ARCHAEOLOGY IN TUCSON

Vol. 9, No. 1 Newsletter of the Center for Desert Archaeology January 1995

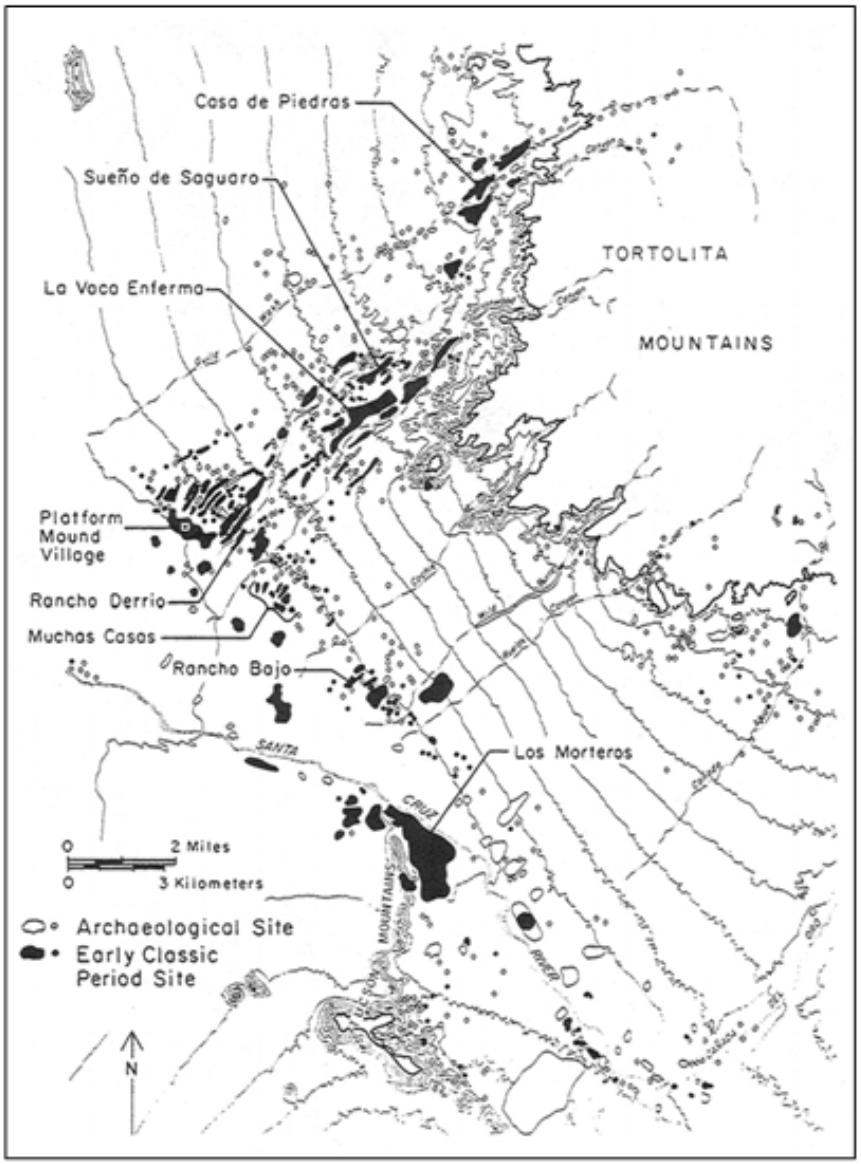
The Trade and Manufacture of Shell and Obsidian in Classic Hohokam Society

By James M. Bayman, Ph.D., Smithsonian Institution, Washington, D.C.

Classic period (A.D. 1100-1450) Hohokam archaeological sites in southern Arizona often have a few "fancy" artifacts, such as ornaments or jewelry made from marine sea shell, obsidian (volcanic glass), painted ceramics, and miniature projectile points, or "arrowheads." Although these artifacts are relatively rare, they were apparently important to the Hohokam people. Shell and obsidian items were costly compared to other artifacts because they were made of materials that were found a long distance from sites near Tucson or Phoenix.

Marine shell was either gathered or traded-in from beaches along the Gulf of California or the California coast. A vast system of Sonoran Desert trade networks must have developed since the Gulf of California is over 150 kilometers (93 miles) away from Tucson and Phoenix, and the California Coast is even farther away. Getting enough obsidian also must have been challenging for the Hohokam since Southwestern obsidian can be found in only a handful of places in Arizona, New Mexico, and Sonora, Mexico.

Since only a few shell and obsidian artifacts are generally found on a Hohokam site, detailed evaluation of such items is not always undertaken. However, a study of shell and obsidian artifacts provided important insights into past social organization in the Marana community, north of Tucson.



Map of the Classic period Marana community (drafted by Ron Beckwith).

FIELDWORK IN THE MARANA COMMUNITY

The Marana platform mound site is the central settlement of a cluster of prehistoric sites referred to as a "community" by Hohokam archaeologists (see map to left). The central site has an adobe building or monument known as a "platform mound." Archaeologists at the Arizona State Museum have spent the last decade studying the administrative role of this prehistoric village within the overall Marana community.

Some archaeologists have speculated that large-scale canal irrigation, such as occurred in the Phoenix area, was regulated by powerful leaders living on or near platform mounds. A great deal of human labor was needed to build and operate Hohokam canals, and many scholars believe that a firm system of political authority emerged to solve this problem.

In a series of scientific papers, Dr. Suzanne Fish, Dr. Paul

Fish, and John Madsen (Arizona State Museum) have proposed that Hohokam society at Marana was quite similar to that near Phoenix, even though large-scale canal irrigation was not practiced near Tucson. If political leaders were not needed to oversee the construction and operation of canals in these communities, perhaps they managed the manufacture and use of valuable crafts made from shell and obsidian. Archaeological excavations at the Marana platform mound site have explored this hypothesis.

This new fieldwork provided an exciting opportunity for comparisons with other Classic period sites that are believed to be part of the Marana community but are located at varying distances from the platform mound. The sites of Rancho Derrio, Muchas Casas, and Rancho Bajo were excavated by Arizona State University as part of the Central Arizona Project; Los Morteros was excavated by Desert Archaeology, Inc.; and Casa de Piedras and La Vaca Enferma were part of my doctoral dissertation research (see map on page 1). AIT volunteers played important roles in fieldwork at both Los Morteros and at my dissertation sites.

Fieldwork in each Marana community site involved "trash mound" excavations (see map below), which yielded thousands of artifacts. Different families throughout Marana had their own "dumps" (or trash mounds) for garbage disposal. Broken shell and obsidian were found in the Marana trash mounds, indicating they were discarded as people did their daily housework.

Analyses show that shell, obsidian, and other exotic artifacts were heavily concentrated at the Marana platform mound site. Although other habitation settlements surrounding the mound site had sizable family groups, statistical analysis shows that shell jewelry and obsidian (as well as painted ceramics) are several times more abundant at the central platform mound village. The results of this controlled comparison from the Marana community provide particularly strong support for the idea that exotic artifacts tend to be concentrated at platform mound sites.

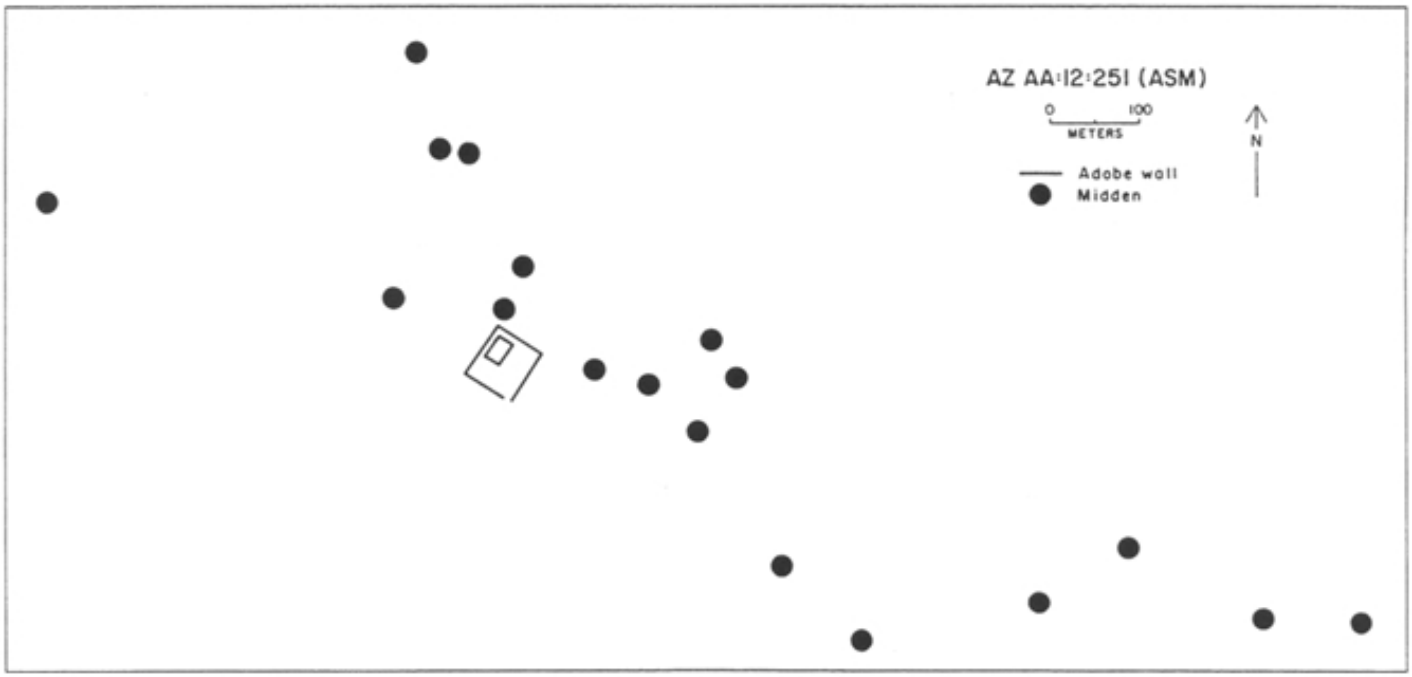
TRADING AND MAKING SHELL AND OBSIDIAN CRAFTS

It is difficult to know if Hohokam people from Marana traveled to the Gulf of California to gather their own shell, or if they traded with their neighbors to the west, on what is now the Tohono O'odham (formerly Papago) Reservation. In either case, journeys to the ocean were taken by at least some Hohokam people. Archaeologist Julian Hayden believes he discovered one of the Hohokam trade routes in southwestern Arizona and northern Sonora, Mexico, when he found a network of prehistoric trails that connected desert watering holes.

According to historic Tohono O'odham legends, young men stopped at a series of desert watering holes on their way through the harsh desert to gather ocean salt. Perhaps this Tohono O'odham route followed the same prehistoric trail identified by Julian Hayden.

Although some seashell ornaments at Marana were imported into the community as fully manufactured items, compelling evidence exists that shell jewelry was also made by families living in the platform mound site. Several whole seashells, as well as partially carved seashells of different species, were found in excavations at the platform mound site conducted by the Arizona State Museum. Shell jewelry from the site includes bracelets, beads, earrings, pendants, and "tinklers" (bells).

Shell was used for other purposes besides bodily



Map of the platform mound site showing excavated trash mounds (drafted by Ron Beckwith).

Shell ornaments found at the Marana platform mound site (photograph by Helga Teiwes).

adornment. A piece of a Strombus ("conch") shell was found near a compound east of the Marana platform mound. Conch shells found in other Southwestern archaeological sites are perforated so they can be played like a musical instrument such as a trumpet or horn. We may never know for sure, but some archaeologists believe that these shell "trumpets" were used by a community leader to summon people for public assemblies held near the platform mound.

An experiment by archaeologists Robert Coody and Dr. David R. Wilcox indicated that conch shell "trumpets" can produce sounds that are audible for up to a mile! Perhaps it is no coincidence that the Marana mound site is almost a mile along its greatest dimension. The conch shell at the Marana mound site might well have been used to assemble people in the village during funerals, religious ceremonies, games, and dances, or even to alert everyone to a raid or attack by outsiders.

Many arrowheads made of obsidian and fine-grained chert were found in houses and "trash mounds" around the platform mound. There is strong evidence that some of the points (especially the obsidian ones) were made at the site since obsidian nodules, cores, flakes (or chipping debris), and unfinished points were found during fieldwork there. A sophisticated chemical analysis (X-ray fluorescence) by Dr. M. Steven Shackley at the University of California at Berkeley has indicated that Marana obsidian came from mountain ranges near Gila Bend, Prescott, Globe-Superior, and western New Mexico (see map on page 4). Whether obsidian from these long distances was acquired by Hohokam traders or merchants, or was gathered by the Hohokam people as they traveled to visit relatives, hunt, or explore new territory, is unknown. Obsidian at the Marana mound site might also reflect gifts brought by visitors from outside the community. During early Spanish visits to seventeenth century northern Mexico, obsidian points were given to villagers by neighbors as "tokens of peace." Frankly, it's difficult to know exactly how Hohokam obsidian was obtained. We do know, however, that Hohokam people made obsidian points at the mound village, near the center of the Marana community.

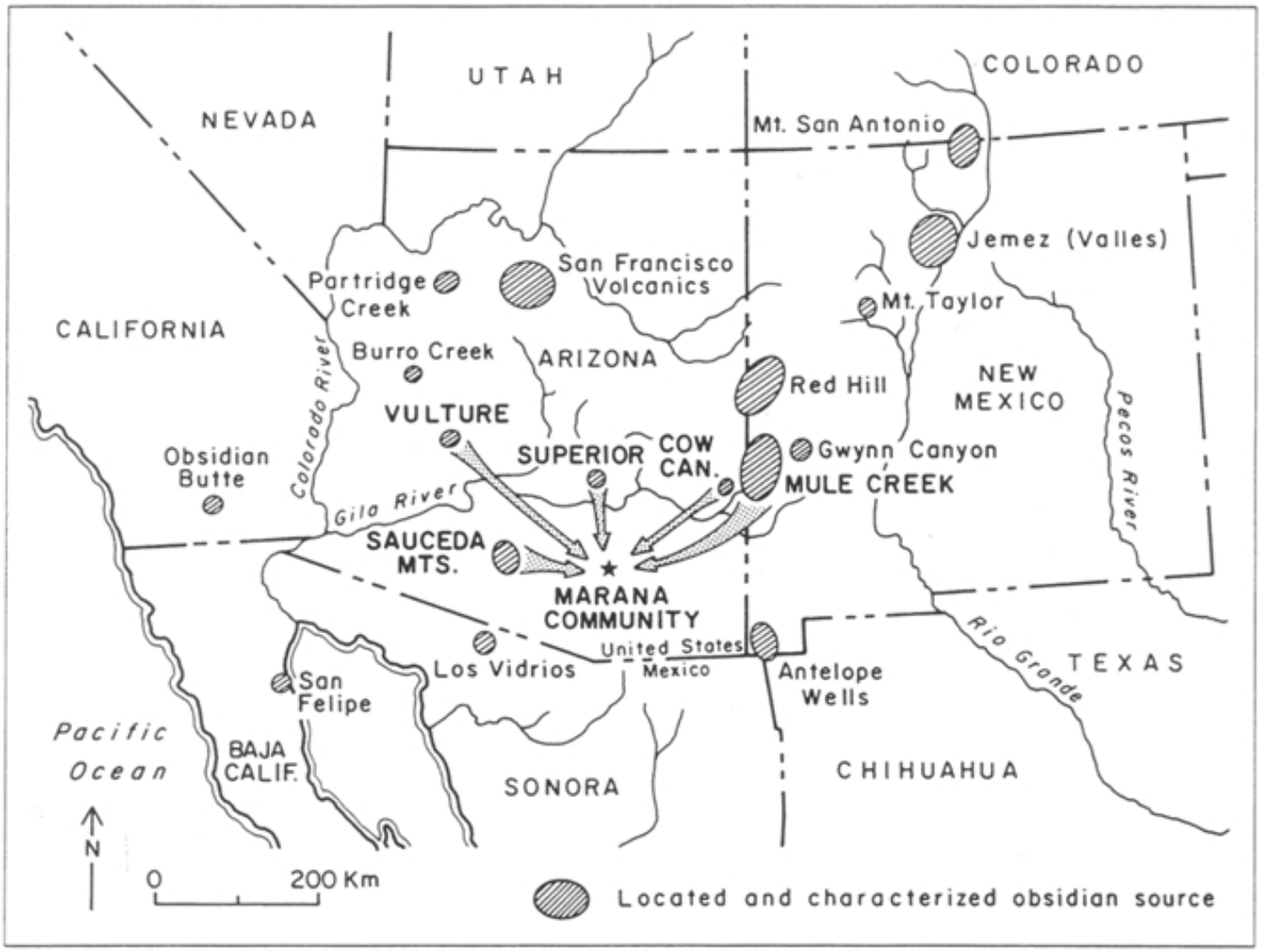
THE MEANING AND USE OF SHELL AND OBSIDIAN

Southwestern archaeologists have proposed a variety of theories regarding the Hohokam' s use of exotic artifacts such as shell ornaments, obsidian, and decorated ceramics. To support their theories, archaeologists commonly turn to societies that still follow a traditional lifeway.

Among tribal societies throughout the world. such goods are used for many purposes: (1) as symbols of wealth or high social status, (2) as offerings in graves and burials, (3) to payoff debts or marriage dowries, and (4) as ritual paraphernalia. In addition, exotic artifacts like shell and obsidian could have been traded for food. In any case, they might have been traded and used near the platform mound. where many such activities would have taken place.

The use of obsidian points by Hohokam society for grave offerings is clear: more than 100 points were found with two cremation burials at Los Morteros. Obsidian points and shell ornaments have also been discovered in burials at many other Hohokam sites throughout Arizona. Archaeologists have even argued that the prehistoric practice of put-

Obsidian artifacts found at the Marana platform mound site (photograph by Kenneth Matesich).



Map showing geographic locations of obsidian in the American Southwest. Arrows show obsidian sources found at the Marana platform mound site (adapted from Shackley 1991).

ring things with burials was necessary to prevent "inflation" in the value of expensive artifacts! This provocative idea is not as strange as it seems—burying exotic artifacts insured that the Hohokam "economy" would not be flooded with too many shell and obsidian craft goods. If shell and obsidian had become too abundant in Hohokam society, their value as rare goods would have greatly diminished.

Evidence that rare or valuable goods were used as dowries or gifts, or in ceremonies, is also hard to find. Nonetheless, a strong concentration of shell, obsidian, and decorated ceramics at the platform mound site is tantalizing—perhaps these items were used in ritual gatherings near the mound. Among historic Pueblo societies in northern Arizona and northern New Mexico, projectile points and shell jewelry were (and sometimes still are) worn as ornaments on costumes and clothing by participants in ceremonial dances. Whether or not the prehistoric people who made or wore these crafts were more powerful and enjoyed a greater prestige than their neighbors is hotly debated by Southwestern archaeologists.

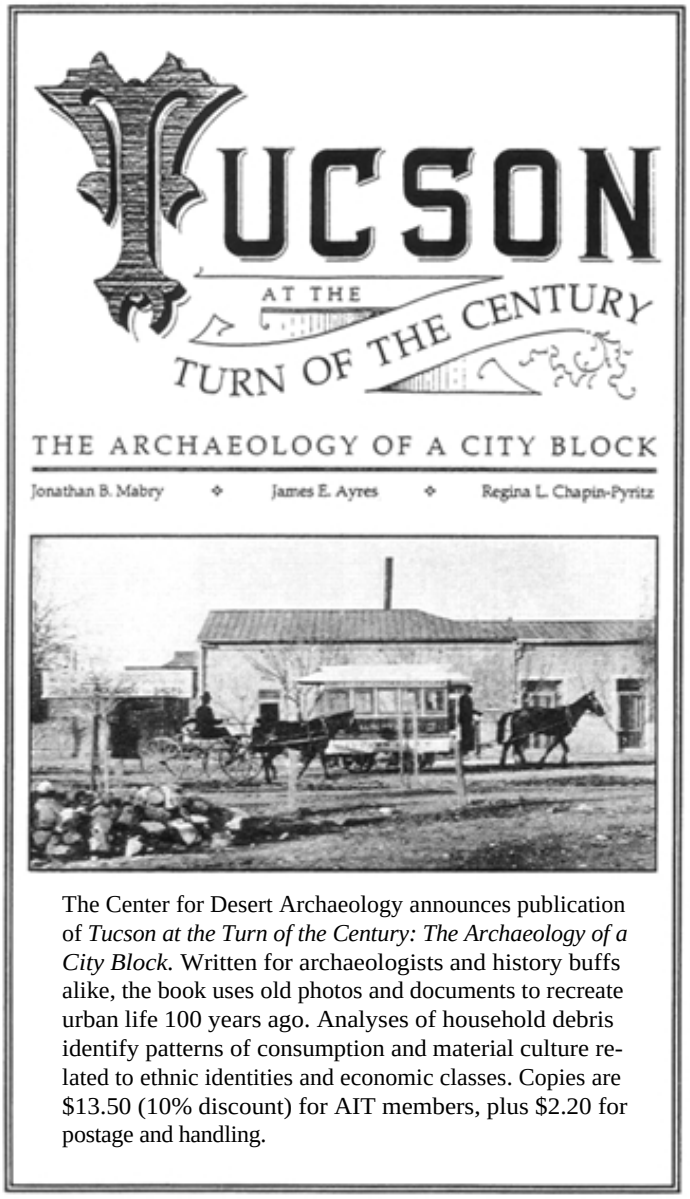
PUZZLING QUESTIONS

Although recent fieldwork at sites near Tucson has answered some questions about Hohokam society, many more remain: Why did the Hohokam make and use seashell jewelry? Although some shell has been found on non-Hohokam sites in the northern Southwest (for example, near Flagstaff), more has been found on Hohokam sites around Tucson and Phoenix. Were Hohokam shell ornaments simply jewelry, similar to our jewelry today, or did shell have a more symbolic purpose? Arthur Vokes, a leading expert on Hohokam shell, has speculated that shell was vital for signifying a person's "membership" in prehistoric Hohokam society. In other words, to wear shell was to be Hohokam.

As for obsidian, we do not know why it was traded so widely throughout the Sonoran Desert and the greater American Southwest. We do know that trade and exchange networks varied among villages in the Sonoran Desert and elsewhere. Certainly, one factor was that obsidian was an

ideal material for craftsmen to make into points. Was obsidian sometimes traded for food? Did political leaders at different platform mound sites compete with one another to control obsidian? Were miniature obsidian arrowheads really used for hunting? Perhaps they were, yet many obsidian points have been found in cemeteries, indicating that obsidian also had religious significance.

Further study of shell and obsidian artifacts is certain to improve our understanding of how these crafts were produced and traded. The most difficult task, however, is determining why they were made and what they really meant. We must develop new theories to explore the meaning of these artifacts. New sources of information, from increasingly sophisticated techniques for determining the sources and uses of artifacts to insights provided by Tohono O'odham legends and oral history, all promise to yield further insights into Hohokam shell and obsidian trade in prehistoric Arizona.



The Center for Desert Archaeology announces publication of *Tucson at the Turn of the Century: The Archaeology of a City Block.* Written for archaeologists and history buffs alike, the book uses old photos and documents to recreate urban life 100 years ago. Analyses of household debris identify patterns of consumption and material culture related to ethnic identities and economic classes. Copies are $13.50 (10% discount) for AIT members, plus $2.20 for postage and handling.

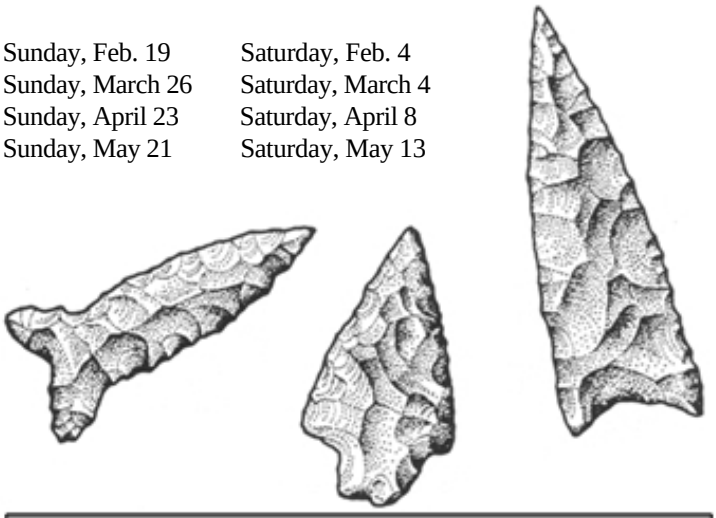
Volunteer Opportunities: The Cienega Valley Survey

The Cienega Valley, located just southeast of the Tucson Basin, will be the location of the next Center survey project Cienega Creek, the intermittent stream that drains the valley, becomes Pantano Wash near Interstate 10. The environment of the Cienega valley is very different from our previous survey areas due to its higher elevation. This project area ranges from 3,500 to 5,000 feet, and it contains extensive grasslands. For comparison, the San Pedro survey area had an elevation range from 1,900 feet at Winkelman to 3,500 feet at Benson.

Michelle Stevens, a graduate student in the University of Arizona Department of Anthropology, has been selected to head this survey effort. She intends to develop the survey into a dissertation. Michelle is particularly interested in early agriculture, which will be her research focus on this project However, it is expected that sites from the historic, Hohokam, Archaic, and maybe even Protohistoric periods will all be encountered during this survey.

A goal of this first season is to become familiar with the environmental and archaeological diversity of the Cienega Valley. After you have had a chance to review the schedule below, please give Irina a call at 881-2244 in order to sign up for specific survey dates. Remember, your Archaeology in Tucson membership must be current in order to participate in the survey. The dates for his first survey season are:

Sunday, Feb. 19	Saturday, Feb. 4
Sunday, March 26	Saturday, March 4
Sunday, April 23	Saturday, April 8
Sunday, May 21	Saturday, May 13



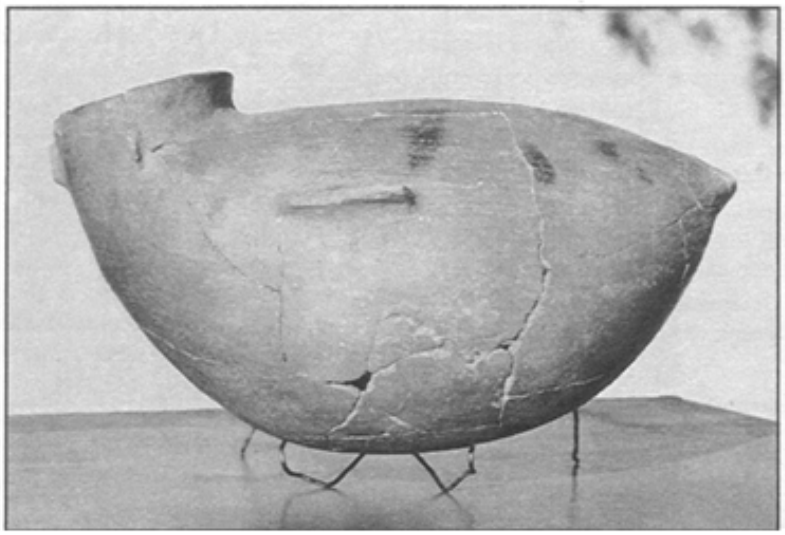
ACKNOWLEDGEMENTS

The October issue of *Archaeology in Tucson* was mailed by Jean Reid, Irina Hynes, and Elizabeth Black. In addition to the authors of the two main articles, Bill Doelle contributed information for this issue. The sketches of Tanque Verde Red-on-brown pottery were done by Patti Whitley. The issue was produced by Donna Breckenridge. *Archaeology in Tucson* is printed by the AlphaGraphics Superstore, 7306 N. Oracle Rd.

A Bird Effigy Vessel from Sabino Canyon Ruin

by J. Homer Thiel, Desert Archaeology, Inc., and William Neil Smith

In 1934, 14-year-old William Neil Smith traveled three days by train from New York to Tucson to attend boarding school at the Southern Arizona School for Boys. On the train. Donald De Roy, who became Smith's roommate, pulled a Red-on-buff sherd from his pocket, explaining to Smith that ancient Indian ruins could be found on the school grounds. Smith, who had previously toured Pompeii while on a trip to Europe with his parents, became curious. His curiosity motivated him to explore the ruin and ultimately led to a career in anthropology.



This bird effigy vessel from the Sabino Canyon Ruin is the largest known example of this form (photo by Patty Whitley).

The boarding school, located at the mouth of Sabino Canyon, opened in 1929. Its founders, Captain Russell Fairgrieve and George Harper, chose an area in the northeast Tucson Basin and built a ranch school where boys could engage in outdoor activities such as horseback riding. Smith and De Roy spent time digging in the ruins on the property from 1934 to 1936. Smith's recently found notes document early work conducted at the site and record his discovery of a unique artifact.

Students at the Southern Arizona School for Boys excavate in the room where the bird effigy vessel was found in 1935/1936. Inside the trench is Donald De Roy, and William Neil Smith kneels on his right. David Naramore, Phelps Trix, and Hill Blackett help dig.

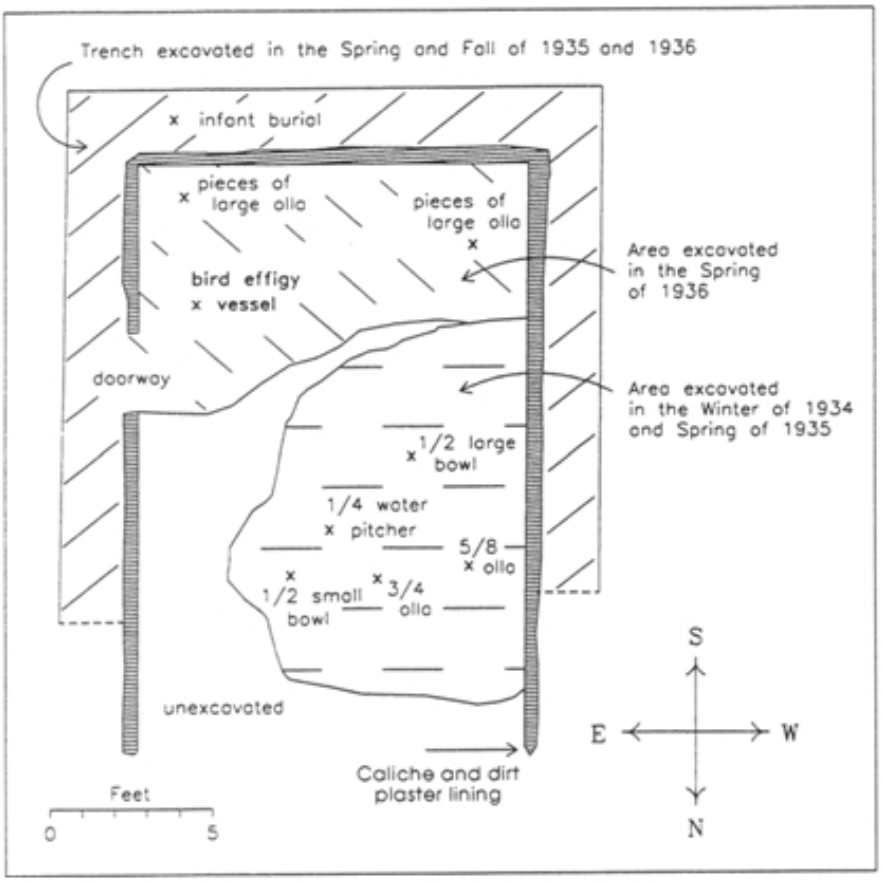
A ROOM IN THE RUIN

The Sabino Canyon Ruin, AZ BB:9:32 (ASM), is a large Tanque Verde phase village site that is found on a terrace above the confluence of the Sabino and Bear Canyon drainages. A number of compounds are present at the site, along with isolated rooms, rectangular pithouses, and a possible irrigation ditch or canal (see the summer 1989 issue of *Archaeology in Tucson* for an article by John Welch on the site). The Tanque Verde phase dates from A.D. 1150 to 1300 and was a period that saw the growth of villages in the eastern Tucson Basin (the October 1994 issue of *Archaeology in Tucson* has an article on the nearby Gibbon Springs site).

In the fall of 1934, De Roy took Smith out to see the ruins, and they found a pithouse room outlined by a series of upright rock slabs that protruded from the ground. During two school years, they removed dirt from the pithouse and in an adjacent area. The pithouse room was 12 ft (3.7 m) wide and at least 18 ft 9 in (5.7 m) long (they never located the northern wall). About 2 ft 6 in (76 cm) of fill was present inside the structure. The walls were lined with a thick caliche and dirt plaster, and the rocks visible from the surface may have helped support the upper walls. A doorway was present in the east wall.

Just outside the southern wall was an infant burial, lying beneath a shallow, flared bowl. Scattered throughout the interior of the room were portions of large jars or ollas, a large bowl and a smaller Black-on-white bowl, and a smaller jar or pitcher, as well as projectile points and pieces of chipped stone. A complete, reconstructible bird effigy vessel was found just inside the doorway. Working to the west, De Roy dug around a large mesquite tree, where he located a large metate.

Byron Cummings, the head of the University of Arizona Department of Archaeology, encouraged Smith to write a report about his work. He also reconstructed the broken ves-



A plan view of the room in which the bird vessel was uncovered was drawn by William Smith in 1936 (drafted by Catherine Gilman).

sels. At one time, the school displayed artifacts found during excavations on the property. The school closed in the early 1970s, and many of these artifacts disappeared. Fortunately, Smith retrieved the bird effigy vessel and has recently found his original field notes.

HOHOKAM BIRD EFFIGY VESSELS

The Sabino Canyon bird effigy vessel is the largest known example of this vessel form. It is a brown plainware vessel measuring 15 in (38 cm) long, 8 1/2 in (22 cm) wide, and 9 in (23 cm) high. Three stylized projections are present around the 1-in- (2.5-cm) high neck, one at the front and one on each side. Wings are present on each side, each almost 3 in (7 cm) long. The vessel terminates in a projecting, molded tail, lost prehistorically. The vessel's base is worn from use, and a moderate amount of wear is present on the interior.

Bird effigy vessels, which have also been called duck pots or bird pitchers, are relatively uncommon. At Hohokam sites, they have been found to date from the Estrella phase (which began before A.D. 700) through the Classic period (A.D. 1100 to 1450). The earliest bird effigy vessels were painted, and the head was often carefully modeled. By the Classic period, the vessels were mostly p1ainware, the modeled head had disappeared, the neck had become the pouring spout, and handles were sometimes added. This vessel form also has been found at Anasazi and Mesoamerican sites.

Exactly which bird species the vessels represent is unclear, especially for the later, more abstract examples. However, many people suspect that they are ducks or water birds. Ducks are important in Puebloan mythology, where one legend states that they helped guide people to the Lake of the Dead. This may explain why most bird effigy vessels have been found with burials.

The everyday function of bird effigy vessels is also uncertain, but ethnographic and archaeological data can help us understand how they were used. Most bird effigy vessels have wear marks on their bases, indicating that they were handled and moved around by their owners. Burn patterns suggest that some vessels were set onto or close to fires and were used for cooking or heating. Some people suggest that the pointed tail portion would have been useful when placing the vessel over a fire. Bird effigy vessels with projecting handles could easily have been used for pouring. However, the small size of most bird effigy vessels suggests that they were not used for cooking.

One duck pitcher from a burial at the Grand Canal site in Phoenix contained green clay. The clay was also spread around the head of the woman and may represent a clay hair dressing recorded among historic Pima Indians (the clay was used to clean hair and was mixed with mesquite gum to prevent hair from graying). It has also been suggested that the vessels may have been used to prepare medicines or poultices.

How was the Sabino Canyon Ruin bird effigy vessel used by its Hohokam owner? It was found inside a room with other storage and serving vessels, suggesting that it had a similar use. This is unusual because bird effigy vessels have been found only occasionally in structures. Perhaps this vessel form had a special ceremonial use. The absence of burning at the base indicates that it was not used for heating or cooking. William Smith believes that the Sabino Canyon bird effigy vessel once held some type of beverage. Smith suggests that the projecting and upward-flaring wings were modeled to serve as handles while pouring liquids from the neck. He also proposes that the vessel could have been used in a ceremony such as the historically known Tohono O'odham saguaro cactus fruit wine festival, perhaps while seeking rain. Whether this is correct will probably never be known, although new methods such as residue analysis may someday provide previously unknown clues.

Smith's field notes, photographs, and a ceramic vessel from an almost 60-year-old excavation are examples of the diversity of sources that can be used to reconstruct Hohokam prehistory. Only through publication can such information contribute to this long-term goal.

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Archaeology in Tucson
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A Tanque Verde Red-on-brown sherd from the Sabino Canyon Ruin (see page 6).

Time to Renew?

If your 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

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For further information about the Center for Desert Archaeology or about the *Archaeology in Tucson* program, call us at 602-881-2244. For information on the *Archaeology in Tucson* newsletter specifically, please contact the editor, Homer Thiel.

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