

ARCHAEOLOGY SOUTHWEST *magazine*

CONTINUE ON TO THE NEXT PAGE FOR YOUR FREE PDF



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

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

Not yet a member? Join today!

Membership to Archaeology Southwest includes:

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

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

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



Archaeology Southwest

Volume 16, Number 1

Center for Desert Archaeology

Winter 2002

La Quemada, a Monument on the Mesoamerican Frontier

Ben A. Nelson, Arizona State University

THE FIRST SPANIARDS to visit Zacatecas in the mid-sixteenth century encountered peoples whom they called Zacatecos and Guachichiles. These hunter-gatherers apparently lived quite differently from those who had occupied the region before them. They moved among hundreds of villages, abandoned centuries earlier, that lay in ruins around the ancient Malpaso Valley ceremonial center of La Quemada (A.D. 500-900). The population of the valley in the 10-km by 12-km segment where settlements were clustered may have included 2,000 to 8,000 people (reaching a peak, especially in the ceremonial center, at feast times). Some scholars view La Quemada as the capital of a state, whereas most in this issue of *Archaeology Southwest* are more comfortable conceiving of it as chiefdom-like. Contrasting patterns in architecture and mortuary treatment suggest that social power was deliberately masked. Ongoing research will allow archaeologists to understand the nature of the place in its own terms. Other settlement clusters around major ceremonial centers, such as Alta Vista, probably had comparable populations, but none seems dramatically larger than that in the Malpaso Valley.

We do not know what the frontier people called themselves or their massive monument – a rocky hilltop covered with temples, altars, pyramids, ballcourts, and staircases. How do we account for the presence of this imposing creation in a desert inhabited in historic times by hunter-gatherers?

Many distinguished archaeologists have studied La Quemada and its possible links to other regions. Quite reasonably, several have assumed that it was contemporaneous with one of the major capitals of central Mexico, such as Teotihuacan (A.D. 150-600) or the Toltec center of Tula (A.D. 900-1150), and that agents of those empires must have had a hand in its development. Colonists may have come to trade for turquoise from the American Southwest, collect astronomical information, or settle new lands made usable by temporarily improved agricultural conditions, possibly returning later to become the Toltecs and ultimately the Aztecs. These scenarios contain marauders, overlords, vision-seeking priests, trading caravans, itinerant merchants, and pilgrims. All scholars agree that the monument marks some kind of temporary increase in human organizational capacity.



Steve Northrup

The massive scale of La Quemada's terraced compounds dwarfs two visitors. Recent research is providing new insights into regional systems on the Northern Frontier of Mesoamerica that also have implications for the American Southwest.

Issue Editors: Ben A. Nelson
and E. Christian Wells

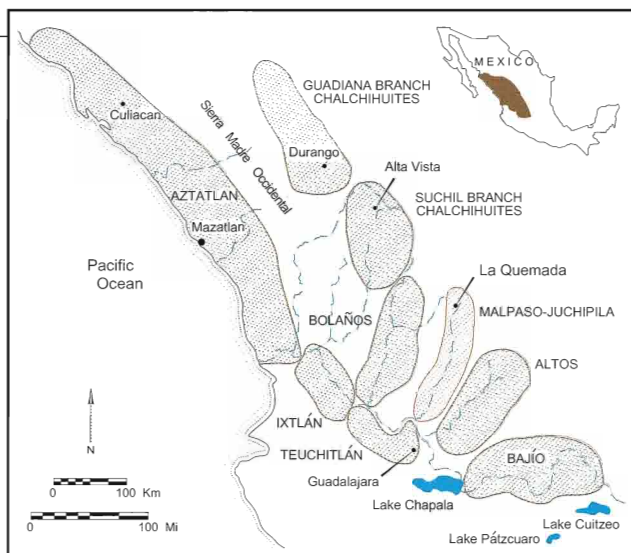
Archaeology Southwest
is a Quarterly
Publication of the
Center for Desert
Archaeology



Previous researchers have suggested that, as an imperial outpost, La Quemada would have been the administrative center of an isolated colony, dependent on its economic ties to a foreign sponsor. Civilized immigrants would have managed the center, creating wealth by exploiting local agricultural land, mineral resources, and commoners. These scholars have posited various reasons for why the site was abandoned, including: imperial sponsorship was withdrawn; the demand for minerals declined; the population grew too large; or environmental conditions worsened, either naturally or due to human impacts.

The articles in this issue contain new information and do not support most of these previous views. It now seems more accurate to think of La Quemada as a monument built by a local group that interacted intensively with its environment and with other similar groups in the region. Migration, mineral exploitation, and trade remain important topics, yet archaeologists now see La Quemada as a regionally connected component of a secondary Mesoamerican core that formed on the Northern Frontier during the middle Classic and Epiclassic periods (see timeline on page 6). The monument, rather than being a garrison for foreign forces, may have been a statement of regional autonomy, weaving together the principles of cosmology, life and death, and local political power.

"When?" is a fundamental question; an imperial outpost should be contemporaneous with its imperial sponsor. We now see that La Quemada was not a Toltec period site, as one might think, since colonnaded halls are a marker for that period in central Mexico. We found no ceramics or figurines of Postclassic style at the site. Ceramics and radiocarbon dates confirm that it was founded in the early A.D. 500s, that the main occupation ended by A.D. 900, although, even today, post-



The Malpaso Valley is one of a series of upland valleys that made up the Northern Frontier during the period from A.D. 400 to 1540. La Quemada was occupied for only part of that time.

occupational visits are made to the site for ritual activities. The main occupation was too early for La Quemada to have been a Toltec site. People on the frontier apparently invented colonnaded halls, perhaps as early as A.D. 550. The frontier, rather than being "civilized" by the Mesoamerican core, instead provided innovative input to civilization.

This chronological realignment fits with the inference that La Quemada was not isolated, but was instead part of a network of interacting polities. Ancient architects

used widespread Mesoamerican cosmological and astronomical concepts in laying out the site and the road system. Peer polities controlled the Chalchihuites, Bolaños, Juchipila, and Altos regions. This may not sound surprising, but it is actually a major reconceptualization. We now recognize the frontier as a developmental sphere of its own, rather than a collection of isolated, sequentially occupied outposts dependent on imperial direction.

Several new studies suggest production was oriented to local consumption. A colonial administrative center should have lapidary and ceramic workshops, mineral stockpiles, and finished products of precious stones. Turquoise is fairly rare at La Quemada and much rarer than at many sites in the American Southwest. We found two turquoise tesserae (small mosaic pieces), two pendants, and a disc; another archaeologist found one turquoise-and-pyrite-encrusted plaque from the acropolis at La Quemada.

Shell is scarce, yet indicates a wide span of contacts. Strazicich finds indications in her study of pseudo-cloisonné ceramics that local specialists manufactured these fancy wares. Millhauser and Kantor, however, find no evidence for specialized obsidian or other lithic production at La Quemada. Millhauser found only three obsidian blades; elsewhere in Mesoamerica, blades are associated with specialized production and exchange.



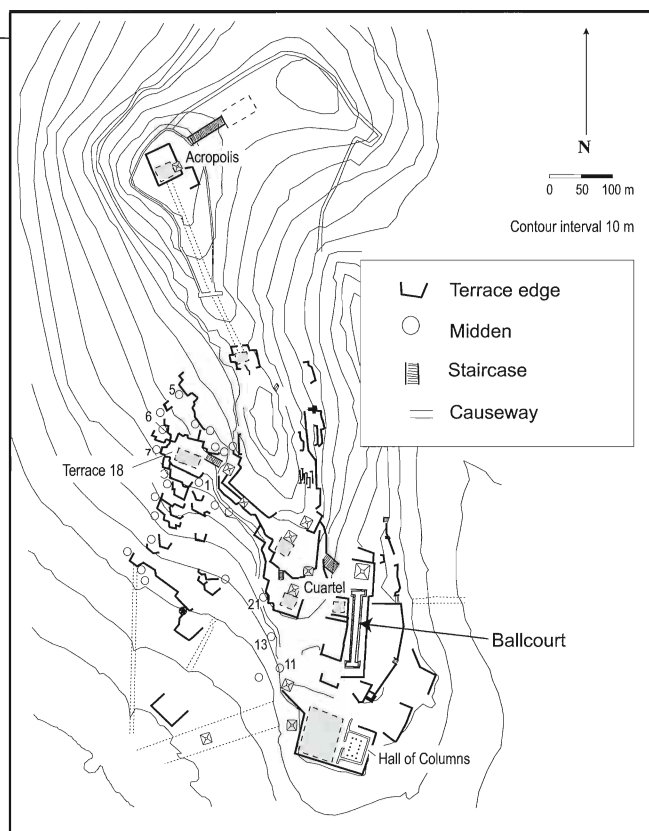
The Hall of Columns adjoins a large, open space at the lowest portion of the site. Other public architecture in the vicinity includes an I-shaped ballcourt and the massive Cuartel.

Most obsidian comes from northern and western Mexican sources; as Darling concludes, La Quemada drew widely, but not extensively, on major exchange networks of Mesoamerica. Exotic objects were known at La Quemada, yet were not of major economic importance.

Who was in control? Standard Mesoamerican indices of eliteness do not seem applicable to La Quemada. There is no obvious palace. We have encountered almost no burials with significant grave goods. Exotic ceramics, filed teeth, and high-cost personal adornments are absent or exceedingly rare. Studies of resource consumption show that the occupants of La Quemada were better off than people at other sites and that households in the monumental core of La Quemada were yet more privileged. Darling and Millhauser conclude that La Quemada contains higher percentages of obsidian, especially exotic obsidian, than smaller villages, confirming our intersite predictions. Similarly, Elliott's fuel wood analysis shows significant intersite, but not intrasite, differences. Turkon, however, demonstrates that plant foods and food-preparation implements do follow the anticipated intrasite patterning. Eliteness was subtly expressed, possibly suppressed, and was not connected with foreignness.

Those in control were interested in symbolism integrating life, death, and landscape domination. They selected a natural monument as the site of their sacred center. Ancient roads crossed the Malpaso Valley, connecting uninhabited high spots and converging on La Quemada. A multitude of disarticulated human skeletons were kept at the site, both above and below ground. Most of the bones are skulls and long bones – left suspended from the roof beams of the temple on Terrace 18 and on the exteriors of some residences, piled in the Hall of Columns, sitting on staircases, and shallowly buried near the Cuartel. Smaller bones such as fingers, ribs, and vertebrae were found discarded in middens. We have rejected the hypothesis that these skeletons resulted from a devastating final attack, after finding disarticulated human bones throughout some middens, which probably took centuries to form. Ancestor veneration, including the retention of ancestral bones, is well documented among native peoples in the region. Perez discusses evidence of bone modification that may imply such practices. Wells indicates that the site may have served different social constituencies in the valley. Perhaps valley residents preserved the bodies of their deceased relatives as well as selected powerful enemies. Analogous with Aztec practices, some of the bones could represent warfare and human sacrifice; Chamberlin finds that in Colonial times, 600 to 700 years after the abandonment of La Quemada, conflict was pervasive.

Could frontier conflict have stemmed from changes in the environment, due either to atmospheric phenom-



Monumental architecture enhanced and transformed the naturally protected ridge. The terraced hill slopes below contained residences and smaller-scale versions of the central ballcourt, pyramid, sunken courtyard, and ceremonial hall.

ena or human impacts? Elliott's study of wood charcoal suggests a markedly more forested regime than today, yet no depletion of pines or oaks. We plan to collect more data to compare the alluvial and vegetative histories of the Malpaso Valley with those of the Tarascan-area lakes to the south and of the Hohokam streams and west Texas playas to the north. Cycles of Mesoamerican urbanism may have affected huge territories, changing the mix of political and ecological issues confronted by local populations. The wave of growth on the Northern Frontier from A.D. 500 to 900 may represent adaptive radiation based on intensified cultivation. Is it coincidental that a similar development followed farther north, in the American Southwest?

We conclude that ancient architects designed La Quemada to memorialize a powerful local people and a regionally important place, not a foreign imperial regime. Rather than merely serving distant capitals, prehispanic peoples in the Epiclassic Northern Frontier had their own histories, internal politics, and regional organization, creating new Mesoamerican practices and borrowing ancient ones. The presence of turquoise suggests contacts with the Pueblo region, and certain ceramic motifs indicate a Hohokam influence. Further study of La Quemada will allow us to better understand the common and divergent elements of cultural change in ancient Mesoamerica and the American Southwest.

Human Impacts on the Ancient Environment

Michelle Y. Elliott, Arizona State University

ALTHOUGH VERDANT after a productive rainy season, the Malpaso Valley is generally characterized by scattered patches of scrub, cactus, dried grasses, and exposed soil. Encountering this inhospitable landscape, a visitor might find it hard to believe that between A.D. 500 and 900, Mesoamerican settlements of grand scale flourished in the valley. Based on archaeological evidence, we know that, like their modern counterparts, prehispanic farmers made a living from planting fields of maize and beans and that the locations of prehispanic agricultural fields were probably very close to those of modern fields. Despite these similar land-use strategies, it is important to ask if the Malpaso Valley of 1,500 years ago resembled what

firewood, rather than from support posts or roof beams. Because firewood, unlike wood used in construction, was burned and disposed of on a daily basis, this means the trash deposits contain a constantly updated record of the available trees.

To recover the charcoal for this study, a process called flotation was used. This involved collecting samples of dirt from trash piles and running them through a device that uses water agitation to separate the small seeds and charcoal fragments from the dirt. This method provides a more representative collection of charcoal, because it recovers many pieces of wood that would have been too small to have been noticed – and collected – during excavation.

Our research suggests that the Malpaso Valley may have been at least partially covered by a forest composed of juniper, pine, and oak. The inhabitants of the valley also had access to trees like willow and cottonwood. These riparian trees would have grown on the banks of the Malpaso River, the valley's primary drainage. The prehistoric inhabitants probably gathered this wood while they cleared the floodplain for agricultural fields. Interestingly, very little mesquite was found in the trash pits. Its absence suggests that either people preferred not to use this wood for fuel or, more likely, the thorn scrub found in the valley today was not present to the same extent in prehistory.

It is possible that, during the Spanish Colonial period (A.D. 1520-1821), the introduction of domestic animals such as cows, pigs, and sheep disturbed the landscape enough to allow the thorny brush and cactus to flourish in the valley. Another important observation is that the percentages of the types of wood used at La Quemada did not change significantly through time – indicating the inhabitants were able to obtain the types of firewood they preferred for several hundred years.

All this evidence suggests that the environment of the Malpaso Valley was very different in prehistory than it is today. Great portions of it, especially the now-deforested mountain sides, were probably covered with pine and oak. There was a more extensive riparian environment around the river. Thorny brush was probably much less prevalent. Historic accounts written by Spaniards at the beginning of the Colonial period indicate that the areas in and around the Malpaso Valley had abundant sources of timber. It was only when silver mining became important that massive deforestation occurred, as wood was consumed for smelting the metal.



Vegetation change in the valley appears to date to Colonial times. Evidence indicates that this area was forested during La Quemada's occupation.

is there today. If not, what did the prehispanic landscape look like, and further, what caused it to change?

One way to answer these questions is through the study of prehistoric charcoal. Although many people are familiar with dendrochronology – the use of tree rings for dating archaeological sites – many do not realize that charred firewood can also provide information about the prehistoric environment. A specialist can determine what type of plant even a tiny piece of charcoal came from. When large quantities of wood fragments from one or many sites are analyzed this way, archaeologists can determine what types of trees the inhabitants preferred to use for fuel and in what general proportions they were used.

The charcoal studied at La Quemada came from trash piles at the site. It was probably left over from prehistoric

Patios and La Quemada's Hinterland Settlements

Charles D. Trombold, Washington University

PATIOS WERE THE FOCUS of a great deal of community activity throughout Mesoamerica, although their form and function varied considerably. Because they appear to have been used by lineages or extended families, patios are useful to archaeologists for reconstructing community organization.

The vast majority of habitation sites in the Malpas Valley are organized around one or more square sunken patios. We assumed that the raised platforms that bound the four sides of a patio were constructed as an integral unit during a single building period. However, excavations at two La Quemada hinterland sites in 1986 and 1999 showed that the patio area was first delineated and that individual rectangular platforms were then constructed at cardinal points. These initial platforms continued to be elaborated and expanded until the patio was completely enclosed. Evidence from one of the sites showed that, until the final construction phase, access could be gained from one patio to another by means of narrow passages between platforms. These passages were later sealed.

Another important aspect of patios is their axial orientation. At the two excavated sites, primary structures were built on the northern and southern sides of the patio. Both investigated patios also have prominent structures on their western sides, and a square altar was placed where the north-south and east-west axes intersected at the center of the patio. In both cases the northern structure was a charnel house – a structure in which human remains were preserved and displayed. A second charnel house occurred on the western side of the patio at one site.

Two architectural characteristics found at both sites may indicate functional or chronological differences. The first is platform shape and elevation. At one site, platforms were rectangular and raised approximately 1 m above the patio floor. These were constructed primarily for single-unit houses. A different platform type was found at the other site. These are termed “winged” platforms because of their distinctive frontal-lateral extensions that face the patio. They are lower and appear to have been designed more for ceremonial than domestic use. Another architectural feature shared by both sites was upright parallel stone



Ben A. Nelson

A patio complex in the monumental core of La Quemada, viewed from the north. A pyramid dominates the northern side of the sunken patio, an altar adorns the center, and a large ceremonial structure opens onto the patio walkway from the eastern side. The latter structure is probably a wooden-columned version of the Hall of Columns, barely visible below (upper left-hand corner of photo). The patio complex is the fundamental unit of habitation at La Quemada and elsewhere in the valley, as described here.

rows that supported slab-lined floors. This technique now appears to have been widespread, ranging from the lower Bolaños basin to Cerro del Huistle in northern Jalisco.

The similarities in patio orientation and axial alignment suggest a relatively homogeneous ceremonialism throughout the region. Likewise, the presence of prominently located charnel houses indicates an emphasis on specific mortuary practices. Architectural differences among the hinterland sites may mean that the population of the valley was socially stratified and grouped into politically semi-autonomous villages. The final construction phase at one site restricted access both among and within patio sectors.

THE WORK REPORTED in this issue has been conducted with the permission of the Consejo Nacional de Arqueología. Most of the contributors are members of the *La Quemada-Malpas Valley Project*, which began at the State University of New York at Buffalo in 1987 and has been based at Arizona State University since 1995. The project has enjoyed a beneficial collaboration with the *Proyecto La Quemada* of the Mexican Instituto Nacional de Antropología e Historia. Charles Trombold and Andrew Darling have conducted projects of their own.

Pottery and the Social Microcosm

E. Christian Wells, Arizona State University

LA QUEMADA WAS a major force in the cultural evolution of the Northern Frontier of Mesoamerica and may have had close ties to groups in central Mexico and the American Southwest. However, despite its regional



An example of an incised-engraved sherd from La Quemada.

importance, little is known about the people who inhabited the site. Because of its relative inaccessibility and high walls, the site has often been described as a hilltop fortress or garrison that was designed to thwart advances by hostile groups from the

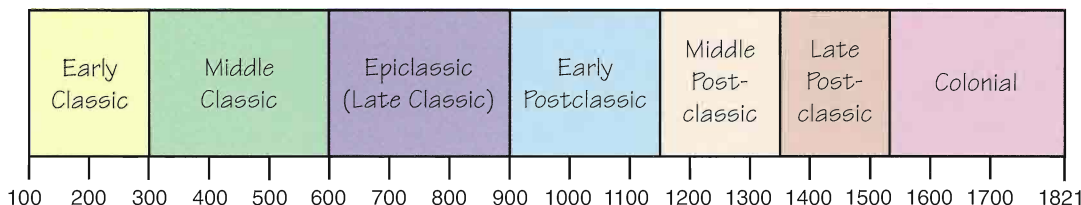
north. In addition to its defensive qualities, recent investigations at the site and its environs have revealed it was also a significant ceremonial center where rituals were performed by different peoples living in the valley.

Like other centers in Northwest Mexico, La Quemada was occupied for only a few centuries. A dynamic social climate was created by population migrations involving local groups and perhaps other peoples displaced by the fall of the great city of Teotihuacan in central Mexico. One likely result of these population movements was that La Quemada formed as a “social microcosm,” a condensed symbolic representation of social relations that express idealized concepts about the ways in which people believe relations exist or should exist. Social microcosms incorporate a diversity of distinct social segments, such as people of different ethnicity, class, or social standing. One example of a social microcosm can be found among the contemporary Huichol of highland western Mexico, where elected officials from different parts of the region conduct pilgrimages to ceremonial centers at certain times of the year and temporarily live together and interact with one another while preserving their distinctiveness in a variety of ways.

To test this for La Quemada, I analyzed the chemical composition of incised-engraved pottery from the Malpaso Valley using scanning-electron microscopy to study the ceramic paste. To determine where pottery was manufactured in the valley, I compared my results to another chemical study on local clays. I found that ceramics were made in at least two villages. I looked at the distribution of each village’s pottery in ceremonial and residential areas at La Quemada and found the ceramics from different parts of the ceremonial areas at La Quemada all came from the same village, while the ceramics from the residential zone came from different villages.

This pattern could indicate that the residents of La Quemada were members of social groups in the valley that represented their constituencies in civic or ceremonial activities at the site – similar to practices among the Huichol of today. Therefore, the results of this research suggest that social microcosms may have been a useful way to organize ceremonial centers in prehispanic northern Mexico.

Cultural Timeline for Northwest Mexico (A.D.)



Working

Ben A. Nelson, A

ALL ARCHAEOLOGICAL SITE lic, and permits are issued through e Historia (INAH). Joaquín García Bá de Arqueología, and Alejandro Martín Archaeology, have made the work possible applications and reports. I work closely Peter Jiménez Betts, whose academic ar measurably to the project. In addition Jiménez has stabilized many parts of the the most vibrant of Mexico’s new museum laboratory for the project in Zacatecas before being turned over to INAH. We with study seasons; crews have consisted local workmen.

Important publications related to La Quem

Armillas, Pedro

1964 Condiciones ambientales y movim de Mesoamerica. In *Homenaje a Fe*

Aveni, Anthony F., Horst Hartung, and J. C.

1982 Alta Vista (Chalchihuites), Astron emonial Outpost at the Tropic of C

Braniff, Beatriz, and Marie Areti-Hers

1998 Herencias Chichimecas. *Arqueolog*

Jiménez Betts, Peter F., and J. Andrew Dar

2000 Archaeology of Southern Zacatec Bolaños Valleys. In *Greater Mesoam Mexico*, edited by M. S. Foster and S Press, Salt Lake City.

Jiménez Moreno, Wigberto

1959 Síntesis de la historia pretolteca de M vol. 2, pp. 1109-1196. Centro de In

Leigemann, Achim

1996 Orientaciones astronómicas y el sis México. *Indiana [Berlin]* 14:99-125

Medina González, José Humberto

2000 *El paisaje ritual del Valle de Malpaso*. Nacional de Antropología, Institu Educación Pública.

Weigand, Phil C., Garman Harbottle, and

1977 Turquoise Sources and Source Ar U.S.A. In *Exchange Systems in Preh* pp. 15-34. Academic Press, New York

La Quemada's Pseudo-Cloisonné Tradition

Nicola M. Strazićich, Seattle, Washington

PSEUDO-CLOISONNÉ DECORATED ceramics with intricate inlay designs that depict scenes of Mesoamerican ceremonialism are unique among La Quemada's rich ceramic corpus. New clues about the techniques used by Meso-

american potters to create the elaborate decoration come from analyses of the mineral composition in the pseudo-cloisonné pigments. To meet the technical challenge of creating inlay designs in a ceramic medium, artisans first coated fired cups and bowls with a mixture of clay blended with finely ground minerals and diatomite.

Diatomite, an extremely fine-grained, highly absorbent sediment composed of the skeletal remains of microscopic plants, likely enhanced the elasticity necessary for the base coating to retain its form when carved. Ilmenite, an iron-rich mineral, gives the base coating its characteristic muted black color. Elaborate designs depicting human figures in cloaks and headdresses, stylized birds, and geometric motifs were carved into the base coat with precisely beveled edge cuts. Areas to be filled with colored pigment were hollowed out, packed with ground calcite, and capped with finely ground mineral pigments in an astonish-



Pseudo-cloisonné decorated copa (cup) fragments from La Quemada. Geometric and figural motifs were carved into the black base coating that frames the design.

ing array of greens, yellows, and reds. The green pigments typically include celadonite, a green micaceous mineral that forms in basalts. Goethite and limonite, both iron-rich minerals, were used for yellow, and hematite or, less often, rutile mixed with clay minerals was used for red. Mixing the colored minerals with varying proportions of white calcite achieved paler hues. Clay was blended in small amounts with the colored minerals as a binding ingredient. It is possible organic compounds such as resin were also used as binders, though such substances have not survived in detectable amounts. Once applied, the decoration remained unfired.

Pseudo-cloisonné ceramics were widely used throughout northern and western Mexico between A.D. 400 and 900, yet it is unclear where the pottery was made and decorated. No workshops have been identified, to date, even though researchers believe highly skilled potters must have produced pseudo-cloisonné wares. In addition to their technical expertise, these artisans had to possess the esoteric knowledge necessary to depict social and religious themes in a ceramic medium.

Several lines of evidence suggest pseudo-cloisonné vessels were manufactured at La Quemada. Chemical analyses indicate many of La Quemada's pseudo-cloisonné decorated vessels were made from local clay deposits. The chemical "fingerprint" of the vessel bodies matches local clay sources. The minerals used in the pseudo-cloisonné decoration, while not directly linked to local mineral sources, could have been acquired near La Quemada. Celadonite, calcite, limonite, goethite, and hematite occur naturally in the kinds of volcanic deposits on which La Quemada is situated. This northern Mesoamerican center may well have supported the artisans who produced these sumptuously decorated wares.

in Mexico

ona State University

in Mexico are property of the Republic of the Instituto Nacional de Antropología e Historia, President of the Consejo Nacional de Arqueología. Muriel, the National Coordinator of the program, by seeing to the evaluation of permits and with an INAH colleague in Zacatecas, administrative guidance has added impetus to his research on regional interaction, and has supervised the creation of one of the largest collections. Arizona State University maintains a collection of the collections are processed there and have had seven field seasons interspersed with up to 11 graduate students and 50

a, by other researchers, include:

tos de pueblos en la frontera septentrional de México. *ando Marquez-Miranda*, pp. 62-82, Madrid. Charles Kelley, "The Archaeological Implications of a Mesoamerican Ceramic," *American Antiquity* 47:326-335.

19:55-80.

The Malpasos, Juchipila, and Valparaíso: *The Archaeology of West and Northwest Mexico*, pp. 155-180. University of Utah

oamérica. In *El esplendor del México antiguo*, pp. 155-180. Universidad Nacional de Antropología e Historia, México, D.F.

na de medida en La Quemada, Zacatecas,

sis de Licenciatura en Arqueología, Escuela Nacional de Antropología e Historia, México, D.F.

ward V. Sayre

ysis: Mesoamerica and the Southwestern United States, edited by T. K. Earle and J. E. Ericson,

The Chalchihuites Mines

Vincent W. Schiavitti, Arizona State University

DURING THE DRY SEASON about 1,500 years ago, some people in the Chalchihuites area, about 150 km northwest of La Quemada, gathered outside their villages to prepare for work in the mines. The miners excavated semiprecious blue-green stones, weathered chert, turquoise, and soft rocks for the production of pigments.

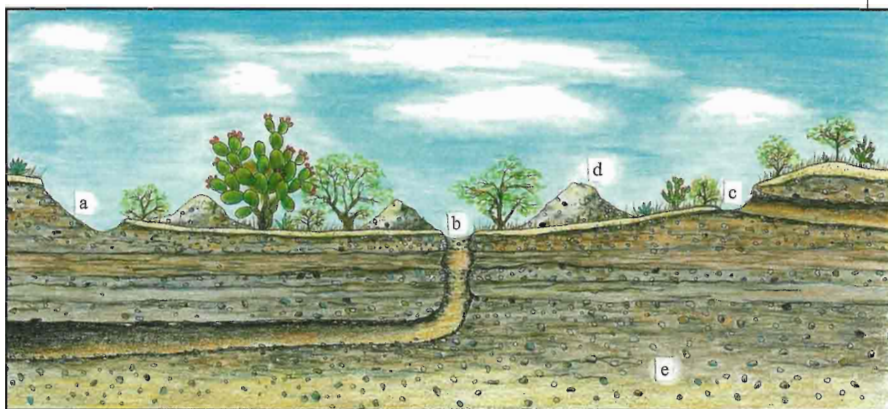
Most of the mining in northern Mesoamerica occurred in the Chalchihuites area, located in the modern Mexican state of Zacatecas. For nearly 500 years, miners dug tunnels into the mineral deposits along the San Antonio and Colorado river drainages. The foothills along the rivers were pitted with an extensive tunnel system. Steadily, the tailing piles outside the mine entrances grew, as approximately 1,000,000 m³ of debris was excavated from the mines.

The Chalchihuites mines may have provided the Malpas Valley with much of its pigment and semiprecious stone resources. Pseudo-cloisonné and other types of pottery were crafted from yellow, red, green, pink, and white pigments. Beads, mosaics, and other jewelry were manufactured from weathered chert, blue-green stones, and turquoise. Chalchihuites chiefs probably exchanged goods with leaders from La Quemada and forged relationships that were sometimes friendly, sometimes hostile.

The work was demanding and dangerous. The air in the tunnels was stale and thick with black smoke from the smoldering torches used for light. Miners chipped away at the deposits, wary of cave-ins. Mining tools were simple, yet effective. Wooden handles were wrapped around stone



Top: Interior view of a Chalchihuites mine. Bottom: Characteristics of Chalchihuites mines: (a) strip mine; (b) shaft mine; (c) adit; (d) spoil pile; and (e) mineral deposits.



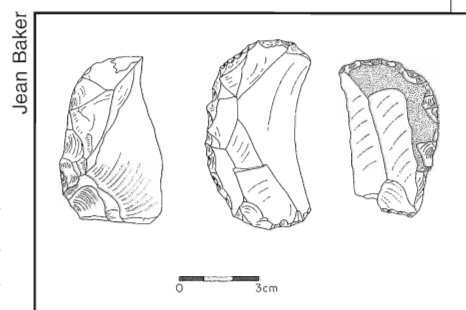
maul heads weighing between two and three pounds. The mauls were swung at the cave deposits as one might swing a golf club.

In the Chalchihuites area, mining ceased at about A.D. 900. The deposits are still abundant and were never in danger of being exhausted. Perhaps the abandonment of neighboring sites, such as La Quemada, caused the market for Chalchihuites' mineral products to dry up and brought an end to a once-vigorous economic activity.

Chipped Stone Artifacts

Loni M. Kantor, University of Pittsburgh

THE IMPOSING ARCHITECTURE of La Quemada and its mortuary displays, reflecting institutionalized violence, suggest the site was inhabited by an elite with substantial power to mobilize resources. Analysis of lithic artifacts from La Quemada, however, indicates elite control over resources did not extend to the manufacture of chipped stone tools. The chipped stone assemblage at the site overwhelmingly consists of flakes – over 90 percent of which derive from rhyolite nodules – suggesting that making and using chipped stone was highly informal and expedient. Additionally, the distribution of chipped stone artifacts does not appear to have been restricted to certain areas of the site. Instead, chipped stone tools were apparently manufactured throughout the site.



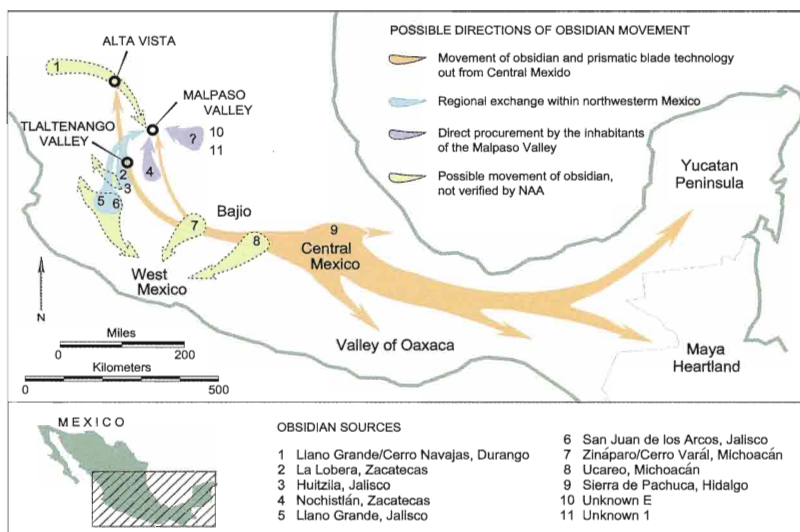
Chipped stone tools from a midden associated with the monumental portion of La Quemada.

Malpaso Valley Obsidian Exchange

John K. Millhauser, Arizona State University

VALUED FOR ITS EXTREMELY SHARP EDGES, obsidian was traded, in the form of both raw material and finished tools, throughout Mesoamerica. The sources of obsidian are restricted to areas of recent volcanism. Since each source has a unique chemical signature that can be determined through chemical analysis, the origins of individual artifacts can be determined accurately and inexpensively. To study the ways in which the inhabitants of the Malpaso Valley engaged in obsidian trade, I conducted neutron activation analysis on 121 obsidian artifacts from the Malpaso Valley under the supervision of Michael Glascock at the University of Missouri Research Reactor.

The obsidian in the Malpaso Valley primarily comes from Nochistlán and two unknown sources (Unknown E and Unknown 1). The low quality of the obsidian, the higher frequency of partially worked artifacts relative to finished tools, and their near absence from collections in other nearby valleys suggest that these sources were directly exploited by the inhabitants of the Malpaso Valley. Exchange with groups in the Tlaltenango Valley, 100 km to the southwest, is indicated by 16 artifacts from the Huitzila and La Lobera sources. The 14 artifacts from the Zináparo and Cerro Varál sources indicate interaction with peoples from the Bajío region, 300 km to the southeast. More limited exchange with the inhabitants of northern Jalisco is suggested by the presence of five artifacts from San Juan de los Arcos and Llano Grande. The occurrence of one artifact in this Malpaso Valley assemblage from the Ucareo source and the previous identification of obsidian from the Sierra de Pachuca source (which has a characteristic green color) indicate limited exchange with groups in central Mexico. Finally, the absence of materials from Llano Grande/Cerro Navajas, Durango, which was a commonly used source by the inhabitants of the site of Alta Vista, suggests that exchanges between Malpaso peoples and their northern neighbors did not involve obsidian.



Malpaso Valley obsidian procurement and exchange.

Food and Status in the Malpaso Valley

Paula D. Turkon, Arizona State University

CONSTRUCTION OF MONUMENTAL architecture at La Quemada required substantial economic means and social power that could only have been achieved by an elite social group. However, throughout the Malpaso Valley, typical material markers of elite status are rare, and high-status groups are difficult to identify. Since ethnographic studies demonstrate that elites often use foods and related activities to acquire, mark, and maintain high status, residues of food preparation and consumption can provide useful indices of status differences. Food remains from middens throughout La Quemada and at two outlying sites provided data to examine the relationship between social status and food in the Malpaso Valley.

Macrobotanical analysis shows that maize was the primary food resource, consumed equally by all groups.

Morphological analysis of maize cobs, however, reveals that elites had access to higher quality or different varieties of maize. Other domesticated plant foods, such as squash and beans, were encountered in all contexts, but were more frequent in elite middens. Many wild plant foods were found exclusively in elite middens. Elites clearly had a more diverse diet than commoners.

The higher frequency of serving vessels in many elite contexts suggests that elites were more concerned with the visual presentation of food. Indices of ground stone, cooking vessels, and food preparation waste suggest that elite contexts were relatively less involved in food preparation. However, two elite middens, one at La Quemada and one at Los Pilarillos, had exceptionally high indices of both food preparation and serving vessels. These data suggest that some elites were involved in feasting, perhaps as a way to display their status. They also suggest that there were at least two types of elites. Together, these analyses suggest that the manipulation of food-related behaviors was one way in which social power was constructed on the northern Mesoamerican frontier.

Warfare and Ritual in Northwest Mexico

Matthew Chamberlin, Arizona State University

EVIDENCE FOR WARFARE in the Southwest is visible in archaeological settlement patterns, burned structures, warrior motifs in kiva murals and rock art, and the treatment of human remains. Although comparable archaeological coverage is lacking in Northwest Mexico, Spanish accounts from the sixteenth and seventeenth centuries repeatedly tell of warfare there as well. Large, well-organized armies with complex armaments and military tactics were arrayed against Spanish forces, and intertribal warfare was observed in the states of Sonora, Sinaloa, Durango, and Nayarit.

Intertribal warfare in Northwest Mexico was at different scales. Formal combat between large forces was relatively rare; intermittent feuds, raids, and ambushes may have been more common. A goal of most warfare, however, was the acquisition of captives or “trophy”: enemy skulls, scalps, human body parts. Warriors, priests, chiefs, women, and children participated in elaborate ceremonies where trophies were presented as offerings; ritually purified; worn as adornments; incorporated into dances, mock warfare, and competitive games; consumed; and displayed and accumulated in buildings and public places.



Illustration from the Relación de Michoacán. On the left, a Tarascan paramount prepares his sons for battle. On the right, they attack a town, clubbing the leader and taking prisoners.

Archaeologists usually explain warfare among small-scale groups as the result of non-social causes – for instance, environmental stress or competition over land and resources. Warfare is viewed as incongruous with the normal way of things. However, the historic data show that warfare was an important part of social and religious life in Northwest Mexico. In warfare-related rituals, social roles and statuses – including those of warriors, leaders, women, and ritual specialists – were established and reaffirmed. Both warfare and ritual were important avenues for individuals to enhance personal prestige and status within a community. Warfare became an important condition for these critical social processes and, through ritual, was integrated into the fabric of social life.

La Quemada Tool-Induced Bone Alterations: Cut Mark Differences between Human and Animal Bones

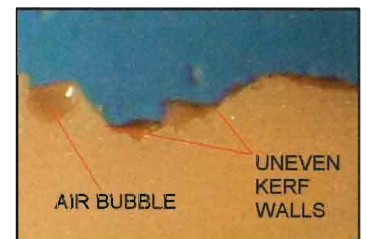
Ventura R. Perez, University of Massachusetts, Amherst

CUT MARKS ON HUMAN and animal bones from La Quemada were analyzed to identify the types of lithic tools used and to infer behavioral and cultural practices. The cut marks on most of the human remains are highly variable, which is consistent with the use of bifacially flaked stone tools or retouched opportunistic blades. This is noteworthy because these tools are less effective for butchering. In contrast, the cut marks on faunal bones are smooth and uniform, creating a distinct point. This indicates unretouched blades or opportunistic flakes were used. Another difference between the cut marks on faunal and human materials is their maximum depth and width. Those on the faunal material are, on average, twice as deep and wide as those on the human remains.

The depth and width of the cut marks may be correlated with the amount of soft tissue present at the time of

processing. The pressure needed to slice through the muscles and tendons would be proportionate to their mass. This, in turn, could translate to a deeper, wider cut mark if the processing tool were to make contact with the bone.

Therefore, it appears that not only were different tools used to dismember humans and animals, but also the amount of soft tissue present was significantly less on the majority of human remains. These differences could have resulted from animal bones being processed upon or immediately after death, while most humans were processed only after a period during which skeletization had occurred.



Replica of a cut mark from an epoxy resin cast. The convoluted nature of a bifacial cutting edge, circumstances such as friction, and dynamic and static loading create the uneven patterning.

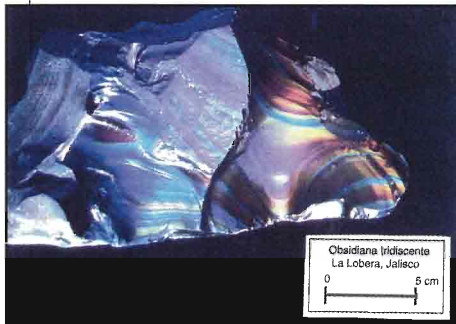
Intercultural Interaction and Exchange at La Quemada

J. Andrew Darling, Gila River Indian Community

THE RISE TO POWER of La Quemada as one of the largest and architecturally most dramatic centers in Northwest Mexico parallels the emergence of other contemporary centers in the region. These include such sites as Alta Vista, El Teul, El Huistle, Las Ventanas, El Piñon, and others in the Chalchihuites area and along the northern tributaries of the Santiago River. At their height, from the middle Classic to the early Postclassic period (circa A.D. 500-1000), these local seats of administrative and religious leadership sustained a socioeconomic network recognized by some archaeologists as the Northern Interaction Sphere. Interaction among these sociopolitical groups included intermarriage, competition, political alliances, religious observances, warfare, and trade. Contact with

goods, such as decorated ceramics, and raw materials required for the production of high-status and religious items. Worked shell from both coasts, paint pigments thought to be from the Chalchihuites region, and turquoise and obsidian from local and distant sources are found at the site. Not surprisingly, most exchange appears to have been restricted to the Northern Interaction Sphere. However, with obsidian, two patterns emerge: local acquisition and trade, and long-distance exchange of prismatic blades from sources to the south.

To supplement the supply of locally available, low-quality volcanic glass, La Quemada's inhabitants traded for raw material and possibly finished tools from other sources. This trade increased the diversity of obsidian at the site to 19 chemically distinct sources or outcrops, underscoring the importance of local networks and the pivotal role of sites like La Quemada in coordinating trade and local production. Prismatic blades, however, were manufactured by Mesoamerican specialists and were valued for their sharpness, utility in bloodletting rituals, and weaponry. At La Quemada, such blades accounted for less than 1 percent of the obsidian artifacts examined. Nevertheless, blades found at La Quemada matched chemically with the Pachuca source in Hidalgo and the La Joya source in Jalisco – key sources near large Mesoamerican political capitals. The occurrence of blades exclusively at centers in the Northern Interaction Sphere suggests that a religious elite may have sought this exotic good. However, the scarcity of prismatic blades also implies that La Quemada and portions of the Northern Interaction Sphere, even in their heyday, remained relatively isolated from broader networks of Mesoamerican production and exchange.



Rainbow obsidian from the La Lobera source, Jalisco. This and other obsidian from the southern Sierra Madre Occidental occurs at sites dated A.D. 400-1540, in the Tlaltenango, Bolaños, Juchipila, and Malpaso river valleys.

Mesoamerican core states outside the Northern Interaction Sphere, however, appears to have been the exclusive purview of regional priest-elites whose authority was manifested at local centers, including La Quemada.

Mounting evidence suggests that La Quemada served as a major node for integrating local and long-distance contacts. Most prevalent are indicators of trade in finished

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

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

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

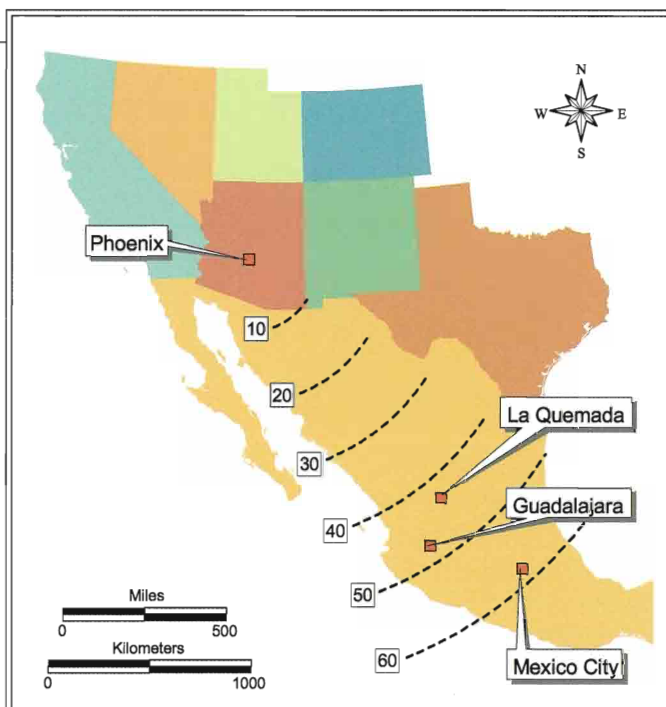
Archaeology Southwest (ISSN 1523-0546) is published quarterly by the Center for Desert Archaeology. Copyright 2002 by the Center for Desert Archaeology. All rights reserved; no part of this issue may be reproduced by any means without written permission of the publisher. Subscription inquiries: 520.882.6946.

BackSight

I SUSPECT THAT a number of readers have wondered: Why does this issue of *Archaeology Southwest* venture so far afield? The simple answer is: context.

I knew from the outset that La Quemada lies outside the Center's area of direct research activity. However, I am also well aware of broad Mesoamerican themes in Hohokam and Ancestral Pueblo archaeology. Ballcourts and pyrite mirrors in the Hohokam area, colonnades in the architecture at Chaco Canyon, and some of the iconography of the katsina cult are tangible reminders of things that originated far to the south. Less tangibly, the distribution of the Piman language group from southern Arizona to just north of Guadalajara may indicate a special interaction pattern in the past or population movements in late prehistoric times – or both. Issues such as these highlight the need to think in terms of large spatial scales.

In our modern era, we have come to calculate travel time in hours. For prehistoric times, travel distance for an entire day is often estimated at 22 miles, or about 35 km. While most face-to-face interaction in prehistoric times was probably within a few days of one's home village, it is clear that special goods and ideas were able to move over much larger distances. To help visualize long-distance interaction I have placed a set of "distance markers" on the ac-



Travel distance in ancient times is best thought about in terms of days spent walking. Here it is assumed that someone departing from the Phoenix area could cover 35 km (22 miles) per day as he or she headed south.

helped us to reconsider some of the basic terms we use. We will be dropping our references to "the Greater Southwest" as our region of interest. Instead, we will use the terms "American Southwest" and "Mexican Northwest." Consider first that from the perspectives of our Mexican colleagues, the Southwest is actually the Northwest. Second, this issue of *Archaeology Southwest* underscores the importance of Mexico as an influence on prehistoric developments well into the modern United States. Cooperation and effective communication between Mexican and American researchers will be essential if maximum understanding of the past over this vast region is to be achieved.

companying map. They start in Phoenix, the Hohokam heartland and the northern edge of the Piman language family. Checking this map, I find it very helpful to know that some of the research issues that are very important in the Center's primary research area require consideration of places 40 or more days' travel time to the south.

And speaking of the Center's primary research area, this issue of *Archaeology Southwest* has

William H. Doelle

William H. Doelle
President & CEO
Center for Desert Archaeology

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

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

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