn, and cooked agave all circulated among these groups. After European contact, items of metal and glass were also traded.

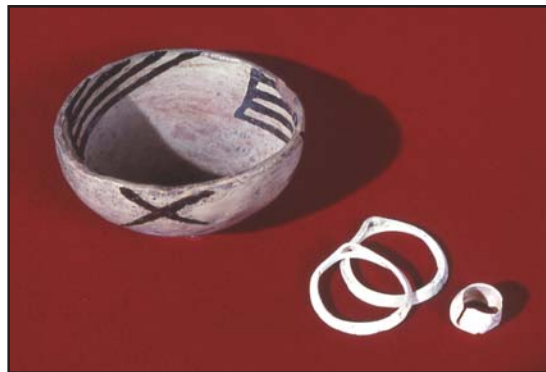
What goods were going north in exchange for the pots found in the Santa Cruz River Valley? Perhaps the most valuable southern commodities would have been seashells and feathers. In 1716, Padre Luis Velarde wrote

that macaws were being raised at San Xavier and neighboring Pima *rancherías* and that the birds were being stripped of their feathers in the spring. Undoubtedly, many of these feathers were traded north, to be used on various Pueblo ceremonial objects.

The northern pottery found in protohistoric sites along the Santa Cruz River shows clearly that southern Arizona was not a "closed system," cut off from outside trade, and that tribes in the area were fully engaged in extensive contacts within the Greater Southwest.



Janelle Weakly



Helga Twines

Top: Kechipawan Polychrome sherds found in west Tucson. (Photograph courtesy of the Arizona State Museum.)  
Bottom: Rio Grande glazeware bowl and shell jewelry found near Guevavi.

# The Tubac and Tucson Presídios

J. Homer Thiel, *Desert Archaeology, Inc.*

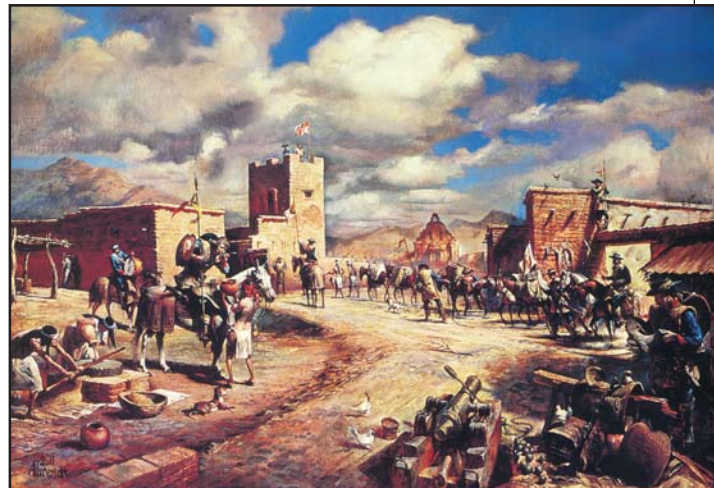
**B**ECAUSE NATIVE AMERICANS did not passively submit to the will of the Spanish conquistadors, the latter retaliated by establishing fortresses—called presidios—to protect their interests. As Spain expanded its territory, new presidios were built. Soon ranchers, miners, and other settlers moved to the area. Missions and *visitas* were constructed near presidios, with priests seeking to convert local Native Americans to Catholicism.

Traveling north into the Pimería Alta along the Santa Cruz River, the Spaniards—including Father Kino in the 1690s—found numerous small Native American settlements, which they called *rancherías*. The residents of these villages included the O’odham, known then as the Pimas and Papagos, who lived in domed huts and grew crops in irrigated fields. Kino pushed for greater Spanish involvement in the region, but it was not until the 1720s that new settlers began to move in. Meanwhile, European-derived diseases were decimating Native American populations, and anger over the Spanish *entrada* grew among the indigenous people.

For 50 years, the O’odham had a good working relationship with the Spaniards. However, by November 1751, interactions between the two groups had soured. Luis Oacpicagigua, the captain general of the Pimas, was insulted by a priest and soon retaliated. The Pimas revolted in Sonora, and the disturbance spread north. They killed more than 100 settlers and forced Spanish missionaries to flee farther south into Sonora. The following year, the Spaniards returned and constructed a presidio at Tubac, which was a small Piman *ranchería* four miles north of the mission at Tumacácori. A garrison of about 50 soldiers was stationed at the presidio, ensuring peace among the local Pimas and protecting the area from the Apaches.

The Tubac Presidio was centered on an L-shaped, fortified captain’s house. Nearby were soldiers’ barracks, stables, a church, a granary, and other structures, with settlers’ homes to the north and south. The fort, which did not have a defensive wall, was at risk as the Apaches became more aggressive.

Captain Hugo O’Conor, an Irishman working for the Spanish military, made an inspection trip of the presidios, arriving at Tubac in mid-August 1775. He was not impressed by the indefensible fort. He and his men headed northward to the Piman *ranchería* of Tucson, a *visita* of the Mission of San Xavier del Bac. At Tucson, O’Conor observed several hundred people cultivating crops in irrigated fields along the Santa Cruz River. The Tucson Ba-



Royal Presidio of San Ignacio de Tubac, circa 1774, by Bill Ahrendt, is an artist’s conception of life at the presidio.

sin narrowed at this point, and a visit to the terrace on the east side of the river suggested that it was a good location. O’Conor formally prepared a document establishing the Tucson Presidio on August 20.

Early in 1776, the Spanish soldiers moved north from Tubac. Don Juan Felipe de Belderrain was in charge of building the new fort, but he mismanaged the money, and construction stalled. As a stopgap measure, a wooden palisade was erected to enclose a few structures. The standardized plans developed for fort construction were not followed. The precarious status of the fort became clear in May 1782, when more than 500 Apaches attacked the Tucson presidio. Only the quick thinking of the commander, who fired the fort’s cannon, prevented the presidio’s complete destruction. Afterward, soldiers hurriedly completed the fort’s adobe walls, enclosing an area measuring about 670 feet on a side. Twenty-foot-tall towers were erected at the northeast and southwest corners of the presidio, allowing soldiers to fire down the lengths of the 10-foot-tall walls in case of attack. It was only after the arrival of American soldiers in 1856 that the fort was no longer needed, and soon it was largely dismantled.

Recent excavations at the Tucson Presidio by the Center for Desert Archaeology and Desert Archaeology, Inc., uncovered segments of the perimeter walls and the adobe foundations of the northeast tower, along with artifacts and food remains discarded by residents of the fort. The City of Tucson plans to recreate the tower and nearby wall segments as part of the Origins Cultural Park. In addition, the Tubac Presidio State Historic Park exhibits the remains of the captain’s house, including an underground archaeology display, and presents the history of the community.

Courtesy of the National Park Service



# Tasting History: Replanting Father Kino's Fruit Trees

Jesús García, Arizona-Sonora Desert Museum

Robert Emanuel, University of Arizona

**C**HARRRED PEACH PITS were found among eighteenth-century artifacts during a 1979 excavation near the restored Spanish colonial church at Tumacácori National Historical Park. They were the only remaining traces of an orchard established by the Jesuit missionary Father Kino in the early 1700s. Mission Tumacácori was a crucial point of contact between European and native worlds during the Colonial period (1691–1821). The national park was enlarged this year and now includes the mission's original five-acre orchard.

In this orchard, Spanish missionaries, including Kino, introduced European fruit trees to southern Arizona. The trees in this orchard were the start of an agricultural revolution for native Tohono O'odham and Sobaipuri farmers, who planted them in their own fields.

Nearly 300 years later, the Arizona-Sonora Desert Museum, the National Park Service (NPS), Desert Survivors Nursery, and Native Seed/SEARCH are working to replant Tumacácori's mission orchard. Together, these partners have embarked on the Kino Fruit Trees Project, an ambitious three-year undertaking funded by the Desert Southwest Cooperative Ecosystem Studies Unit of the NPS. Using historical records from the missionaries, travelers' accounts, and modern oral histories, the Kino Fruit Trees team is working to identify promising sites for Colonial period fruit trees, and perhaps the actual descendants of some trees from the Colonial period.

By some accounts, these trees included peach, quince, pear, apple, olive, walnut, fig, and pomegranate. Together, they made up an important part of the mission community's agricultural livelihood, which also depended on grape vineyards, grain fields, veg-

etable and pharmacy gardens, as well as livestock. The fruit trees and other plants derive from various regions, including

southern Mexico, parts of North America, and Europe, particularly the Mediterranean area.

Because only a few kinds of trees (fig, pomegranate, and quince) are long lived, the goal of the project is to identify stocks rather than individual trees. Thus far, stocks have been identified in mission orchard communities in Sonora, as well as on ranches, abandoned farms, and in the backyards of historic houses in southern Arizona. Cuttings and seeds are being propagated by expert horticulturalists on the team.

Reintroducing Spanish-era stock into Tumacácori's orchard is important not only to the NPS but also to regional efforts that build on the cultural and historical heritage of the Santa Cruz Valley. The story of these trees will help visitors appreciate the many ways in which the mission at Tumacácori transformed the lives of local native peoples. Ultimately, the Kino Trees may be replanted elsewhere in the region, bringing back "a taste of history" to the Santa Cruz River Valley.



Quince and pomegranates for sale in the Magdalena Valley, Mexico.

Jesús García

*Tell us about old stocks of fruit trees in southern Arizona or Sonora. Contact Jesús García (520-883-3089; [jgarcia@desertmuseum.org](mailto:jgarcia@desertmuseum.org)) or Robert Emanuel (520-621-1268; [emanuel@ag.arizona.edu](mailto:emanuel@ag.arizona.edu)).*

## Juan Bautista de Anza National Historic Trail

This national trail commemorates the route followed by the Spanish officer Juan Bautista de Anza, who led an expedition of 198 settlers and 1,000 head of livestock from Sonora to found a presidio and mission at San Francisco Bay, in what is now California, in 1775. The route traversed the Santa Cruz Valley, and the final staging area was the presidio preserved at Tubac Presidio State Historic Park. The expedition opened an overland route connecting Sonora and Alta California, whose missions and presidios were previously isolated. The National Park Service is working with local governments and volunteer groups in Arizona and California to develop the trail as an automobile route linking sites related to Spanish colonial history with portions of the trail developed for hikers, equestrians, mountain bikers, and birdwatchers.



# Excavations at Rancho Punta de Agua

Randall H. McGuire, Binghamton University

**I**N THE SUMMER OF 1855, a German immigrant named Fritz Contzen established the Rancho Punta de Agua approximately three miles south of Mission San Xavier del Bac. Here the water emerged from the bed of the Santa Cruz River and flowed a short distance before disappearing into the sand. Contzen operated the rancho until 1867. Juan Elias, a prominent politician, acquired the property sometime after 1868, and his family lived there until 1877. The creation of the San Xavier del Bac Indian Reservation in 1874 prompted the Elias family to move farther south along the Santa Cruz River. In 1965, the right-of-way for the construction of Interstate 19 included the rancho, and the Arizona Highway Department contracted the Arizona State Museum (ASM) to excavate it. This article is based upon that research.

Rancho Punta de Agua dates to a transitional time in the history of Tucson. In 1854, the United States acquired southern Arizona as part of the Gadsden Purchase. Until the railroad arrived in 1880, however, Tucson remained primarily a Mexican town, more closely linked economically and culturally to Sonora than to the United States. During most of this period, constant Apache raiding made southern Arizona a dangerous place. Apaches attacked the rancho at least twice, and both Contzen and Elias were gravely wounded in fights with Apaches.

The Contzen and Elias families were among the well-to-do citizens of nineteenth-century Tucson. They made their livings from a range of economic pursuits, including ranching, mining, trading with the Tohono O'odham, and hosting travelers. The Elias family had deep roots in southern Arizona; Juan Elias' father was the last Mexican alcalde of Tucson. There were few Anglos in Tucson at the time. Most, like Contzen, spoke Spanish, married into local Mexican families, and participated in Mexican culture.

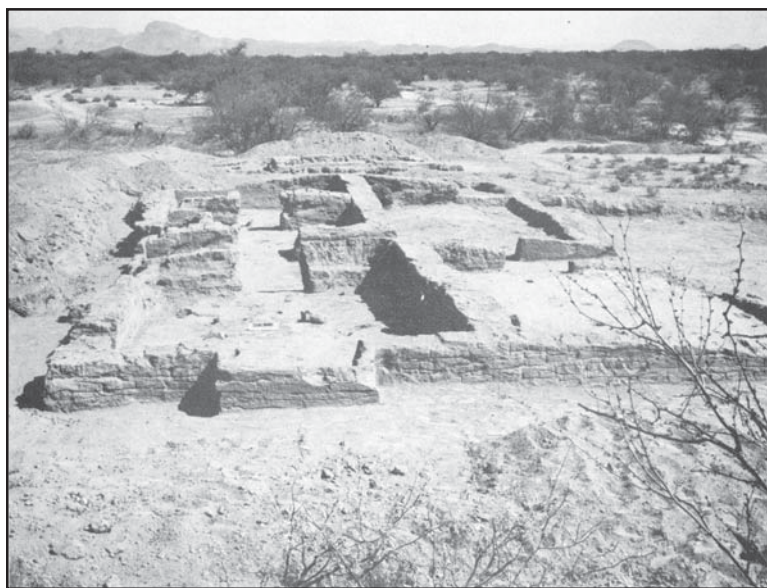
Contzen built what was by local standards a substantial adobe-brick house at the rancho. It consisted of five rooms on either side of a breezeway. In this Anglo floor plan, the breezeway serves as a central hall connecting the rooms, and there is a fireplace along an exterior wall. The house had Mexican features as well, including a flat roof, no wood trim, small windows, an earthen floor, and corner fireplaces in two rooms. An adjacent single-room

adobe structure, with a corner fireplace and an attached ramada, exemplifies Tucson architecture in the mid-nineteenth century.

The rancho was not self-sufficient; both families bought manufactured goods that came by boat to Guaymas, Sonora, or Yuma, Arizona, and then were shipped by wagon to Tucson. The trash the families left indicates they lived similar mundane lives. They appear to have used mainly Tohono O'odham ceramics, because more than 4,500

sherds were found during the ASM excavations. In contrast, more expensive industrially manufactured wares accounted for only about 600 sherds. Whiteware dishes, along with the smattering of other manufactured goods in the trash, were precious. In 1867, a single whiteware plate cost \$2.25, more than a day's wage for an Anglo miner and more than two days' wages for a Mexican miner.

In 1880, the railroad arrived in Tucson, and that event dramatically transformed southern Arizona, both economically and socially. Prices for goods dropped, and opportunities for employment increased for everyone. The railroad also brought in large numbers of Anglo settlers, transforming Tucson into two communities—Anglo and Mexican.



*Rancho Punta de Agua's main ranch house, in 1965.*

Courtesy of the Arizona State Museum



*An 1873 photograph of Fritz Contzen and his son Philip.*



# Stewardship of the Past

William H. Doelle, Center for Desert Archaeology

**INSIGHT INTO WHY** a National Heritage Area has received such strong grassroots support in the Santa Cruz Valley is gained by tallying the investment in stewardship that has already been made or is being planned. While state and federal government play major roles, the local governments have become the stewardship leaders. Even the private sector is heavily involved.

Stewardship includes many elements. Conducting research to obtain new information, interpreting that information, and protecting the places and artifacts of the past are all components of stewardship. The Santa Cruz Valley contains two major curation facilities. The Western Archeological and Conservation Center holds the archaeological collections from the national parks in the western United States, and the Arizona State Museum (ASM) curates collections from thousands of excavations conducted in the state, including hundreds in the Santa Cruz Valley.

The site of Los Morteros is a prime example of the complexity of stewardship. Ellsworth Huntington, a Yale University professor, spent the summers of 1910–1911 in Tucson and the surrounding region (see page 6), talking with local residents and visiting the ancient ruins they told him about, including Los Morteros. Huntington's research was grounded in what is known as "environmental determinism," which posits that a change in the environment creates a change in human behavior; his research in Arizona allowed him to draw conclusions about climatic change over time. Huntington observed that there had been substantial prehistoric populations in areas with no reliable water sources by the time he visited them. Modern

social scientists view change as having more complex causes in most cases, but the role of environment as a key variable is still very strong.

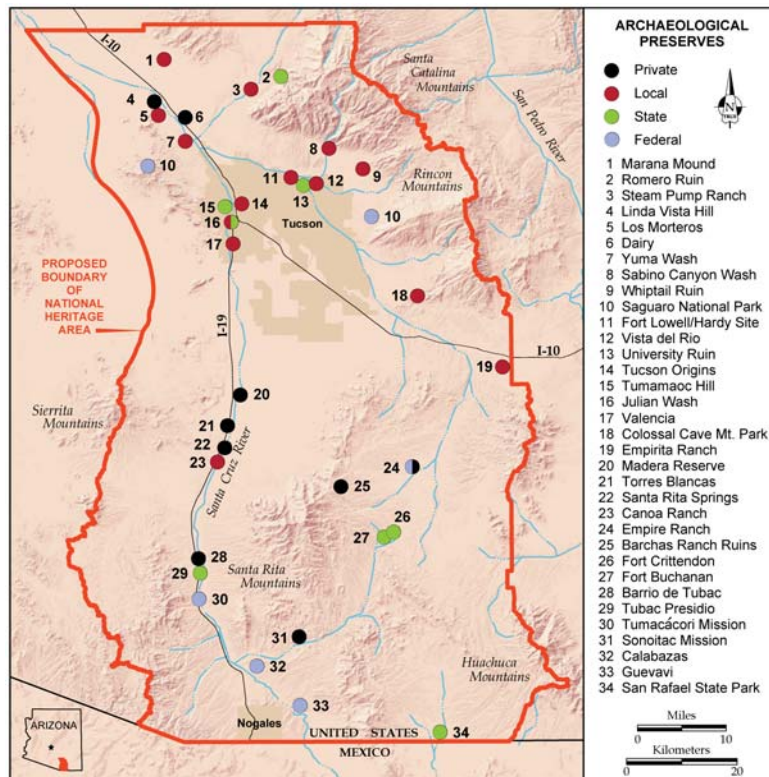
Los Morteros was excavated by ASM in 1979–1983, and by Desert Archaeology, Inc., in the late 1980s. The

central 32 acres of the site was donated to the University of Arizona Foundation. Later, Pima County, where the site is located, purchased that parcel and 155 acres of surrounding site area. The county plans to develop the area into a regional interpretive park.

The role of the private sector in the valley is growing. The Archaeological Conservancy currently owns several sites in the Santa Cruz Valley. It preserves these sites for future research and allows access only through guided tours. The Nature Conservancy owns and manages the Patagonia–

Sonoita Creek Preserve, the location of a *visita* established by Father Kino in the 1690s. The location is protected at present, and plans for future interpretation are under discussion. Recently, the Center for Desert Archaeology began acquiring conservation easements in a large portion of southeastern Arizona, and the Center currently holds one easement in the Santa Cruz Valley.

Stewardship has deep roots in this area, and it has grown rapidly in recent years. Even private citizens can join this effort by becoming part of the Arizona Site Steward Program, in which members monitor archaeological sites in an effort to deter vandalism. A Santa Cruz Valley National Heritage Area would be another significant development in the expansion of stewardship of the region's rich past.



*Within the boundaries of the proposed Santa Cruz Valley National Heritage Area, major commitments to archaeological preservation have already been made or are in progress.*

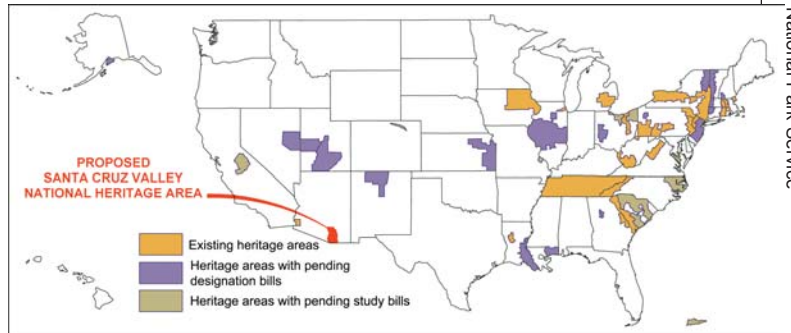
# National Heritage Areas: An Opportunity for the West

Brenda Barrett, National Park Service

**H**ERITAGE AREAS ARE LARGE, LIVING LANDSCAPES where community residents have adopted a strategy to work collaboratively across both political and disciplinary boundaries. They are places where residents and partners have hammered out a common vision based on a region's shared heritage. It is the heritage area strategy to achieve conservation in concert with true community development, whether renewing traditional economic pursuits or finding new ways to sustain the people who give the landscape life. The heritage area approach is successful because it addresses not only the needs of the surrounding environment, but also the needs of the people that live in that environment.

Today, there are a total of 24 congressionally designated national heritage areas and more than a dozen proposals for additional areas. The national heritage areas receive assistance from the National Park Service in planning, resource conservation, and funding. However, the heritage area idea is not unique to the National Park Service, and it is growing in popularity at every level of government. New state heritage programs have joined the established ones in New York and Pennsylvania, and literally hundreds of regional grassroots initiatives are underway across the country.

Until recently, most of the national heritage areas were located in the eastern part of the United States, including New York's Hudson River Valley, the steel mills of Pennsylvania, and the automobile complexes of southeastern Michigan. The fragmented nature of local governments and the complex layering of historical stories in the East made a cooperative approach to conservation a necessity. The West has been slower to follow this path. The only



Currently only two national heritage areas are located in the west.

western heritage areas are the Cache La Poudre River Corridor in Colorado and the Yuma Crossing National Heritage Area in Arizona.

The heritage area approach of local leadership and management of resources is an appealing idea for western communities. Charles Flynn, executive director of the Yuma Crossing National Heritage Area, described the process of creating a heritage area as giving his community a sense of control over its destiny in a region with an overwhelming federal presence. The Yuma region was able to reach consensus on plans for the future and enlist federal agencies and the Quechen and Cocopah Indian Nations as partners. In the 108th Congress, bills to designate heritage areas have been introduced for the Great Basin in Nevada and Utah; the Mormon Pioneer Trail in Utah; and the northern Rio Grande in New Mexico.

These proposed new western areas would showcase strong partnerships with National Park units, spectacular landscapes, and diverse stories. This new path offers the potential to view historic preservation's mission in a broader context and to build needed support among residents and their political leaders. For more information, visit [www.cr.nps.gov/heritageareas](http://www.cr.nps.gov/heritageareas).

See the Center for Desert Archaeology website for more information: <<http://www.cdarc.org>>

**T**HE CENTER FOR DESERT ARCHAEOLOGY, a private, nonprofit organization, promotes stewardship of archaeological and historical resources through active research, preservation, and public outreach. The Center is a 501(c)(3) organization and is supported through donations, memberships, and grants from individuals, foundations, and corporations. Center members receive an annual subscription to *Archaeology Southwest*, substantial discounts on other Center publications, opportunities to participate in archaeological projects, and invitations to special lectures and events. For more information or to join, contact Linda Pierce, Programs Manager, at 520.882.6946 or [lpierce@cdarc.org](mailto:lpierce@cdarc.org).

Board of Directors: William H. Doelle, Ph.D. (President & CEO), Benjamin W. Smith (Vice President), Diana L. Hadley (Treasurer), and Gary A. Hansen (Secretary). Administrative Staff: Linda J. Pierce (Programs Manager), Sally A. Thomas (Office Manager), and Tobi Taylor (Content Editor, *Archaeology Southwest*). Preservation Archaeologists: Jeffery J. Clark, Ph.D.; Chip Colwell-Chanthaphonh, Ph.D.; Jacquie M. Dale, M.A.; Douglas W. Gann, Ph.D.; Brett Hill, Ph.D.; Patrick D. Lyons, Ph.D.; and Paul F. Reed, M.A. Preservation Fellows: Anna A. Neuzil, M.A., and James M. Vint, M.A.

*Archaeology Southwest* (ISSN 1523-0546) is published quarterly by the Center for Desert Archaeology. Copyright 2004 by the Center for Desert Archaeology. All rights reserved; no part of this issue may be reproduced by any means without written permission of the publisher. Subscription inquiries: 520.882.6946.

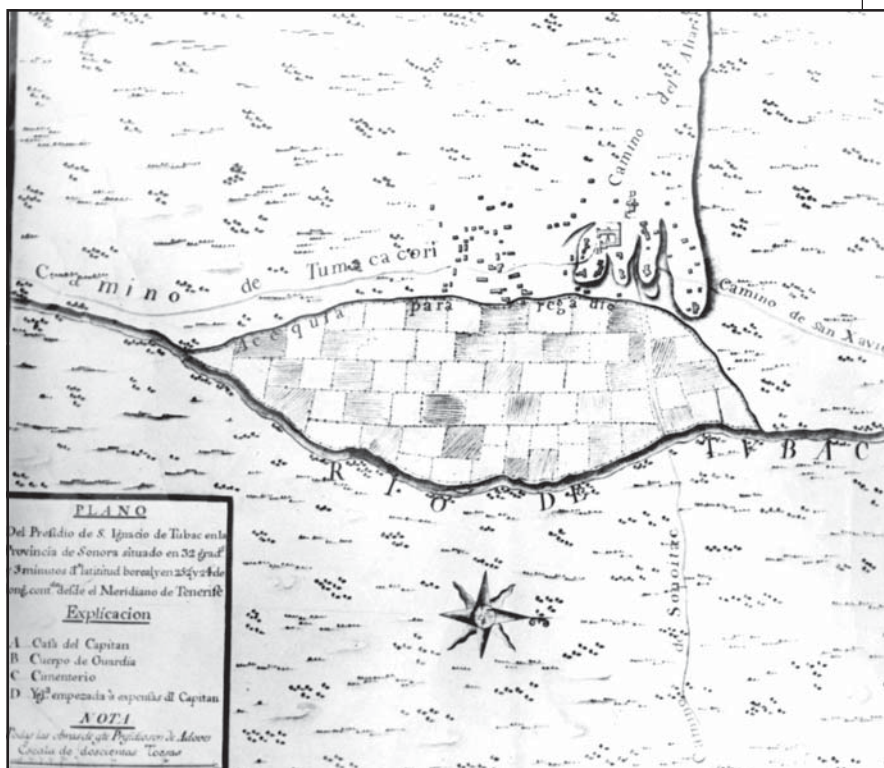


## Back Sight

**B**ECOMING IMMERSED in the process of creating a Santa Cruz Valley National Heritage Area has been easy. The Santa Cruz Valley is where most Center personnel have lived for decades. It is both fun and rewarding to search for lesser-known historical resources and revisit some well-known places in order to share them with a broader audience. This issue of *Archaeology Southwest* has been a vehicle for getting to know our own community even better.

That is the beauty of heritage areas. If they are to succeed, they must be based in the community. As the Center's mission of research, public involvement, and preservation has developed, it has become increasingly clear to us how important the relationships with local communities are to our success. It is a way of doing archaeology that is very time intensive. Ties with people and local institutions must be initiated, nurtured, and renewed in an ongoing process. The reward is to see how well it works when done right.

Heritage areas provide new opportunities for community-based archaeology for the Center. As we have worked to help create a Santa Cruz Valley National Heritage Area, we have learned a great deal. The extensive grassroots networks that are needed are the source of strength that will sustain a heritage area. They create a potential for funding from a wide variety of sources that translates into meaningful economic activity. It is that combination, enhancing a community's sense of place while expanding economic opportunities, that is especially promising.



*This 1766 map of Tubac illustrates a recurrent theme through the last 4,000 years in the Santa Cruz Valley. It shows the public architecture, the residential buildings, and the field system, reminding us that communities for millennia have been based on social institutions and practices that ensure the effective delivery of water to households and fields. Archaeology has revealed some of the diverse ways that communities have organized to accomplish this over time.*

*William H. Doelle*

William H. Doelle, President & CEO  
Center for Desert Archaeology

**back sight** (băk sīt) n. 1. a reading used by surveyors to check the accuracy of their work. 2. an opportunity to reflect on and evaluate the Center for Desert Archaeology's mission.

Center for Desert Archaeology  
*Archaeology Southwest*  
300 E. University Blvd., Suite 230  
Tucson, AZ 85705

NONPROFIT  
ORGANIZATION  
U.S. POSTAGE PAID  
TUCSON, AZ  
Permit No. 878