

# ARCHAEOLOGY IN TUCSON

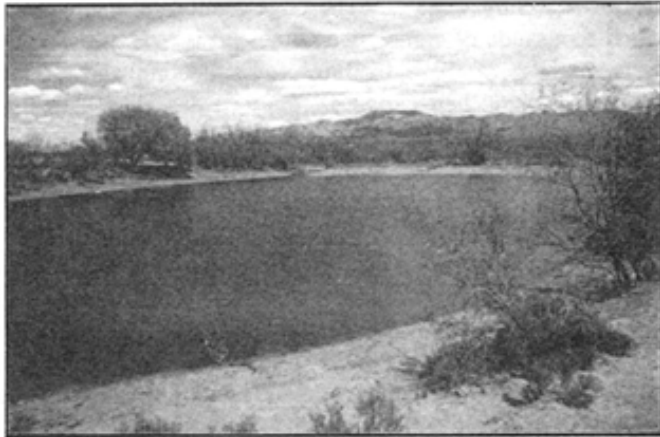
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October 1992

## HOHOKAM RESERVOIRS AND THEIR ROLE IN AN ANCIENT DESERT ECONOMY

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*Figure 1. A modern "charco," or reservoir, in the Baboquivari Valley, at the modern village of Ali Chukson on the Tohono O'odham Reservation. This charco may be quite similar to prehistoric reservoirs utilized by the Hohokam in the nonriverine areas of southern Arizona. Photo by Jonathan B. Mabry.*

The remarkable development and desert adaptation of the prehistoric Hohokam has long impressed explorers, settlers, and later, archaeologists who came to live and work in arid central and southern Arizona. Because rainfall is so limited in this parched region, a key problem facing the Hohokam was the collection and storage of enough water not only to quench their own thirsts, but also to farm in a dry, hostile environment. For many years, Hohokam archaeologists were fixated on studying the large-scale canal irrigation systems that the ancient Hohokam had built in the Phoenix Basin. These canals were highly effective devices for tapping the waters of the Salt and Gila rivers for use in Hohokam fields and villages. With relatively few exceptions, most early archaeological excavations in southern Arizona were undertaken at so-called "core area" Hohokam sites like Los Muertos, Pueblo Grande, the Casa Grande, and Snaketown.

Since these large "core area" sites are all associated with an extensive network of irrigation canals, a perception of the Hohokam as riverine-based agriculturalists became crystallized and reinforced. To point out how different the Hohokam of the Salt and Gila river valleys were from their counterparts living in the comparatively unwatered regions of the Sonoran Desert (such as the Tucson Basin and the

Papaguería—the vicinity of the Tohono O'odham Indian Reservation), Arizona's most famous archaeologist, Emil W. Haury, even referred to the people of these drier areas as the "Desert Branch Hohokam." Until fairly recently, Hohokam populations in these nonriverine areas were perceived to be of secondary importance in greater Hohokam society, and the Phoenix Basin was long viewed as an economic center for prehistoric central and southern Arizona (much as it is today). A common explanation for the apparent contrast between the Phoenix Hohokam and "everybody else" was that canal irrigation systems required an advanced organizational system, in other words, "people in control," for their design, construction, and maintenance. Moreover, because large-scale canal irrigation was simply not feasible in Hohokam settlements outside the greater Phoenix area, it was thought that the "Desert Branch" Hohokam never developed and flourished to the extent of their neighbors.

A tremendous amount of recent archaeological survey and excavation, however, has produced evidence that the Hohokam "regional system" was more diverse than previously thought. In the vast deserts between Tucson and Phoenix studies by institutions like Arizona State University, the Arizona State Museum (University of Arizona), and the Museum of Northern Arizona have resulted in the discovery of a number of extremely large Hohokam sites. For instance, the Northern Tucson Basin Survey, directed by Paul Fish, Suzanne Fish, and John Madsen (and reported in the last newsletter) encompassed five large Hohokam platform mound settlements occupied during the Classic period (AD. 1100-1450).

It is only now beginning to be understood how some of the large and organizationally complex Hohokam communities were able to develop and sustain themselves in some of the most arid reaches of the Sonoran Desert without the benefit of extensive irrigation systems. Recently it has been recognized that one alternative to the use of canals for collecting and storing water was the use of large earthen reservoirs. Interestingly, a number of reservoirs were discovered between Tucson and Phoenix by the Northern Tucson Basin Survey. Many of these water storage facilities were documented while I was a project member. I became so intrigued with the potential role they may have played in the growth of the large communities we encountered on

survey that I began to wonder if the conventional thinking that Hohokam reservoirs were incapable of perennial water storage was an accurate interpretation.

**YEAR-ROUND WATER STORAGE IN HOHOKAM RESERVOIRS?** Although several lines of evidence can be employed for determining whether or not Hohokam reservoirs were capable of perennial water storage, many archaeologists have emphasized historic accounts of "charcos" (Figure 1). the reservoirs used by the Tohono O'odham Indians who inhabited nonriverine parts of southern Arizona historically. Anthropologists who studied their lifeway near the turn of the present century observed that many households practiced what has come to be known as a "dual-village" settlement system. That is, households would spend their summers in lowland desert villages where they grew crops and consumed water from reservoirs. Following the end of the summer rainy season and the harvest of their crops, they moved to mountain or "well" villages for the winter as the supply of water in their lowland reservoirs dwindled.

A number of archaeologists have invoked this historically documented dual-village pattern for interpreting Hohokam settlement and land use in areas where canal irrigation could not be practiced. If part of the reason the historic Tohono O'odham had to move between villages yearly was because their lowland reservoirs were drying, then perhaps the Hohokam also moved yearly for this same reason. This view, however, is at odds with the fact that we now know of very large Hohokam settlements with earthen platform mounds, numerous houses, "trash mounds," and extensive agricultural fields. These observations suggest that maybe Hohokam families did not move from one settlement to the next like the historic Tohono O'odham. Could it be the Hohokam were able to store so much water in their reservoirs that movement like this was not necessary?

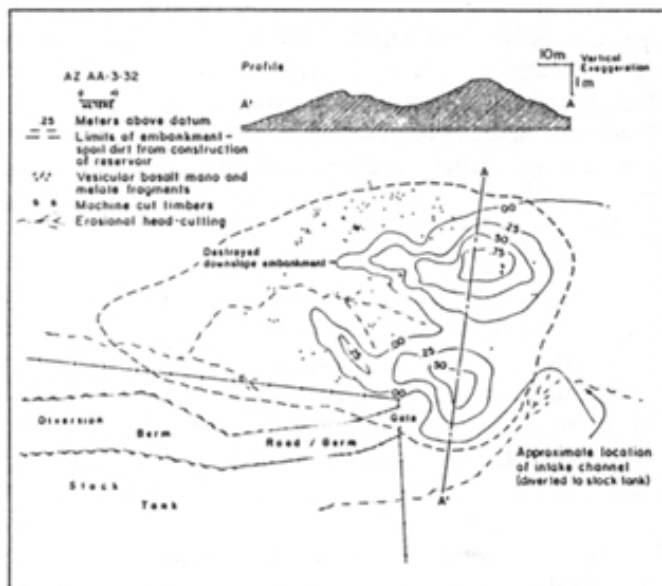


Figure 2. Contour map and profile of the ancient Hohokam reservoir at site AZ AA:3:32 (ASM), between Tucson and Casa Grande, Arizona.

Surprisingly, one possible answer to this question comes from modern livestock reservoirs, or "cattle tanks"! Much of the land we examined on the Northern Tucson Basin Survey is currently used as pasture by modern-day ranchers. We observed dozens of cattle tanks as we surveyed the desert for prehistoric Hohokam sites. There are a notable number of similarities between these modern cattle tanks and the remnants of prehistoric Hohokam reservoirs we found on survey. Both modern tanks and the prehistoric reservoirs, for example, are elliptical depressions bordered by large earthen embankments (compare Figures 1 and 2). The embankment at the upslope end of the tank or the ancient reservoir is always open to allow the intake of surface water following rainy weather. The large number of cattle tanks (and thousands of cattle!) we witnessed is evidence for the effectiveness of these facilities for collecting and storing water for cattle herds roaming the vast desert ranches that were visited on survey. More often than not, the cattle tanks we encountered had a fairly substantial amount of water, even during the hot, and often dry, summer months.

To confirm whether or not some of the modern cattle tanks really do contain water on a perennial basis, I examined records of surface waters (including tanks) held by the State of Arizona's Division of Hydrology. Fortunately, information was available on cattle tanks in the general area we examined on the Northern Tucson Basin Survey, as well as for the dry Papaguería south and west of Tucson and Phoenix. A search of these records revealed that some cattle tanks—especially large ones—hold water for 12 months of the year (Figure 3), and others less. Even with continued evaporation, the deepest ones are capable of yielding water throughout an annual cycle. Of note, though, is a report on historic Tohono O'odham settlement for the United States Indian Service in 1915, which observed that even reservoirs that were only about 10 feet deep generally held water on a perennial basis, even though a large number of cattle consumed water from these features.

Archaeological excavations of Hohokam reservoirs have revealed that some of them are very, very deep. In fact, in 1981, archaeologist Allen Dart, now with Desert Archaeology, Inc., directed the Arizona State Museum's archaeological excavation of a Hohokam reservoir that was a full 20 feet in depth. Among the items recovered from this reservoir were shells of a terrestrial snail species that tends to live along the edges of waterways or standing water. These snails may have fallen into the ancient reservoir while it was still in use, or could have lived in moisture-laden sediments that filled the reservoir once it was abandoned.

Further suggestive evidence for perennial water storage in Hohokam reservoirs was identified by archaeologist Bruce Masse in his report on excavations of Hohokam cultural features at the Tohono O'odham Reservation site of Gu Achi, which contains an ancient reservoir. Among items recovered from a prehistoric shade structure and from a buried layer of charcoal near the reservoir were the bones of

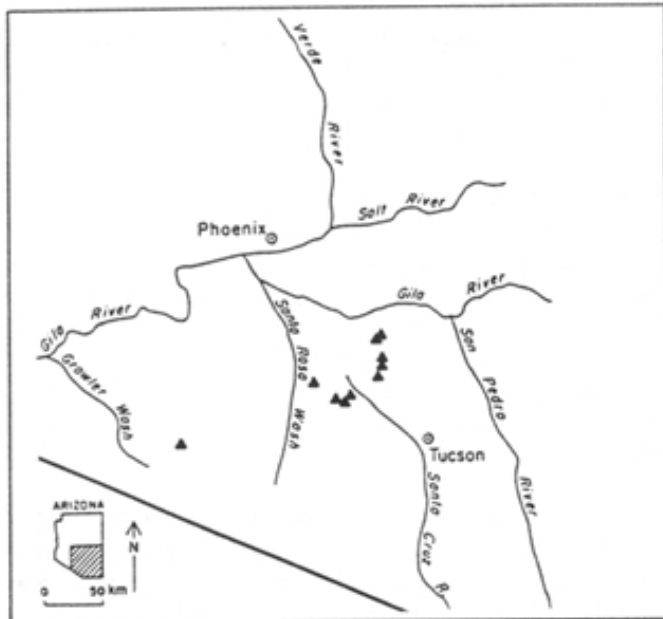


Figure 3. Locations of modern southern Arizona cattle tanks that hold water throughout the year.

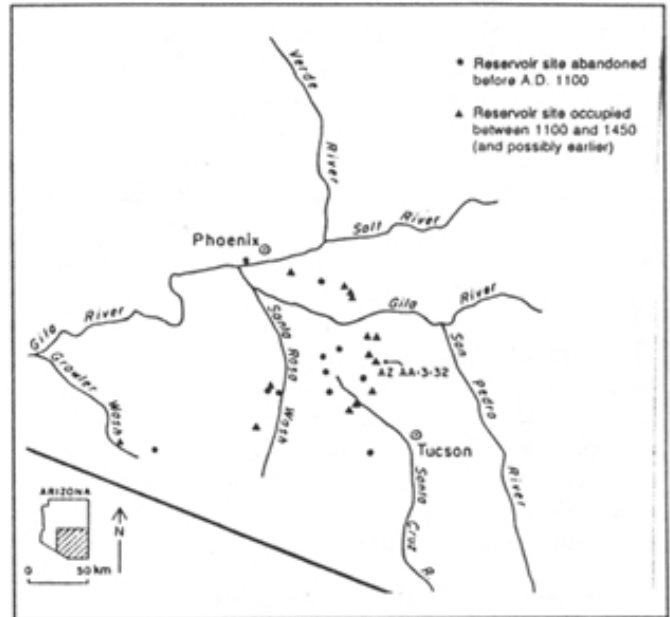


Figure 4. Locations of the ancient Hohokam reservoirs that have been identified in southern Arizona.

a mud turtle (*Kinosternon* sp.) and fragments of a plant identified as *Phragmites*, a kind of aquatic reed. Because both mud turtles and *Phragmites* reeds can only live in environments where there is permanent water, these finds strongly suggest that the Gu Achi reservoir held water year-round. My own research on a reservoir at AZ AA:3:32 (ASM), a large archaeological site of the late Classic period (A.D. 1300-1450) east of the Picacho Mountains (Figures 2 and 4), has also recovered pieces of an ancient aquatic plant. Augering of this reservoir revealed a total depth just under 13 feet, not including the additional height (and therefore, the added depth) of the embankments. Thus, it seems clear that prehistoric Hohokam villages could have met their requirements for water through the construction of deep, earthen reservoirs. Water retrieved from these features could have been used not only for human consumption but also for activities such as manufacturing adobe for the construction of houses and for food preparation. (On the embankments of the reservoir at AZ AA:3:32 there are no fewer than 135 pieces of ground stone used for processing plant foods, including corn and wild seeds.) This water would certainly have been necessary for building the large adobe structures at AZ AA:3:32 (Figure 5), which is situated in an area without access to major natural water sources.

**WATER STORAGE AND THE REGIONAL HOHOKAM ECONOMY.** Widespread construction of reservoirs capable of perennial water storage was an important economic adaptation of the Hohokam. In a series of papers, archaeologist David Wilcox has argued for a Hohokam "regional system," which he defines as a network of economically and socially interacting Hohokam communities. These communities were linked and integrated through the exchange of goods and services, and the entire regional system was centered on the distribution of ballcourt

villages and platform mounds across much of central and southern Arizona.

What once seemed to be an unsolved problem with Wilcox's interpretation was the nature of exchange and communication between villages separated by substantial geographic distances, such as the communities of the Phoenix and Tucson basins. The identification of previously undiscovered large villages in the intervening desert between these two regions provides a partial solution to this problem. Another part of the solution lies in new evidence that some of these villages had reservoirs capable of perennial water storage. Establishment of these villages in the dry, hot desert away from the Salt, Gila, and Santa Cruz rivers was made possible through earthen reservoirs (Figure 4). Hohokam villages in this intermediate area were in a geographically ideal position to facilitate (and perhaps regulate) the exchange of shell jewelry, salt, pottery vessels, food, and many other items traded among the communities of the Tucson and Phoenix areas. As Figure 4 shows, a number of villages with reservoirs are located in the desert between Tucson and Phoenix. Trade between the two regions was probably greatly enhanced because travel across this desert was improved through the establishment of villages with reservoirs. There also seems to be a linear distribution of reservoirs from the Phoenix area southward along the Santa Rosa Wash and to the south and west (Figure 4). The Papaguerian region where this secondary 'line' of reservoirs has been identified probably had even more reservoirs that have not yet been discovered because only a very limited amount of archaeological survey has been conducted to the west. At any rate, villages in this territory could have been heavily involved in the acquisition, production, and trade of shell jewelry and salt from the Gulf of California to the Southwest.

Suzanne Fish and I proposed in a recent publication that the regional and spatial co-occurrence of prehistoric reservoirs and agricultural fields is evidence that the Hohokam began to increase their use of desert lands away from the major rivers after A.D. 1100. This increased use of marginal land greatly increased the ability of the Hohokam to produce their own food supplies. If they were able to grow an excess of food, they might have been able to trade their surpluses for rare or exotic items that have been found in Hohokam Classic period sites, such as shell jewelry from the Gulf of California and the Pacific Coast, and obsidian and decorated pottery from northern and eastern Arizona. In other words, villages with reservoirs, and the water they contained, may have been the "glue" that held the so-called Hohokam regional system together. Without these reservoirs, trade and communication between settlements in Tucson, Phoenix, and other widely separated areas of the Sonoran Desert would have been much more difficult and restricted.

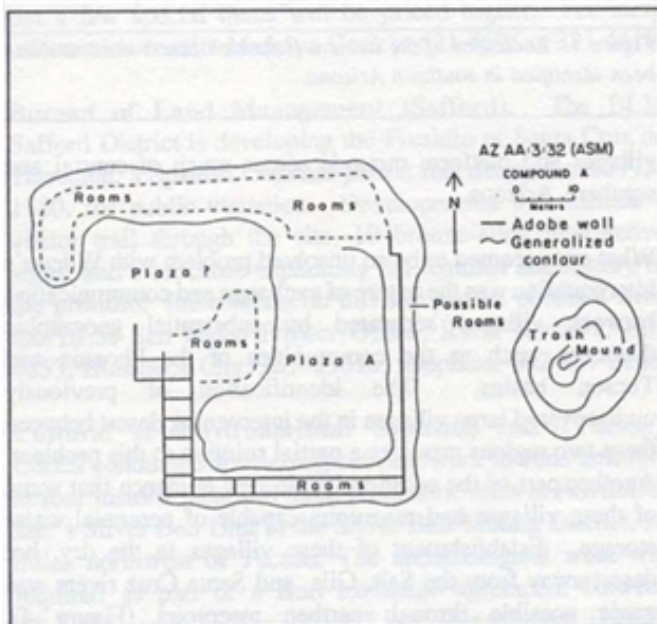


Figure 5. Besides its prehistoric reservoir, site AZ AA:3:32 (ASM) also has been found to contain extensive architecture of the Hohokam Classic period.

**UNANSWERED QUESTIONS.** There is accumulating evidence that Hohokam reservoirs allowed perennial water storage. Even though the Hohokam resided in a dry, hot desert environment, they were not constrained to live only along perennial rivers or near mountain springs. Because of their skill in collecting and storing water in earthen reservoirs, they were free to establish villages in a variety of desert areas. How they organized their own society to construct and maintain these facilities, however, is a problem that remains to be researched. Since many Hohokam reservoirs are associated with large villages wherein lived many households, some form of social and economic cooperation would have been necessary.

Because the Hohokam engineered one of the largest prehistoric canal systems in the world, there has long been

a debate among archaeologists about whether the establishment and maintenance of Hohokam irrigation canals required a highly formalized political system or not. Some archaeologists have argued that Hohokam canals started out small and were merely extended over several hundred years by people who cooperated at the household and, occasionally, the village level. If this is true, the vast network of canals we see today is not nearly as complicated as might first seem apparent. But other archaeologists believe Hohokam canal systems were too sophisticated and complex to have been constructed and managed by individual households. These researchers have speculated that large, well-organized parties of labor must have been mobilized and coordinated by some form of centralized leadership.

A major unanswered question, therefore, is how were desert reservoirs constructed and maintained? When compared to canals, the construction and operation of reservoirs was probably a fairly simple task that one household, or perhaps just a few, could accomplish. The likelihood is low that the management of reservoir water played an important role in the centralization of leadership, as water management may have done in canal irrigation communities. By contrast, some form of leadership within these interior desert communities may have emerged to coordinate the exchange of exotic craft items among the riverine communities of the Phoenix area and the Tucson Basin.

Future research at Hohokam desert villages is required to address this issue. If these villages did have a leading position in the Hohokam regional economic system, excavations at these sites should reveal a relatively large number and diverse range of the goods that were traded. Alternatively, these villages may not have been all that important in the communication network, and they might have only been established in the desert "wasteland" because of overcrowding in the more desirable river valleys. In either case, the construction of reservoirs capable of perennial water storage was an important practice that allowed the Hohokam to inhabit large expanses of Sonoran Desert land far away from major water sources.

### Tucson Presidio Exploration Begins

In December of 1954, archaeologists from the University of Arizona exposed the northeast corner of the Tucson Presidio wall, and found beneath it a Hohokam pithouse that was roughly 1,000 years old. Both the Presidio wall and the pithouse are visible in the photo on the right.



From October 12 to October 23, archaeologists and volunteers from the Center for Desert Archaeology will excavate three trenches in the courtyard of the Pima County Courthouse to determine whether an additional portion of the wall is preserved there. The public is welcome to visit the excavations from 8 AM to 4 PM weekdays.



## Stabilization and Trail Development Scheduled for the Romero Ruin

The Coronado National Forest and the Arizona State Parks Department recently agreed to provide the Center for Desert Archaeology with federal money and an Arizona Heritage Fund grant to help protect and interpret the Romero Ruin. Situated in Catalina State Park just north of Tucson, the Romero Ruin is a significant prehistoric and historic period site. It was first inhabited by the Hohokam, probably beginning some time before A.D. 600 and continuing until around A.D. 1450, when it was abandoned and fell into ruins. However, in the mid-19th century the Hohokam ruins, which by then were known as "Pueblo Viejo," were reoccupied by a Mexican rancher, Francisco Romero. Romero reportedly rebuilt three of Pueblo Viejo's prehistoric rock structures and also constructed an enclosing wall as protection against Apaches. Romero evidently abandoned his buildings at the Pueblo Viejo location by about 1880, after Apache raiding

ended and it became safe for him to move down into the lowlands closer to the Santa Cruz River.

In the Center's upcoming project, the walls of one of the historic period rooms and two segments of the compound wall

that enclosed the prehistoric village will be stabilized. Some archaeological excavation will be necessary to recover any information that might be destroyed as the stabilization work proceeds. Also, new benches and shade structures will be put up along an interpretive trail that has already been established through the ruins, and several photoengraved aluminum signs will be produced and installed along the trail route to help interpret the archaeology of this important ruin.



Presidio wall and prehistoric pithouse exposed in 1954. Photo courtesy of the Arizona State Museum, University of Arizona.

## Lower San Pedro Volunteer Survey Will Resume in November

Through its *Archaeology in Tucson* program, the Center for Desert Archaeology has identified over 300 archaeological sites in the lower San Pedro River valley, east of Tucson, in the past three years. Some of the ruins visited and recorded so far during our Lower San Pedro survey contain large "platform mounds" evidently constructed for religious or civic ceremonies. Others include Hohokam ballcourts (including one of the biggest courts known). And many sites exhibit traces of ancient architecture, agricultural features, and abundant pottery, including the black-and-white-and-red "polychrome" ceramics types rarely seen in the Santa Cruz Valley where the City of Tucson is located.

### Lower San Pedro Survey Dates

**Sunday November 1**  
**Saturday November 21**  
**Sunday December 6**  
**Saturday December 19**

Starting in November, members of *Archaeology in Tucson* will again have opportunities to help seek out previously unrecorded archaeological sites, when the Center resumes its

explorations in the San Pedro Valley between the communities of Redington and Benson. The dates scheduled for the fall archaeological survey season are shown in the box. To participate in this survey you must be a member of *Archaeology in Tucson*; must be in good enough health to walk long distances, including up and down hills; and *must call Project Director Jim Bayman in advance to make reservations for whichever day( s) you wish to participate in the survey.* It is important that you call and make your reservations, even if you participated in last spring's surveys, so that project planners do not have to spend time on the day of the survey selecting additional survey locations, reassigning new areas to qualified crew leaders, and realloting different numbers of people to each survey crew, just because more people showed up than were planned for. If you wish to participate in the Lower San Pedro survey this fall please call Jim Bayman at 881-2244.

## Murray Springs Trail to Be Improved

Under a contract between the Bureau of Land Management and the Center for Desert Archaeology, archaeologist Bruce Huckell will spend two months to help establish a selfguiding trail system at the Murray Springs site in the San Pedro Riparian National Conservation Area. Murray Springs is a camp and kill site where Clovis hunters of the Paleoindian tradition slew at least one mammoth and dispatched a small herd of bison. The project includes designing text and graphics for about a dozen interpretive signs to be placed at various locations, and for a kiosk to be built at a high overlook along the trail. Also, a brochure will be prepared describing the Clovis culture, Clovis occupation of the San Pedro Valley, and aspects of the late Pleistocene-epoch ecology of the area.

## Southern Arizona Archaeology

### Current Events on the Archaeology Scene

#### **Arizona Archaeological and Historical Society (Tucson).**

On Friday, October 30, the Society will host a used book sale to benefit the Arizona State Museum Library, which maintains one of the best collections of publications on Southwestern anthropology and archaeology in the United States. The sale is open to the public. It will be from 9 AM to 3 PM in the Arizona State Museum's North Building, just inside the University's main gate at the northeast corner of the Park Ave. and University Blvd. intersection. Most materials will be sold at prices between 50 cents and \$5.00, but a few special items will be priced higher. For more information contact Madelyn Cook at 621-4695 or 321-4619.

**Bureau of Land Management (Safford).** The BLM Safford District is developing the Presidio of Santa Cruz de Terrenate, a Spanish Colonial period fort dating from 1775-1780, for public visitation. Developments will include a visitor trail through the site, 10 bronze-alloy interpretive signs, and a brochure explaining the features and history of the presidio. Information on this site can be obtained from the BLM San Pedro Project Office, Rural Route 1, Box 9853, Huachuca City, AZ 85616, telephone 602-457-2265.

**Cultural & Environmental Systems, Inc. (Tucson).** C&ES conducted archaeological fieldwork in June and July at four historic sites and three prehistoric sites at ASARCO, Inc.'s Silver Bell Unit in the Silver Bell Mining District, 35 miles northwest of Tucson. The archaeological work was required as part of a land exchange agreement between ASARCO and the Bureau of Land Management (BLM). The historic sites include two cemeteries (AZ AA: 10: 12 and AZ AA:10:26) that were associated with the mining town of Silverbell; a large mining operation and camp designated the Tin House Well site (AZ AA:10:15); and a small mining camp known as the Happy Hour site (AZ AA:10: 13), whose name was inspired by the abundance of alcoholic beverage bottle glass present. No excavations were conducted at the two Silverbell cemeteries, which are being preserved, but the sites were mapped in and a thorough photographic record of graves and grave markers was made. The majority of the research that will be conducted for these two sites will be archival in nature and will be done by Jim Ayres, the project's historic archaeological consultant. Test and data recovery excavations were conducted at the Tin House Well site, whereas intensive surface collection was the primary task at the Happy Hour site (which is located on bedrock). Preliminary artifact analysis indicates both sites were occupied between 1900 and 1920, the same time when a mining boom in the Silver Bell Mining District led to the establishment of the town of Silverbell and the construction of the Arizona Southern Railroad.

Prehistoric sites AZ AA:10:23 and AZ AA:11:96 proved to be primarily surface manifestations consisting of ceramic, chipped stone, and ground stone artifact scatters that date to the late Sedentary and early Classic periods (ca. A.D. 1000-1300). The third site investigated, AZ AA:10:21, appears to be a pre-A.D. 750 (Pioneer period) Hohokam village that may also have been occupied prior to A.D. 500 during the Late Archaic period. During surface collection of this site and excavation of 10 test trenches, numerous artifact types were recovered including chipped stone, ground stone, and plainware and redware ceramics, but no decorated wares were found. Approximately 10 pithouses, several small pits, and two burial features (an inhumation and a cremation) were found during trenching. After consultation with the BLM and the Tohono O'odham Nation, the human skeletal remains were fully excavated and repatriated on the Tohono O'odham Reservation. Data recovery excavations at AZ AA:10:21 will begin in the near future.

In June, C&ES conducted another test excavation as part of an ASARCO land exchange agreement with the BLM. This work was at AZ DD:4:202, a historic mining camp next to the San Xavier Mine in ASARCO's Mission Mine Unit southwest of Tucson. The site consisted primarily of a light density trash scatter, although one probable habitation feature was indicated by the remnants of a stove, ashes, and a higher density of food preparation and consumption artifacts. Initial analysis of the artifacts recovered suggests the camp was occupied from 1900 to 1930.

**Desert Archaeology, Inc. (Tucson).** Remnants of a structure found during DAI's excavation this past spring at the intersection of Church and Alameda streets in downtown Tucson are evidently ruins of a house occupied by Tucson's first mayor, Sidney R. De Long, and his wife, Maria, in the early 20th century. Mr. De Long was first elected Tucson's mayor in 1871. That same year he helped lead a band of Tucson citizens to the confluence of the San Pedro River and Aravaipa Creek, to slaughter scores of Apache Indians during the infamous Camp Grant Massacre. Mr. and Mrs. De Long both died in 1914. A report on this excavation and previous work that uncovered part of a historic cemetery nearby along Alameda Street (see *Archaeology in Tucson*, March 1992) is still being prepared.

A survey on the Tohono O'odham Reservation for the Indian Health Service identified 10 archaeological sites along the course of a water line running 4.5 miles southeastward from the village of Pisinimo. Most of the sites are dispersed artifact scatters associated with roasting pits. Clustered around two major wash systems in an area where the

entrenched arroyos fan out into smaller channels, they appear to have been used for agriculture-related activities.

Some prehistoric archaeological material was found during a survey for the Arizona Department of Transportation along both sides of Interstate 10 between Prince Road and Speedway Blvd. in Tucson. However, perhaps the most interesting archaeological site present there is the St. Mary's Dump site that was used in the late 19th and early 20th centuries. This large dump is now bisected by the interstate but still contains a wealth of historic archaeological material.

**Pima County Department of Transportation & Flood Control District (Tucson).** The first of a set of integrated historical exhibits is now open in the lobby of the Pima County Administration Building at 130 West Congress.

"From Pimería Alta to Statehood" provides an overview of the prehistoric and historic foundations of Tucson and Pima County, honors our rich cultural heritage, and commemorates the establishment of the Royal Spanish Presidio of San Agustín del Tucson on August 20, 1775, some 217 years ago. The exhibit also acknowledges that Tucson has had more than one "founding." Seven of the flags that have flown over this city and the rest of southern Arizona hang in a semicircle from the 12-foot ceiling of the Administration Building lobby surrounding the Great Seal of Pima County. Panels with text, historic maps, old photographs, and other illustrations address the major historical episodes. An exhibit case with representative artifacts will be installed in the near future. Other exhibits planned for installation in Pima County buildings include: "Tucson: Spanish Mission and Presidio," which will be placed in the lobby of the Old Courthouse, and "Territorial Tucson and American Expansion," which will be installed in the lobby of the Public Works Center.

Pima County Department of Transportation plans to realign a segment of Irvington Road in the vicinity of Mission Road and Wyoming Street. This will result in impacts to a portion of the West Branch Site, AZ AA: 16:3 (ASM). Previous work by the Institute for American Research (now Desert Archaeology, Inc.) in 1984 at the Wyoming Street locus identified the presence of Hohokam house clusters on the remnant river terrace west of Mission Road. The new alignment of Irvington will be constructed due west of Mission Road from this previously investigated location. Numerous pithouses and other features are likely to be present, and consultation with the Tohono O'odham and the Arizona State



*Painted design on the inside of a Middle Rincon Red-on-Brown bowl that was recovered from the West Branch site excavations in 1984. Sketch by Myra Tuggle.*

Museum (University of Arizona) has been initiated. Statistical Research, Inc. will conduct the testing program for Pima County beginning in mid to late October. Data recovery efforts are likely to be conducted soon after the testing program due to construction schedules.

**SWCA, Inc. (Tucson).** Limited excavation and surface collection were recently initiated at several sites near the Guevavi Mission in the new Calabazas State Park, near Nogales. These sites include materials from prehistoric, protohistoric, and historic periods.

A recent survey in the Avra Valley west of Tucson identified 10 archaeological sites and examined 14 previously recorded ones. All archaeological materials were found near the Brawley Wash and along a powerline that stretches from Three Points to Marana, Arizona. Several of these sites are small lithic and sherd scatters, apparently Tanque Verde phase (A.D. 1150-1300), with small hearths or other rock features. In addition, four large lithic procurement and reduction sites were found along the eastern arm of the Roskrige Mountains. Artifacts from these sites include several bifaces, numerous basalt flakes, a few chert flakes, and a small scattering of ceramic debris.

SWCA has completed fieldwork at Kartchner Caverns south of Benson. A large prehistoric site there yielded over 100,000 stone artifacts including projectile points and ceramics indicating that the site was occupied intermittently from the Paleoindian (pre-7500 B.C.) to the Protohistoric period (A.D. 1450-1700). Preliminary data analysis has identified eight distinct clusters of artifacts at the site; three of them are ceramic components, one is Archaic, and the four remaining clusters are aceramic. Primary activities at this site included stone core trimming and shaping, biface reduction, and manufacture of projectile points. Survey evidence that suggested extensive buried cultural materials has been discounted.

SWCA's upcoming report for the recent monitoring project at the Paloparado site (south of Tumacacori National Monument) will show how this site is more extensive than previously recorded. Subsistence and osteological data indicate that a variety of food resources were being used at Paloparado during its occupation. The osteological data also suggest evidence that the site's occupants suffered from malnutrition between A.D. 1150 and 1450.

**Acknowledgments:** The July issue of *Archaeology in Tucson* was mailed by Jean Reid and Carol Richardson. Information for the current issue was contributed by Jeff Clark, Bill Doelle, Bruce Huckell, Linda Mayo, Mark Slaughter, and Laurie Slawson. The editor extends special thanks to Jim Bayman for his prompt response to a solicitation for his lead story on Hohokam reservoirs, and to Sherry Gamer for designing this issue in the previously uncharted murk of a new and unfamiliar computer system. *Archaeology in Tucson* is printed by the AlphaGraphics Superstore at 7306 N. Oracle Rd. in Tucson.



**Center for Desert Archaeology**

*Archaeology in Tucson*

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Tucson, AZ 85716

**ADDRESS CORRECTION REQUESTED**



Ceramics recovered from the 1954 excavations in the Spanish Colonial period Presidio of Tucson (see Pages 4 and 5). Photo courtesy of the Arizona State Museum, University of Arizona.

If your name & address label indicates that your *Archaeology in Tucson* membership has expired please renew promptly to remain eligible for all activities, newsletters, and discounts on T-shirts and Center for Desert Archaeology publications.

## The Center for Desert Archaeology

The Center for Desert Archaeology is a nonprofit research and education organization that specializes in the study of archaeology and history of desert regions. Our primary research focus has been southern Arizona.

### Archaeology in Tucson

*Archaeology in Tucson* is the membership program of the Center for Desert Archaeology. The *Archaeology in Tucson* Newsletter is published quarterly and is one of the benefits that members receive. Lectures, site tours, discounts on publications, and participation in archaeological field projects are additional membership benefits. Memberships run a full year from the time they are received.

#### Annual Membership Rates

*Archaeology in Tucson* Membership Application

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_ Amount Enclosed: \$ \_\_\_\_\_

MAIL APPLICATION AND PAYMENT TO:

**Center for Desert Archaeology**

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Tucson, AZ 85716

Individual	\$10	<u>Corporate Rates:</u>	
Family	\$15		
Supporting	\$25	Active	\$100
Contributing	\$50	Supporting	\$200
Sustaining	\$100	Sustaining	\$500
Patron	\$500		

For further information about the Center for Desert Archaeology or about *Archaeology in Tucson* call us at (602) 881-2244. For information on the *Archaeology in Tucson* Newsletter specifically please contact the editor Allen Dart.