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The Salinas Province: Archaeology at the Edge of the Pueblo World

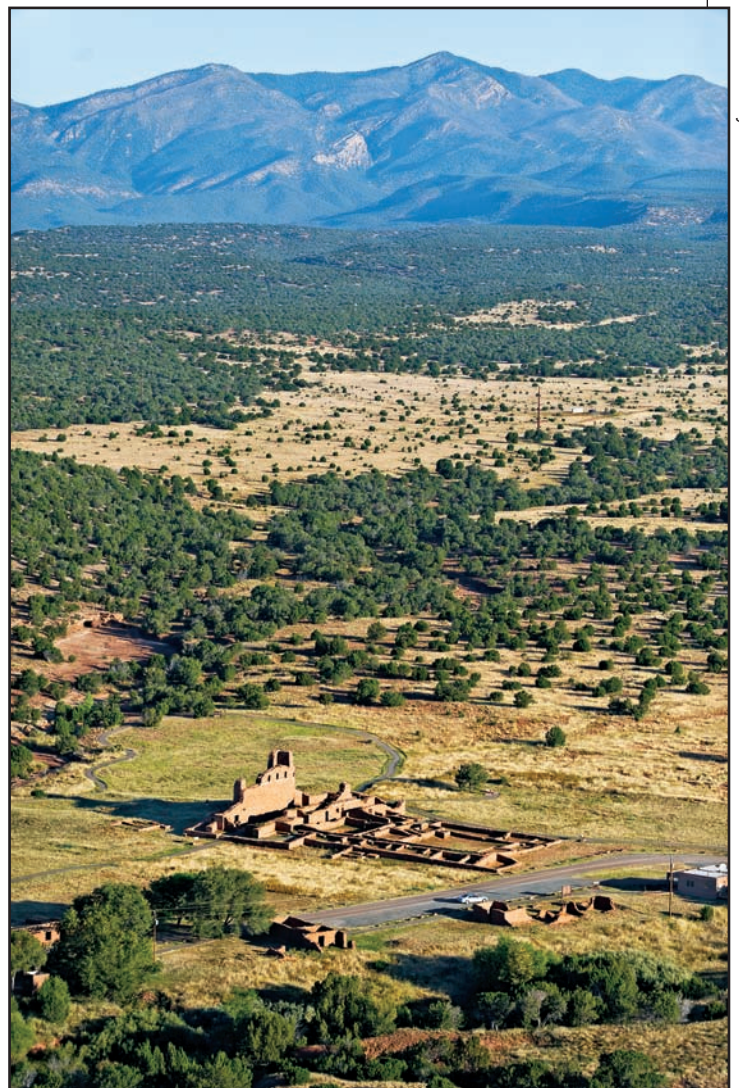
Katherine A. Spielmann, Arizona State University

LOCATED FAR FROM major towns and four-lane highways, the Salinas area of central New Mexico is not as familiar to most people as other parts of the Southwest. In the past, however, its position east of the lower Rio Grande valley, at the southwestern border of the Plains, made it a vibrant place of interaction between Plains and Pueblo peoples. Today, the area is best known for the beauty of its landscape and the impressive Spanish mission complexes at Abó, Quarai, and Gran Quivira, which comprise the Salinas Pueblo Missions National Monument. Established in 1980, the Monument consists of the former Gran Quivira National Monument (designated in 1909) and the New Mexico State monuments of Abó and Quarai (designated in the late 1930s).

The Salinas villages occur in two broad areas (see map on page 2). Those in the northwest of the basin, east of the Manzano Mountains, are known as the Manzanos cluster. These include the late prehistoric villages of Ténabo, Abó, Quarai, Tajique, and Chililí. To the south, just east of Chupadera Mesa, is the Jumanos cluster. This includes the late prehistoric villages of Gran Quivira (Las Humanas), Pueblo Pardo, Pueblo Colorado, and Pueblo Blanco (Tabirá). Don Juan de Oñate, the first Spanish governor, recognized the distinctiveness of these two areas when he visited the region in 1598.

The Jumanos cluster is fairly homogeneous in terms of architecture and material culture. Remarkably, these communities continued to make and use black-on-white pottery after much of the Pueblo world had adopted red- and yellow-slipped pottery in the 1200s and 1300s. Jumanos pueblo residents spoke Tompiro, a variant of the Piro language. North of Pueblo Blanco lie the large saline lakes that give the region its name (see aerial image on page 11). Easy to collect, the almost-pure salt crust from these lakes was probably an important, but archaeologically invisible, trade item.

The Manzanos area has a more diverse history. Based on Spanish documentary evidence, we believe that residents of Abó and Ténabo, villages situated at Abó Pass, were also

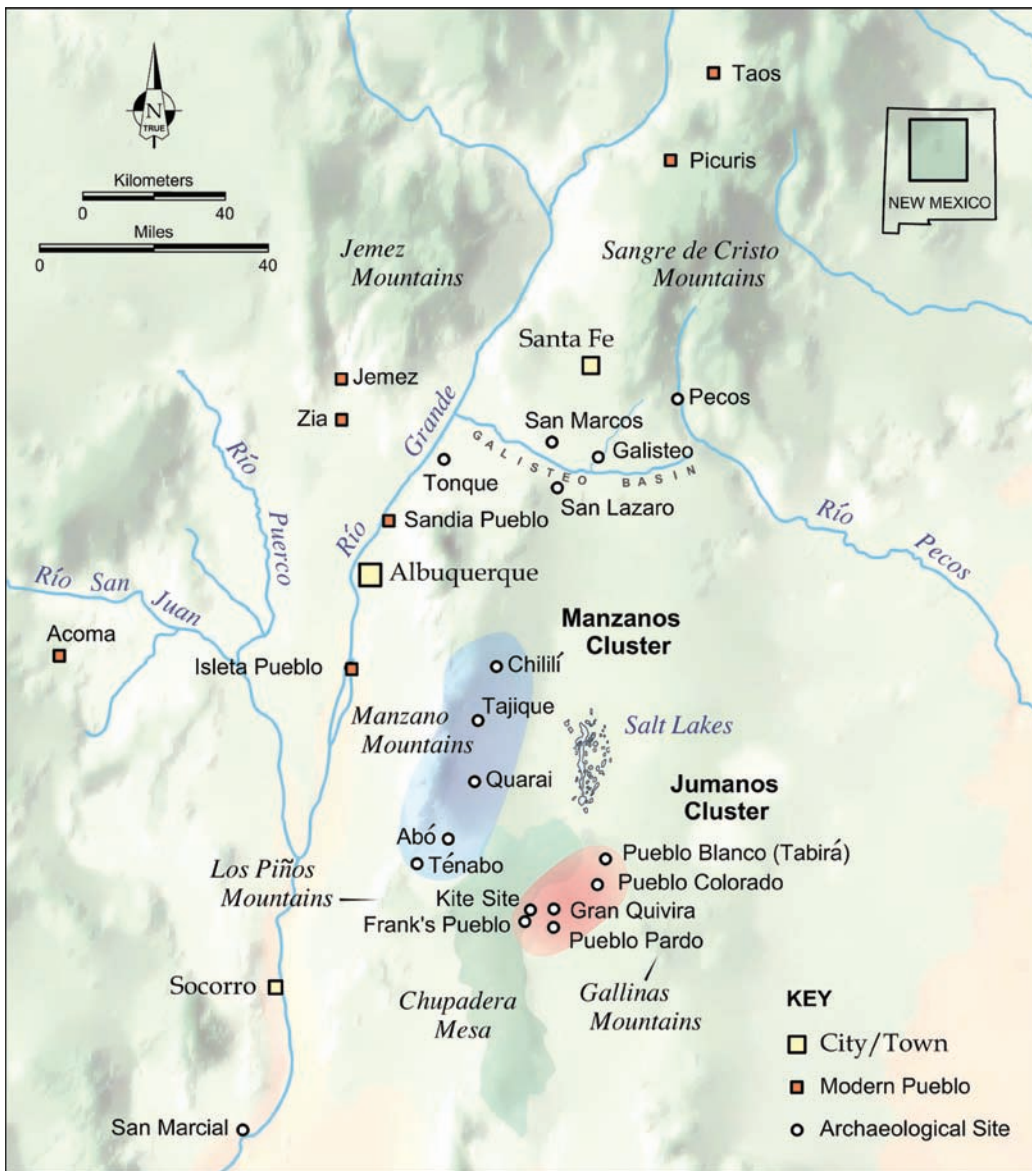


An aerial view of the San Gregorio mission complex at Abó, Salinas Pueblo Missions National Monument, New Mexico.

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Map of places mentioned in this issue.

Tompiro speakers. At the time of Spanish colonization, villagers along the eastern flanks of the Manzano Mountains spoke Tiwa. We have archaeological evidence that these eastern Manzanos villages were occupied briefly in the late 1200s—perhaps by Tompiro speakers—and then abandoned until the 1500s, when Tiwa speakers from the Albuquerque area moved into the region. The long hiatus in residence may be related to agricultural production challenges in this eastern area. Conversely, the long occupations at Abó and Ténabo were probably due to their proximity to one of the few passages linking the Rio Grande valley to the easternmost pueblos and the western Plains beyond.

There is a long history of survey and excavation research in the Salinas region. Edgar Hewett oversaw the first large-scale excavations at these sites, initially focusing on Gran Quivira in the mid-1920s. He later supported excavations at Quarai in the mid-1930s and Abó

in the late 1930s. Albert Ely, Ele Baker, and Wesley Hurt directed the excavations at Quarai, and Joseph Toulouse undertook the Abó excavations. In all three cases, crews focused on the mission complexes rather than the pueblos. Hewett hoped that these striking, well-preserved buildings would become tourist destinations. Most of the more recent excavations have occurred at Gran Quivira: Gordon Vivian excavated Mound 10 and the chapel of San Isidro in 1951, and Alden Hayes excavated Mound 7 and the area surrounding it in the late 1960s. Since the mid-1980s, I have focused my research on the Salinas area, with three field seasons at Gran Quivira from 1984–86, one at Pueblo Colorado in 1989, two at Quarai in the early 1990s, and two at Pueblo Blanco in the early 2000s. I have had the pleasure to work with all of the authors in this issue on these expeditions, and many of them have gone on to develop their own research projects in the Salinas area.

As a result of our combined work, we know that population size in the Salinas area was unusually stable for almost eight hundred years, from about A.D. 900 until the 1670s. We have also demonstrated that very specific portions of the landscape were occupied continuously. The style of the local decorated pottery, Chupadero Black-on-white, was also remarkably stable across this long period of time. Salinas villagers were not isolated, “backwoods” people, though; they participated in changes in ritual and material culture that occurred across much of the Southwest in the 1200s and 1300s. Their settlement configurations also changed over time, in response to conflict and the need to be close to arable land. Moreover, because of their location at the gateway between the Pueblo world and the Plains, Salinas residents developed strong trade connections with fellow Puebloans to the north and west, and with Plains bison hunters to the east. Following Spanish missionization of the region in the 1620s, Salinas

peoples had to modify basic aspects of their daily lives, and archaeological evidence reflects this. By the 1670s, disease, drought, and raiding led them to abandon the region. Villagers moved west to the Rio Grande valley, where many joined the southern Tiwa pueblos of Sandia and Isleta.

This issue of *Archaeology Southwest* explores the themes of continuity, connectivity, conflict, and colonization in the Salinas province. Most of the data we present are from the Jumanos area, as we know more about that portion of the region than other parts within the region.

Alison Rautman begins with information on the Pithouse period, the earliest known occupation of the region. Rautman, Matthew Chamberlin, and Julie Solometo then draw on their recent research to discuss the subsequent movement of people

Charles F. Lummis



A view from Gran Quivira, circa 1890. The region's substantial pueblo and mission remains attracted the attention of later settlers, archaeologists, and preservationists. (Courtesy of the Library of Congress.)

into loosely aggregated jacal villages, and then to tightly built, defensively structured plaza pueblos. Possible sources of the conflict documented in these pueblos are considered. I discuss the final residential shift to very large pueblos in the 1400s, and the tethering of Jumanos villages to certain parts of the landscape where water was more consistently available.

These large villages soon developed distinctly different external trade connections, an issue explored by Cynthia Herhahn and Deborah Huntley, William Graves, and me. Finally, Patricia Capone, Tiffany Clark, and I consider how Salinas people responded to missionization and tribute demands imposed by the Spaniards.

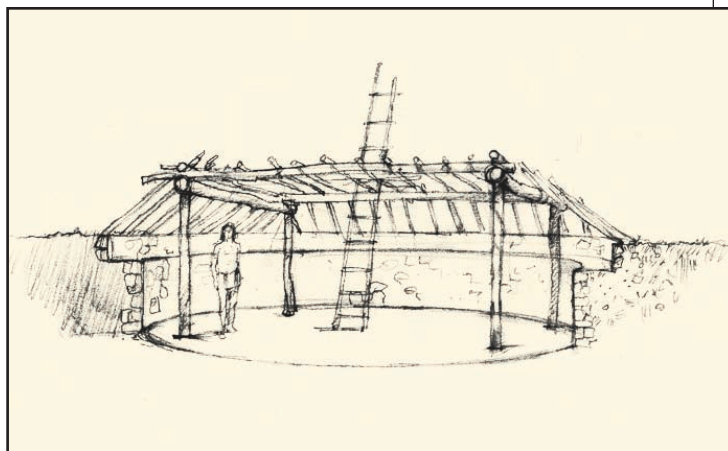
Pithouse Villages

Alison Rautman, Michigan State University

PITHOUSES ARE AMONG the earliest dwellings in the Southwest, but not all pithouse sites are the same: some were seasonal camps for nomadic foraging families, and others represent larger, more permanent farming villages. In the Salinas area, several pithouse sites dot the eastern slopes of Chupadera Mesa. Three sites that have been excavated show that there were at least two periods of occupation.

In the earlier period, people lived in deep, circular pit structures that were twelve to fifteen feet across. These structures had central hearths. Postholes indicate that upright beams supported wooden roofs. Together with their size and depth, this evidence of roofing indicates that these pithouses were sturdily built for long-term use. They sheltered small family groups that farmed maize and hunted. These families stored food in bell-shaped outdoor pits that were large enough to climb into. They also used several kinds of pottery, including Jornada Brown Ware and Alma Plain Ware, both of which are common in the Mogollon region to the south. Painted black-on-white pottery found at these sites dates them to A.D. 600, at the earliest.

The later Pithouse period is characterized by smaller, shallower structures, some of which were inhabited at the same time as nearby surface rooms (see page 4). These pithouses are only about six feet across—the size of a pup tent! These small houses may signify small families, or they may reflect the outdoor lifestyle of warm-season settlements. Pottery found at these sites dates from 900 to 1150 or 1200.



Artist's rendering of a large pithouse. (Courtesy of the National Park Service, Harpers Ferry Center, Harpers Ferry Center Commissioned Art Collection, WE-0256, IMS 10609, Richard Schlecht.)

My excavations at the Kite site (see map on page 2) provide a rare glimpse of village life during this later period. We found a midden, or trash deposit, where people had discarded food remains, broken tools, and ash from cooking fires. The amount of debris in the midden—which was nearly six feet deep—probably accumulated from several different families over almost 200 years. Artifacts, animal bone, and plant remains from this deposit show that people hunted pronghorn antelope and mule deer, as well as rabbits and other small animals. They farmed maize and gathered wild plants, including cactus and weedy annuals. Villagers made stone tools of local materials such as Mountainair chert. All of these resour-

ces came from areas within fifteen miles of the site—a full day's walk, round-trip.

Pottery found at the Kite site shows that its residents favored trade relationships with groups located to the south and southeast, at least thirty miles away. I believe that Salinas people developed these trade relations in part to help them through times of drought, when crop production would have been poor. Historic climate records show that, during drought years in the Salinas area, rainfall to the south and southeast was likely to have been normal. If this pattern held true in the Pithouse period, then friends and farmers living to the southeast may have had maize to spare when Salinas people needed it.

Consolidation and Conflict

Matthew Chamberlin, James Madison University

Alison Rautman, Michigan State University

Julie Solometo, James Madison University

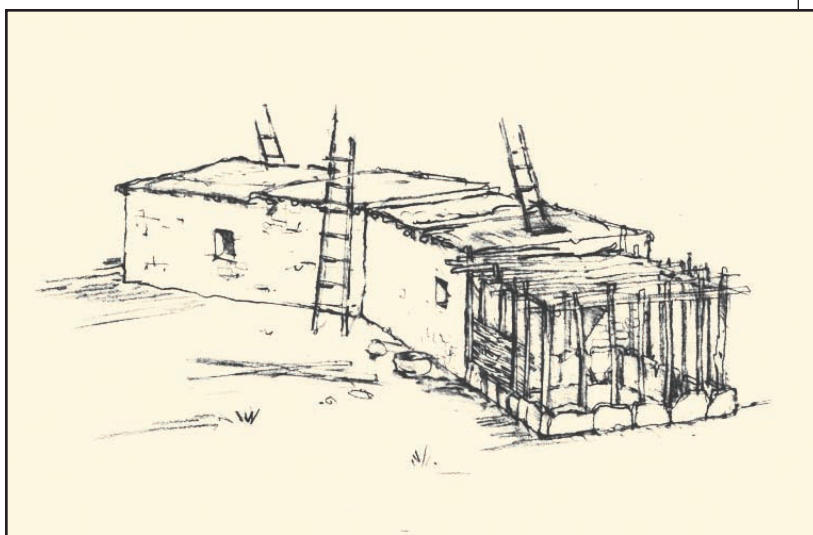
IN THE ELEVENTH CENTURY, people in the Salinas area began building jacal (ha-CALL) villages. These villages consisted of twenty to fifty loosely clustered dwellings that had adobe and thatch superstructures and upright slab masonry foundations. Each structure contained at least two and as many as twenty contiguous rooms. People may have adopted this architectural style and ceased to build pithouses because it was easier to add living and storage rooms to jacals. Several jacal villages were built in upland locations, suggesting that defensibility may have been a concern in deciding where to settle.

Networks of interaction and exchange connected jacal villages in the Salinas area with one another, and with people in other regions. Decorated white ware pottery was exchanged extensively among Salinas villages. Stylistic similarities suggest that Salinas people shared ideas about the use and meaning of certain kinds of symbols. Long-distance connections with western Pueblo groups are also documented: many jacal villages possessed White Mountain Red Ware pottery from the Zuni area.

Major changes commenced in the 1200s, when jacal villagers began using greater quantities of masonry in their walls and foundations. They also began building larger structures with more rooms. At two jacal sites, the structures themselves were arranged to enclose internal spaces, forming early versions of plazas. By 1300, full masonry and adobe pueb-

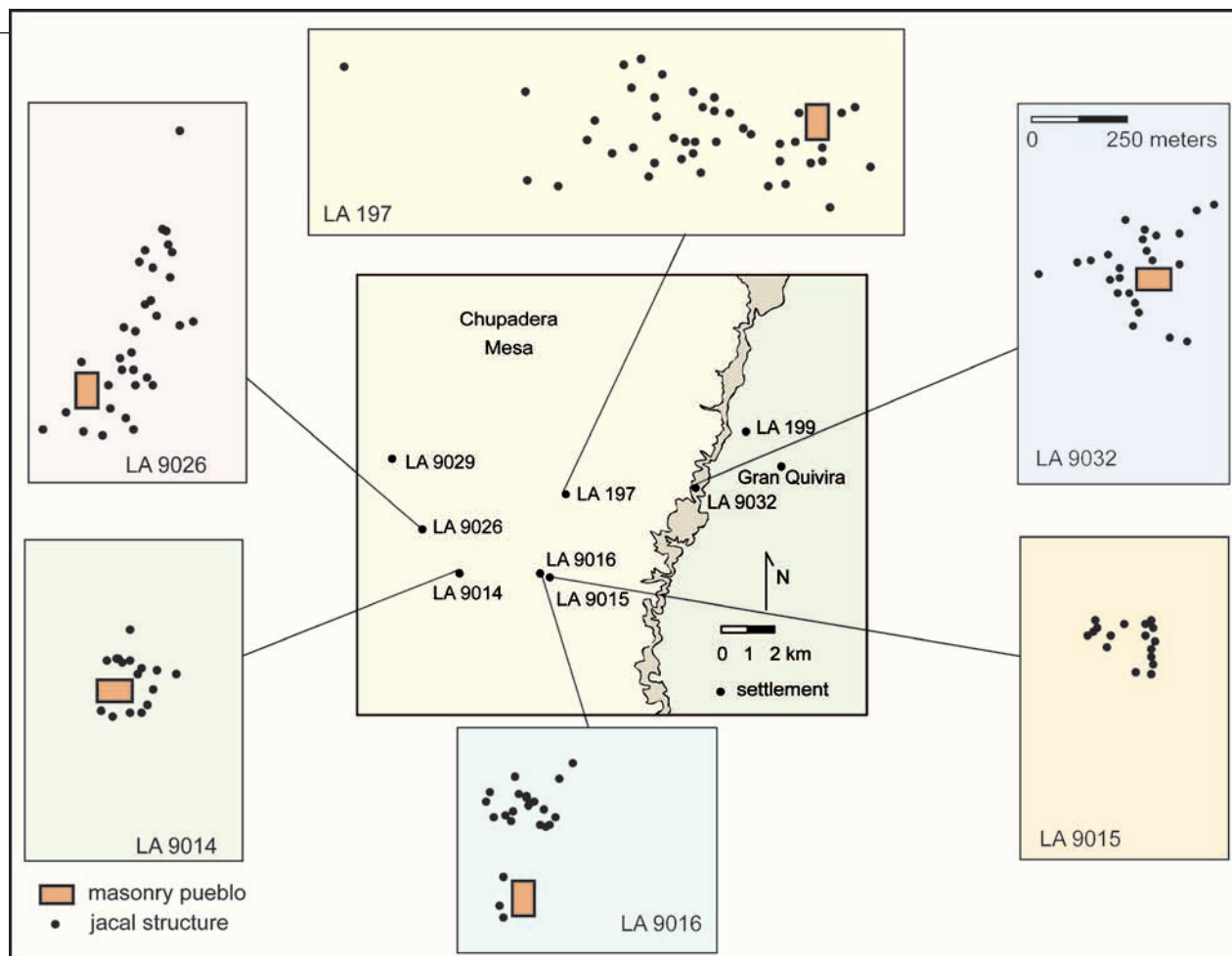
los, constructed around enclosed plazas, had been built in the midst of the largest jacal villages. Remarkably similar room counts suggest that jacal villagers moved directly into those pueblos. Our work has focused on four plaza pueblos on Chupadera Mesa: LA 9014, LA 9016, Frank's Pueblo (LA 9032), and Pueblo Seco (LA 9029).

The transition to plaza-oriented, masonry pueblo construction occurred nearly simultaneously throughout



Artist's rendering of a typical jacal structure; note the contiguous rooms and upright slab foundations. (Courtesy of the National Park Service, Harpers Ferry Center, Harpers Ferry Center Commissioned Art Collection, WE-0256, IMS 10610, Richard Schlecht.)

the Salinas region. The new architecture required considerable social cooperation, communication, and planning,



Sites on Chupadera Mesa. By 1300, masonry and adobe pueblos had been built in the largest jacal villages. It is likely that jacal villagers moved directly into these pueblos.

and it created formal public spaces. This suggests a growing emphasis on the community acting as a whole, rather than as individual households.

Even so, why did people decide to build plaza pueblos? Was it a defensive strategy in an increasingly hostile social environment? Or were residents embracing new ideas about sacred space and community ceremonies? Our data, and ethnographic evidence of the use of plazas in public dances and other rituals, suggest that both motivations were important.

Plazas enabled people in the Salinas area to participate in new kinds of public religious events in which whole villages might gather. Similar changes were being adopted by their neighbors in the Rio Grande valley and in areas even farther west. Our work on Chupadera Mesa has documented differences in plaza size that are not related to village population sizes. This variability may indicate different capacities to host these dances and ceremonies—and, by extension, may also point to inequalities among these villages.

Although the adoption of plaza pueblos may link Salinas villages to religious changes unfolding across the Southwest, uniquely local traditions are also visible. Aspects of the jacal tradition resurfaced in the plaza pueblos,

possibly in ritual contexts. We found significant representations of jacal foundations in several areas at Pueblo Seco, and they are seen in later kivas at Gran Quivira, where Pueblo Seco's fifteenth century inhabitants probably relocated.

This period of transition is also marked by increasingly defensive settlement positioning. Although jacal communities were established in the lowlands and the uplands, most early pueblos were built in, or near, jacal villages on mesas and ridge tops. Most jacal villages in other locations did not continue after about 1300. Further, pueblo placement took full advantage of topographic features that provided defensive viewsheds, control of access routes, and inter-site visibility.

Villagers took measures to fortify their communities and admitted refugees in times of conflict. Evidence of defensive remodeling is abundant at the four pueblos we investigated; each has massive external walls. After a large-scale fire, Frank's Pueblo dramatically increased in size. Rooms crowded into the plaza, and others were added to the pueblo's exterior. The whole community was then reinforced with a masonry exterior wall. At LA 9016 and Pueblo Seco, we found a similar addition of rooms to formerly open spaces. At Pueblo Seco, gaps in walls were

filled to limit access, and additional defensive walls were built beyond the pueblo.

Patterns of burning provide further evidence of the scale, intensity, and goals of conflict. Large-scale fires occurred at Frank's Pueblo and LA 9014, and smaller fires are apparent at the other two sites. The conflagration at Frank's Pueblo consumed stores of maize and destroyed items of daily life villagers left when they fled the rooftops. Frank's Pueblo and LA 9014 both have oxidized adobe floors, burned foodstuffs in quantity, and charred support beams on room floors. The extent of burning suggests an act of violence perpetrated by people who were socially distant from the affected villagers. After the attacks, some of the pueblos' inhabitants remained for a time; by the fifteenth century, the residents of Chupadera Mesa had moved off the mesa, probably to Gran Quivira.

Once construction of the fortified pueblos began, the social networks linking earlier jacal villages within the Salinas area contracted. Analysis of Chupadero Black-on-white pottery found at the pueblos on Chupadera Mesa shows that trade for ceramics made off-mesa at Gran Quivira and Chupadera Arroyo decreased sharply, while ceramics made on the mesa increased in abundance. Perhaps villagers sought to consolidate highly localized relationships and alliances, rather than maintain connections with diverse groups across the broader Salinas region.

Who was the enemy? These fourteenth century villages predate the arrivals of Plains bison hunters and Spaniards. At least three sources of conflict are possible. First, we know that, around 1300, immigrants moved down the Rio Grande valley into areas south of modern Albuquerque. Ancestral Piro Indians who inhabited those areas took defensive action: they stopped building jacals and began building enclosed pueblos, especially in upland locations. This strategy parallels what we see at the Chupadera Mesa sites. If groups from the southern Rio Grande also moved eastward, they may have come into conflict with Salinas villagers.

Alternatively, did people living southeast of the Salinas region, who had previously traded with Salinas pit-house villagers, come into conflict with Salinas inhabitants? These southeastern groups left their homeland at some point in the 1300s, but we do not know why, or where they went. Finally, local conflict among Salinas villages cannot be ruled out. The relative permanence of masonry pueblo villages may have made it far more difficult to respond flexibly to environmental, demographic, or social pressures. A period of sustained drought may have escalated tensions among neighboring villages relying on the same diminishing resources. Future work may help archaeologists evaluate these potential sources of conflict and change.

Salinas Pueblo Nucleation

Katherine A. Spielmann, Arizona State University

SOMETIME IN THE EARLY 1400s, the conflict documented in the plaza pueblos seems to have abated. Salinas villagers moved from the heights of Chupadera Mesa onto its low, eastward-trending fingers and into the flats below Jumanes Mesa. They consolidated into fewer, larger villages now known as Gran Quivira, Pueblo Pardo, Pueblo Colorado, and Pueblo Blanco (Tabirá) (see map on page 2). This move put them closer to water sources and larger expanses of arable land. Open plazas at Gran Quivira, Pardo, and Colorado suggest defensibility was not a primary concern during this time. We do not see evidence of burning or violence at any of these large villages.

Plaza pueblos had been built at each of these four locations in the 1300s. There is clear archaeological evidence that these ear-



Aerial overview of room blocks at Gran Quivira, with the mission of San Buenaventura at right. The long rectilinear structure at the center is the earlier church of San Isidro. Note the many kivas at the site.

©Adriel Heisey



Close-up of room blocks at Gran Quivira.

lier pueblos had been abandoned for some time before the larger pueblos were established in the 1400s. The more vulnerable location of these earlier villages was probably an important factor in their abandonment. We suspect that their residents moved up onto Chupadera Mesa. If so, some residents of those mesa-top pueblos would have had ancestral connections to the places where the four large villages were later built.

The stability in Salinas village locations, from pit-houses, to jacals, to pueblo villages, is very unusual in the Southwest. Despite intensive survey of almost 20,000 acres, few other sites with structures have been found in the region. It appears that habitation across the Salinas region was consistently concentrated in just a few locations during the agricultural occupation of the area.

The tightly clustered and remarkably stable location of settlements is almost certainly due to the unique configuration of the water supply in this region. Hydrogeological studies conducted in the early twentieth century documented the presence of highly localized, perched water tables and artesian well conditions east of Chupadera Mesa.

Localized water tables at or near the ground surface would have sustained some crop production and domestic water supplies even through prolonged dry periods. Historical records show that subsurface water was still available in places during a severe drought at the turn

of the twentieth century and a subsequent drought in the early 1920s.

By creating highly localized, permanently productive places on the landscape, perched water tables also may have created conditions for inter-village violence in the 1300s (see pages 4–6). The mesa-top plaza pueblos and many of their fields would not have been able to tap into the water table, however, and recurring dry conditions in the early 1400s may have led to the final, large-scale movement into Gran Quivira, Pueblo Pardo, Pueblo Colorado, and Pueblo Blanco, where water would have been more consistently accessible. People remained in these four villages for several centuries, until the combined stresses of drought, European diseases, and raiding drove them out in the 1670s.

Plains-Pueblo Interaction

Katherine A. Spielmann, Arizona State University

CHRONICLERS OF THE FIRST Spanish expeditions into New Mexico in the mid-1500s recorded trading relationships between Plains bison hunters and Pueblo farmers. Plains hunters brought bison meat, fat, and hides to eastern border pueblos and bartered for corn, cotton blankets, and pottery. They wintered outside the villages of their trading partners. Spanish documents from the 1600s continue to mention trade between Plains and Pueblo peoples, including in the Salinas province.

Archaeological and linguistic evidence indicates that Athabascan hunter-gatherers moved into the southern

Plains from the north sometime in the 1400s. In the area of today's Texas and Oklahoma panhandles, the Athabascans encountered villagers who were farming corn and hunting bison. This local culture is known to archaeologists as the Panhandle Aspect. Those villages were abandoned by the mid-1400s. It is unclear whether people left because of the arrival of the Athabascans, or because bison hunting became more productive than corn farming. Spanish chroniclers refer to "Querechos," who were probably the Athabascans, and "Teyas," who were probably the former Texas Panhandle farmers. At the time that



Plains hunter-gatherers wintered outside the villages of their Pueblo trading partners. (Courtesy of the National Park Service, Harpers Ferry Center, Harpers Ferry Center Commissioned Art Collection, WE-0159, IMS 08794, Richard Schlecht.)

the Spaniards were writing these documents, both groups were primarily bison hunters, and both traded with Pueblo villagers.

By the mid-1400s, Plains people were interacting with Pueblo villagers more intensively. This is reflected in substantial increases in the amounts of bison bone and Plains-style stone tools at eastern border pueblos, including Pecos Pueblo and the Jumanos and Galisteo Basin pueblos (see map on page 2). Increases in these materials are particularly dramatic at Gran Quivira. The Plains-style tools are made of Alibates dolomite from the Texas Panhandle. Other Plains items, such as bison bone fleshers and shell ornaments made from Plains shell species, are also found at eastern border pueblos.

The development of Plains-Pueblo exchange followed the gathering of Pueblo villagers into large settlements (see page 6). My research in the Salinas area has shown that, by the time of this settlement nucleation, local large game (primarily antelope) had been over-hunted. As such, bison meat and hides would have been of particular interest to Pueblo villagers. Conversely, Pueblo supplies of corn would have been attractive to Plains bison hunters—especially in the winter, when bison would have been difficult to hunt and

other southern Plains food resources would have been scarce.

Bison hides may have been as, if not more, important than meat and fat in Plains-Pueblo trade. Spanish chroniclers noted a sizable number of bison hides in pueblo villages from Pecos in the east to the Hopi Mesas in the west, making it clear that bison hides must have been traded extensively across the Pueblo world. In addition, archaeologist Steven LeBlanc has argued that bison hides

may have been particularly useful for making the tougher shields necessary for protection against arrows shot with the recurved bow, which had been introduced to the Southwest by this time.

Exchange between Pueblo and Plains peoples continued into the period of Spanish colonization. At that point, however, Spaniards sought to control trade with the Plains. They were especially interested in acquiring hides and Plains captives, who were used as servants. Moreover, because Pueblo farmers were required to pay tribute to Spaniards in corn, they probably did not have

surplus to trade to Plains bison hunters. These changing dynamics are reflected in archaeological deposits in the Salinas villages, which show a marked decrease in bison bone and other Plains materials in the 1600s.

Left without a ready source of corn through trade, some Athabascan groups resorted to raiding Pueblo villages. We think that these raids are one reason why people abandoned the Salinas province in the 1670s.



John A. Anderson

Plains people used a load-bearing device known as a travois. Here, a travois is pulled by a dog.

Rio Grande Glaze Ware in the Salinas Province and the Eastern Pueblo World

Cynthia L. Herhahn, Bureau of Land Management
Deborah L. Huntley, Center for Desert Archaeology

GLAZE-DECORATED POTTERY helps us understand social and economic connections between the Salinas area and the rest of the Rio Grande region—the eastern Pueblo world—through time. Contact was limited in the 1300s, but increased through the 1400s, as Salinas residents moved to large villages, established trade with Plains peoples, and became part of a large, complex exchange network that encompassed much of the Pueblo world and the southwestern Plains.

In the 1300s, most of the glaze-decorated bowls in Salinas villages came from trade with villages along the Rio Grande. Small numbers of these bowls have been found at Salinas sites, together with locally made Chupadero Black-on-white bowls. Katherine Spielmann has suggested that these imported glaze-decorated bowls may reflect local adoption of the new Southwestern religious system. Neighbors in the Rio Grande valley were also participating in these ritual transformations.

In the early 1400s, Galisteo Basin villages (see map on page 2) came to dominate glaze ware production and exchange throughout the Rio Grande region. Salinas communities obtained many of their glaze wares from Galisteo Basin producers at this time.

By the mid-1400s, as demand for glaze ware vessels—particularly serving bowls—increased in the Salinas area, the pueblo of Abó became a major producer of glaze wares within the region. Gran Quiviran potters produced small quantities for use within their community. Salinas pueblos continued to import some glaze ware pottery from the Galisteo Basin.

Part of what made glaze production possible at Abó was access to a lead source that Galisteo Basin potters did not control. Stable lead isotope analysis shows that the lead in some Salinas-area glaze paints was probably mined in the Cerrillos Hills in the Galisteo Basin, but lead in many others probably came from the Magdalena

What are Glaze Wares?

AROUND 1250 OR 1275, potters living along the Mogollon Rim began using glaze paints to decorate pottery. Glaze paints are mineral pigments—generally lead- or copper-based—that vitrify at temperatures above 700 degrees Celsius. Potters in the Little Colorado and Zuni regions quickly adopted this new technology. It was used on both red- and yellow-slipped pottery.

By 1300, potters in the Rio Grande valley had begun working with glaze paints, as well. Glaze-decorated pottery was produced in the larger Rio Grande region, including Salinas, until about 1680. Rio Grande Glaze Ware pottery features bird and geometric designs and distinctive combinations of slip colors. Bowl rims changed through time in ways that help to date different kinds of Rio Grande Glaze Ware pottery. We also know where vessels were produced, because we can link the crushed rock that potters added to their clays with geologically distinct sources near known village sites.

The fact that this innovative technology was adopted throughout much of the ancestral Pueblo world within about one generation is significant. It shows that potters and their communities were involved in far-reaching social networks and population movements. Archaeologist Patricia Crown has argued that the rapid adoption of both red-slipped and yellow-slipped bowls is tied to the spread of a new religious system across much of the Southwest.



Glaze A, Agua Fria Glaze-on-red bowl from the site of Pauro, LA 162. These bowls were manufactured in the north-central Rio Grande from about 1300 to 1500. (Courtesy of the Maxwell Museum of Anthropology, University of New Mexico, photographer Kari Schleher, catalog number 60.24.17.)



Left: Glaze A, Los Padillas Glazed/Polychrome bowl that was imported to Gran Quivira. (Courtesy of the National Park Service, Salinas Pueblo Missions National Monument, Digital Imaging Project, SAPU00003404.) Right: Glaze C, Espinosa Glaze Polychrome bowl from the site of Puaray, LA 326. These bowls were manufactured in the north-central Río Grande from about 1410 to 1600. (Courtesy of the Maxwell Museum of Anthropology, University of New Mexico, photographer Kari Schleher, catalog number 36.12.55.)

and Hansonburg areas near Socorro, New Mexico, to the southwest. We propose that Salinas potters obtained raw ores and made their own glaze paints, rather than importing finished glaze paints. The ores may have been acquired directly, or they may have been obtained through trade.

The glaze paint formula used by Salinas potters was shared by potters across the Rio Grande area. We discovered this through an analysis of glaze paints on a sample of fourteenth, fifteenth, and sixteenth century glaze bowl rim sherds from collections made during Spielmann's excavations at Quarai and Gran Quivira. We found that, after an initial period of experimentation, a standardized "recipe" of high lead, low copper first appeared in glaze

paints from the Galisteo Basin. By the mid-1400s, potters throughout the eastern Pueblo world had adopted this recipe.

As they increased local production of glaze wares through the 1400s and 1500s, Salinas potters turned increasingly to southern ore sources, which may reflect changes in social or economic relations with the Galisteo Basin. They also produced red-slipped bowls that were easily distinguished from lighter-slipped Galisteo Basin bowls. Nevertheless, Salinas potters continued to follow the same stylistic canons and use the same paint recipe as potters throughout the Rio Grande region. Maintaining these connections must have been important to Salinas residents.

Inter-village Relations and Status in the Salinas Area

William M. Graves, Statistical Research, Inc.

CONNECTIVITY AND STABILITY characterize both long-distance and local social and economic relations among Jumanos villages in the 1400s and 1500s. As other authors here discuss, Salinas pueblos were actively involved in long-distance exchange (see pages 7–8 and 9–10). Those trade relations may have structured internal social and political relations, because the ability to acquire materials from distant places and successfully engage outside groups often conveys prestige and power. The goods procured also tend to be socially valuable. Two archaeologically visible examples in the Jumanos area are glaze ware vessels and bison from the Plains.

Glaze ware pottery recovered during excavations at three of the Jumanos pueblos—Gran Quivira, Pueblo

Blanco (Tabirá), and Pueblo Colorado—provides information about differences in long-distance relationships. Yellow-slipped glaze ware vessels produced at Tonque and San Marcos pueblos in the Galisteo Basin were in high demand throughout the Río Grande region. Because we found more of these highly valued vessels at Pueblo Colorado, we believe that this village had stronger exchange ties with the Galisteo Basin.

A different picture of long-distance connectivity emerges when we examine bison remains from trash middens at these three villages: rib fragments are the most common bison bone elements. In the early Spanish Colonial period, the Jumanos pueblos and other eastern border pueblos hosted large trade fairs. Plains hunters trans-



An aerial view of Lake Estancia, New Mexico. Salt from this area may have been an important trade commodity for residents of Pueblo Blanco.

ported bison meat to these fairs, and ribs are evidence of this trade. The middens at Gran Quivira have greater relative frequencies of bison bone and Plains stone tools. This suggests that Gran Quivira had stronger exchange relationships with Plains groups, and that it hosted trade events more often than other Jumanos communities.

At Pueblo Blanco, we found evidence of some trade for both glaze ware vessels and Plains bison. Of the Jumanos pueblos, Pueblo Blanco is closest to the salt lakes (see map on page 2), which may have provided an important trade commodity for this village.

In addition to this variability in long-distance connections, there was also variation in production and exchange within the Jumanos region. Potters at Gran Quivira dominated the production of Chupadero Black-on-white, which was used in all the Jumanos pueblos. Residents of pueblos Colorado and Blanco depended on Gran Quiviran potters for these vessels.

Evidence for ritual performance, another significant arena of power and prestige, is also unequally distributed

among the Jumanos pueblos. We do not think that it controlled local religious life, however.

What do these patterns suggest about the relative status and influence of different Jumanos villages in the Salinas area? In general, it appears that both autonomy and status variability characterized internal and external relations. Within the Jumanos area, it seems that Gran Quivira held prominence as a local pottery producer and ceremonial host.

In terms of external connections, the Jumanos pueblos appear to have been equally involved in long-distance relationships, while maintaining different sets of connections through which socially valued goods flowed. No community seems to have dominated or controlled another community's access to highly valued items.

At the same time, some pueblos were more successful than others in terms of specific exchange connections. All of these lines of evidence suggest that multiple sources of power and prestige were operating independently, in very complex and dynamic ways.



Remains of a bison head mask on the floor of a kiva at Gran Quivira. Only the front part of the skull was present—enough to give form to the mask.

Katherine A. Spielmann

Salinas Pueblo Responses to Spanish Colonization and Missionization

Katherine A. Spielmann, Arizona State University

LIFE IN THE SALINAS REGION changed dramatically after the arrival of the Spaniards. The impressive church and mission complexes at Abó, Quarai, and Gran Quivira are witnesses to this time (see map on page 2).

Spaniards lived at the Manzanos pueblos of Abó and Quarai, which were missionized in the 1620s. A large church and convento were built in each village. Farther from the centers of Spanish colonization, the Jumanos pueblos experienced more intermittent Spanish presence. The mission of San Isidro was established at Gran Quivira in the late 1620s, but soon abandoned. Gran Quivira then became a *visita* of Abó, meaning that the latter's friar occasionally visited. Construction of Gran Quivira's second church and mission, San Buenaventura, began in 1660.

Pueblo Blanco (Tabirá), on the other hand, never had a resident friar, but a chapel was established in the village plaza in the 1630s. It was subsequently destroyed and rebuilt. Friars from Abó, and later Gran Quivira, came to Pueblo Blanco periodically.

Both governmental and ecclesiastical Spaniards extracted resources from Pueblo peoples. Upon colonizing



Ground view of *Nuestra Señora de Purísima Concepción*, the seventeenth century mission at Quarai.

New Mexico, civil authorities instituted the *encomienda* system, in which grants of land were given to Spaniards in reward for military service. Pueblo peoples living on these lands were required to pay tribute to the *encomendero*. Tribute was usually paid in cotton cloth and corn. Local friars also relied on Pueblo corn, and they regularly deployed Pueblo labor for tending flocks, herding cattle, and providing mission maintenance.

We have documentary evidence that tribute and labor demands in the Salinas area were considerable. Among other tasks, Salinas Pueblo residents were required to gather salt and piñon nuts for New Mexican governors and local friars. Because cotton did not grow well in the Salinas area, antelope hides were accepted as tribute, and villagers also had to process these hides. All of these goods were then transported by Salinas people to settlements on the Rio Grande and to mines in El Parral in southern Chihuahua,



In the Spanish Colonial period, Gran Quiviran potters shifted from the geometric designs seen on Chupadero Black-on-white pottery (left) to the more elaborate iconography seen on this Tabirá Black-on-white canteen (right). (Courtesy of the National Park Service, Salinas Pueblo Missions National Monument, Digital Imaging Project, SAPU00003927 [left] and SAPU00003471_D_1 [right].)

Katherine A. Spielmann



Aerial view of Nuestra Señora de Purísima Concepción, the seventeenth century mission at Quarai.

several hundred miles to the south. For a period of time, friars kept livestock at Gran Quivira, in addition to their flocks at Quarai and Abó. Because there was no surface water around Gran Quivira, residents had to haul water daily from wells near the village for these livestock. This labor proved so onerous that the friar was compelled to move the flocks back to Abó, where there was a perennial stream.

Although Spanish documents give some sense of the burden on Salinas residents, they do not explain how Salinas villagers responded to demands on their time and resources. Colleagues and I addressed this issue in a recent synthesis of floral, faunal, and human osteological data from Quarai, Gran Quivira, and Pueblo Blanco. Together, these data create a



A mission period glaze ware (Glaze F) bowl from Quarai. Compare the runniness of the glaze on this vessel with the prehistoric glaze ware bowls on pages 9–10. (Courtesy of the National Park Service, Salinas Pueblo Missions National Monument, Digital Imaging Project, SAPU00001861.)

complex picture of Pueblo responses to Spanish colonization.

Osteological data, evidence from human skeletal remains, indicate a marked change and increase in male labor that was largely due to an increase in load-carrying. We found that older women were also drawn into the labor pool, suggesting a time- and labor-stressed Colonial period population.

Plant and animal evidence shows that people developed three pragmatic approaches to the demands they faced. First, they consumed a less diverse array of plant foods and focused on the two resources they were obliged to produce: corn and piñon. Second, villagers' consumption of animals varied based on the opportunities and constraints present at each pueblo (see page 14). Third, each of the three villages seems to have found a different strategy for addressing its subsistence needs—getting something to eat and meeting other daily needs for living—in addition to meeting tribute demands. Pueblo Blanco's villagers intensified hunting and decreased corn production; Gran Quivirans intensified corn production and hide processing; and residents of Quarai may have relied on one or both of these other villages for corn and hides. Because Quarai's villagers faced substantial labor demands from mission friars, they had less time to hunt or farm.

Spanish friars also sought to convert Pueblo peoples to Catholicism and, by extension, to repress indigenous belief systems and religious practices. We see archaeological evidence of this repression in the burning of kivas, and we also see resistance to it in how women changed pottery decoration. In the Manzanos pueblos, where friars were in residence, potters began to simplify and obscure formerly obvious depictions of birds on glaze-decorated bowls and jars. In the Jumanos area, however, Gran Quiviran potters began elaborating the iconography on their ceramics. They shifted from the geometric designs that had typified Chupadero Black-on-white for centuries to drawings of specific birds, textiles, kachinas, ceremonial objects, and the like.

I have interpreted this florescence of iconography as women's attempts to maintain the community's esoteric knowledge on everyday objects, such as water transport and storage vessels. The fact that men were often away from the pueblo meeting labor demands may have meant that such instruction fell to women.

The Impact of Spanish Colonization on Large Game Hunting in the Salinas Area

Tiffany C. Clark, Cotsen Institute of Archaeology, UCLA

AS PART OF A RECENT PROJECT (see page 13) on subsistence, diet, and health in the Salinas area after Spanish colonization, I compiled faunal data from Quarai, Gran Quivira, and Pueblo Blanco. My analyses revealed that residents of each pueblo responded to the imposition of Spanish rule in different ways, depending upon the resources available and the degree of direct Spanish presence.

At Quarai, deer and antelope hunting sharply declined. Cultivating mission fields and herding mission livestock probably left Pueblo men with little time for large game hunting. In addition, direct monitoring by priests restricted the area over which Pueblo people could travel, curtailing access to traditional hunting grounds. To compensate for the decrease in large game meat in their diet, Quarai residents incorporated European domesticates, particularly sheep, into their diets. These animals were probably obtained from the sizable mission herds.

Colonization had a very different impact on subsistence practices at Gran Quivira. Antelope populations around the village had been depleted well before the arrival of the Spaniards (see page 8). To compensate, Gran Quivirans obtained bison meat from Plains hunters. When colonization disrupted this trade, access to bison meat decreased. The presence of cow bone in Colonial period deposits at Gran Quivira suggests that villagers may have substituted beef for bison meat. It is unlikely that Gran Quivirans owned cattle, which were a primary export of governors and friars alike. Colonial ranching practice allowed cattle to range across unfenced terrain, and Spanish documents describe large herds in the Salinas area. As such, Gran Quivirans probably opportunistically hunted cattle near their village.

Residents of Pueblo Blanco actually increased antelope hunting after colonization. The greater abundance of antelope around Pueblo Blanco probably made this an ideal strategy for paying the hide tribute, as well as the best place to do so. Pueblo Blanco villagers could have exchanged hides to other Salinas pueblos so that those communities had hides for tribute payments, as well. Given the amount of antelope meat available to Pueblo Blanco's residents, it is not surprising that we have not found evidence for consumption of European domesticates at the site. Unlike the other two villages, Pueblo Blanco was able to continue a fairly traditional Pueblo subsistence regime.



Different relative frequencies of antelope, cattle, and sheep remains reveal the variable effects that colonization had on Salinas villagers' diets.

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

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Mission Period Ceramic Production and Exchange

Patricia Capone, Peabody Museum of Archaeology and Ethnology

THE PRIMARY PRODUCER of Salinas glaze-decorated ceramics, Abó was also one of the first Salinas villages to be missionized. In addition to the many new challenges they faced, potters at Abó also faced demands

Long-distance glaze ware exchange continued into the mission period, but at a much lower rate. Pottery was still imported from Tonque and San Marcos pueblos in the Galisteo Basin to the north, but ceramic ties to areas



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Aerial view of room blocks and San Gregorio mission complex at Abó. Abó Arroyo separates the prehistoric pueblo room blocks and plazas in the upper part of the photograph from the mission and historic pueblo in the lower part. Known for their production of glaze-decorated ceramics, the potters of Abó were impacted by demands on their labor in the Colonial period.

for their products by friars and their assistants, who were themselves at the mercy of supply trains that came from Mexico City once every eighteen months. My research on glaze ware production during the mission period has documented both transformation from and continuity with the pre-Colonial pottery tradition at Abó.

Prior to missionization, between about 1500 and 1630, potters at Abó produced about 60 percent of the glaze wares used within the Salinas province. After missionization, production at Abó continued, but circulation of its products may have declined. Abó Pueblo's consumption of its own ceramic products increased. At the same time, Quarai's exchange of glaze wares increased substantially. Thus, while Abó continued to supply glaze-decorated pottery to the Salinas region, its neighbor became increasingly prominent in this industry.

to the south, represented by glaze wares from San Marcial, disappear. This transformation may be related to missionization, because supply caravans entered the Salinas area from the north via Quarai, rather than from the southern Rio Grande through Abó Pass.

The additional labor imposed on Abó residents may have been a factor in the increasingly expedient technology used to make glaze-painted and unpainted red-slipped pottery in the 1600s. Petrographic analysis, microscopic examination of the clay and materials that make up the ceramic fabric, indicates potters reduced production time in several ways. Although the coiling technique continued, potters did not compact vessels as tightly. I found other evidence that firing became more variable. Processing of clay and added materials was similarly reduced and less standardized, compared to the pre-mission period.

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Back Sight

ANCIENT MONUMENTS played central roles in daily life in the past, and they became a powerful focus for early historic preservation efforts. This issue of *Archaeology Southwest* places the Salinas region's monuments in a much broader context. Two early archaeologists who played roles in the Salinas area were well aware that monuments could engage broad audiences. There are indications that these scholars valued the less impressive and less obvious places, as well.

In 1882–83, Adolf Bandelier spent three weeks exploring the Salinas area. Although the major monuments drew him there, details within the large sites and at other sites in the surrounding area did not escape Bandelier's astute sense of observation. For example, he recognized "glossy ware," the distinctive glaze wares discussed by multiple authors in this issue. Its presence in one portion of Quarai and absence in another suggested that "two distinct tribes" settled there. He also observed that "small houses" (jacals) were architecturally distinct, had different pottery, and were dispersed across the landscape.

Edgar Lee Hewett drew on his own field experience and that of others to prepare brief publications that persuaded Congress to pass the Antiquities Act of 1906. Hewett described the qualities of large and impressive archaeological sites of the Southwest, including the Salinas pueblos, and identified threats to their preservation. He acknowledged his intentional selection of these large, special sites, and added: "It is to be remembered that every aboriginal site or object is of sufficient importance to warrant investigation."

Hewett tenaciously pursued protection for the Salinas missions and pueblos, though it took nearly three decades to accomplish. Hewett's call for President Taft to use the authority of the Antiquities Act of 1906 to declare Gran Quivira a National Monument drew swift action and was implemented in 1909. Subsequently, Hewett worked with multiple partners to bring Quarai into the ownership of the University of New Mexico in 1928, with purchase of Abó coming in 1937.

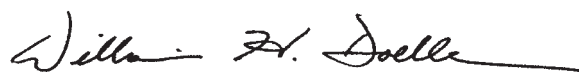
In 1980, Abó and Quarai were combined with Gran Quivira National Monument to create the current Salinas Pueblo Missions National Monument. Although this preserve encompasses more than a thousand acres, the larger landscape surrounding the three centers has an even greater story to tell. The vision and perseverance of earlier archaeologists such as Hewett and Bandelier helped to protect much of this landscape for this issue's contributors to explore and to share with a broader public. Like the Center for Desert Archaeology and its supporters, these pioneers believed in preserving the places of our shared past.



In the early 1900s, the imminent threat to the monumental mission buildings at Abó was obvious, and it spurred preservation efforts. (Courtesy of the Museum of New Mexico, #12876.)

Jesse L. Nusbaum

back sight (bāk 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.



*William H. Doelle, President & CEO
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