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# Archaeology Southwest™

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## Southwest Archaeology: The Next Generation

Jeffery J. Clark, Center for Desert Archaeology

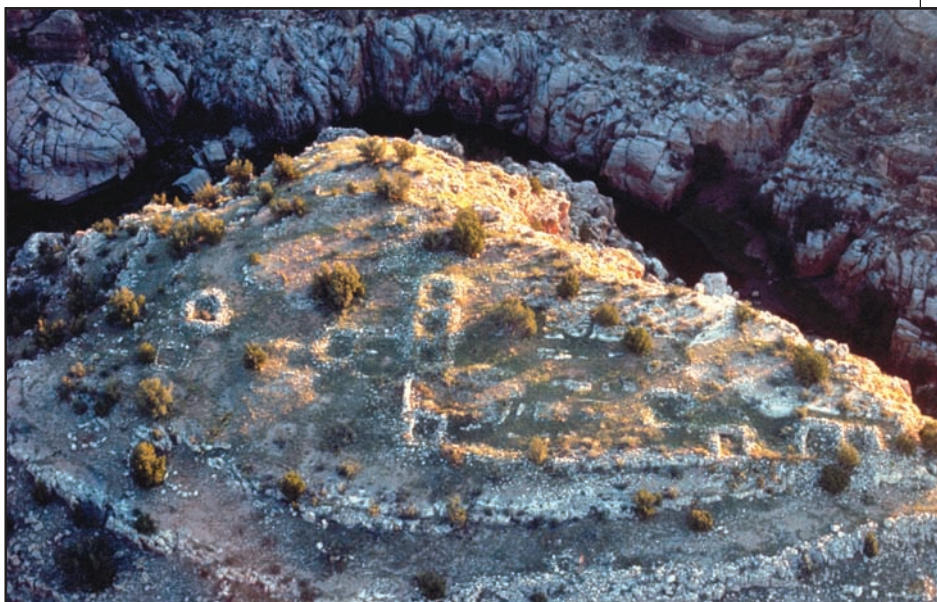
**T**HIS ISSUE OF *ARCHAEOLOGY SOUTHWEST* highlights the research of 17 doctoral students, some of whom are currently enrolled and some of whom are recent graduates. Three of the new graduates received the Society for American Archaeology's dissertation of the year award (for more information about the authors, please visit [www.cdarc.org/pages/library/](http://www.cdarc.org/pages/library/)).

Nearly all areas of the Greater Southwest are represented in this issue, except for southern Arizona; that will be included in two upcoming issues of *Archaeology Southwest*. Additionally, the work of recent Center Fellows Chip Colwell-Chanthaphonh and Anna Neuzil has been featured in previous issues of *Archaeology Southwest* (Nos. 18[1] and 20[2]).

Clearly, the new generation of archaeologists continues to be intellectually stimulated by the ancient and historic Pueblos, even though most universities no longer conduct large-scale excavations in the northern Southwest. Instead, the use of existing museum collections, new analytical techniques, ethnohistoric sources, and oral histories, in conjunction with limited fieldwork, has generated ample grist for the intellectual mill. Research in northern Mexico is also increasing as the result of collaboration between Mexican and American institutions. This vast intellectual frontier will be tamed by future archaeologists one valley at a time. (The work of two of these young pioneers is presented here.)

Nearly 12,000 years are covered in this issue, from the Paleoindian period through the nineteenth century. Much of the research focuses on the interval from A.D. 1200 to 1700, a tumultuous time in the Southwest. The quantity of data and chronological resolution during this period are unparalleled in archaeology.

No single theory currently unifies archaeological thinking, as demonstrated by the diversity of articles in this issue. Of course, culture and settlement history will always be integral to archaeology. In many regions of northern Mexico, archaeologists are still reconstructing these



*Architectural evidence for warfare in the Chevelon drainage; recent investigations at this fortified settlement revealed at least 23 rooms and a series of defensive walls across its gentler slopes (see Julie Solometo's article, page 8).*

histories at a basic level. In the well-studied northern Southwest, the major topics of the late twentieth century—such as migration, warfare (see photograph on this page), identity, ritual, and sociopolitical organization and transformation—resonate through many articles. Interest in the more “traditional” economic topics, such as craft production, trade, subsistence, and ecology, remains strong. These contributors and their peers will set the research agenda in Southwestern archaeology for at least the next decade. Herein, we provide a glimpse into the future. Enjoy.

Issue Editor: Jeffery J. Clark

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Archaeological sites and modern towns mentioned in this issue of *Archaeology Southwest*.

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# The Paleoindian Occupation of Sonora, Mexico

Guadalupe Sánchez, University of Arizona

**T**HE STATE OF SONORA, MEXICO, has yielded an extraordinary number of Paleoindian remains, in a variety of physical settings. In 2002, the Argonaut Archaeological Research Fund (AARF) of the University of Arizona began supporting geoarchaeological research investigating early Paleoindian contexts in Sonora. My work focuses on current research at the SON K:1:3 and SON O:3:1 sites and explores the late Pleistocene/early Holocene occupation of Sonora.

SON K:1:3 is about 31 miles northwest of the town of Carbó, in the northeastern Río Zanjón Valley. It is the most impressive and extensive Clovis site known in Sonora, extending over an area of about 1.5 square miles, with at least 22 localities identified. About 400 Clovis artifacts have been collected from the surface of the site. The most important portion of the site, and probably the principal reason Paleoindian groups came to this area in the first place, is a hill that contains a significant raw material source for flint knapping. In fact, 98 percent of the artifacts at the sites are made of this local vitrified basalt. Also at the site was a knapping station where thousands of biface thinning flakes were produced. The knapping technology employed in producing these triangular bifaces is reminiscent of, if not comparable to, Clovis technology.

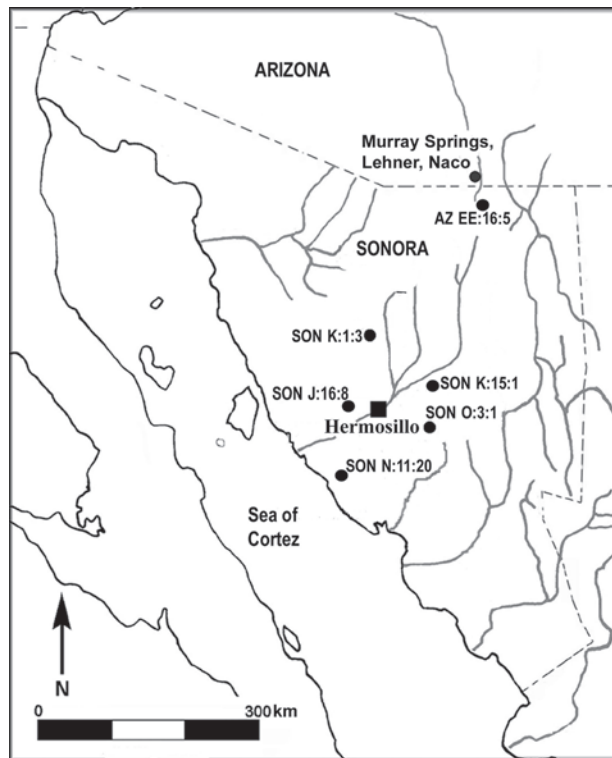
SON O:3:1 is located in the open rolling landscape between two foothill ranges southeast of Hermosillo. Javier Bustamante, working with Manuel Robles Ortiz, recovered three Clovis points, a half-dozen large bifaces, approxi-

mately 40 end scrapers, one blade transformed into a knife, at least 100 bifacial thinning flakes, and two mammoth

molars. Most of the lithic material was concentrated in a few areas, but not near where the molars were found. During an initial AARF visit, we found a Clovis point base fluted on one face, and one thumbnail end scraper. This site measures about 1.5 miles north to south, by about 1 mile east to west. Here, we have identified at least 28 localities, indicating this was a very complex site with a long occupation. One surface feature contained 15 biface fragments, one complete lanceolate biface, hundred of flakes and thinning flakes, hammers, abraders, and quartz crystals. At the

south end of the site, along an arroyo, are cienegalike deposits composed of very fine silt with carbonates. From this area, we recovered some thin bifaces manufactured using Paleoindian technology, as well as bison bones. The two reported mammoth molars probably came from this area.

Previous research at these early sites in Sonora indicates that they contain significant remains of several Early and Late Paleoindian occupations. My research, as well as ongoing AARF investigations, will advance our understanding of the first inhabitants of the American Southwest and northern Mexico.



Map of Sonora and southern Arizona, showing the location of the Paleoindian sites in Sánchez's study.



Fluted bifaces from SON K:1:3; all were made from the locally available vitrified basalt.

# The Sustainability of Mimbres Farming Settlements

Steve Swanson, Arizona State University

**S**USTAINABILITY REFERS TO the capacity to meet the social and economic needs of present generations without compromising that ability for future generations. Rather than focusing on societal collapse, archaeologists have started examining the archaeological record to understand how social and ecological strategies of past cultures were sustainable for so many centuries in the arid Southwest. My dissertation examines the sustainability of prehistoric Mimbres farming communities in southwestern New Mexico and southeastern Arizona.

Mimbres subsistence economy consisted of a mix of farming and foraging during the Early Pithouse period (A.D. 200–600), with the cultivation of beans, squash, and maize supplementing wild plant and animal resources. In the subsequent Late Pithouse period (600–1000), agriculture became increasingly important, and some pithouse settlements developed into fairly sedentary, Puebloan villages by the Mimbres Classic period (1000–1125).

Mimbres farmers would have faced many challenges to sustainability: regional population grew at an exponential rate (0.5% per year), hunting depleted large game, and agriculture expanded by deforesting riparian corridors.

I assess how these environmental impacts influenced the continuity of occupation and longevity of place using the concept of the “ecological footprint”—that area containing the resources a community needs to support subsistence and economic activities. In the Mimbres region, settlements grew larger, and people lived in these settlements for longer periods. Large settlement size and impact on local resources should have increased their ecological footprint. More people need more resources, and agriculture expanded at the expense of natural vegetation communities. Using satellite imagery, I discovered that these footprints are still visible on the landscape.

A series of satellite images shows that the modern vegetation communities around Mimbres pithouse settlements still bear the effects of prehistoric environmental

impacts. By examining vegetation response and recovery in drought and wet years, I discerned differences in the size and magnitude of the ecological footprints of pithouse versus Puebloan occupations. Modern vegetation around Mimbres sites responds differently to climatic variability than it does in areas without sites, but footprints around long-occupied pithouse sites are not different from those around short-term occupations. Instead, both the magnitude and extent of footprints were greater for sites with a Mimbres Classic occupation. Since there is no evidence for major changes in diet or economy from the Late Pithouse to the Mimbres Classic period, these later farmers appear to have been manipulating the environment differently than their predecessors.

Despite population growth, Mimbres farming settlements from the years 200 to 1000 were sustainable, allowing future generations to continue a pattern of agricultural expansion and social elaboration. Mimbres farmers likely employed sustainable agricultural

techniques, including polyculture, intercropping, planting diverse crop strains, growing of nitrogen-fixing legumes, and no-tillage planting. They may also have taken advantage of planting areas that received soil through runoff, as soil scientist Jay B. Norton has documented for Zuni agricultural fields. During the Pithouse periods, Mimbres farmers successfully coped with several extreme drought and flood events, suggesting their agricultural and social system could respond to major climate change.

However, it appears that the change to surface pueblos around 1000 may also have marked a change in the relationship between Mimbres settlements and the local environment. Reduced household mobility and increasingly rigid social institutions led to greater and more extensive environmental impacts and contributed to reduced sustainability. At the end of the Classic period, a relatively short drought, of a magnitude previous generations had experienced, appears to have resulted in migration and a major transformation of Mimbres society.



*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-325007).*



# Re-evaluating the “House” in Chaco Canyon, New Mexico

Carrie C. Heitman, *University of Virginia*

**I**N RECENT YEARS, a growing number of archaeologists have explored the potential of Claude Lévi-Strauss’s concept of “house societies.” His and subsequent works describe ethnographic contexts where people are organized through houses ranked according to their age and connection to ancestors.

Using Puebloan ethnographic literature and crosscultural comparisons, the house model helps to draw out the symbolic meaning of Chaco-era architecture. Looking specifically at the classificatory distinction between “great houses” and “small houses” in Chaco Canyon (A.D. 850–1180), my research compares the evidence for house creation, manifestation, maintenance, and abandonment in both great and small house contexts. Using data generated in part by the Chaco Digital Initiative, I evaluate how a house society model might yield new insights with regard to four symbolic dimensions of house construction: the use of wood, directional offerings, resurfacing practices, and intramural human and animal burial practices.

Over the last decade, Chacoan scholarship has focused less on the canyon core and more on the vast network of approximately 200 outlier communities in the San Juan Basin. These outlying great houses demonstrate degrees of architectural similarities and differences with those great houses in the canyon. Identification of road network segments and a shared suite of architectural characteristics has yielded new perspectives on the scale of this cultural florescence and raised new questions about the significance of parallel developments. Recent studies have compelled researchers to ask questions about the nature and function of the Chaco world in a larger spatial context.

To better understand what the Chacoan florescence meant and how it organized people, my house-centered research endeavors to explore their vision of the cosmos, as well as their place in it. Shifting the theoretical lens in this way will serve to complement quantitative studies (for example, labor, environment, and room size) with qualitative estimates of what anchored the world view of canyon residents. The house model can serve to integrate ceremonial dimensions of house creation and allow better understanding of how these structures shaped and wholly reflected changing patterns of social organization through directional associations, differential access to origins, and cyclical processes of ritual renewal.



*Top: Excavation of rooms and walls in Bc51, Chaco Canyon, New Mexico. Bottom: Section of Bc50, showing floor features. (Images courtesy of the Maxwell Museum of Anthropology, University of New Mexico).*

*The Chaco Digital Initiative was funded by the Andrew W. Mellon Foundation.*

# The Northern San Juan Region, A.D. 1150–1300

Donna Glowacki, University of Notre Dame and Crow Canyon Archaeological Center

**M**ORE THAN A CENTURY of archaeological inquiry has been devoted to understanding the depopulation of the densely occupied Northern San Juan (Mesa Verde) region by A.D. 1300. Archaeologists have typically suggested drought and violence as the primary reasons for the depopulation. However, these explanations overlook variations in settlement and social organization across the region that also contributed to creating the circumstances that prompted widespread emigration. My research explores the role played by these factors in this complex process.

Research over the last decade has shown that neither environmental factors nor resource depletion forced the ancestral Pueblo people to leave the region. Thus, the depopulation of the Northern San Juan must have been, in part, a response to social circumstances at the end of the 1200s. To address this issue, I compiled two regional databases: a Northern San Juan Pueblo III site database, with more than 3,700 sites, to determine variation in occupation histories and settlement organization, and a Pueblo III database, with more than 1,000 pottery and clay samples, to assess how connected people were

Results suggest that three phases of development and change led to regional depopulation: the Post-Chacoan Transition (A.D. 1150–1200), Eastern Expansion (A.D. 1200–1240), and Mesa Verde Florescence (A.D. 1240–1300). These social transformations included increasing aggregation into community centers and the rapid movement of emigrants from the western into the eastern subregions. The consolidation of a large proportion of the population into the eastern half of the Northern San Juan created an environment conducive to major social change. For example, settlement layouts changed, plazas began to replace great kivas, and multiwalled structures became



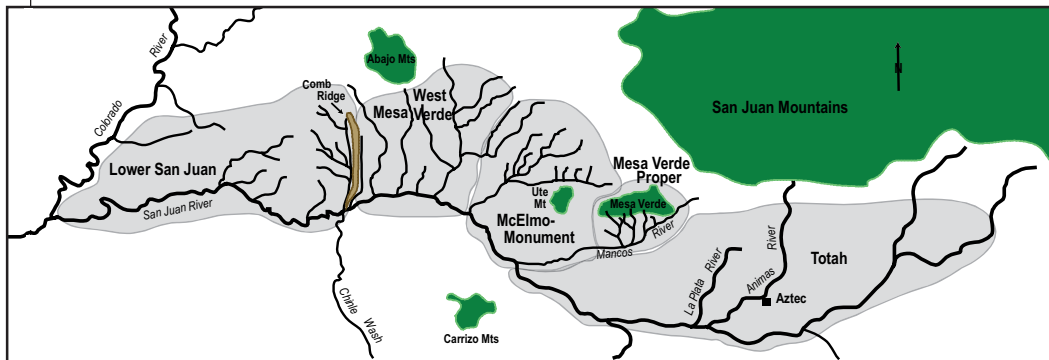
Long House Ruin, Mesa Verde National Park.

increasingly common at large sites.

This subregional scale analysis also indicates that noticeable emigration from the densely populated eastern portion of the Northern San Juan began by 1260, which preceded the extreme drought conditions and intense violence in the 1270s and 1280s. Thus, the initial stages of the Mesa Verde migrations were likely prompted by widespread social disruption. Given this, it seems the influx of western immigrants, paired with rapid changes in social organization, may have strained existing social, political, and religious institutions.

The Mesa Verde migrations had a profound effect on the developments and changes in Puebloan society. Thousands of people emigrated from the eastern subregions into northern New Mexico and from the western subregions into Arizona. Given that people were leaving the region by 1260, we

need to consider how those leaving the Northern San Juan may have actively contributed to the religious developments in New Mexico and Arizona evident by the early 1300s, rather than presuming they were “pulled” by them and passively integrated into existing practices.



The five areal subdivisions of the Northern San Juan.

across the region. Rather than taking the Northern San Juan region as a whole, I used five subregions to explore intraregional variation in demography, the distribution of community centers and public architecture, and patterns of pottery circulation.

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-012487), the Florence C. and Robert H. Lister Fellowship (2004), and the Joe Ben Wheat Scholarship (2001).*



# The Prehistoric Evolution of Northern Tiwa Hierocracy

Severin Fowles, Columbia University

WITHIN THE ANTHROPOLOGICAL STUDY of non-Western societies, two models relating religion and politics were dominant during the twentieth century. The first, drawn from Émile Durkheim, viewed religion as having initially evolved as an alternative to politics, a way of getting things done before there were true political leaders at society's helm. The second model was broadly Marxist; its vision was one in which religious systems were considered to have always been intertwined with the political insofar as the former developed to legitimate or reinforce the latter. Both, however, assumed that something called "religion" and something called "politics" exist as related but distinct categories of social action.

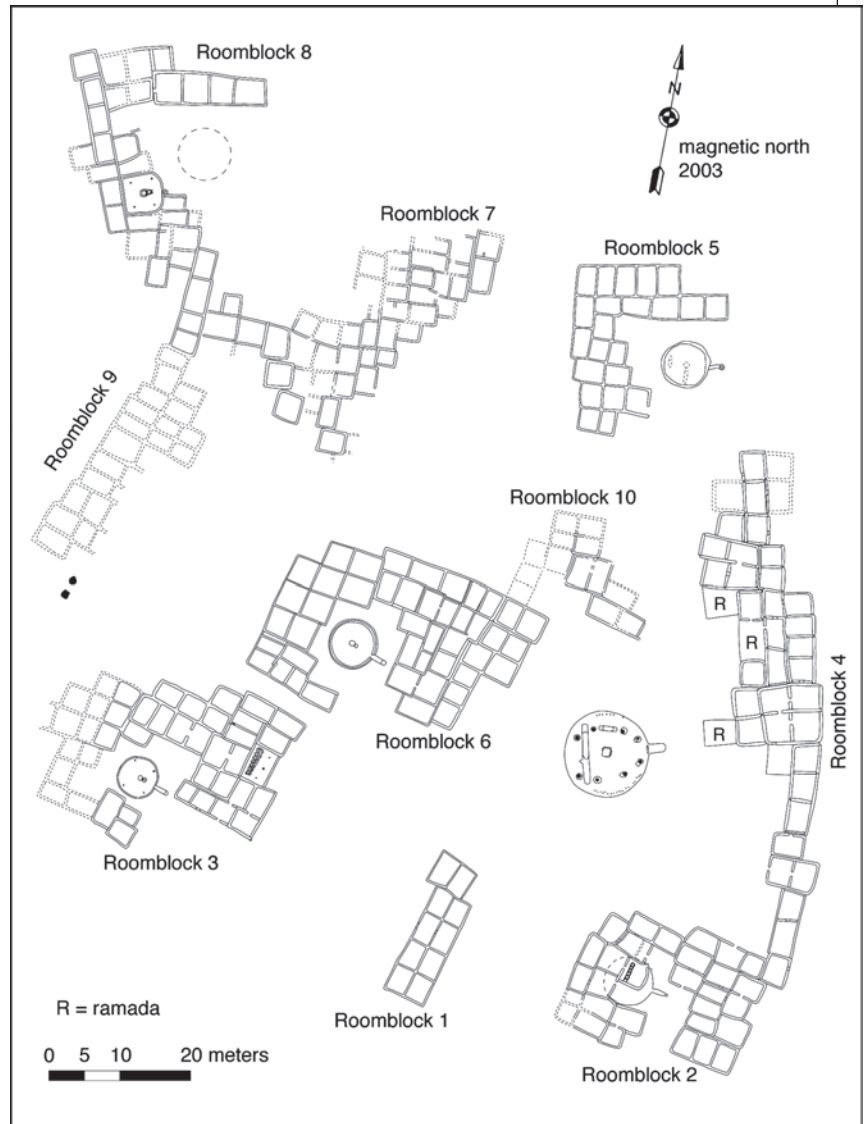
My research is an effort to move beyond these models to write an archaeological history of a Pueblo community in which religion, cosmology, and the like were read as politics. I focused on the Northern Tiwa, ancestors of the current inhabitants of Taos and Picurís pueblos, and specifically, the Pueblo III village of T'aitōna (Pot Creek Pueblo). My research traces the evolution of Northern Tiwa hierocracy from A.D. 900 to the present.

Key findings include the thirteenth-century origin of the Northern Tiwa moiety system, which appears to have arisen to institutionalize the power inequalities between an indigenous and an immigrant population—and not, as is often argued, as a strategy of power-sharing. I also bring to light new evidence of an early Northern Tiwa katsina religion that came to be disguised during the late fourteenth century. I argue that this pattern is best explained as the initiation of a formal (and political) taboo on katsina depiction.

Much of the study was concerned with the relationship between population change and ceremonial elaboration. Southwestern archaeologists have repeatedly assumed that as early villages increased in size, ceremonialism increased as a straightforward adaptation to new organizational demands. In the ancestral Northern Tiwa area, however, I discovered a much more complicated pattern. There, the initial period of aggregation and dramatic village growth was not accompanied by a perceptible increase in ceremonialism. Only during a later period—one characterized by population decline—do we find the introduction of new ceremonial objects, ritual, and shrines. Building from ethnographic and oral historical evidence, I conclude that this inverse correlation between population and ceremonialism is best explained as the emigration of religious dissidents during the initial construction of Northern Tiwa hierocracy.

In the final analysis, what anthropologists traditionally refer to as Pueblo "religion" cannot be portrayed as an alternative to politics (Durkheim) any more than it can be discussed as a mode of political legitimation (Marx). Durkheimian and Marxist models prove inadequate, and hierocracy stands alone, at once both the means and the end.

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-076083).*



*Plan view of excavations at the Pueblo III village T'aitōna (Pot Creek Pueblo).*



# The Conduct and Consequences of War in Chevelon, Arizona

Julie Solometo, James Madison University

**S**OUTHWESTERN ARCHAEOLOGISTS have accumulated ample evidence for armed conflict over the past decade. Construction of defensible settlements, burned sites, and skeletal evidence for violent death all point to the same conclusion: people living throughout the Southwest endured episodes of warfare. However, uncertainty remains about how warfare was conducted and the effects of war on Southwestern groups. Some scholars argue that war was waged by large parties recruited from

than to maximize destruction and fatalities. When there are no social ties between groups, fierce tactics are common, as is disrespect for enemy bodies and property. Large war parties are easier to recruit, and, once begun, hostilities are difficult to end. In rare instances, close groups may permanently sever ties, in effect expressing social distance, by adopting tactics usually reserved for socially distant enemies; for instance, the brutal tactics employed by Hopi warriors against the Hopi villagers of Awatovi—accused of witchcraft, among other crimes—were perhaps unthinkable, except against people no longer considered Hopi.

I applied this approach to the archaeological study of war in the Chevelon and East Clear Creek drainages south of Winslow, Arizona. This area is home to a series of fortifications located on buttes, canyon walls, and canyon meanders dating from A.D. 1150 to 1250. These fortifications appear to be part of a larger pattern of contemporaneous defensive settlements extending from Wupatki to the Hopi Buttes. Shortly after 1150, modest habitations near small drainages were abandoned in favor of defensive sites located on the canyon rims, including large, fortified habitations; refuges adjacent to dispersed, nondefensive settlements; and “lookouts” that communicated with the larger sites.

Loopholes pierce well-preserved fortification walls, and granaries are located on many sites and in nearby rock-shelters, indicating concern for defensible storage. Evidence of burning in habitation rooms and storage facilities at two tested sites indicates that some attacks were successful.

The residents of Chevelon and Clear Creek appear to have been fighting a socially distant enemy. Living in fortifications and lookouts, they were fully committed to defense, suggesting that attacks were frequent or difficult to anticipate. They feared for their food stores and homes, inspiring aggregation and the abandonment of their former fields. Despite their defensive precautions, some of their settlements were destroyed, indicating that enemy war parties were large. These attacks most likely led to the loss of life, and resulted in the abandonment of the Clear Creek drainage. Chevelon residents—perhaps because of access to productive canyon-bottom land—endured another 50 years, at which time their religious buildings became the target of another socially distant enemy.



*Five of the 20 rooms in this fortified settlement were tested, and all had been burned.*

many villages, intent on annihilating their enemies. If true, this form of warfare could explain many of the regional abandonments studied by archaeologists. Other researchers suggest that war consisted of small-scale raids intended to procure resources or women; such raiding would have inspired defensive strategies while resulting in comparatively minor loss of life and property.

Ethnographic evidence suggests that war in small-scale societies varied widely. Understanding war requires that archaeologists examine evidence not only for the presence of war, but also for its social scale, tactics, goals, duration, and frequency. Ethnographic descriptions of warfare indicate that these variables are dependent on the social distance between combatants. For instance, if war breaks out between groups that are bound by kin, trade, or ceremonial ties, the desire to resume peaceful relations limits the deadliness of tactics, the duration of hostilities, and the number of people willing to fight. Socially close groups are more likely to fight simply to “settle the score,” rather

*This research was funded by a Dissertation Grant from the Wenner-Gren Foundation (#6753).*

# Understanding Ancestral Hopi Migration and Identity, A.D. 1275–1400

Wesley Bernardini, *University of Redlands*

**H**OPI CLAN MIGRATION TRADITIONS have long attracted the interest of archaeologists because they include lists of named, identifiable archaeological sites. Pioneers of Southwestern archaeology like Jesse Walter Fewkes tried to map the migration routes of Hopi clans directly onto the archaeological record, but as archaeologists' ability to date sites improved, they noticed increasing problems with the chronologies of clan migration traditions. Ultimately, many archaeologists rejected oral tradition altogether as unscientific.

In the absence of a dialogue with descendant communities, archaeologists developed the idea that pre-contact landscapes were divided into discrete culture areas, each occupied by a quasi-tribal group (for example, Anasazi, Mogollon, Mesa Verde, or Chaco). Taking culture areas to be the primary units of identity had important implications for how archaeologists understood links between modern and ancient groups, leading them to ask, "Which ancient culture area looks like which modern tribe?"

Not surprisingly, Hopis found little of interest in archaeological conclusions framed in terms of culture areas, since this archaeological research neglected the social groups, clans, through which Hopi history (and modern Hopi identity) is understood. In the Hopi view, upon emergence into this world, each clan began a long migration in search of Tuuwanasavi, the earth center on the Hopi Mesas. Along the way, clans acquired totemic identities, such as the Bear Clan (*Honngyam*) or the Corn Clan (*Qa'öngyam*). During their migrations, clans would often come together to form villages but then move off again independently, so that each village was formed by a unique combination of groups. Thus, Hopi clan histories depict a very fluid ancient social landscape, not a static one.

I incorporated Hopi traditional knowledge into my research, focusing not on historical details, but instead on general processes of migration and identity. In this way, I used oral tradition to help guide archaeological research, rather than simply testing one type of evidence against the

other. When I looked for the pattern of movement by the small social groups described in Hopi clan migrations, I found it in two main lines of archaeological evidence: rock art and ceramics. I focused my research on two sets of fourteenth-century villages in central Arizona (on Anderson Mesa and near the modern town of Winslow) considered by both Hopis and ar-

chaeologists to have been occupied by people who later migrated to Hopi.

In the rock art of these villages, I was able to identify totemic images that likely symbolized group identity, some of which correspond to modern Hopi clan symbols. Taking the diversity of totemic symbols at a village as a measure of the diversity of social groups it contained, I found that even neighboring sites contained different sets of totemic groups. This pattern may mean that villages were, in fact, formed from unique combinations of independently migrating groups. In the pottery of the same villages, I found parallel evidence suggesting that, when small social groups moved on to another village, they selected those destinations independently of their immediate neighbors. These findings indicate that identity in the ancient southwest was much more dynamic and complicated than is implied by the culture area model.

My research showed that excluding Native American perspectives has not improved our scientific reconstructions of the past, but rather, has hurt them. Incorporating oral tradition into archaeology improves our collective understanding of the past.



*A rock art panel at the Tutuveni Petroglyph site, located west of the Hopi reservation, showing a collection of Hopi clan symbols.*

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-0004543).*

# Ritual Zooarchaeology at Homol'ovi

Vincent M. LaMotta, *University of Arizona*

**M**ORE THAN A CENTURY after Jesse Walter Fewkes first speculated that certain Hopi religious ceremonies might trace their origins to the fourteenth-century Homol'ovi villages in northern Arizona, archaeologists are once again exploring the ritual prehistory of the Homol'ovi region to learn about the antecedents of Hopi ceremonialism. My own research, in collaboration with the Arizona State Museum's Homol'ovi Research Program (ASM/HRP), University of Arizona, is concerned with tracing the prehistoric development of Western Pueblo religious societies (sodalities) akin to those described by ethnographers in the earlier part of the twentieth century.

I am interested in addressing questions such as: How and when did katsina and non-katsina ceremonies coalesce into a village ceremonial cycle? What are the origins of Pueblo religious societies, and what roles did they play in village political organization prehistorically? My dissertation work on Homol'ovi lays a foundation for this research by developing a chronological framework for sites in the region, and by examining changes in ritual behavior involving animal remains through time and across space.

Zooarchaeology, the study of animal remains recovered from cultural contexts, provides an ideal vehicle for studying prehistoric ritual behavior among the Western Pueblos. Certain categories of animals—particularly birds, carnivores, artiodactyls, and some reptiles and amphibians—are strongly associated with ritual ethnographically. These animals are used in constructing ceremonial costumes and items of ritual significance, such as fetishes, or as sacrificial victims. While archaeologists cannot simply assume that animals were used in exactly the same ways in prehistory, the ethnographic record does provide valuable clues for identifying possible evidence for ritual activities in the zooarchaeological record of sites such as the Homol'ovi villages.

My research focuses on animal remains from the site of Homol'ovi I, an 1,100-room pueblo that was occupied

between approximately A.D. 1290 and 1400. ASM/HRP excavated 70 rooms, three kivas, and portions of several different plazas and extramural areas at this site between 1994 and 1999. Against a backdrop of regional abandonment and population dislocation, Pueblo peoples living in newly formed villages like Homol'ovi I experimented with novel forms of ritual organization in this period, in part to offset the stresses associated with large village size.

One of my goals was to identify major changes in ritual behavior over the course of the century-long occupation of this site. Fortunately, excavations yielded an abundance of animal bones, including numerous specimens of birds,

carnivores, and other animals that were probably used in ritual activities.

My analysis identified a number of interesting and potentially significant temporal trends in the use and deposition of ritually significant animals at Homol'ovi I. For example, there was an apparent increase in the relative proportion of Golden eagle remains from the earlier



*Burned bighorn sheep skull from Homol'ovi I. (Photograph by Richard W. Lord; used with permission of the Homol'ovi Research Program, Arizona State Museum, University of Arizona, Tucson.)*

part of the occupation to the later part of the occupation, and a complete Golden eagle skull was recovered from the floor of a late-abandoned room. The Golden eagle is important in Western Pueblo ritual generally, and it is closely associated with katsina ceremonies. Among the carnivores, there was a significant increase in the abundance of canid remains throughout the occupation. Two sacrificed (decapitated) juvenile coyotes or domestic dogs were found as apparent offerings in late-abandoned kivas in the large southern plaza at Homol'ovi I.

Finally, there is an intriguing pattern of nonlocal bighorn sheep usage at the site, including ritualized deposition of painted and burned bighorn skulls. Ethnographically, bighorn skulls are used by the Hopi in ceremonial headdresses. These and other patterns provide evidence for significant changes in ritual activities at the site of Homol'ovi I throughout the course of its occupation.

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS 0003049), and by a grant to E. Charles Adams from the Wenner-Gren Foundation for Anthropological Research (Individual Research Grant #6778).*



# Prehistoric Wall Decoration in the American Southwest

Julia J. Meyers, University of Arizona

**M**URAL PAINTINGS, like the one shown here from Kawaika-a, a fifteenth-century Hopi Pueblo, are found at many sites in the American Southwest. The earliest murals, dating to the ninth century (Pueblo II period), consisted of mono- or bichrome images and were similar to depictions in rock art. During the Pueblo IV period, especially the fourteenth century, several sites contained highly elaborate multicolored images with realistic depictions of religious and daily events. Concurrently, previously small communities aggregated into large villages, leading to the development of power-sharing networks between different social groups, one example being the katsina cult.

At the ancestral Hopi sites of Homol'ovi I and Homol'ovi II, three kivas with elaborate mural images and two structures with incising showed changes in plastering techniques, resulting in up to 49 superimposed plaster layers with distinct colors. My research suggests that Southwestern wall decorations changed as social power relationships adjusted within aggregated villages.

At the fourteenth-century site of Homol'ovi I, I conducted an intensive study of the plaster, which showed that the number, thickness, color, and sequence of plaster layers in each structure provide important information about changes in activities performed within the structure. These data can also aid in the relative dating of associated wall features, like niches and doorways, and help determine relationships between neighboring structures.

There are remarkable differences in the plastering in ritual versus nonritual structures, suggesting that the visual performance characteristics of plaster are an important indicator of ritual intensification at aggregated Pueblo IV sites. At Homol'ovi I, after 1365, plaster in ritual structures became more visually significant than it was in earlier ritual or non-ritual structures. Fewer soot layers between plaster layers, in ritual structures containing a hearth, suggest that a "clean" plastered wall surface was important for the overall visual performance of the structure. In contrast, in nonritual structures, plastering was done periodically, but less frequently, and was seemingly associated with the need to cover a sooted surface.



*Layers of plaster are clearly evident in this wall fragment from Homol'ovi I.*

and tradition. Both forms stimulate different senses during specific ritual ceremonies and create a formalized language, which through calendrical repetition ensures the perpetuation of important cultural symbols and creates a common social memory of acceptable behavior.



*The visual impact of vivid color images, such as this kiva mural from Kawaika-a, a fifteenth-century Hopi Pueblo, would have conveyed important social and ritual information to those with access to the restricted spaces of the kivas. (Plate D from Watson Smith, Kiva Mural Decorations at Awatovi and Kawaika-a with a Survey of Other Wall Paintings in the Pueblo Southwest, Papers of the Peabody Museum of American Archaeology and Ethnology, Vol. 37. Reprinted courtesy of the Peabody Museum, Harvard University.)*

Mural images played an important part in public ceremonies. The new social institutions and related activities needed to be communicated and manifested in the community. Like Hopi songs, wall decorations, particularly paintings, are an effective way to communicate cosmological and ritual thought

# Mobility and the Transformation of Ancient Cibola Communities

Gregson Schachner, University of California, Los Angeles

**M**OBILITY HAS LONG BEEN a fundamental part of the subsistence and social practices of native peoples in the Southwest. A variety of different types of movement, ranging from daily trips to scattered fields to migrations between distant regions, ensured the long-term survival and resilience of Southwest societies. The importance of these movements is clear in the traditional histories of native peoples, who see mobility as a defining part of their cultures.

My dissertation research examined the residential movements of people within the Cibola region of west-central New Mexico during the A.D. 1200s. At this time, ancestral Pueblo farmers began to move into previously unoccupied areas and create new communities within the region. In the El Morro Valley, where I focused my studies, hundreds of small residential pueblos were built during the interval from 1240 to 1280, transforming what had once been a sporadically used landscape into the demographic center of the eastern Cibola region.

Even after people settled the valley, they continued to move frequently. Nearly all pueblos built in the El Morro Valley were occupied for a generation or less. In fact, the smallest pueblos, which may have housed one or two families, were often lived in for only a few years. The short periods of residence at these pueblos suggest that the El Morro settlers moved more often than people in other parts of the Cibola region. Patterns of ceramic movement indicate they may have been moving back and forth between El Morro and long-settled areas to the west.

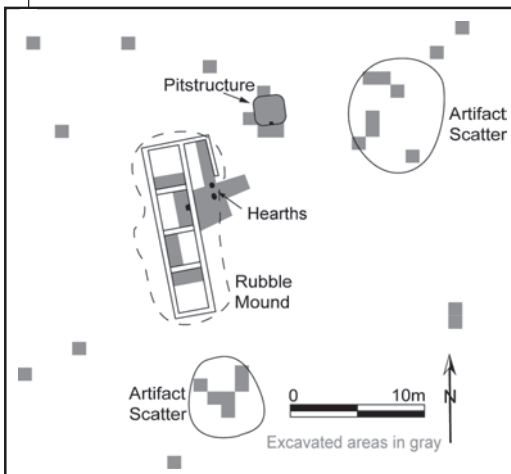
I examined where people came from by tracing the movement of pottery into, and out of, the El Morro Valley through the chemical analysis of sherds from more than 900 pots found throughout the region. Multiple types of pottery moved frequently in both directions between the El Morro Valley and the Pescado Basin, an area roughly a day's walk to the west. The movement of pottery occurred much more infrequently between other parts of the region and the El Morro area, suggesting that only a few people from more distant places may have been involved in the settlement of the valley. Most of the people who moved into the El Morro Valley in the 1200s probably came from the adjacent Pescado Basin and either brought pots with them or continued to trade with kin and others in their place of origin. The frequent movement of pots between the new villages of the El Morro Valley and the much older villages of the Pescado Basin probably resulted from the recurrent circulation of people between the two areas. Circulation between the areas would have enabled people to use multiple field locations with different ecological characteristics, which is a common practice in Pueblo agriculture even today.

The settlement of the El Morro Valley in the mid-1200s coincided with an explosion of diversity in the spatial organization of communities and the use of public architecture. Contemporary communities in long-occupied parts of the Cibola region usually consisted of clusters of room blocks surrounding a Chaco-style great house and associated great kiva. While settlements of this form were built in El Morro, people also began to build clusters of room

blocks surrounding large, open plazas and, in a few cases, massive villages consisting of a single room block containing more than 1,000 rooms. Intriguingly, these latter two types of villages first appeared in the Cibola region in areas that were newly settled in the 1200s. The adoption of these settlement forms may have allowed residents of new communities to exert greater control over the movement of smaller-scale social groups.



*The El Morro Valley landscape.*



*The low frequency of discarded cooking pots at small El Morro pueblos, such as this one near Los Gigantes great house, indicate that people moved between residences often during the initial settlement of the valley in the mid-A.D. 1200s.*

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-0451354) and a University of Missouri Research Reactor National Science Foundation Grant (SBR-0102325).*



# Pottery and Scales of Interaction in the Pueblo IV Zuni Region of New Mexico

Deborah L. Huntley, *Southwest Archaeological Consultants*

**A**CROSS THE NORTHERN SOUTHWEST, the Pueblo IV period (A.D. 1275–1600) was a time of dramatic change in settlement patterns and social configurations. While many parts of the northern Southwest were abandoned during this interval, populations in other areas consolidated into apartmentlike structures called nucleated pueblos. In the Zuni region, pueblo clusters have been identified that shared similarities in material culture. This phenomenon also occurs outside the Zuni region, and has led many scholars to propose the development of various forms of multipueblo sociopolitical integration during the Pueblo IV period.

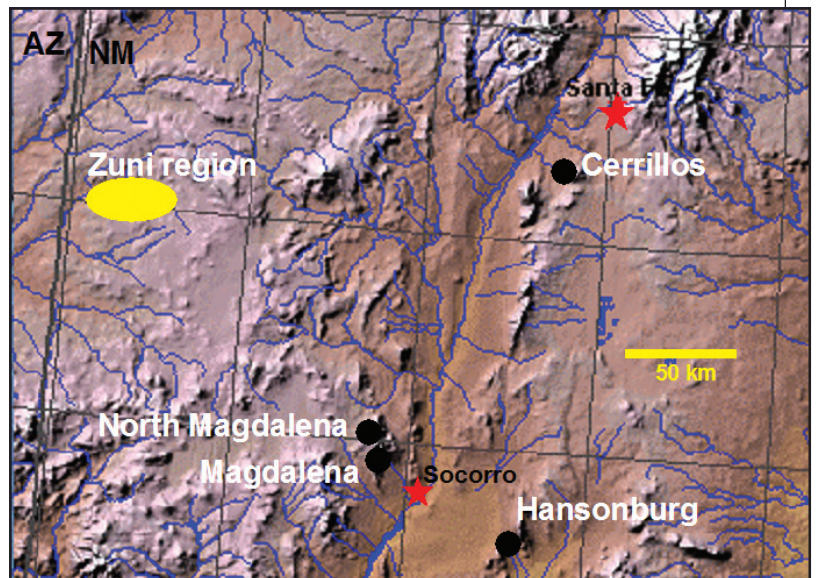
Throughout prehistory, pottery played a key role in the creation of social identity, the definition of social group boundaries, and the negotiation of social relationships through trade. Beginning in the late 1200s, ancestral Pueblo people began making polychrome pottery, often decorated with glaze paint, that has been linked with new religious practices and belief systems. Polychrome bowls, in particular, were likely used not only for everyday household food service, but also as containers for ritual offerings and for serving food at community-wide feasts.

In my research, I analyzed the production and exchange of polychrome and utility ware vessels, glaze paint recipes, and glaze paint ore sources to explore Pueblo IV Zuni regional organization. I sampled ceramic assemblages from nine contemporaneous nucleated pueblos occupied during all or part of the Pueblo IV period. I determined that Zuni-area potters, as well as others with access to their products, used pottery to negotiate relationships within overlapping networks with permeable and flexible boundaries. Multiple lines of evidence highlight interactions at three scales: within pueblo clusters, among different pueblo clusters, and with other regions.

Like previous researchers, I found that pueblos in different parts of the Zuni region consistently used local clays to make decorated and utility ware vessels. I also found an overall west-to-east exchange pattern, especially for decorated bowls. Pueblos in the El Morro Valley in the eastern Zuni region, in particular, obtained relatively large numbers of decorated bowls from other parts of the Zuni re-

gion. One explanation for this pattern is that El Morro Valley residents established interueblo alliances through exchange transactions involving decorated pottery, perhaps within the context of rituals hosted in the El Morro Valley.

I found evidence for a region-wide shift from an earlier, high-copper/low-lead recipe for making glazed-decorated pottery to a later, high-lead/low-copper recipe. Information sharing among potters would have been neces-



*Lead ore sources (black dots) used by Zuni region potters.*

sary to reproduce the basic recipe and proper firing conditions required to create a glaze paint. This indicates that there was a high degree of communication among potters, and perhaps regular exchange of glaze ingredients.

Zuni region potters utilized several long-distance lead ore sources. A large number of early glaze paints were made using ores from the Cerrillos Hills near Santa Fe, suggesting that long-distance social ties were strongest with the northern Rio Grande area at the onset of the Pueblo IV period. During the mid- to late fourteenth century, Zuni region residents increased their use of lead ores from the Magdalena Mountains near Socorro, intensifying existing social connections with southern Rio Grande groups. Thus, patterns of ore resource utilization highlight social networks that transcended regional boundaries and traditionally defined culture areas.

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-0003191), a Dissertation Grant from the Wenner-Gren Foundation (#6659), and a University of Missouri Research Reactor National Science Foundation Grant (SBR-9802366).*



# Domestic Architectural Production in Northwest Mexico

Elizabeth Bagwell, *Desert Archaeology, Inc.*

**T**HE CASAS GRANDES REGION has fascinated visitors for centuries. The focus of most of this interest is the site of Paquimé. This unique site has massive four-story adobe structures that may have contained as many as 2,000 rooms, ballcourts, platform mounds, a walk-in well, large caches of trade goods, and evidence of craft specialization. This site was likely the center of a regional system that was at its height during the Medio period between A.D. 1200 and 1450.

The inhabitants of this region shared distinctive polychrome pottery and architecture, suggesting that they also shared ways of living, religious beliefs, and possibly political and economic ties. One question that has remained unanswered is the nature of the relationship between Paquimé and smaller sites on the edges of the Casas Grandes region. To begin to address this question, I studied the ar-

chitecture of two Medio period cliff dwellings approximately 47 miles west of Paquimé, Cueva Bringas and Cueva el Aguaje.

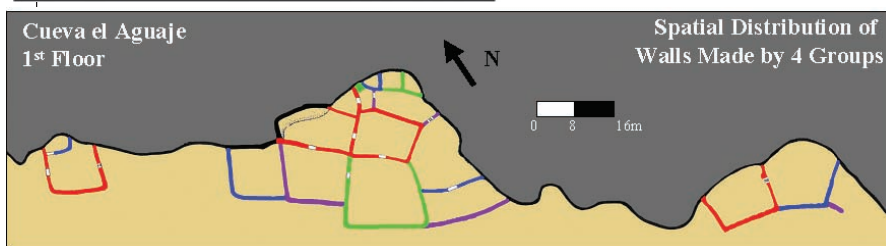
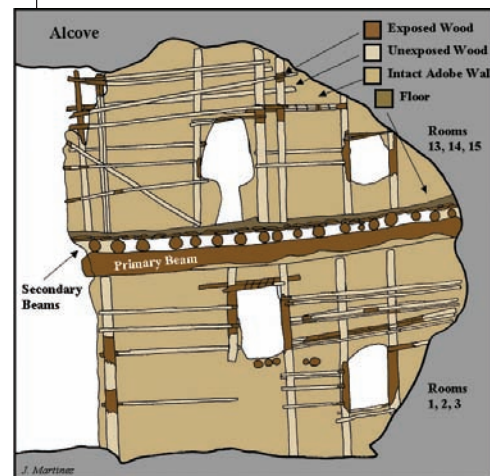


*Cueva el Aguaje is well preserved and proved an ideal place for an architectural study.*

The two cliff dwellings that are the focus of this research are located in the Sierra Alta, a region characterized by rugged terrain, permanently flowing rivers, and oak-pine woodland. Although well-known archaeologists, including Adolph Bandelier, had worked in the area, none had spent more than a few

weeks there. As a result, our knowledge of the archaeology of the Sierra Alta is very limited. My research revealed that, although sites from other time periods are present, the Sierra Alta is dominated by Medio period sites. These include field houses, habitation sites with between 10 and 100 rooms, and extensive agricultural terrace systems built in arroyos and on steep hillslopes.

Each site consisted of a two-story adobe structure with approximately 40 rooms. The architecture at the sites appears to have been produced by members of a large group, probably the entire community, over a period of less than a year. Because the patterns at both sites are nearly identical, they were probably built by groups sent to these locations to form new colonies. In addition, the two groups constructed the buildings in identical ways and were composed of nearly the same number of individuals and household groups. Both groups were likely only two of many that formed distant colonies at the order of individuals from the regional center of Paquimé. Finally, when compared with Paquimé, neither site seems to have been produced by specialists. However, the producers at Cueva el Aguaje appear to have been more skilled than those at Cueva Bringas, perhaps indicating a stronger tie with the regional center.



*Top: Cross-section of a wall from Cueva Bringas. Bottom: plan view of the first floor of Cueva el Aguaje. Detailed study of architectural practices allowed the identification of four groups as builders.*

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-0121730).*

# Production, Exchange, and Social Identity: A Study of Chupadero Black-on-white Pottery

*Tiffany Clark, Desert Archaeology, Inc.*

**CHUPADERO BLACK-ON-WHITE** is one of the most distinctive and common painted pottery types in the American Southwest. Chupadero had a wide distribution (see map on this page and photograph on page 20) and was also one of the longest-lived ceramic types in the region, with production beginning around A.D. 1100 and continuing until 1550. Although described and named at a relatively early date, until recently Chupadero has received little scholarly attention. Consequently, many aspects concerning its production and exchange are just beginning to be understood.

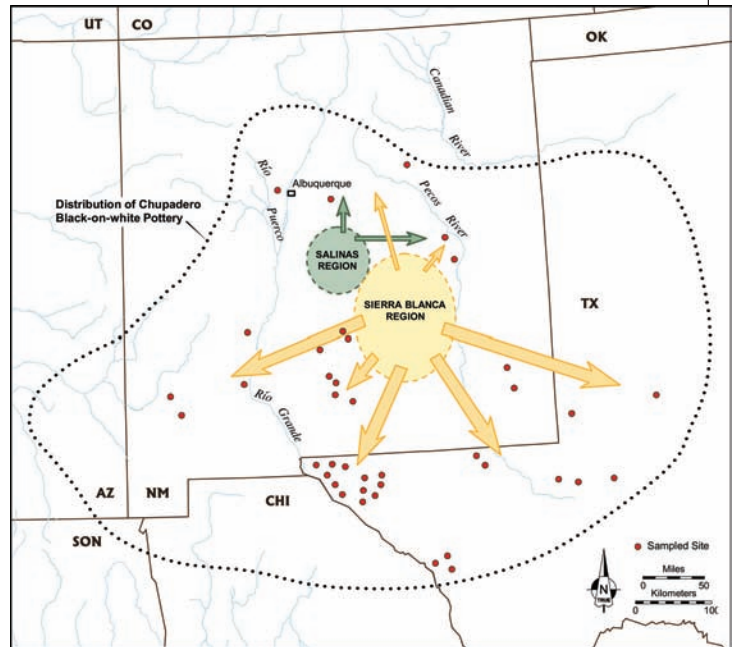
Preliminary sourcing studies conducted by Darrell Creel, of the University of Texas at Austin, indicate that Chupadero was produced in only two areas of central New Mexico, the Salinas and Sierra Blanca regions. This finding suggests that much of the Chupadero recovered from sites in central and southern New Mexico and west Texas was traded through long-distance networks. While Creel's work provided an initial view of Chupadero exchange, additional study was needed to better characterize the organization and structure of long-distance trade relations. Did groups in central and southern New Mexico and west Texas import Chupadero from the Salinas or Sierra Blanca region, or both? Which region was more intensively involved in the long-distance exchange of Chupadero vessels?

To examine patterns of long-distance exchange, I undertook a study of Chupadero from 40 sites outside the Salinas and Sierra Blanca regions. Given the extended time period over which Chupadero was made, I focused on sites occupied during the Pueblo IV period (1275–1550). Chupadero sherds from these sites were subjected to chemical and mineralogical compositional study. The compositional signature of each sherd was compared to known production sources in the Salinas and Sierra Blanca regions in order to identify the location of manufacture.

Substantial differences were found in the long-distance exchange of Chupadero pottery from the Salinas and Sierra Blanca regions. Most of the pottery from sites in southern New Mexico and Texas was made in the Sierra Blanca region. As shown on the map, Sierra Blanca ceramics were found in all of the geographic areas that were sampled. People in the Sierra Blanca region participated in long-distance networks that encompassed much of central and southern New Mexico and beyond. In contrast, the geographic distribution of Chupadero produced in the Salinas region was much more limited in scope, with exchange oriented towards groups in the middle Rio Grande to the north and the Pecos Valley to the east.

While a number of social and economic factors likely contributed to these regional differences in long-distance exchange, one possible explanation relates to the demographic and geographical setting of the Sierra Blanca region. During the Pueblo IV period, the Sierra Blanca region contained small, dispersed populations that lived in settlements in upland locales. These high-elevation areas are on the marginal limit of maize agriculture.

Local people may have established and maintained fairly extensive social and exchange ties as a strategy to reduce the subsistence uncertainty in such an agriculturally marginal environment. Although food may have occasionally moved through long-distance exchange networks, people in the Sierra Blancas may also have relied on their trade partners living at lower elevations for temporary refuge during extended crop failures. In contrast, people in the Salinas region lived in an area with a larger overall population that was less risky for agriculture. Thus, differences in the long-distance exchange of Chupadero may have been driven by local factors characteristic of each region of production.



*Map showing the general pattern of the long-distance movement of Chupadero Black-on-white pottery (note that arrow thickness denotes major and minor sources of imported pottery).*

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-0230567).*



# Forgotten Pueblos: An Archaeological Assessment of Colonial Piro Settlement

*Michael Bletzer, Southern Methodist University*

**T**HE EARLY COLONIAL PERIOD was a time of large-scale population decline among the Southwestern Pueblos. Between the arrival of the first Spanish colonists in the 1500s and the Pueblo Revolt of 1680, overall Puebloan population fell from perhaps as many as 100,000 to fewer than 20,000 people, with the number of occupied pueblos dropping from more than 100 to fewer than 30. The processes of change in population and settlement are inadequately understood beyond the general trends, however, as contemporary records are fragmentary and archaeological data are of uneven quality from region to region.

During the sixteenth and seventeenth centuries, the southernmost Puebloan group were the Piro in the Rio Grande Valley around Socorro, New Mexico. In the years after 1625, four of 14 Piro pueblos saw the establishment of Franciscan missions (Socorro 1626, Senecú 1626–1627, Sevilleta, 1627–1628, Alamillo, 1630–1635). The mission pueblos are the only pueblos mentioned in records after 1630. In 1680–1681, all four were abandoned in the turmoil of the Pueblo Revolt. Several hundred Piro went to El Paso, Texas, with the retreating Spaniards; others scattered to seek refuge elsewhere. None of the pueblos were resettled.

Since 2001, research at Plaza Montoya Pueblo, south of Socorro, has focused on Piro settlement and abandonment. For the years after 1650, written records hint at growing instability

at the Piro mission pueblos in the form of periodic abandonments, population shifts, and settlement consolidation. As Plaza Montoya was no doubt occupied when the Piro missions were founded, information on the mission pueblos offers a comparative historical backdrop to analyses of construction patterns, artifact distribution, and refuse disposal at the site.

As traced through remote sensing, wall-scraping, and excavation, Plaza Montoya had up to 250 ground-level and 50 second-story rooms (see map on page 20). Built entirely of adobe, little of the pueblo remains on the surface. To date, 40 rooms in four room blocks and 44 trenches in plaza and off-site locations have been tested. Radiocarbon dates and ceramics place the beginnings of Plaza Montoya in the late 1400s. Metal artifacts in some lower levels are evidence that construction continued after contact. No earlier structures were found, nor was there much evidence of structural remodeling. There were also no refuse deposits within rooms and only few artifacts.

Most strikingly, the site has yet to yield a single restorable decorated vessel. Other household items are equally lacking. Every one of more than 40 mealing bins in the excavated rooms, for instance, was missing a metate.

Together, the data indicate that Plaza Montoya was more or less fully occupied until abandonment. When the pueblo was abandoned cannot be determined with certainty, though it was probably not long after the establishment of the missions brought the Piro into more permanent contact with the Spanish world. Given the structural and material patterning at the site, it is possible that Plaza Montoya's residents resettled at Socorro, just 4 miles away. While rarely mentioned in documents, resettlement was part of Spanish administrative strategies to establish control over native groups. Piro sites, as a whole, are little known archaeologically, though what data there are point to substantial reductions of occupied space in most Colonial period pueblos. The excavations at Plaza Montoya clearly show that more systematic testing is needed for us to develop a coherent picture of the postcontact decline of the Piro area.



*Two excavated rooms in the east room block at Plaza Montoya Pueblo. Mealing bins without metates are visible at the south end of the rear room (center right).*

*This research was funded by a grant from the TIDES Foundation of San Francisco (#TFR03-01085).*



# The Archaeology of Jemez Resistance and Revitalization in the Pueblo Revolt Era, 1680–1696

Matthew Liebmann, *College of William and Mary*

THE PUEBLO REVOLT OF 1680 has long been recognized as one of the most successful indigenous rebellions in the history of North American colonization. In August of that year, the Pueblos united with their Navajo and Apache allies in an armed insurrection that banished Spanish colonists and missionaries from Pueblo lands for more than a decade. Yet, we know surprisingly little about the events that occurred in the Pueblo world between the Revolt of 1680 and the Spanish Reconquest of 1692–1694.

The Pueblo Revolt era was far more than just a series of battles between Native Americans and Europeans. The Revolt of 1680 was part of a larger social movement organized under the direction of Po'pay, a charismatic Tewa leader from San Juan Pueblo. Po'pay preached a message of nativism and revivalism, calling on the Pueblos to purge their world of foreign influence and return to traditional, pre-Hispanic ways of life. My research investigated the material signs of this revitalization movement, as manifested in the architecture and ceramics of four pueblos constructed during the Revolt era in the Jemez region of northern New Mexico. The investigation of these villages was conducted in close collaboration with the Pueblo of Jemez Department of Resource Protection, Cultural Resource Advisory Committee, and Tribal Administration. Tribal members participated in all phases of the project.

What happened between 1680 and 1696 in the Pueblo world? In the Jemez region, the revitalization movement flourished in the years immediately following the Revolt. Between 1680 and 1683, two new pueblos were constructed using an iconic, dual-plaza form that I argue was used to reference the pre-Hispanic past and emphasize traditional

Pueblo social organization. Similarly, this period saw significant shifts in ceramic production and exchange related to Po'pay's calls for nativism and revivalism. Yet rather than returning to the production of traditional Jemez pottery following the Spaniards' ouster, Jemez women ceased the production of pre-Hispanic types, adopting new ceramic

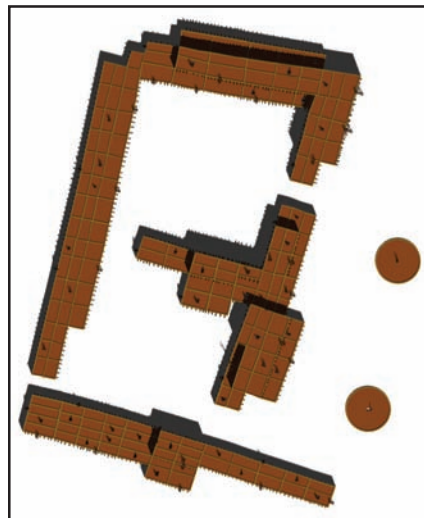
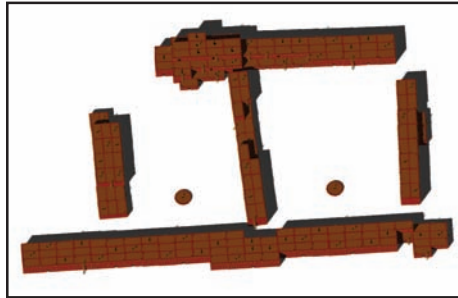
styles shared with neighboring Keresan Pueblos. These changes were likely related to the dramatic increases in migration that occurred among Pueblo people in the wake of the revolt, blurring traditional linguistic-ethnic boundaries between Pueblo regions and resulting in the creation of new, pan-Pueblo

identities.

But this fervent revitalization seems to have dissipated by the end of the decade, as evidenced by two villages constructed between 1689 and 1694 that do not exhibit the same revivalistic patterns as their predecessors. Ceramics also suggest a decrease in interaction among some Pueblo communities in comparison to the early Revolt period, possibly related to the inter-Pueblo conflicts reported by the Spaniards upon their return to the region in 1692. Yet while the pan-Puebloism and revivalism that characterized the early 1680s seems to have waned by the following decade, the nativistic zeal of the Jemez was still evident, as attested to by their staunch resistance to the attacking Spaniards in 1694 and 1696.

The practices of cultural revitalization enacted in the wake of the Pueblo Revolt resulted

in profound changes that transformed the architecture, ceramics, and social formations of the Pueblos for centuries thereafter. Thus, the Revolt era forms a crucial bridge between the Contact period and the modern Pueblo world. This has implications for archaeological studies of pre-Hispanic pueblos as well, as analogies with modern Pueblos depend on an accurate understanding of the changes that occurred during the late seventeenth century—an understanding we are only beginning to develop.



*The dual-plaza form of the ancestral Jemez pueblos of Patokwa (top) and Boletsakwa (bottom) emphasizes traditional social organization. They were constructed between 1680 and 1683.*

*This research was funded by a Doctoral Dissertation Improvement Grant from the National Science Foundation (BCS-0313808) and a Dissertation Grant from the Wenner-Gren Foundation (#7048).*

# Pueblo Population Change on the Jemez Plateau, A.D. 1200–1700

Jeremy Kulisheck, Santa Fe National Forest

**A**MONG NATIVE NORTH AMERICANS, the Pueblo peoples of the American Southwest are a survival success story. Modern Pueblo communities have maintained their languages, religion, traditions, and lands. But this survival belies a history of struggle and loss. More than half of the areas that Pueblo peoples occupied at the time the first Spaniards arrived in the Southwest were abandoned by the twentieth century, and countless Pueblo communities are now known only by their ruins.

In seeking to understand the factors that meant the difference between survival and population decline among the Pueblos, I turned to the archaeological record of the Jemez Plateau. An area of high forested mesas and deep, narrow canyons on the western edges of the northern Rio Grande watershed, the Jemez was colonized by Pueblo peoples in the late A.D. 1100s. By the time the first Spaniards arrived in the Southwest in the early 1500s, the Jemez was one of the most densely occupied of the Pueblo regions, with a dozen or more large villages. By 1700, however, the plateau had been abandoned. The first two centuries of Spanish exploration and conflict had so diminished their population that the Jemez resettled in a single village—Walatowa—on the south end of the plateau, where they have remained to this day.

What caused the precipitous decline of one of the most successful Pueblo communities? Was it disease, warfare, exploitation, or some other cause? In attempting to distinguish between these alternatives, I tried to identify how rapidly the decline in population took place, and when, knowing that these two variables would provide clues to the cause. For example, if disease were to blame, then the decline in population would have been rapid, and probably would have occurred in the 1500s, soon after the first contact between Pueblo peoples and Spaniards. However, if warfare were to blame, the fall-off in population would most likely have taken place in the late 1600s, during the time of the Pueblo revolts. Because there had been little archaeological investigation at the large villages on the Jemez, I turned to the plateau's abundant fieldhouse and farmstead remains, and looked at changes in farming and land-use practices to determine the timing of population change. Using a variety of measures, I found that Pueblo farmers retained the use of their fields and farmsteads well into the seventeenth century, and that there was little or no decline in the use of the plateau's rural landscapes until the late 1600s. Based on this evidence, combined with indications that many of the villages thought abandoned were still occupied after the Spanish conquest, the imposition of Spanish rule in the northern Southwest had little effect on the Pueblo peoples of the Jemez. Their isolation on the high mesas of the plateau sheltered the Jemez from disease, and allowed them to escape the economic exploitation of the *encomienda* by the Spaniards. They did not, however, appear to avoid the ravages of the Pueblo revolts of 1680 and 1696. I found little or no evidence that farming persisted on the plateau into the eighteenth century, confirming historic records.

The archaeological record of the Jemez Plateau indicates that there is no single story characterizing the experience of Pueblo peoples during the Colonial era. In the southern portion of the Pueblo world, written records and archaeological research have shown that disease and economic exploitation had a significant effect on Pueblo populations, and many of these areas were abandoned in the seventeenth century, never to be reoccupied. The experience of the Jemez, however, suggests that Pueblo peoples on the margins of Spanish rule were able to more successfully resist the Spanish conquest. But the archaeology of the Jemez also indicates that, while isolation kept the Jemez safe from some threats, it could not protect them from others, such as the violence that accompanied the Pueblo Revolts of 1680 and 1696. During this time, written records indicate that many Jemez fled their homeland and sought refuge with other Native American groups, never to return. The archaeological record supports this story. Despite their successful resistance during the seventeenth century, eventually the ill winds of European conquest also swept across their home, and left an indelible mark on both their population and the archaeological record of the region.



*Cañon de San Diego, through which the Jemez River runs, lies in the heart of the Jemez Plateau. Spanish missionaries attempted to relocate the Pueblo farmers of the Jemez to this narrow valley in the early 1600s, but most Jemez retained their homes and farms on the high mesas.*

*This research was funded by a Dissertation Grant from the Wenner-Gren Foundation (#6356).*

# The Emergence of Jicarilla Apache Enclave Economy During the Nineteenth Century in Northern New Mexico

B. Sunday Eiselt, Southern Methodist University

**T**RAVEL UP THE RIO DEL OSO above Española, New Mexico, and you will find scores of unassuming cobble rings, bits of forgotten pottery, and scatters of golden mica-laden rocks shimmering in the sunlight. You may also find shards of glass and cut metal, grinding stones, and the occasional iron projectile point lying in the midst of an obsidian flake scatter. You are standing in the middle of one of the largest Jicarilla Apache settlements recorded in northern New Mexico. Forty-five Jicarilla sites are present in the valley. These sites are distributed neatly into three settlement areas, one on each mesa arranged in succession along the northern river bank. Settlements encompass 107 rock (tipi) rings and associated features. On the south bank of the river, opposite these sites, you'll discover Spanish and Mexican *ranchos* with *torreóns* (round towers), masonry houses, and miles of rock fences. Sheep bones, glass fragments, stone tools, and metal tinklers are scattered across these historic sites. A network of wagon roads and footpaths connects the hamlets and households of the Hispanic occupation with the Jicarilla tipi settlements and fields to the north.

It is September, 1867, and the cottonwoods of the Oso have turned yellow in the wake of cold air streaming down from the mountains at Jemez. Jicarilla men, as day labor, have arrived in the village of San Lorenzo to tend sheep and assist with the harvest. The 10 or so Hispanic families making up the San Lorenzo land grant are busy in the fields, and the women are grinding corn for the noontime meal. Jicarilla women are busy too, making pottery, tending to the horses, and preparing for the annual

Gojia, or footrace celebration that will bring scores of visitors from surrounding Pueblo villages. After Gojia, the Jicarilla will move into the mountains for the fall hunt, but not before they restock San Lorenzo kitchens with high-quality micaceous cook pots and bowls.

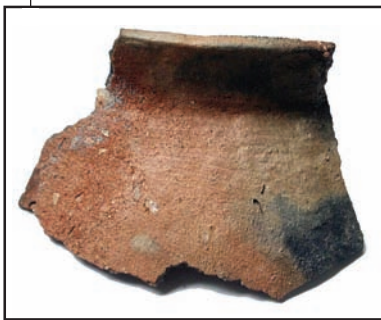
Why were the Jicarilla in the Rio del Oso, and why were they making pottery? Why this place for Gojia, and why weren't they out on the Plains or at Taos Pueblo? I turned to the ceramics for answers. Chemical source analysis of raw micaceous clay and micaceous ceramics allowed me to trace the movement of the Jicarilla from the Plains and into the Spanish colony at Taos Pueblo in the 1730s. From there, the Ollero band moved to Abiquiú and the Rio del Oso area. Clay source analysis allowed me to reconstruct the changes in Jicarilla economy as they moved farther away from the Plains. My dissertation explored this process of enclavement

and its effect on Jicarilla society, including settlement patterns, multiethnic interactions, and the productive capacities of women. Jicarilla resettlement in the northern Rio Grande was a strategic response to the pressures of contact that preserved and extended key elements of their society and cultural identity, including mutualistic ties with Hispanic and Pueblo villagers. Pottery production, once a household craft, replaced bison hunting on the Plains as the primary industry of the Ollero band.

Jicarilla women provided the bulk of micaceous cooking vessels to Hispanic and Pueblo kitchens of the Chama during the nineteenth century. In so doing, they were major players in the multiethnic economy of the region prior to the turn of the last century. This economy had its benefits. Trade with settled villagers allowed the Jicarilla to resist American attempts to settle them on a reservation well into the 1890s. Unlocking the mysteries of this unassuming valley revealed a previously unrecognized pattern of cultural accommodation and persistence that was regional in scope and part of the enduring legacy of Northern Rio Grande society.



*View of the Rio del Oso, looking north over the golden October aspens.*



*A sherd from a Jicarilla Apache micaceous cook pot recovered from the Rio del Oso (circa 1860–1890).*

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## Back Sight

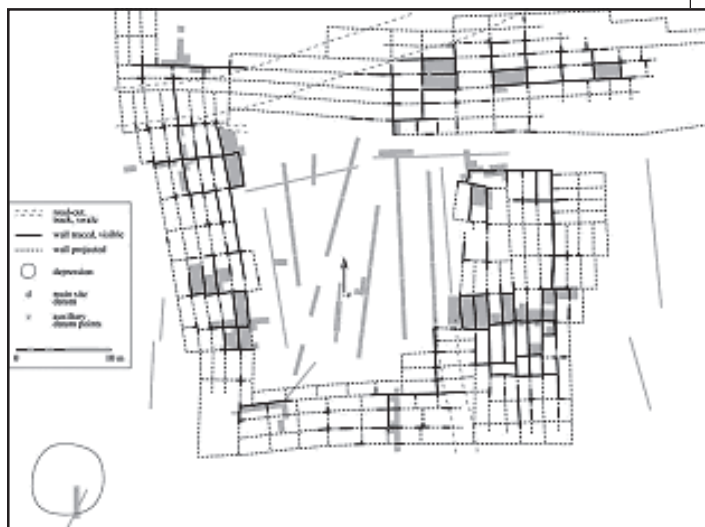
WHEN I BEGAN MY GRADUATE STUDIES at the University of Arizona in 1972, most of the authors featured in this issue of *Archaeology Southwest* were not yet born. Having somehow reached “senior” status myself over the past 35 years, I find satisfaction in helping to assemble herein the fruits of 17 recent dissertation projects. This new generation of scholars will shape the course of archaeological research in the American Southwest and Mexican Northwest for the next several decades.

The Center takes on a specific role in training future professional archaeologists through our Preservation Fellowship program. We have one endowed fellowship, and, in two other cases, special private donations have covered the full costs of additional fellowships. We offer a package of a stipend and support to our fellows that currently amounts to roughly \$30,000 per year for three years. To date, three Center fellows have earned doctoral degrees, two more are currently in the program, and just recently, our next fellowship was awarded to Rob Jones, of the University of Arizona, who will conduct research in conjunction with Center personnel in the Upper Gila region of west-central New Mexico.

The fresh views that Preservation Fellows bring to the Center help to keep our creative intellectual energy high. Adding further fuel to our intellectual fires, we are fortunate to have the Center’s professional staff further augmented by the volunteer efforts of retired professionals such as Bill Robinson, former Director of the Laboratory of Tree-Ring Research, and Gloria Fenner, formerly at both the Amerind Foundation and the Western Archeological and Conservation Center, who bring a wealth of first-hand knowledge and experience to bear on current research questions. This diverse mix of age and experience results in a multigenerational synergism that is highly valued by all of us at the Center.

The graduate student years are a time of high-intensity exploration of new ideas. I hope our readers enjoy the articles in this issue of *Archaeology Southwest*, presenting original research by these young scholars.

**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.



*Illustration Supplement. Top: Chupadero Black-on-white jar from unknown provenience (see Tiffany Clark’s article, page 15). Bottom: Plaza Montoya Pueblo site map (excavated areas shaded; see Michael Bletzer’s article, page 16).*

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