

ARCHAEOLOGY SOUTHWEST *magazine*

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Textiles and Prehistory

Lynn S. Teague, Arizona State Museum

TEXTILES ARE EVERYWHERE IN OUR LIVES, but they are rarely found by archaeologists. Like other organic artifacts, textiles decay rapidly under most environmental conditions. In the Southwest, we are fortunate to have thousands of surviving pieces, ranging from very decorative laces to the plainest of fabrics. These often-fragmentary remnants shed light on a broad range of archaeological questions. At every stage, from fiber to fabric, textiles carry with them vast amounts of information about the people who made and used them.

Preservation

Most surviving Southwestern textiles are recovered from dry caves, including the knotted nets and twined bags found in Archaic levels at McEuen Cave and an elaborately patterned, interlinked fabric from fourteenth-century cliff dwellings at Tonto National Monument. A smaller number of specimens have been preserved by fire, most impressively a fine, weft-wrapped carbonized fragment from the eleventh century found at Snaketown, south of Phoenix. Other situations which preserve cloth are not common in the Southwest. Airless environments, such as bogs or lake bottoms, can provide remarkable preservation—but are not typical of the region. Fabrics can also be preserved by the leaching of minerals from metal artifacts, which are quite rare in the Southwest.

Archaeologists have been documenting and studying textiles in the Southwest for years. As new pieces of textiles are recovered, additional questions are posed, prompting the reexamination of the role textiles played in the lives of the prehistoric residents of the area.

Fibers and Yarns

Fibers are the basic materials from which textiles are made. Between 550 and 700 different plants have been used in the production of textiles in the Southwest. Animals have provided fur, hair, and feathers. Asbestos has been used as a fiber for special purposes. The archaeological presence of a particular type of fiber can reflect wild plant availability, the use of a new domesticate such as cotton or turkeys, the direction and intensity of interaction with distant groups, or changes in the cultural contexts in which fibers are used.

The earliest people of the Southwest created textiles from locally available fibers. Hair from humans and domesticated dogs was incorporated into yarns for fabrics, and both rabbit fur and bird feathers were used in twined robes. These materials were readily available and their insulating value and easy preparation made them ideal for use in early textile production.

Fibers from wild plants were also very important. Plant leaves and stems usually contain long, coarse fibers. These fibers are held together in the leaf or stem by gums that must be removed through processing. Important plants used in prehis-

INTRODUCTION

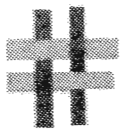
ARCHAEOLOGISTS solve the puzzle of the past by studying its pieces: artifacts, such as pottery and flaked stone; architectural features, sites, and even landscapes. However, one piece of the puzzle is usually missing—perishable materials. Textiles, wooden items, prepared animal skins, feathers, and furs; basketry, sandals, and paper usually decompose when discarded or lost. These materials were an important part of everyday life for the prehistoric and historic people of the Southwest, and their loss means we often cannot fully understand the past. Fortunately, perishables sometimes survive. Buried in dry caves, carbonized inside burnt structures, lost on a pueblo room floor, or preserved in a museum or archive; perishable materials can provide the piece that completes the puzzle, providing insights into ancient trade, gender roles, symbolism, and technology, among other topics. The authors of this issue of *Archaeology Southwest* were posed a simple question—“What can perishables tell us?”

J. Homer Thiel, Issue Editor



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Interlacing



Linking



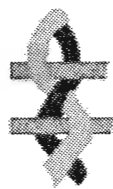
Looping



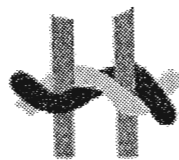
Wrapping



Crossing and Recrossing



Twining



Fibers can be combined in different ways to make textiles. Woven fabrics rely on interlacing elements. Interacting structures have elements joined by linking, looping, wrapping, and other methods. Prehistoric residents of the American Southwest relied on a variety of textiles for clothing, containers, and tools (illustration courtesy of Lynn Teague).

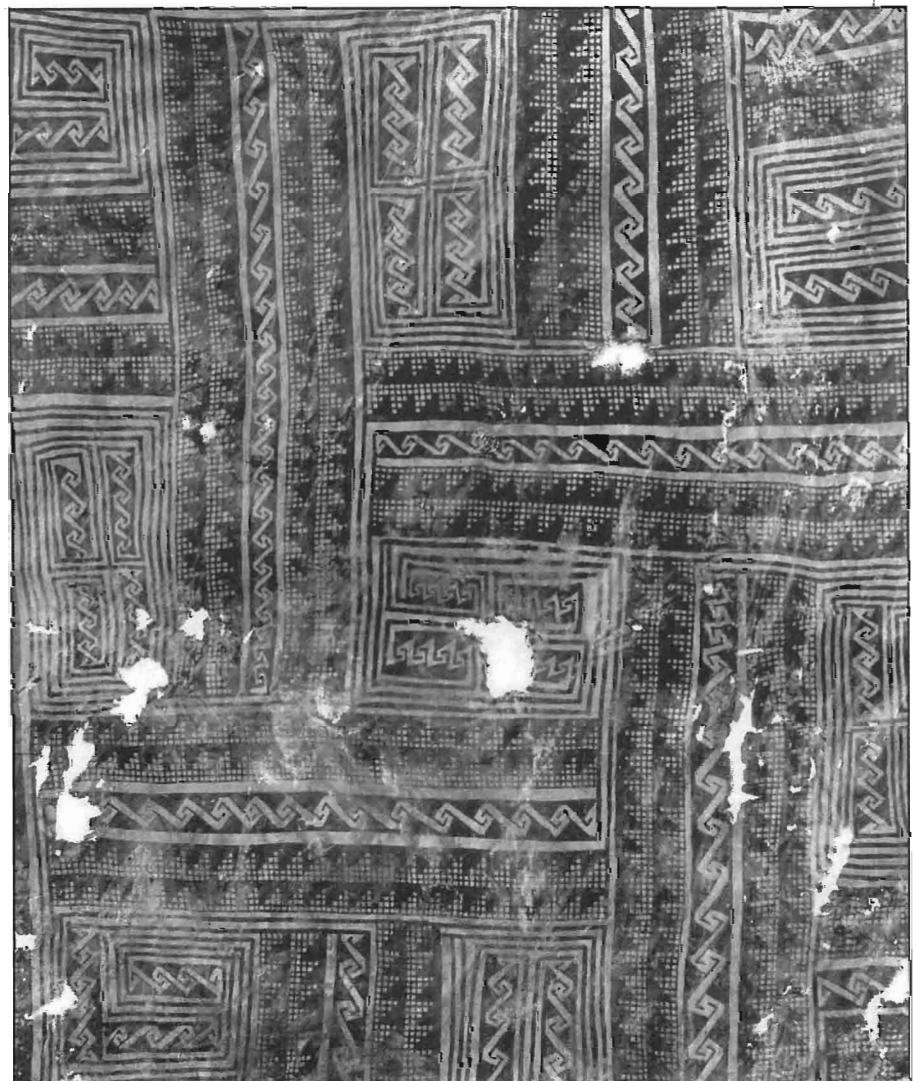
toric Southwestern fabrics include the leaves of yucca, agave, sotol, and beargrass, and the stems of milkweed, hemp, mesquite, cliff rose, and willow. Long fibers made it possible to spin them into yarns without tools, simply by rolling them along the thigh with the hand. "Hand spinning" is nothing more than drawing out fibers and twisting to hold them together.

After about A.D. 700, it was a seed fiber—cotton—that dominated most Southwestern textile assemblages north of what is now Mexico. Cotton has many advantages over other plant materials. Cotton fibers are not encased in gummy substances and often are only lightly attached to the accompanying seeds within the boll. Preparation is therefore easy, and the resulting yarns are both soft and strong. However, the short fibers of cotton require a tool for the preparation of yarn. In the prehistoric Southwest, as in much of the world, this tool was the hand spindle.

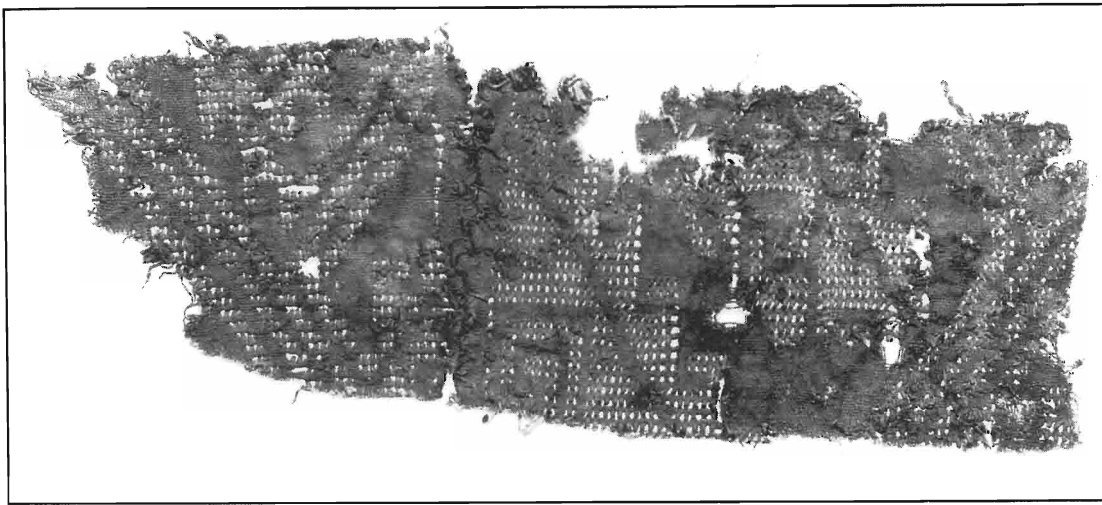
The most widely distributed version of the spindle, and almost certainly the earliest, was similar to what was used historically in the pueblos. The spindle was a straight stick with at least one end—the one that the fiber rotated upon—shaped into a point. Whorls were fixed on the spindle shaft to maintain the rapid rotation needed to put twist into fiber. Initially in the Southwest, whorls were perforated disks made from wood, horn, gourd, or worked sherds. The spindle whorl was rotated on the thigh. Later, modeled clay whorls were introduced into the area below the Mogollon Rim from Mesoamerica; the shorter spindles on which these were mounted were supported vertically below the spinner on a firm surface, perhaps a bowl or sherd.

Fabric Structure

Once fibers are prepared and spun, it is possible to combine the resulting yarns, or elements, into a textile. There are many ways of



Front page: Interlinked shirt from Tonto Ruins, known as the Tonto shirt (Arizona State Museum, University of Arizona, E. B. Sayles, photographer. ASM negative no. 1419). Right: At first glance this blanket from Painted Cave appears to be lace. Closer examination reveals the blanket was painted by a skilled craftsman to look like lacework (Arizona State Museum, University of Arizona, E. B. Sayles, photographer. ASM negative no. 1415).

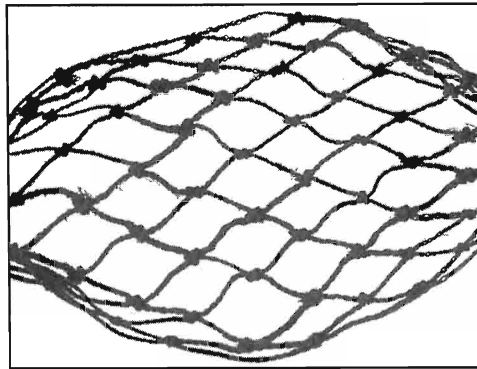


Left: Woven fabrics, such as this example of weft-wrapped openwork, could be constructed easier and faster after the invention of the loom (Arizona State Museum, University of Arizona, E. B. Sayles, photographer. ASM negative no. 1426).

Below: Nets were created by loops and knots. They were used for hunting and domestic purposes (photo courtesy of Lynn Teague).

doing so. Felted fabrics consist of loose fibers processed to form a fabric that lacks an internal organized structure. The other forms of textiles are all structured and their study can tell us a great deal about the techniques used in the construction and function of finished fabrics, the social identities of weavers, and their social and economic interactions.

Irene Emery developed the terminology used to describe textiles. In *The Primary Structure of Fabrics*, she noted that structured fabrics are composed of elements (such as yarns, threads, strands, cords, or thongs) that are worked together systematically. There are only a few ways in which elements can be interworked. Woven fabrics rely on *interlacing* elements, with one element passing immediately above or below another. *Interacting* structures involve more varied techniques for joining the elements and can include linking, looping, wrapping, crossing and recrossing, and twining. An easy way to visualize this is to examine the difference between a woven (interlaced) fabric, such as the material used for shirts or blue jeans, and knitted (interacted) materials, such as socks or sweaters.



held some of the elements in place while the work proceeded. However, none of these fabrics required the use of a true loom.

The loom was introduced among the Hohokam

and Mogollon about A.D. 700 and was readily accepted. At their simplest, looms are frameworks on which one set of yarns (the warp) is held under tension. A simple mechanism, such as a stick, is used to move the warp threads to permit another set of elements (the weft) to be interwoven.

Three basic types of looms have been used prehistorically and historically in the Southwest: the backstrap, horizontal, and vertical looms. Backstrap looms, originating in Mexico, were probably used to make textiles in the Southwest soon after A.D. 700. The warp of these looms is not pulled tight by a stable framework; instead, the pull is between a stationary object—such as a tree, a pole, or a wall fixture—at one end and the weaver at the other end. Horizontal looms were characteristic of the Sonoran Desert and northern Mexico and were in use as early as the eleventh century in the Mogollon area, where a Mimbres vessel was found painted with a picture of this type of loom. Horizontal looms were probably also in use among the Hohokam. The last of the loom types to appear in the Southwest was probably the vertical loom which was associated with the ancestral puebloan people of the Colorado Plateau.

Once the loom was available to make fabric construction easier and faster, simple plain weaves made up the bulk of fabrics. This is the simple one-over, one-under structure still used to make many fabrics today. More complex textiles, characterized by diagonal yarn alignments, including twill and twill tapestry, were made in both the desert and plateau regions. Weft-wrapped openwork and gauze, both open,

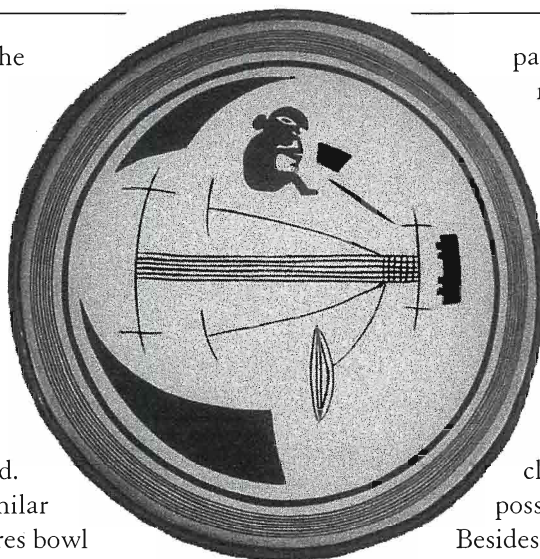
The earliest recovered Archaic period fabrics in the Southwest date to about 400 B.C. and include looped, interlaced, and knotted textiles. These were used to create simple braids, socks, nets, and bags. Braids are especially common in early sites on the Colorado Plateau and in the upper Salt and Gila river drainages. Nets made using looped and knotted structures were used for hunting and domestic tasks throughout the region. Animal fur and feathers were wound on a yucca fiber core and then made into warm robes well suited to the cold winters of the higher elevations. Not surprisingly, most of these garments have been found at sites at higher and colder elevations, although some have been recovered from more temperate areas.

The production of some early fabrics required no tools at all. Others could be made with the help of a few sticks. Larger textiles were made using a simple framework that

lace-like weaves, were common in the desert Southwest and, after about A.D. 1100, were traded north to the Colorado Plateau.

Not all the impressive fabrics that survived prehistory were made on the loom. Interlinked fabrics, dating from the fourteenth century, have been found on the upper Gila River and at the Tonto Ruins on the Salt River. Although these were made on frameworks, the yarn was manipulated entirely by hand. The earliest evidence of a garment similar to the Tonto shirt appears on a Mimbres bowl dating between A.D. 1000 and 1200. Another sleeveless openwork cotton shirt (dating about A.D. 1050 to 1275) was found at White House in Canyon de Chelly. This suggests that this general clothing style had considerable longevity in the prehistoric Southwest, although the methods used to create individual pieces varied.

Finally, not all decorative textiles owe their appearance to how they were woven. Many fabrics were colored with dyes and pigments, or display patterns created through



painting or tie-dye techniques. These reached their greatest elaboration in painted blankets from the Verde Valley and the Colorado Plateau.

This brief overview touches on only a few of the many technical and stylistic attributes of textiles. Prehistoric Native Americans created complex and visually stunning fabrics with basic materials, technology, and techniques. Textiles were used for clothing, for bags to carry and store possessions, and for nets and other items.

Besides their functional use, they may also have imparted symbolic information, such as specific designs on clothing to allow identification of group members at a distance. The study of textiles lets us trace trade patterns to see how ideas spread throughout a region, and to better understand ancient technologies. Both new discoveries and the reexamination of the several thousand specimens already preserved in museums will allow us to recover additional information, providing a new perspective on the fragile past of textiles.



Above: Information about textiles can sometimes be found by examining other artifacts. A Mimbres bowl from the eleventh century depicts a horizontal loom, revealing it was in use by that date in the Mogollon area (illustration courtesy of Lynn Teague).

Below: A Tarahumaran woman weaves fabric on a horizontal loom (Arizona State Museum, University of Arizona, Bennett L. Zingg, photographer. ASM negative no. 54673).

The Anthropology of Clothing: An Example from the Historic Pueblos

Laurie Webster, Arizona State Museum

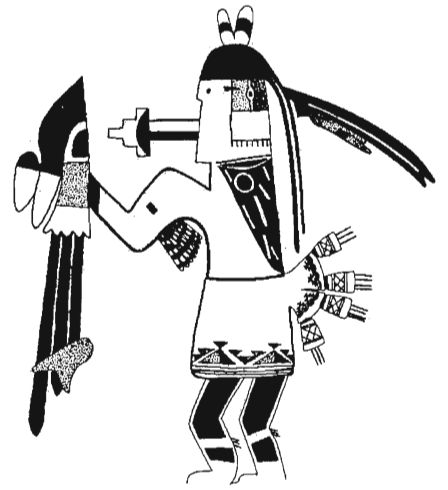
WE OFTEN EVALUATE a person's gender, socioeconomic status, political views, and recreational pursuits based upon their clothing. The study of perishables provides archaeologists an opportunity to explore such issues for past times.

The arrival of the Spaniards had a profound effect on the lives of the Pueblo people of New Mexico and Arizona. Virtually every aspect of life was changed, including the production and use of textiles for cloth and clothing. To evaluate several hypotheses about the effects of the entrada, I undertook a reexamination of textiles recovered from archaeological excavations at contact-period pueblo sites at Hopi, Zuni, Pecos, and the Rio Grande Valley. Most textiles have long since disappeared, so I supplemented this research with other sources of information about clothing. Drawings found on kiva murals and pottery provided some information, showing how clothing was worn for certain ceremonial events. Spindle whorls, weaving tools, and the holes left by looms on kiva floors revealed how and where clothing was produced. Spanish documents provided additional clues about pre-contact apparel.

Prior to the arrival of the Spaniards, Pueblo Indians wore clothing fashioned from cotton cloth or animal hides. Men wore untailed shirts, loincloths, and kilts, and women wore blankets or *mantas* as shawls and as dresses draped over one shoulder and tied at the waist. Men were the primary textile producers, often working in kivas while fashioning fabrics on upright looms. Non-loom techniques, such as looping, were also used. Puebloan people living near the Rio Grande and at the Hopi Mesas grew cotton in nearby fields and traded cotton cloth to their neighbors.

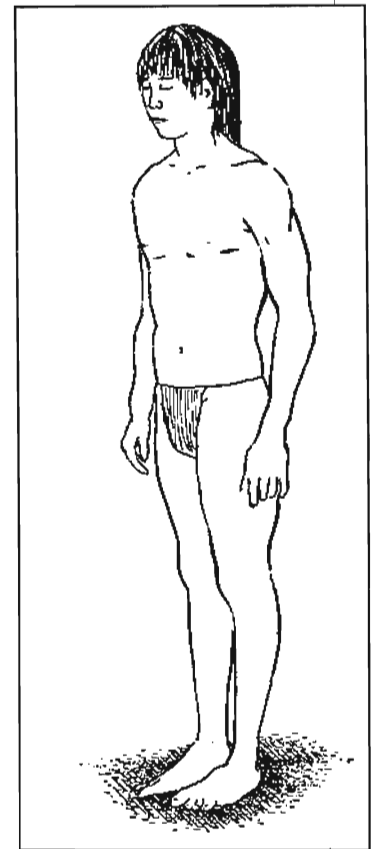
Immense changes took place during the seventeenth and eighteenth centuries. People's lives were disrupted as new diseases decimated populations and communities were consolidated and abandoned. Spaniards moved into the areas around the pueblos and demanded cloth as tribute while Spanish missionaries and settlers expropriated Pueblo land and labor for their own use. As Pueblo male labor was diverted to other tasks, women began playing a greater role in the production of textiles, especially tribute cloth. In the late 1600s, many puebloan groups responded to these Spanish disruptions by rebelling or by fleeing their communities. Some of these refugees may have taught weaving to the Navajo.

The Spaniards introduced new fibers and dyes into puebloan cloth production. Wool replaced cotton as the

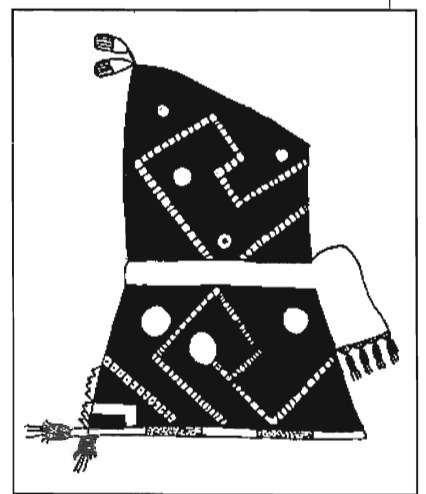


Top: Ceremonial attire depicted on a kiva wall at Awatovi. Note the hand-held bird-like item similar to the artifacts discussed in Gwinn Vivian's article (see page 8).

Right: Figure wearing traditional Hopi man's loincloth. Bottom: Traditional Hopi woman's manta from a mural at Pottery Mound (illustrations redrafted by Rob Ciaccio).



most prevalent fiber in Pueblo textiles, used first as an embroidery yarn and then to fabricate blankets, leggings, dresses, loincloths, and shirts. Caring for sheep required new skills and dramatically altered the lives of a people who had previously raised only turkeys and dogs. Spaniards imported a blue dyestuff, indigo, into the province, taught the Pueblos knitting so they could make leggings for tribute, and introduced metal needles, which facilitated the production of elaborate embroidery. The Pueblos did not adopt every new technology; instead, they chose what was useful to them and turned away from tools they did not want,





Top: The cacique [chief] and his wife and daughter, 1892. The women are wearing mantas; the cacique wears non-traditional clothes. Bottom: Mother and daughters, n.d. The daughters wear western clothing, probably a result of attending boarding school. Both photos taken by Charles Lummis at Pueblo of Isleta, New Mexico (Courtesy of the Southwest Museum, Los Angeles).

such as spinning wheels and treadle looms.

Puebloan men adopted elements of Spanish-style clothing, such as fitted shirts and trousers, within a century or so after contact. Their use of European dress was spurred by a number of factors, including frequent contacts with Spaniards during work, an effort to avoid discrimination when away from the Pueblo villages, and a desire to emulate the styles of the politically dominant culture. Concurrent with the adoption of these European styles, Pueblo men retained the use of the shoulder blanket or *manta* as an ethnic marker to signal their indigenous identity.

In contrast, the pre-contact style of Pueblo women's dress remained relatively unchanged for centuries. While the style remained intact, the *manta* garment itself underwent considerable change as wool was substituted for cotton, and indigo dye and embroidery grew in importance. Women's clothing did not change appreciably until the late 1800s, when young girls were exposed to western styles of dress at the Indian boarding schools and were compelled to wear them, often to the dismay of their elders.

Ceremonial clothing styles have remained remarkably unchanged in the 500 years since contact. The same forms of ceremonial garments

seen in the late-prehistoric kiva murals are still worn by Pueblo peoples in their ceremonies today. Although some designs and production processes have changed, cotton still retains its sacred importance in ritual clothing. The textiles used in contemporary Pueblo ceremonies provide an unbroken, tangible link between modern Pueblo peoples and their pre-contact past.

Basketmaker Sandals from the Four Corners Area

Elizabeth Ann Morris, Colorado State University

SANDALS MADE OUT OF YUCCA FIBER are one of the most commonly found articles of clothing in Southwestern archaeological sites. Sandals consist of a flat sole that was often shaped to match the foot, and various systems of loops, lacings, and straps that fastened the sandal to the wearer's foot. Two main types of sandals are found in the Four Corners area in dry caves and sometimes at open-air sites. Flat braided sandals are widely distributed in time and space. Sandals made utilizing warp and weft components are rarer. Specific details of decoration and/or finishing the toe and heel portions have a more limited distribution. These differences provide basic information about the technological know-how of the people making sandals.

The Basketmaker people who lived in the Four Corners area for several centuries before and after the time of Christ developed sandal making into a fine art. They used the rough-textured, sharply pointed leaves of the yucca. These leaves do not feel like material that most of us would want to wear; however, the plants occur commonly and their fibers are very sturdy. Yucca leaves were soaked, pounded, and scraped to reduce them to long, strong individual fibers. These could then be twined into strings of different diameters or they could be further beaten into split elements suitable for softer, finer cordage. The coarser strings were used for the warp and the finer cords for the weft. Colorful geometric designs were made by dyeing weft elements with red, black, yellow, and possibly blue and brown mineral paints. These many-colored panels were most often on the upper surface of the sandals. Careful wrapping of weft and warp threads produced textured designs and thick, reinforced sections on the bottom of the sandals. Some of these may have functioned as "treads," facilitating traction on the sometimes slippery, slick rock. Differing manufacturing techniques for toes and heels, as well as decoration styles, seem to be geographically and temporally specific. Interestingly, every design on specimens studied so far seems to be unique.

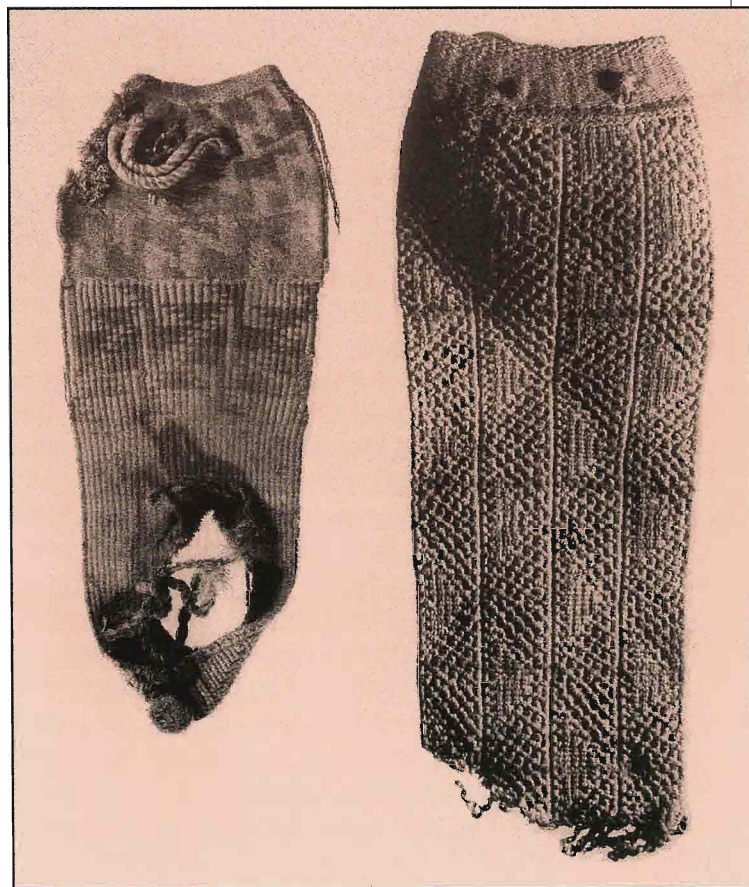
Why was so much labor and creativity invested in garments destined for rough use and quickly exhausted? One suggestion is that, since the Basketmakers did not wear many clothes, at least in warm weather, they may have worked hard to make what they did wear decorative and utilitarian. Another interpretation is that the designs would identify the maker of tracks or, perhaps, the occupants of a house when the footgear was left at the entrance. Kelley Hayes-Gilpin has suggested that sandals were important for more than just individual identity. She feels that gender,

status, and clan or tribal affiliation might be indicated by the decorations on sandals.

Sandals protected human feet in the harsh environment, and perhaps served other purposes as well. Hundreds of beautifully made sandals have been recovered from sites, ranging from tiny, infant-sizes up to adult-sizes. There are huge plaited "overshoes," sometimes still caked with mud. Craftspersons showed great skill in their efforts; some sandals had mirror-image designs for the left and right feet. The creative efforts of these Basketmaker people extended beyond footwear to belts, sashes, and bags. Sandals, however, are more common and were obviously a major focus of individual creativity in a practical context.

Left: The colored designs that decorate this sandal would not have been visible when it was worn (Arizona State Museum, University of Arizona, Ken Matesich, photographer. ASM negative no. 99792).

Right: The sole of this sandal has raised designs (photo courtesy of Elizabeth Ann Morris).



Perishable Materials from Chaco Canyon, New Mexico: Ritual Items from the Chetro Ketl Great House

R. Gwinn Vivian, Arizona State Museum

IN THE SUMMER OF 1947, a powerful early evening storm broke over Chaco Canyon in northwestern New Mexico, producing enormous quantities of runoff. A drainage channel overflowed its banks behind Chetro Ketl, a Chacoan Great House to the east of Pueblo Bonito, sending thousands of gallons of water into the low-lying back tier of rooms.

The flood weakened foundations at the back of the pueblo and major sections of the wall collapsed. Fairly immediate National Park Service salvage and stabilization work at the site, carried out by Gordon Vivian, included the excavation of the second story of Room 93.

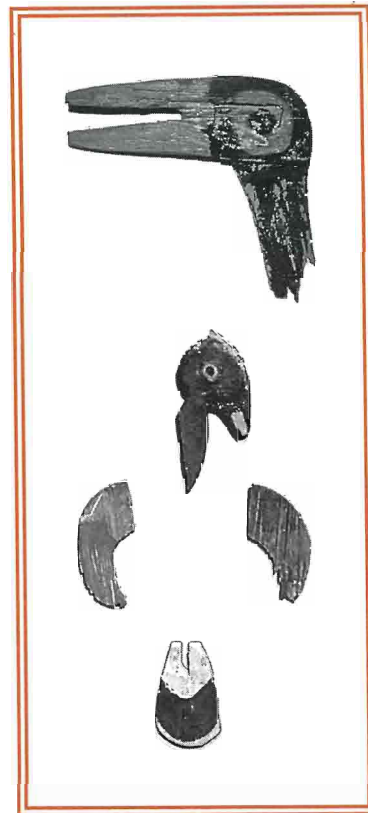
Many of these rooms had been excavated in the 1920s and 1930s by Edgar L. Hewett. Work by Hewett and subsequent archaeologists determined that this multi-storied structure followed the common D-shaped ground plan, with 580 rooms and an enclosed plaza with two great kivas. Site construction and occupation, dated dendrochronologically, extended from A.D. 1010 to 1105; building occupation is assumed into the mid-twelfth century.

Vivian found the roofed first-story room intact, but partially flooded. He was concerned that room fill, mostly fallen wall, in the unexcavated second story would cause wall and roof collapse. When the fill of the second-story room was removed, a remarkable collection of perishable materials, mostly carved and painted wooden objects, was recovered near floor level.

A combination of factors produced relatively dry conditions that preserved organic remains in Room 93. The upper fill in the second story, a mass of wall stone and mortar, capped a thick layer of juniper bark overlying 15 to 20 cm of floor deposits. Little moisture had permeated this fill. The juniper bark formed a protective seal, and the open space of the first story below the floor prevented ground seepage upward. When the juniper bark layer was removed, over 400 perishable items—mostly carved and painted wood objects—were found concentrated within a layer of silt and sand covering the floor in the northwestern corner of the room.

As the items were excavated, several tentative conclusions regarding their nature and condition were drawn by Gordon Vivian and his co-workers. First, the majority of the objects appeared similar in design, manufacture, and ornamentation. Second, the presence of most items in one corner of the room suggested they were stored or used in that location. Finally, it became apparent as excavators removed the objects that most were broken and represented only

Top: Bird head constructed of two pieces sewn together and then painted. This bird may represent a crane. Below: Parts of carved and painted wooden birds found in Room 93. The parrot head is shown with what may be two wings and a tail piece, although the "wings" have also been interpreted as "horns" (photos courtesy of Gwinn Vivian).



fragments of items. Gwinn Vivian, Dulce Dodgen, and Gayle Hartmann subsequently classified the objects and revised some of Gordon Vivian's thoughts on the purpose and disposition of the objects.

Room 93 perishables were classified into three major categories: flat, carved forms; round, carved forms; and miscellaneous objects. Flat, carved forms were fashioned from slabs of wood, primarily pine, that were shaped and finely finished before being decorated with black, white, brown, blue, green, red, and yellow pigments. A number of the flat forms were clearly animal-shaped, but could not be positively identified because of their fragmentary nature. Among these were crescent-shaped items that resembled horns; and eared plaques, termed "buffalo heads" at the time of excavation. Broken projections on these plaques suggested they may have been hand-held. Several "wands" provided more conclusive evidence for being hand-held. These consisted of a long, tapered slat with lozenge-shaped cross-slats, a "head" decorated with an eye motif at the end of the tapered slat, and a bulrush-wrapped handle. Other fairly common forms included painted and scalloped disks suggestive of sunflowers, and large oval-shaped disks painted in complex geometric designs.

Early analysis of the pieces provided strong evidence that most, if not all, of the flat forms had been fashioned as parts of three-dimensional pieces held together by sinew, yucca cordage, or resin, a premise supported by similar items recorded by other archaeologists and ethnologists. A

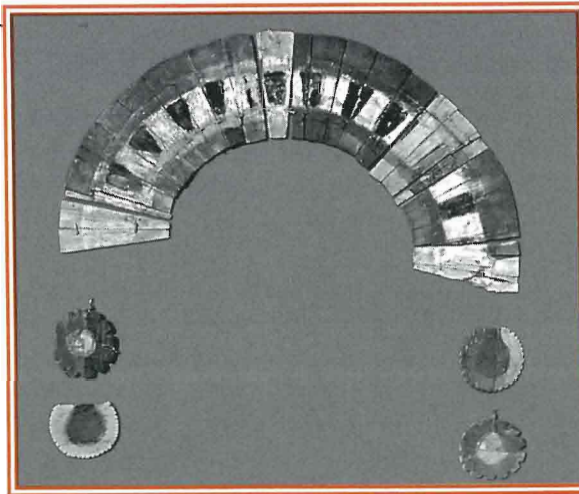
complete “handled ovate” and several bird “tails” with “handle-like appendages” were presumed to be elements of composite bird forms.

Round, carved forms were less common and included nonfunctional bows and arrows (with flat, carved wood fletching) and knobbed “ceremonial sticks” which Navajo workers identified as medicine sticks. One of the most interesting finds consisted of two complete and 25 fragmentary carved sticks that may have been part of a lightning lattice or frame.

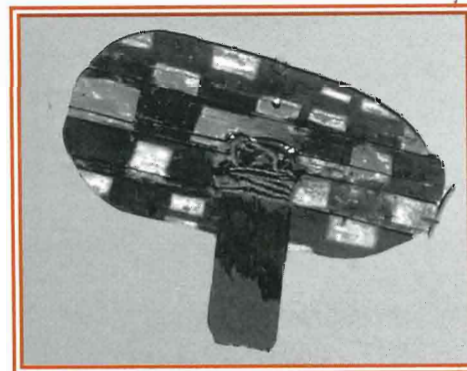
A wide range of miscellaneous objects was recovered, including small carved sticks (some with yucca binding), yucca cordage, and yucca leaf loops, braids, and ties. A few fragments of corn and pumpkin plant were also collected.

As the first items were exposed, Gordon Vivian believed he had located the remains of a slat altar similar to those described for the historic Hopi, Keres, and Zuni peoples. In these cases, flat, painted, and often carved wooden slats formed a backdrop for clustered, multiple ritual objects placed on the floor of a sacred room or kiva. It was not uncommon for elements of the altar to be suspended from the ceiling. The clustered nature of the objects in Room 93 fit the pattern, as did their proximity to the floor, and Vivian reasoned that when roof timbers were pulled from the room following abandonment, falling roofing material (including the capping layer of juniper bark) had broken and crushed the fragile pieces of a disused altar. To confirm this supposition, the locations of all wood fragments were mapped as they were found to allow for the reconstruction of the altar pieces.

As the mapping progressed and more items were collected, Vivian began changing his slat altar hypothesis. It had become apparent that there were no complete items in the room and many slat pieces seemed to be parts of composite forms. Ultimately, Vivian, Dodgen, and Hartmann presented several options regarding the use and ultimate disposition of the items. They noted that several features of the flat forms suggested they were not altar fittings. Many of the items were decorated on both sides, implying they were meant to be seen from both sides, unlike altars. The pieces were small compared to the components of historic slat altars. The fact that many of the pieces seemed designed to be seen as three-dimensional objects that could be hand-held suggested they were worn or were hand-carried during what Elsie Parsons termed “public dramatization,” a ritual carried out after a ceremony that had been closed to the public. Parsons further noted that public ritual often employed sympathetic magic involving the substi-



Top: A “tableta” form with possible suspended rosettes. This piece may have been worn or it may have been attached to other carved and painted forms. Bottom: A handled plaque. The handle was attached with yucca cordage. The implement may have been hand-held (photos courtesy of Gwinn Vivian).



tution of an image for a desired object or thing.

Although puebloan ritual items traditionally are temporarily

stored between periods of use, when ceremonial objects were permanently retired they could be “put away in the hills,” or placed in sealed rooms. If Room 93 was a permanent depository, it appeared that the objects were vandalized at a later time. Not only were pieces broken and missing, but at least a dozen pieces of similar wood had been found by Hewett in Room 101 to the east, and two other similar objects were collected in 1964 from Room 92 to the south. Moreover, seven pieces of carved and painted wood, recovered from the small house site of Tseh Tso on the opposite side of Chaco Canyon, were remarkably similar to those from Room 93, although they were reportedly constructed of cottonwood instead of pine.

The wooden artifacts from Room 93 are rare examples of Chacoan perishable artifacts, and provide us with a glimpse of prehistoric human behavior. It appears that a retired set of ceremonial artifacts had been placed in an unused room of the north room block at Chetro Ketl. Construction of this portion of the building took place between A.D. 1050 and 1055, so the deposit presumably was made several decades later, when the room was abandoned. Some person or persons entered the room after the objects had been put away, and vandalized essentially all of them. Break- and cut-marks appear on several items and some were broken into matchstick-sized pieces. The majority were probably left in Room 93, with a few pieces carried to other areas. The prehistoric vandalism robbed us of a more complete picture of Chacoan ritual in the mid-eleventh century, but none of this story would be known had conditions not been suitable for preservation of at least some of these delicate, organic objects.

Mission 2000: Bringing Mission Records to Life after 300 Years

Donald T. Garate, National Park Service

IN 1856, AS THE MEXICAN GARRISON evacuated the Tucson Presidio and American forces formally took over southern Arizona, someone packed up the Presidio Chapel registers in which births, marriages, and deaths had been recorded since at least 1781. These 75-year-old books chronicled major life events of hundreds of people who lived in Tucson while it was a Spanish and Mexican fortress. Somewhere along the road the records disappeared, and the biographical and genealogical data contained in these books were lost as well.

Historic paper records are perishable materials. They may be lost in accidents, destroyed by floods or fires, eaten by insects and rodents, or decompose as paper ages. The original records for many of the Spanish and Mexican missions survive; however, they are presently a little-used source of information. The National Park Service is preserving information recorded by Jesuit and Franciscan priests in mission registers by translating records and making them available on the Internet, through the Mission 2000 project.

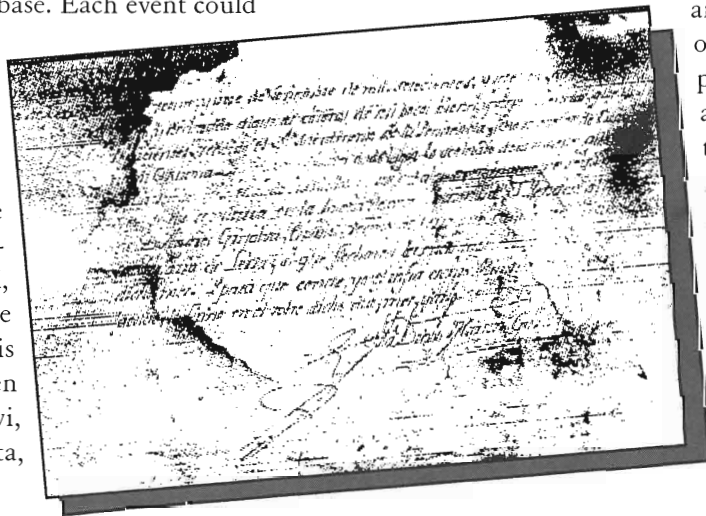
Priests entered a variety of information in mission registers. Records of baptisms, marriages, and deaths are being translated and entered into the database. Each event could involve many people: priests, witnesses, parents, and godparents, for example.

What can these records tell us? When compiled, biographical data accumulate about individuals. One example is Andres Grijalva, *comisario* for the Missions of Guevavi, Suamca, and San Xavier, after the Jesuit expulsion of 1768. He is presently associated with eleven entries, from Suamca, Guevavi, Terrenate, Calabazas, Buena Vista,

and San Ignacio. In these entries he was the father of the baptized child or the father of a baby being buried, giving us the names of six of his children. We know his wife's name, Luisa de Leiva, and that they lived at Terrenate. He was considered a Spaniard in the extensive colonial caste system, was killed by Apaches while en route to Santa Ana to visit his family, and is buried beneath the floor of the nave in the mission church at San Ignacio.

Records entered so far include the names of over 100 Spaniards killed in the Pima uprising of 1751, along with the site of their deaths. Extensive information about Pedro de la Cruz Chihuahua has been uncovered. He was a half Pima-half Opata who was the only person punished by execution for involvement with the rebellion. His parents, wife, and three children have been identified, with the marriage of one of his daughters recorded in the Tumacácori book. His father was a coachman for Father Campos, who was in charge of all the missions of the Pimería Alta, on several of his trips in the early 1720s north from San Ignacio into what is today southern Arizona.

Father Campos made many entries in the Tumacácori book. He recorded the names of many native rancherías and, by comparing various entries, we can often place them on the map and trace their evolution to modern place names. His register entries reveal the devastating effects of the smallpox epidemic of 1724 and the measles epidemic of 1729. He notes native peoples bringing their sick from miles around to be



Burial entry for Andres Grijalva: "On November 27, 1770, having declared some of his meager goods, and having received the Holy Sacrament of Penance but not the Viaticum or Extreme Unction because of his accelerated death, Don Andres Grijalva was buried in the church of this Mission of San Ignacio. He was a Spaniard and resident of Terrenate. He was married to Hilaria de Leiva. The enemy shot him with their arrows earlier this month. For this truth, I, the undersigned minister for His Majesty, affixed my signature on the above mentioned day, month, and year. Diego Martín García"

The difficult-to-decipher entry points out the difficulties involved in reading, transcribing, and inputting such records, but the information gained is invaluable. A wealth of personal information is revealed in this entry and, when considered with others like it, we can learn about such things as death rates. The Apaches were viewed as a terrible threat, however, mission records reveal that death by murder during the mission years, mostly at the hand of the Apaches, was just under one percent. Today, murder in the United States is also just under one percent.

baptized, probably not for redemption of their sins as understood by the missionaries, but rather in hopes of a cure for the new and terrible diseases that had been introduced by the Spaniards. Father Campos, who spoke the native language fluently, repeatedly referred to the natives as *Ootam* or *Ootama*. Those from the desert he called *Papab Ootam*.

One of the most important and exciting discoveries is the hundreds of names of Native Americans. It appears that none of the Jesuits understood the Apache or Seri languages because those people were always given Spanish names, whereas Yaqui, O'odham, and Opata names were faithfully recorded. Many of the O'odham names are descriptive of the person's gender and place of residence, often using *ubi* or *osic* for woman and *tuot* or *tuoti* for man. Thus, Magdalena Tubacmubi was the "woman from Tubac" and Miguel and Francisco

Toaquituoti were "mountain men," in this instance from the mountain known as San Cayetano, east of Rio Rico, Arizona. As the Franciscans replaced the Jesuits, the use of native names was discontinued and Spanish surnames took their place, perhaps suggesting differences in how the Jesuits and Franciscans viewed the Native Americans they were ministering to.

Translation and data entry is an ongoing process and is updated weekly; the goal is to have all the Guevavi and Tumacácori records entered by the year 2000. Presently information from the Guevavi book, Tumacácori register, Suamca book, and entries from San Ignacio, Cucurpe, Magdalena, Cocóspera, Oquitoa, Janos, Horcasitas, and Arizpe have been entered. Working with the National Park Service Media Center at Harpers Ferry, West Virginia, Tumacácori's database is available at <<http://www.nps.gov/tuma>>. People can also gain access to the information in the system by calling 520/398-2341, extension 25, or by visiting Tumacácori.

A Rare Glimpse of the Sobaipuri from Colossal Cave

Jonathan B. Mabry, Desert Archaeology, Inc.

A LONG WITH OTHER ARTIFACTS, two arrowheads still hafted to wooden foreshafts were found in 1978 by Joe Maierhauser Jr. in a packrat midden in Colossal Cave east of Tucson. During recent examination of these artifacts, I recognized the makers of the hafted arrowheads as the Sobaipuri, a culture that disappeared from southeastern Arizona two centuries ago.

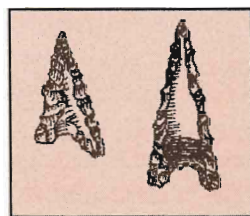
When Padre Kino and Captain Manje first visited the Pimería Alta in the early 1690s, they found several Piman-speaking groups in what is now central and southeastern Arizona. They gave different names to these groups based on observed differences in locations, lifestyles, and dialects. Along the San Pedro and Santa Cruz rivers were villages of the Sobaipuri.

Archaeological traces of the Sobaipuri culture are scarce. The locations of a few settlements in the San Pedro and Santa Cruz valleys and the Santa Rita Mountains have been identified from the presence of distinctive basally notched and serrated arrowheads, scrapers made from fine-grained types of rock, thin plain ware pottery, stone-lined house rings, and Spanish contact-period artifacts such as glass beads and metal objects. Near Mission

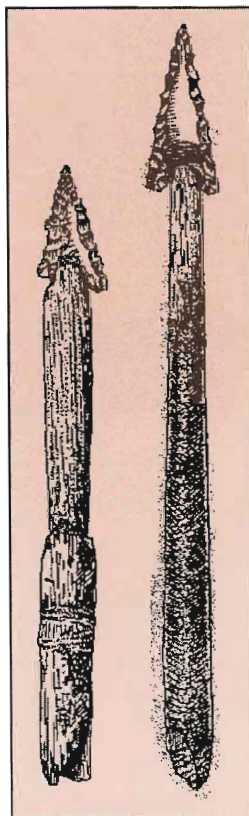
Guevavi and another site in the Santa Cruz Valley northeast of Nogales, traces of what may have been Sobaipuri irrigation canals and agricultural fields have been identified.

The most recent Sobaipuri archaeological sites are estimated to date to the late-eighteenth century, and references to the Sobaipuri as a distinct group disappeared from Spanish documents by the beginning of the nineteenth century. It is likely that high mortality resulting from European diseases and early Apache raids forced most of the remaining Sobaipuri to resettle near Spanish forts and missions in the Santa Cruz Valley, where they merged with other Piman groups.

The Colossal Cave specimens are currently the only preserved examples of Sobaipuri arrow hafting technology. The tiny flaked stone arrowheads were bound to the foreshafts with a combination of sinew and an adhesive made from pine pitch, mesquite gum, or lac (an insect secretion). The short, wooden foreshafts would have been inserted into the ends of hollow reed mainshafts that had feather fletches and notches at their other ends.



Above: What archaeologists usually find: unhafted flaked stone arrowheads. Right: Sobaipuri arrowheads in wooden foreshafts. The left one is inserted into a fragment of a hollow reed mainshaft. On display at the Colossal Cave Mountain Park Museum (illustrations are life size, by Rob Ciaccio).



BACK SIGHT

In 1986 I wrote the text for the first *Archaeology in Tucson* newsletter, the predecessor to *Archaeology Southwest*. From the outset, our goals have been to educate, to promote archaeological preservation, and to share exciting research.

The keys to achieving those goals have been to enhance the quality of our publication and to distribute it to more people. Our biggest enhancement was expanding our area of coverage to the Greater Southwest and adding more pages with more information. That took place at the beginning of 1999, when this publication became *Archaeology Southwest*.

We recently received a generous gift to underwrite *Archaeology Southwest* for the coming year. As a result, we will use more color photography in future issues. And we will search for other ways to add value to our flagship publication.

Linda Pierce, the Center's new Programs Manager, and I are committed to a major expansion of our readership. *Archaeology Southwest* now goes out to over 400 paying members of the Center. We want to push this number over 1,000.

We also send a few hundred complimentary copies of *Archaeology Southwest* to libraries and contract archaeology firms in the Southwest. Museums, anthropology departments, and tribal governments are the other major complimentary recipients. In this way important information is shared widely.

There are several ways that our current readers can help. First, if you are a reader of one of the complimentary copies, secure your own personal copy by becoming a Center member. We keep the price of Center membership very low—individuals have paid a mere \$10 ever since 1986.

Second, if you are a current member, you might consider giving *Archaeology Southwest* as a gift to a friend or colleague. A mailer is attached to this issue to assist you.

Third, if you teach a class in Southwestern archaeology, do what increasing numbers of your colleagues are doing and integrate *Archaeology Southwest* into your reading list. We print many extras of each issue, so it is rare that we go out of print; our low single-issue prices make us affordable even for students.

To all of our readers, thank you for helping us grow. For memberships, back issues, or to share suggestions on how we can improve, please contact us.

William F. Delle

Right: Excerpt from graphic by Don W. Ryden, AIA, 1996 Governor's Award for Historic Preservation, Education Category, awarded to the Center for Desert Archaeology.



THE CENTER FOR DESERT ARCHAEOLOGY, a private, nonprofit organization, promotes stewardship of archaeological and historical resources in the Greater Southwest through active research, preservation, and public education.

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