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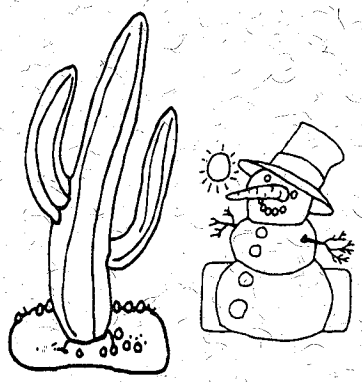
STUDYING ANCIENT PLANTS AT SABINO CANYON RUIN

by Lisa W. Huckell

Maxwell Museum of Anthropology, University of New Mexico

In this Issue:

Studying Ancient Plants at Sabino Canyon Ruin....1
Sabino Canyon Ruin Ground Stone Analysis.5
Volunteer Spotlight on Carol Richardson, Ceil McPherson, and Bess Puryear.....7
Supporting Youth Education at Old Pueblo 7
Art Auction for Youth 8
Old Pueblo—Young People Raffle.....9
Winter Classes with Old Pueblo 10
Archaeology Month is March 2002 11
Shell Art Sponsors..... 11



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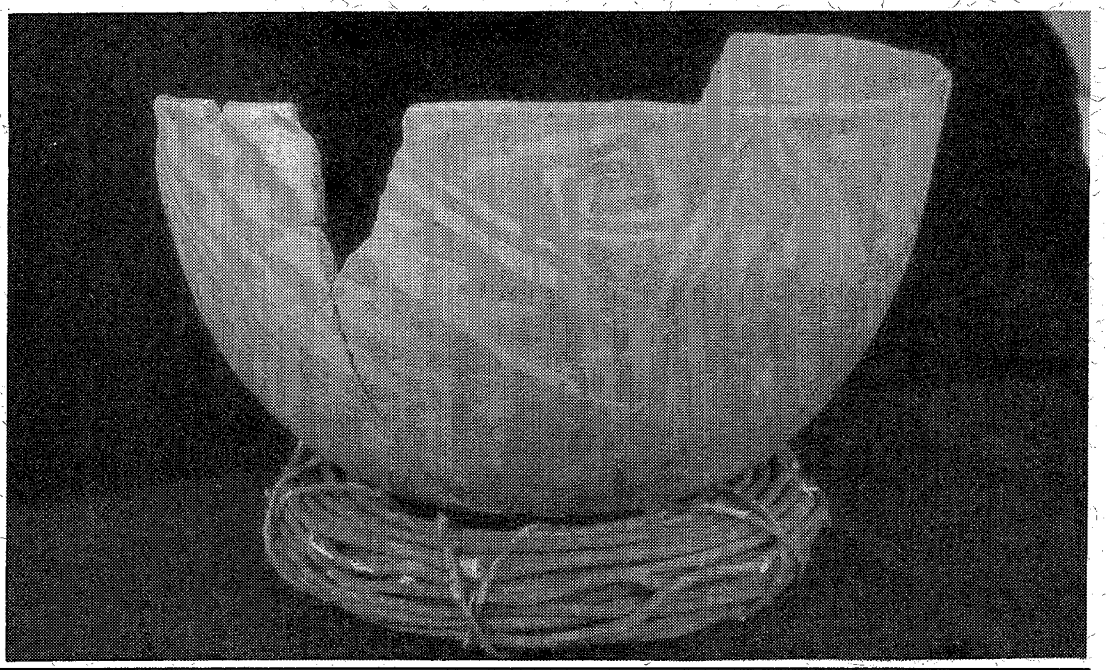


Sabino Canyon Ruin bowl. This bowl, found on the floor of a Sabino Canyon Ruin pithouse (Feature no. 1009), was excavated by Old Pueblo's volunteers. The bowl contained the remains of numerous plants, discussed in Lisa Huckell's article in this issue.

Sabino Canyon Ruin is optimally located at the confluence of Bear Creek and Sabino Creek at the base of the foothills of the Santa Catalina Mountains. Perennial water flow and abundant readily accessible natural resources in several biotic zones were powerful attractions to humans through time. Inhabited from AD 1000-1350, Sabino Canyon Ruin is composed of multiple Hohokam Classic period surface compounds that are constructed over pithouses and outdoor features associated with an earlier Preclassic occupation.

Editor's Note: The Arizona Archaeological and Historical Society awarded Old Pueblo a research grant in the amount of $500 to study plant remains taken from five Sabino Canyon Ruin features. Ethnobotanical expert Lisa Huckell examined these plant remains. Her complete report will be part of our book about the Sabino Canyon Ruin. In this issue, we have taken an abstract of her report for our members' enjoyment.

Results from Features

The features investigated for preserved plants were found below the substantial Classic period occupation for which the site is well known. Samples were submitted from five features located under or in the close vicinity of Enclosure A and Compound C. The Preclassic features include two pithouse hearths (one from Feature 1009 and one from Feature 1011), the fill of a reconstructible pot from the floor of pithouse Feature 1009, and two roasting pits (Features 1004 and 1018).

The sample from the hearth in pithouse Feature 1011 contained no plant remains.

Continued page 2...

The roasting pits were disappointing, with only a maize cupule and 3 cupule fragments in Feature 1004, and a Nightshade Family seed in Feature 1018.

The best record was obtained from the hearth and reconstructible pot in pithouse Feature 1009. Ten wild plant taxa were identified, four of which were recovered from both contexts: sacaton grass, catchfly, grasses, and tansy mustard. The bowl contained most of the remaining taxa: spiderling, chenoam, chickweed, cf. Legume Family, and Sunflower Family.

The hearth contributed one additional taxon, cf. Goosefoot Family. The bowl also contained grass stems and cottonwood/willow wood that is probably collapsed roof or wall thatching. The exclusively wild character of the taxa from the structure may reflect gathered local wild foods, although the prehistoric uses of some of the plants are uncertain.

The Taxa

Zea (Maize). Four cupules were recovered from roasting pit Feature 1004. The importance of maize to the Hohokam is well known. The Hohokam grew several kinds of maize, including pop, flint, and flour each of which was prepared in different ways based on the texture of the kernel starch. The optimal location of the Sabino Canyon Ruin at the junction of two perennial water courses and the presence of two canals suggest that agriculture was a central activity at the site.

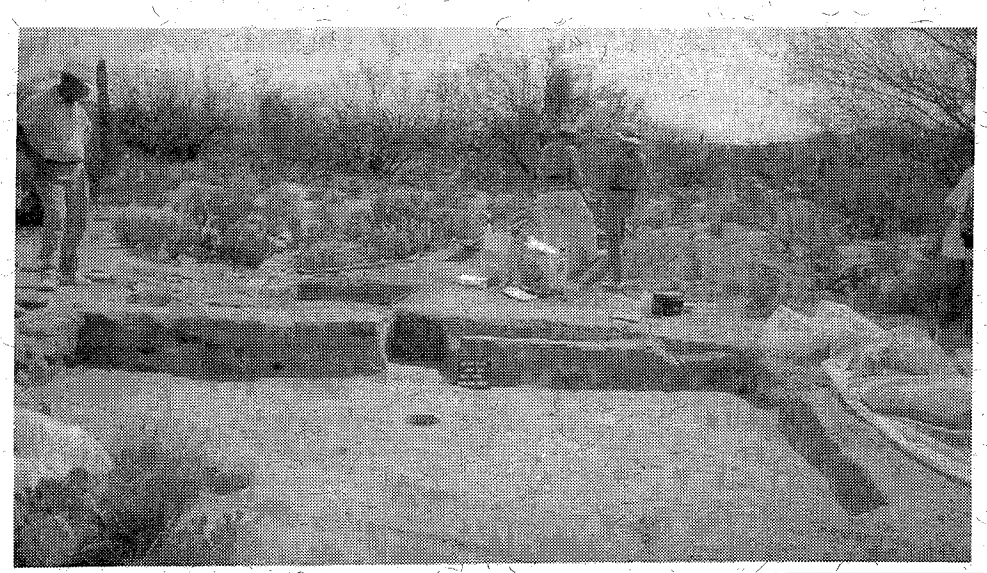
Boerhaavia (Spiderling). The reconstructible pot from the floor of pithouse Feature 1009 yielded two spiderling fruits. The larger is 2.0 mm long, 1.1 mm wide and 1.0 mm thick. A root perennial, red spiderling is considered a pest that can be found in fields, vacant lots, overgrazed range lands and along roadsides. It appears in response to summer rains. Other species are known to have been used medicinally and as pot-herbs, but no documented uses for this species are known.

Chenopodiaceae/Chenoam. A single large seed of what is probably a member of the Goosefoot Family was retrieved from the hearth of pithouse Feature 1009. Five chenoams were found in the pot in pithouse Feature 1009.

"Chenoam" is a term applied to seeds of the Chenopodiaceae and Amaranthaceae families that are virtually indistinguishable, especially after exposure to heat. Species of several genera of each family have been utilized, with *Chenopodium* and *Amaranthus* among the most widely exploited. Many members of these genera are weedy annuals that favor disturbed habitats such as field margins, roadsides, and stream flood plains. The plants provide two important foods: herbage for greens from late winter through summer, and prodigious quantities of tiny seeds in the summer and fall. The plants could be picked whole or repeatedly harvested for tender young leaves during the maturation period for a double crop.

The ethnographic record indicates that chenoam seeds have been extensively utilized, and often made a significant contribution to the diet. Preparation usually involved parching the seeds prior to grinding them into meal. Carbonized chenoam seeds are the most commonly recovered plant macrofossils from archaeological sites throughout the Southwest. While this may be attributed in part to their tiny size that facilitates losses during cooking, their overall ubiquity reflects their widely perceived value as a food source.

Compositae (Sunflower Family). A single Composite part was obtained from the pot in Feature 1009. Its identity remains unknown. Wild sunflowers and their relatives are annual species that are common, often highly visible components of the Southwestern landscape, particularly when they form dense stands along roadsides, ditches, riparian areas, and other habitats. Despite their small size, wild sunflowers have been utilized by many historic groups, who parched and ground the oil-rich seeds into meal for cakes. They are recovered occasionally from Hohokam sites.



Pithouse Feature 1009. The hearth and floor of this pithouse produced the most abundant plant remains of all five samples that Old Pueblo submitted to Lisa Huckell for analysis. The house was excavated in 1997. Photo by Sara Chavarría.

Descurainia (Tansy Mustard). Thirteen tansy mustard seeds were recovered from both pithouse Feature 1009 samples, with 4 in the pot and 13 in the hearth. Most of the seeds are complete and in excellent condition. Tansy mustards are herbaceous annuals that appear in damp and disturbed soils; they do not tolerate heat and are most commonly found in late winter and early spring. The Pima and Tohono O'odham have used the leaves as pot-herbs, while the tiny, strongly flavored seeds, considered a staple food, were added to mush, gruel, and bread after being parched and ground.

Roasting pit Feature 1018. One of the outside roasting pits where plant remains were recovered, this pit is immediately in front of pithouse 1011's entrance. Photo by Sara Chavarría.

The seeds are commonly found in archaeobotanical assemblages in southern Arizona. Their popularity among prehistoric peoples is demonstrated by evidence for their storage in ceramic vessels in large quantities at a number of sites, including Punta de Agua near San Xavier Mission, Snaketown, and the Hodges site.

Gramineae (Grass Family). Grass remains were recovered from both samples taken from pithouse Feature 1009. At least 4 species are represented in the assemblage of caryopses or "seeds." Considerable variability in shape can be seen, indicating that several species are present. The role of grasses in traditional economies has been underappreciated. The ethnographic record strongly supports the view that wild grasses were critical commodities for many societies, providing a food rich in carbohydrates that could be gathered and stored in quantity.

Even after the adoption of agriculture, wild species continued to be used, sometimes acting as reserves in the event of crop failure. Attractive features include two seasons of availability (late spring or cool season and summer or warm season); the ease with which the seeds of several species could be separated from the chaff; and the often large quantities that could be gathered using simple technology.

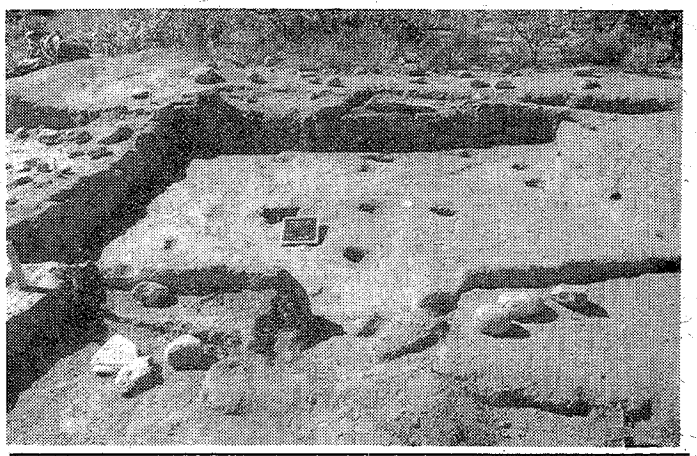
The prehistoric archaeobotanical record also suggests that gathered grasses were an important supplement to agricultural produce. At Hohokam sites, grass caryopses are commonly recovered from flotation samples, often in as much as 30 to almost 50 percent of the productive samples examined. Regrettably, apart from a small number of readily recognizable grains, such as little barley and sacaton grass, most caryopses are left unidentified.

Mollugo (Chickweed). Three chickweed seeds were recovered from the pithouse Feature 1009 pot. Chickweed is a summer annual that forms low-growing mats in open ground and disturbed soils such as agricultural fields, gardens, sandy riverbanks, and bare soil. A native of tropical America, this species has spread throughout most of the country. The ethnographic record offers no insights into uses of the plants, although the herbage can be cooked as a pot-herb. It is rarely found in prehistoric sites.

Silene (Catchfly). Eight catchfly seeds were found in the pithouse Feature 1009 samples, with all but one coming from the bowl on the floor. Catchfly is an herbaceous annual or perennial. Little is known about the uses of catchfly, as the ethnographic record offers no information. However, at least 2 species are known to produce edible foliage and young shoots. The seeds are occasionally recovered from archaeological sites.

Solanaceae (Nightshade Family). A single badly distorted seed belonging to the Nightshade Family was found in roasting pit Feature 1018. The severe distortion experienced by the specimen precludes a more specific identification. One possibility is *Physalis/Solanum*, particularly *Physalis* or groundcherry, a weedy annual that produces marbled-sized edible berries that have an extensive ethnographic record of use as a food. The round, lenticular seeds are commonly recovered from prehistoric sites, suggesting the enduring popularity of the juicy fruits.

Sporobolus (Sacaton Grass). Sacaton grass or dropseed caryopses



Pithouse Feature 1011. Although the hearth from this house was studied, it yielded few plant remains. Photo by Sara Chavarría.

were retrieved from the two Feature 1009 samples, with 17 obtained from the reconstructible pot and 176 from the hearth. The tiny seeds are less than 0.5 mm in size. Dropseeds are annual or perennial grasses that are generally found in open ground such as plateaus, valley flats, and washes on sandy or gravelly soils that can be alkaline. Extensive stands of the grass may be produced in favorable settings. Caryopses are produced in late summer and fall.

Despite their minute size, the seeds of six dropseed species have been collected for food by several traditional societies including the Paiute, Apache, Navajo, Hopi, and Tohono O'odham. They were valued for the copious quantities of grain produced and the ease with which the chaff can be separated from the seeds during threshing and winnowing. The seeds are frequently found in Hohokam sites where they are usually viewed as food remains, although the use of vegetative material as thatching should not be overlooked as a means of inadvertently introducing caryopses into house floor and fill assemblages.

Wood. Three samples contained suitably sized charcoal fragments for analysis, producing an assemblage of 37 pieces. Contents of the bowl found on the floor of pithouse Feature 1009 yielded 30 fragments of cottonwood/willow. The roasting pit Feature 1018 contained just 4 small pieces of charcoal, all of which are either mesquite or acacia wood. The hearth in pithouse Feature 1011 produced 3 fragments of juniper.

The recovery of juniper and mesquite/acacia from thermal features is predictable, given the excellent fuel qualities of these dense woods. Juniper would have been available on the upper bajada slope and in the nearby foothills. Mesquite and acacia species such as whitethorn and catclaw would have been found along watercourses and washes as they are today.

The cottonwood/willow wood in the reconstructible pot are probably collapsed wall, post or roofing material. Despite their soft wood, cottonwood trunks were often used as posts in O'odham houses, and are found in archaeological contexts that indicate a long tradition of use for this purpose. Both cottonwood and willow are components of the riparian gallery forest.

Summary and Conclusions

The modest record obtained for this portion of the Sabino Canyon Ruin offers a picture of an agricultural community situated in a well watered section of the Tucson Basin that is rich in springs and perennial flow that drains the Santa Catalina Mountains. Maize was in all likelihood cultivated along the flood plains of Sabino and Bear Creeks.

Other cultigens were undoubtedly also grown; over time the Hohokam continued to add new crops culminating during the Classic period in an extensive array that included several kinds of maize, beans and squash, along with cotton, grain amaranth and possibly chenopods. Additional work at the site should provide more botanical evidence of the suite of crops favored by site inhabitants.

Wild plant taxa include several grasses and eight weedy annuals that are often associated with disturbed soils. In this case the plants may be agricultural weeds that were not only tolerated in and along fields, but actively encouraged for their edible greens and seeds, a common practice among present day traditional farmers. Tiny grass seeds may have been gathered in large quantities from dense stands such as those still formed in ungrazed places by sacaton grass along river flood plains.

Although the study results are somewhat disappointing from a productivity standpoint, the record represents the first formal and reported archaeobotanical study carried out at this large site. Other plant remains are known to have been found in the past by students at the Arizona School for Boys. Regrettably, no documentation for this material is currently available.

Despite the meager results of this investigation, the modest record makes another contribution to the archaeobotanical record for this portion of the Tucson Basin and provides a starting point for addressing issues of subsistence and plant use through time at Sabino Canyon Ruin.

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SABINO CANYON GROUND STONE ANALYSIS

by Jeffrey T. Jones

The ground stone recovered from Sabino Canyon Ruin includes a diverse class of stone artifacts that show evidence of grinding, pecking, polishing, or battering as a manufacturing technique, as use wear, or as a combination of both.

Manos and Metates

Manos and metates are two components of a single piece of food-processing equipment, and so are described together here. Thirteen metates have been studied to date, only one of which was whole. Three were trough-shaped metates, the rest were of indeterminate shape except for one whole slab metate.

Of the 41 manos recovered, only 7 were whole. Additionally, 11 artifacts subsumed under the mano category were classified as blanks, that is, they had been shaped for use but were never actually put to use.

Mortars and Pestles

No mortars have been found in the collection, but 14 pestles have been recovered. Nine of those were whole, and four were fragments. The pestles were made from naturally cylindrical water-worn cobbles. During Old Pueblo's 1996 survey of the Sabino Canyon Ruin, large boulder mortars were found along the site margins in the Sabino and Bear Creek flood plains.

Polished or Polishing Stones

Twenty-five polishing or polished stones were found. All were made from small, water-worn cobbles. The presence of polishing stones strongly supports an inference that pottery was produced at the site.

Handstones

Because the handstone category is rather ambiguous, handstones were defined as natural stones with at least one ground face for this analysis. Eighteen handstones were recovered during Old Pueblo's excavations.

The majority of handstones from the site were water worn gneiss or granite cobbles that probably came from the bed of nearby Sabino Creek or Bear Creek. Their actual use is unclear, but most were used against a flat netherstone (the bottom stone) and were used for various grinding tasks, most of which were associated with food processing.

Three sandstone handstones also have been recovered. The silicate grains in sandstone give it excellent abrasive qualities, so it is likely that stones of this material were used in the shaping and initial polishing of bone, shell, wooden implements or ornaments, much as coarse sandpaper is used in the initial steps of finishing wooden items today. One of the sandstone handstones had hematite staining, indicating it was used to grind pigment, perhaps for painting pottery.

Tabular Knives

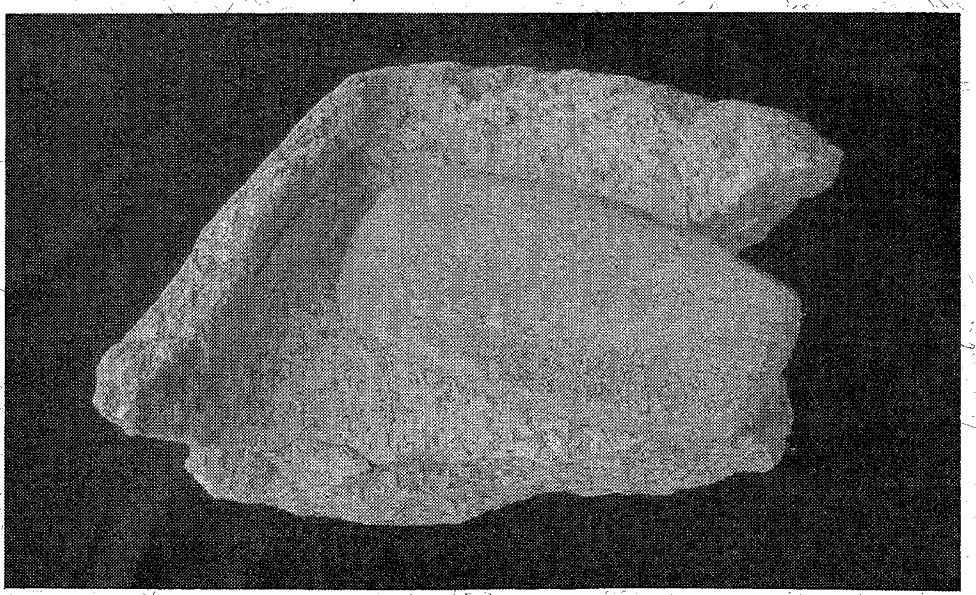
Seven fragments of tabular knives were recovered from excavations at Sabino Canyon Ruin, four were from tabular schist, two from tabular sandstone, and one from tabular rhyolite. All were fragmentary.

Other

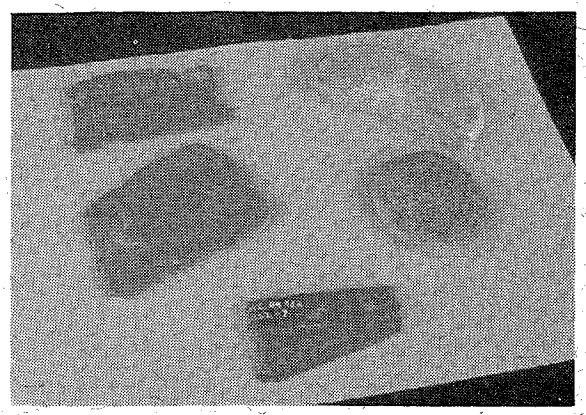
The most common artifacts assigned to category "other" were small stone disks that were pecked and ground to shape. Seven have been studied to date. These stone disks may have been used as jar lids but none were found in place or associated with broken jars, so this interpretation remains speculative. Another possible interpretation is that the disks were used as gaming pieces or counters.

Additional artifacts assigned to the "other" category included two pieces of unworked tabular schist, one piece of micaceous schist, one palette fragment, one stone ring, and three possible nutting stones. The unworked tabular material is probably either tabular knife preforms or portions of tabular knives with their ground edges broken off. The schist was likely used for pottery temper.

Suggested uses for the stone ring, often called a doughnut stone, include



Mano and metate from Sabino Canyon Ruin. The broken condition of much of the ground stone implies a very long period of site occupation by Hohokam people.



Tabular knives and various other ground stone. The Sabino Canyon Ruin collection is diverse, containing a variety of ground stone forms.

shelling corn, weights on digging sticks, chunkee stones in a hoop-and-pole game, and an abrader to smooth and possibly bend handles for stone axes.

The three possible nutting stones are mano or metate fragments with pecked and ground depressions. One has a single depression and the others have opposing depressions. All are broken across the pecked depressions suggesting they were damaged while the depressions were being created or during use. Although artifacts of this type have been called nutting stones (tools for crushing materials such as nuts and acorns), the presence of opposing holes suggests at least two of the artifacts were unfinished doughnut stones that were broken during manufacture.

Raw Material Types

The ground stone artifacts recovered from Sabino Canyon Ruin were manufactured almost exclusively from raw materials locally available in the bed of Sabino Creek or from the Santa Catalina Mountains pediment. The few exceptions to this are tools made of vesicular volcanic materials that likely came from the Sentinel Peak area west of Tucson.

Design and Manufacture

The design of ground stone tools often has specific implications for a tool's intended use. For example, corn has long been associated with trough type metates and their attendant long or two-hand manos because the relatively large kernels require a reciprocating action, carried out on rough or vesicular surfaces to break down the grains. It has been suggested that as more and more corn was ground, individuals would attempt to increase efficiency by increasing the size of the grinding surface, allowing more corn to be ground at the same time.

With the exception of a single slab metate, all of the mano and metate fragments whose shapes could be identified were associated with trough metates. This suggests the residents of Sabino Canyon Ruin were manufacturing milling equipment specifically for corn flour processing.

Only one pestle from Sabino Canyon Ruin was formally shaped; the remaining pestles were simply naturally cylindrical stones with one or both ends battered and ground. Twelve of the thirteen pestles are of a size used in medium to large mortars. The remaining pestle is tiny and made of white quartz, suggesting it was not associated with food production.

The only mortars found during Old Pueblo's investigations are two bedrock mortars west and east of the ruin on the stream terraces above Sabino and Bear Creeks. Ethnographic studies of the historical Gila River Pima Indians indicate that the most common form of mortar there was a wooden log with a hole sunk in one end. These were either sharpened on the opposite end and set permanently in the ground or had a flat end and were portable. Such wooden artifacts, had they been used by Sabino Canyon residents, would not have survived to the present day.

Artifact Use

Nearly all of the manos and metates whose shape could be defined appeared to be designed to process corn, suggesting that corn agriculture was of major importance to the farming families of the Sabino Canyon Ruin.

The presence of large bedrock mortars in the vicinity of Sabino Canyon Ruin and the 12 larger pestles suggests that mesquite pods were also being processed at the village. Large bedrock mortars are thought to have been used to process relatively hard wild foods through a crushing and grinding action. Mortars have been used by the Hualapai, Maricopa, Pima, and Tohono O'odham to crush mesquite bean pods, which were then reduced further using a mano and metate.

Intrasite Distribution

Two trough metates recovered from Enclosure A, excavated in the 1980s by Fenster School students, suggest the residents of the site were processing corn at a communal level, as well as at the family level.

Most of the artifacts recovered by Old Pueblo came from trash deposited in house pits after the houses were abandoned. Not surprisingly, many of the ground stone artifacts recovered consist of fragmentary pieces of ground stone; in other words, the artifacts people were throwing away. For instance, almost all of the used metates and manos were in fragments.

Archaeologist Sarah Schlanger notes that as a site's occupation duration increases, the percentage of ground stone tools in trash deposits also increases. The high percentage of broken or worn out ground stone artifacts in the trash disposal areas suggests a relatively long occupation of Sabino Canyon Ruin.

Volunteer Spotlight on Carol Richardson, Ceil McPherson, and Bess Puryear

Carol Richardson, Ceil McPherson, and Bess Puryear are names that our readers have seen in every *Old Pueblo Archaeology* bulletin. They are the ladies who have volunteered hundreds of hours to do Old Pueblo's mass mailings, including this bulletin and all of our advertising to school teachers.

Carol is a retired post office worker and a WWII veteran, who served in the U.S. Navy building aircraft. Ceil was the first woman postmaster in our state. Later, Ceil and Carol worked together at the same post office.

Bess is a retired airline worker whose husband served in the armed forces. While volunteering with the Disabled American Veterans, Bess and Carol met.

As these three ladies became friends, Carol's special experience in handling bulk mail got them involved in volunteering for the Disabled American Veterans, helping with their mass mailings.

Carol also provided a lot of assistance to Jean Reid, who for a time was responsible for the mailings of the Arizona Archaeological and Historical Society. Carol eventually volunteered to handle the Society's bulk mail needs, and then she met Al Dart.

After Al established Old Pueblo, Carol, Bess, and Ceil were helping Old Pueblo, the Arizona Archaeological and Historical Society, and the Disabled American Veterans with their mailings.

From left to right: Ceil McPherson, Carol Richardson, and Bess Puryear.

I asked the ladies what they liked about volunteering. Ceil spoke about how much she enjoyed reading about all kinds of different things about these organizations, and about her desire to feel active and useful. Bess said how much she likes to help out wherever she can. Carol enjoys archaeology and serving groups in our community.

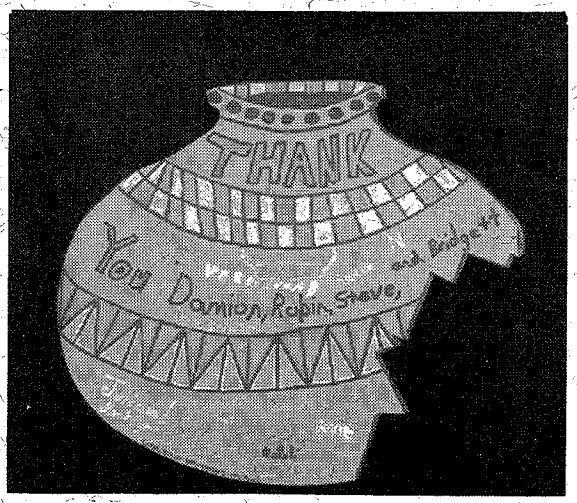
Talking to all of them, you can see how much fun these three ladies have together, and their pride in helping nonprofit organizations reach out to our community.

Old Pueblo could not communicate with our members or Arizona's schools without their work. Thank you Carol, Bess, and Ceil!

Supporting Youth Education Programs at Old Pueblo

Old Pueblo's programs teach children of all ages and backgrounds about the Southwest's rich heritage.

By doing this, Old Pueblo is helping to raise the interest of children in the past, and inspire them to protect and treasure our history. We hope that as they grow to adulthood, our students will cherish the past and be citizens who support the protection of historical sites.



The reviews we receive from teachers, and the thank you notes we receive from children (such as the one to the left), document the success of Old Pueblo's programs.

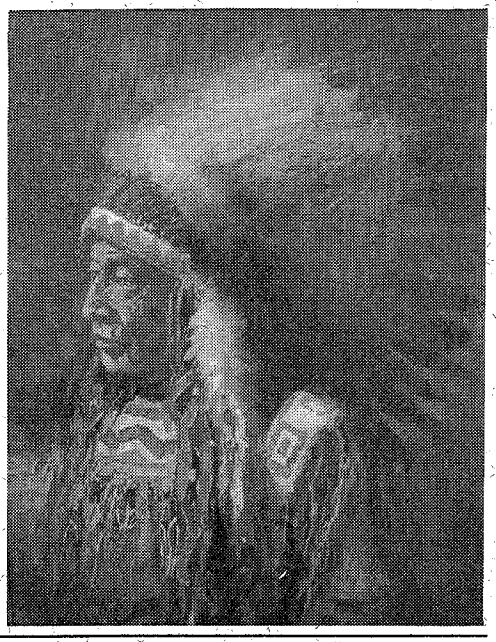
Excellence in education costs money. Our educators are superb and need to be compensated for their professional performance. We reach teachers from Yuma to Bowie, from Nogales to Phoenix. Promoting Old Pueblo's program widely also costs money.

Old Pueblo must charge fees to schools to supplement our revenue. These fees are at times beyond what schools can pay. It is no secret how impoverished many of Arizona's schools are.

As you consider Old Pueblo's Art Auction, raffle prizes, and your membership this year, please consider the value of teaching our future citizens to honor our nation's past. These fund raising activities contribute to our classroom scholarship fund that help to make Old Pueblo's programs affordable to all schools.

Old Pueblo's programs mesh with the curriculum of schools, and enrich the learning experiences of children. If you are reading this newsletter, then you care about our heritage. By buying a raffle ticket, making a donation, or becoming a member, you are helping to inspire your love of history in Arizona's youth.

ART AUCTION FOR YOUTH



"The Chief" by Buck McCain, for sale at Old Pueblo's Art Auction for Youth.

On January 26th, you have the opportunity to attend a special event: Old Pueblo's Art Auction for Youth. This biennial event features the work of outstanding Southwestern artists, who have donated their work to benefit Old Pueblo's youth programs.

From 1-3 p.m. members, donors, and Old Pueblo volunteers are welcome at an afternoon silent auction and reception. The event will be at the Mountain Oyster Club, 283 N. Stone Avenue. R.S.V.P. to our office at (520) 798-1201.

The evening events begin at 5:30 p.m. with a reception and silent auction. This is followed by dinner and the live auction event at 7 p.m.

Cost for the evening program is $60 per person. To make your reservations, call Carolyn O'Bagy Davis at (520) 622-8957.

Evening participants also have a chance to win a special raffled prize: a trip for two to the Hopi Mesas in mid-May, led by U of A professor and Hopi tribal member Emory Sekaquaptewa, J.D.

All proceeds benefit Old Pueblo's Youth Education program, including our classroom scholarship fund for economically disadvantaged schools.

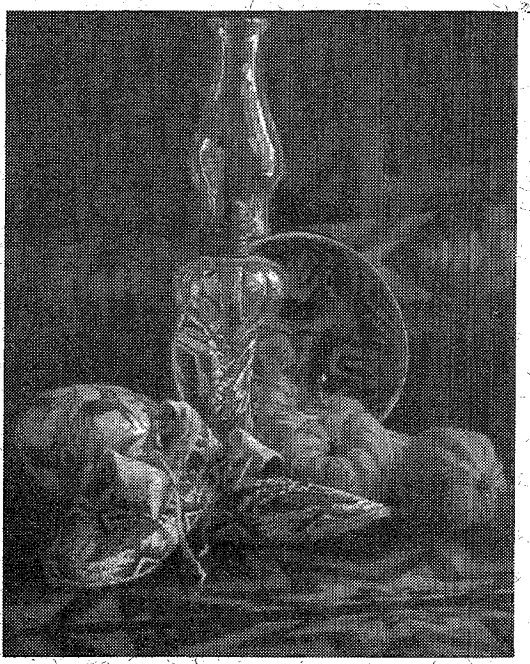
R.S.V.P. today and make your reservations for a chance at some of the most beautiful artwork available in Tucson!

Here are just some of the contributing Artists...

Buck McCain — *Barbara O'Bagy*
Richard Iams — *Alice Henry*
Fran Odum — *Dave Craig*
Mary Schaefer — *Shoo Fly Shufelt*
Roger Archibald — *Bill Shaddix*

Also featuring some of the most beautiful quilts in Tucson, including quilts by *the Tucson Appliqué Society.*

Our Professional Live Auctioneer
ED DEVLIN
comes to us from Taos, New Mexico



Oil painting by Richard Iams, for sale at Old Pueblo's Art Auction for Youth

The Old Pueblo Archaeology Center Membership Program

Archaeology Opportunities is a membership program for persons who wish to support Old Pueblo Archaeology Center's education programs, and perhaps even experience for themselves the thrill of discovery by participating in our research.

Members get to participate in archaeological excavation and survey projects and can help study and reconstruct artifacts in the archaeology laboratory. Benefits include:

- Opportunities to participate in Old Pueblo Archaeology Center's public excavation up to 10 days per year, and in Old Pueblo's other archaeological digs, surveys, and research programs.
- Invitations and discounts for field trips and other archaeology events.
- A 20% discount on Old Pueblo Archaeology Center's publications, merchandise, and courses.
- A 1-year subscription to ***Old Pueblo Archaeology***. Each issue contains archaeology news & illustrations.

More importantly, membership fees support Old Pueblo Archaeology Center's programs.

OLD PUEBLO—YOUNG PEOPLE RAFFLE

Tickets are now on sale for Old Pueblo Archaeology Center's raffle to benefit Old Pueblo's education programs for children.

Prizes for Old Pueblo's raffle include a natural tan and gold, 28" x 28" Navajo rug of unusual tufted mohair weave bought at Dan Watson's Trading Post in Cortez, Colorado, in 1963, donated by Professors Richard and Nathalie Woodbury; a complimentary stay for 6 people in a White Mountains condominium courtesy of the Jim Click Automotive Group; a Southwestern style metal sculpture by steel artist Mike Chumbley, pottery and rock art replicas, gift certificates, and more.

Since we were founded in 1994, Old Pueblo has developed a wonderful array of education programs, activities that allow children and young adults to learn about Southwestern archaeology by experiencing it first-hand. They can participate in digs at real archaeological sites or in our simulated archaeological dig program. They can also learn from our archaeologists who go to their classrooms to make presentations.

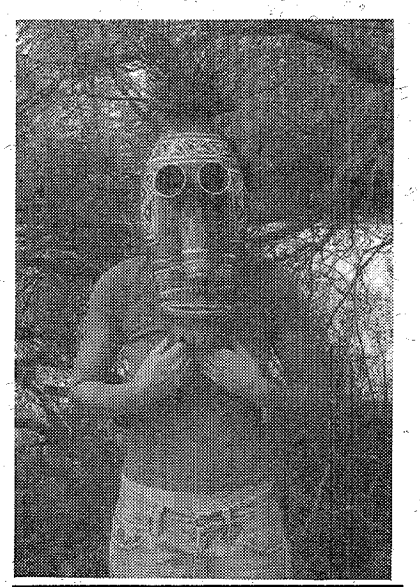
By buying tickets for Old Pueblo's 2002 fundraising raffle, you can become a contributor who helps provide children with innovative and enriching activities, regardless of their financial situation.

So won't you please buy some raffle tickets for yourself and as gifts for family or friends? Not only will your purchase put you in the running for some wonderful prizes, but every dollar earned will help open children's minds to history and the challenge of scientific discovery.

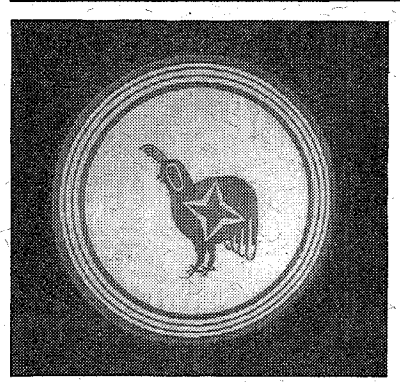
The annual raffle will be held Saturday, March 9, 2002. A bundle of six tickets costs $10, individual tickets are $2 each. You do not need to be present at the raffle to win one of the many prizes available. Tickets may be requested by calling Old Pueblo at 520-798-1201, writing to Old Pueblo Archaeology Center, PO Box 40577, Tucson AZ 85717-0577, or emailing Allen Dart at adart@oldpueblo.org.

Raffle Prizes donated to Old Pueblo as of November 19, 2001

* Navajo rug 28" X 28", unusual tufted mohair weave natural tan and gold, donated by Professors Richard and Nathalie Woodbury
* One-year "Kiva" membership in the Arizona Archaeological and Historical Society donated by Donald Kucera & Old Pueblo Archaeology Center
*Southwestern-style metal sculpture by Prescott Valley steel artist Mike Chumbley
* Gift Certificate for two for lunch at Old Pueblo Grille donated by Metro Restaurants
* 1 yr. Membership donated by Arizona-Sonora Desert Museum
* Gift Certificate for 2 for *Work Song* play donated by Arizona Theatre Company
* *Archaeology of Ancient Arizona* book donated by U of Arizona Press
* *Early Cycladic Sculpture* book by Pat Getz-Preziosi donated by Carolyn Davis
* 2 tickets to *Nrityagram Dance Ensemble of India* donated by UA Presents (U. of Arizona)
* Traditional southwestern-style pottery canteen, salt-glazed, varicolored with strap handles donated by John Guerin
* 2 tickets for admission, skate rental, and skate time donated by Gateway Ice Center
* "Poshuouinge" archaeological poster donated by Jim Trimbell
* Silver Heart Bookmark, 10" heart plate, and crystal picture frame donated by Tucson Mall
* $100 Gift certificate donated by The Maids
* 8 Admission Passes donated by Tucson Botanical Gardens
* *Interactive Learning Workbook* donated by Barnes & Noble
* 4 rounds of golf with cart donated by Santa Rita Golf Course
* Mikasa heart dish and Victoria Jewelry Box donated by Tucson Mall
* Complimentary stay for 6 people in a White Mountains condominium courtesy of Jim Click Automotive Group
* *Earth Figures of the Lower Colorado and Gila River Deserts A Functional Analysis* book by Boma Johnson donated by Jeanne Neal
* 3 Passes (includes admission, lessons & climbing) donated by Rocks and Ropes
* Gift Certificate for a Brewery tour & Tasting for four adults donated by Thunder Canyon Brewery
* Black butterfly chair donated by Tucson Conquistadores
* Family Fun Pass for 18 holes of miniature golf for 4 people donated by Funtasticks
* "Tonto Man" mask made from sotol stalk, donated by Allen Denoyer (see upper right)
* Gift Certificate for two for lunch at Firecracker donated by Metro Restaurants
* Hohokam-style petroglyph replica on small basalt boulder donated by John Palacio
* Mimbres Black-on-white-style prehistoric pottery bowl replica featuring quail design donated by John Guerin (see lower right)
* 2 Passes for Observation Program donated by Kitt Peak National Observatory
* Show Gift Certificate for 2 donated by Gaslight Theatre
* *Paths of Life* book donated by U of A Press
* Cheese Serving Set donated by Tucson Mall
* Silver plated folding cake stand donated by Tucson Mall
* Family Pass (admits four people) donated by Reid Park Zoo
* 7-piece Acrylic Beverage Set donated by Dola Moore
* 4 free 8X10s portrait package donated by JC Penney Portrait Studio



"Tonto Man" mask by Allen Denoyer



Mimbres replica by John Guerin

WINTER CLASSES WITH OLD PUEBLO

Arrowhead Making and Flintknapping

Flintknapper Sam Greenleaf will offer the ever-popular "Arrowhead Making and Flintknapping" workshop on December 15, January 19, February 17, and March 17. Class time is from 9 a.m. to noon.

As he teaches you how to make an arrowhead out of obsidian and other stones, Sam helps you understand more about prehistoric people by studying how they made and used their artifacts.

All equipment is provided, and pre-registration is required. Call (520) 798-1201. Participation is limited to 11 persons ages 9 and older. Cost for each class is $25 per person.

Traditional Pottery Making

Experienced Southwestern potter and artisan John Guerin teaches Old Pueblo's pottery workshops to show you how to make traditional pottery the way it has been made here in the Southwest for over two thousand years. Dig your own clay, then hand-make your own pots, seed bowls, canteens, corrugated ware, ladles, and rattles using the coil-and-scrape method. The paddle-and-anvil method will also be demonstrated. All equipment is provided.

Call Old Pueblo for John Guerin's winter schedule at (520) 798-1201.

MEMBERS' EXCAVATION OPPORTUNITIES!!!!

Come excavate at Old Pueblo's public research site: The Yuma Wash Archaeological Site. This ancient village contains the ruins of houses occupied from A.D. 750 to the early A.D. 1400s. We're uncovering the remains of 3 ancient house ruins this winter.

Members excavate at no additional charge, just call Old Pueblo to register (520) 798-1201. We excavate 8:00-2:30 each session. Session dates: February 14, 15, 16, 28; March 1, 2, 14, 15, 16, 21, 22, and 23, 2002.

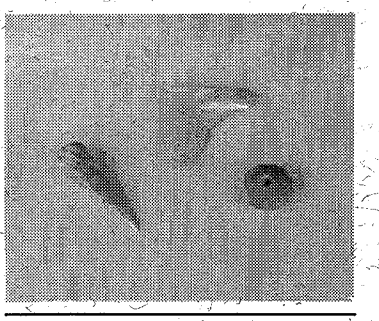
Non-members can also excavate for a day. Fee $38/person/day. Call Old Pueblo to register for the program at (520) 798-1201.

OASIS Center Courses

Old Pueblo's archaeologists Allen Dart and Dr. Eric J. Kaldahl will be offering 2 mini-courses this winter in conjunction with the Pima Community College Community Campus.

Session I is entitled *Ancient Desert Dwellers*. The class meets on four consecutive Wednesdays, 10-11:30 a.m., February 6, 13, 20, and 27. The class meets at the OASIS Center on the 3rd Floor of Robinsons-May Department Store, El Con Mall. The course focuses on the archaeology and culture of the Hohokam. The course number is SW#292.

Session II is entitled *The Ancient Southwest*. The class meets on four consecutive Wednesdays, 10-11:30 a.m., March 6, 13, 20, and 27. The class meets at the OASIS Center on the 3rd Floor of Robinsons-May Department Store, El Con Mall. The course discusses the Paleoindian period in Arizona, Chaco Canyon, the Mogollon Culture, and Hohokam Culture. The course number is SW#291. To register call (520) 206-6468. Fee for each session is $63.



Artifacts recovered by volunteers at the Yuma Wash Site. Left is a complete, polished bone awl. Center is a fragment of a rare ground stone palette. Right is a ceramic spindle whorl.

OPEN1 Pima Kids Program

Old Pueblo is offering Saturday programs for children at our mock archaeological dig site OPEN1. This winter one session will be held February 9th, and a second session will be held on March 2nd. Both classes are offered through Pima Community College.

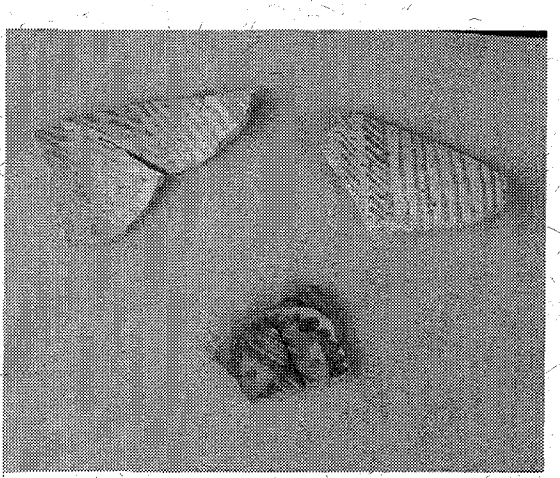
The classes meet from 9-11 a.m. at Old Pueblo's office, located at 1000 E. Fort Lowell Road. Although the activity area is in the shade, children and parents are encouraged to bring water bottles.

To register your child, call Pima Community College Community Campus at (520) 206-6468. Ask for course number SW#901. Fee $20. For children 8 years and up. For program details, call Old Pueblo's office and ask for Bridget at (520) 798-1201.

WATCHING ARCHAEOLOGY AT WORK

Everyone is welcome to drop by Old Pueblo's public excavation at the Yuma Wash site on our excavation days between 9:00 a.m. and 2:00 p.m.

Session dates: February 14, 15, 16, 28; March 1, 2, 14, 15, 16, 21, 22, and 23. Call for directions (520) 798-1201.



Potsherds recovered by volunteers at the Yuma Wash site. Top sherds are from a Hohokam buffware vessel made over 10 centuries ago. Center sherds are from a Salado bowl, produced in the A.D. 1300s.

ARCHAEOLOGY MONTH IS MARCH 2002!!!

Here are some of the *Free Events* Old Pueblo is Planning to Celebrate Arizona's Heritage

Days	Time	Event
March 1, 2, 14, 15, 16, 21, 22, 23	9:00 a.m.-2:00 p.m.	Watching Archaeology at Work: Free tours at the Yuma Wash Archaeological site in Marana. Call for directions (520) 798-1201. Your tour guide: **Dr. Eric J. Kaldahl,** Excavation Director.
March 9	7:00 p.m.-9:00 p.m.	Old Pueblo Archaeology Center Member's night and raffle drawing. **Dr. Emory Sekaquaptewa,** Department of Anthropology, University of Arizona, will present a talk entitled "Hopi Metaphor as a Tool for Archaeological Interpretation." Location to be announced. Call Old Pueblo Archaeology Center (520) 798-1201 for more details and watch for the March bulletin.
March 15	7:00 p.m.-9:00 p.m.	Tohono O'odham cultural resources scholar **Daniel L. Preston, Jr.** will present a slide, artifact, and photograph talk entitled "History and Culture of the Tohono O'odham People, Past and Present," at the City of Tucson's Sentinel Building, 320 N. Commerce Park Loop.
March 16	7:00 p.m.-8:00 p.m.	"Marana's Heritage: Recent Excavations at the Yuma Wash Site." A slide-illustrated presentation by archaeologist **Dr. Eric J. Kaldahl,** with artifact display. The talk will be held at the Coyote Trail Elementary School auditorium, 8000 N. Silverbell Rd. (520) 798-1201.
March 25	9:30 a.m.-10:30 a.m.	"Arts and Culture of the Ancient Hohokam Indians:" Slide-illustrated presentation by archaeologist **Allen Dart,** with artifact display, for Pima County Seniors Program (Pima County Parks program) at Joan M. Swetland Community Center, 15500 S. Sahuarita Park Road, Sahuarita AZ.

All of us at Old Pueblo would like to wish you and yours

A HAPPY HOLIDAY SEASON & A JOYFUL & PEACEFUL NEW YEAR!

Editor's note: All photos in this issue were taken by Eric Kaldahl unless otherwise noted.

Shell Art Sponsor

One of the activities beloved by children in our mock excavation program is the manufacture of etched seashells. Children learn that seashells were etched by the ancient Hohokam, then they get to create their own (see example at right). The kids consume buckets of seashell each year, and Kingfisher Bar & Grill has generously supplied this craft resource to us.

Supporters of Old Pueblo Archaeology Center, August 14-November 21, 2001

Volunteers: Peggy Bommersbach, Jane Delaney, and Buddy Mozley logged in 25.25 hours volunteering in the office. Della & Ivan Curnutte, Sam Greenleaf, Susan Hollis, Jackie Kinman, Doug Lindsay, Christian Leathers, Don Magee, Margaret Seck, and Steve Stacey spent a total of 216 volunteer hours in Old Pueblo's members-only Yuma Wash site excavations in October. **Unrecorded volunteer hours** were also contributed by Peggy Bommersbach, Jeff Jones, Eric Kaldahl, Darla Pettit, Robin Rutherfoord, Old Pueblo's board members, and the volunteer *Old Pueblo Archaeology* bulletin mailing team of Carol Richardson, Ceil McPherson, and Bess Puryear.

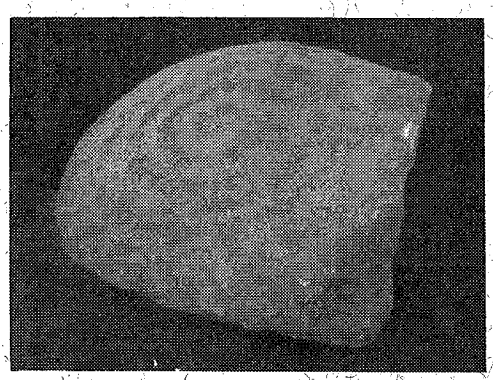
Donors of dollars, materials, and other services: James W. Trimbell and J. Steven Stacey donated computer equipment, Kingfisher Bar & Grill donated seashells for use in our OPEN1 program, Casa Grande Ruins National Historical Park provided a facility for a meeting of Old Pueblo and Arizona Archaeological Society representatives, and cash donors included the Archaeological Conservancy, Allen Dart, Jane Delaney, Faith K. Fuller, Lilo Punzmann, Barbara Snyder, St. Cyril School, and James W. Trimbell.

The not-for-profit Southwestern Archaeology, Inc. (SWA) helps spread the word about Old Pueblo Archaeology Center's programs via the *Got CALICHE?* on-line newsletter at www.swanet.org. (To subscribe to *Got CALICHE?* send your name, address, phone number, email address, and info on your professional or avocational research interests, to swa@dogyears.com.)

Old Pueblo Archaeology Center's new & recently renewed Members and Friends: David R. Abbott, Charles W. & Veronica A. Baker, Nancy Causbie, Joan N. Clark, Thomas M. & Joanne H. Collins, Valerie Conforti, Herb & JoAnn Cowgill, Robert Deel, Barbara Davenport, Jane Delaney, Faith K. Fuller, Anthony Garces, Eileen Garces, Valarie Garces, Vincent Garces, Paul & Eugenia Gengler, Sam Greenleaf, John Guerin, William D. Hohmann, Nancy G. Hough, Melissa Keane, Bettie J. Lindsey, Buddy Mozley, Vicki Nattrass, Lynn A. Neal, Margaret Norem, Lilo Punzmann, Jean Rhoades, Geary Rummler, Margaret Rummler, John & Helen Schaefer, Josephine M. Sheehan, Andy Shellberg, Barbara Snyder, Audrey Stephens, Jacky Turchick, Sharon Urban, Marta Wallace, Thomas E. Wright, and Wendell Zipse

We sincerely thank all of these contributors & volunteers and apologize if we have failed to acknowledge other supporters.

Would you like this in your Yard? Buy a raffle ticket for a chance to win!! Details Page 9



Rock art replica by artist John Palacio

Old Pueblo Archaeology Center
1000 E. Fort Lowell Road
PO Box 40577
Tucson AZ 85717-0577

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Subscription/Membership Application

The Old Pueblo Archaeology Center Membership Program

Archaeology Opportunities is a membership program for persons who wish to support Old Pueblo Archaeology Center's education programs, and perhaps even experience for themselves the thrill of discovery by participating in our research.

Annual membership rates	
Corporation	$1,000*
Sponsoring	$1,000*
Supporting	$500*
Contributing	$200*
Sustaining	$100*
Household	$80*
Individual	$40*
Friend*	$25*

Annual subscription (4 issues)s	
Subscriber	$10*

* Every membership category includes 1-year subscription to *Old Pueblo Archaeology*. Each "Friend" membership receives *Old Pueblo Archaeology* & 20% discounts but does not allow participation in Old Pueblo Archaeology Center's excavations.

Old Pueblo Archaeology is the quarterly bulletin of Old Pueblo Archaeology Center, a 501(c)(3) nonprofit corporation. Questions, comments, and news items can be addressed to editor Eric Kaldahl at Old Pueblo's address shown above, or by calling (520) 798-1201, faxing us at (520) 798-1966, or by e-mail (adart@oldpueblo.org).

The Old Pueblo Archaeology Center Home Page (**www.oldpueblo.org**) is maintained by volunteer J. Steven Stacey (e-mail JSStacey@aol.com).

Archaeology Opportunities Enrollment/*Old Pueblo Archaeology* Subscription Form

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TOTAL ENCLOSED	$

* Each membership receives four issues of *Old Pueblo Archaeology*.
** If you are requesting a Household, Contributing, Supporting, or Sponsoring membership, please list all household members who will receive membership benefits in the box at right.

Please mail form with payment to Old Pueblo Archaeology Center, PO Box 40577, Tucson AZ 85717-0577

Questions? Call Old Pueblo at (520) 798-1201