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ARTICLE

Magic and Migration among the Jornada Mogollon

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Abstract
This article focuses on benefits of understanding magic and animism in archaeological study of migration. We argue that new religious movements offer causes for migration and that ethnic understandings of animistic power shape preferences in construction materials, artifacts, and closure practices. In our North American Southwest case study of the Cottonwood Spring Pueblo Community (LA 175), we contend this fourteenth-century site formed through coalescence of migrants from the northern reaches of Jornada Mogollon Culture with others from its eastern and southern boundaries. Under pressure from new religious movements, northern migrants moved south to preserve their social relations with human and nonhuman (spirit) beings populating their material world (people, artifacts, and architecture). They knew the Cottonwood area, having exchanged pottery in the region during the previous two centuries. Their animistic understanding of architecture and artifacts persisted in their new homes. This led persistence of patterns in artifacts, wall construction, and closure practices.

Resumen
Este artículo se centra en los beneficios de comprender la magia y el animismo en el estudio arqueológico de la migración. Argumentamos que los movimientos religiosos nuevos ofrecen motivos para la migración, y que las comprensiones étnicas del poder animista moldean las preferencias en materiales de construcción, artefactos y prácticas de abandono. En nuestro estudio de caso, la Comunidad Cottonwood Spring (LA 175) en el suroeste norteamericano, sostenemos que este sitio del siglo XIV se formó por la fusión de migrantes de las zonas septentrionales de la cultura Jornada Mogollon con otros de sus límites orientales y meridionales. Bajo la presión de nuevos movimientos religiosos, los migrantes del norte se trasladaron al sur para preservar sus relaciones sociales con seres humanos y no humanos (espíritus) que poblaban su mundo material (personas, artefactos y arquitectura). Conocían la zona de Cottonwood, habiendo intercambiado cerámica en la región durante los dos siglos anteriores. Su comprensión animista de la arquitectura y los artefactos persistió en sus nuevos hogares. Esto llevó a la persistencia de patrones en artefactos, construcción de muros y prácticas de abandono.

Keywords: animism; Cottonwood Spring Pueblo; magic; ritual closure; theory

Palabras clave: animismo; Pueblo de Cottonwood Spring; magia; cierre ritual; teoría

How might magic rites, defined as a form of technology (sensu Walker 2001), contribute to an understanding of migration? In a recent article, Walker and Berryman (2023) documented ritual closure of Cottonwood Spring Pueblo, a fourteenth-century community on the western flanks of the San Andres Mountains of southern New Mexico. In that study, they found that analyzing closure as a rite of passage (sensu van Gennep 1960) offered a productive framework for explaining the sequence of emplaced floor artifacts, burned roofs, and final burial of the pueblo using earlier midden deposits. Furthermore, such

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rites imply a move elsewhere, which therefore begs the question of how this closure ritual fits into a broader consideration of magic and migration.

Rites of passage are often modular, and they contain smaller versions of themselves that build into the greater whole. For example, in this article, we argue that migrations themselves can occur as rites of passage composed of sequences of smaller passage rituals, such as new construction ceremonies and pueblo closure rituals. In the Southwest, Pueblo migrations begin with ritual closures, followed by transition rites as they move between places and conclude with foundation/building ceremonies at a new home. We explore this thesis in two parts. The first focuses on magic and migration illustrated by ethnographic and historical information from the American Southwest. The second part applies these ideas to a case study of the migrants at Cottonwood Spring Pueblo.

We begin with a review of van Gennep's (1960) insights into magic, ritualized spaces, and group celebrations. Van Gennep argued (1960:14) that religions consist of theories about the world (beliefs) and methodological actions (magic). For this reason, animist (Tylor 1871:23) or dynamist/animatist (Marett 1914:117) beliefs serve as religious theory that explain hidden powers in the world. Cultures then apply magic to healing, rain making, fishing, crop fertility, warfare, and other activities. He observed that a subset of these magical rites often took a regular form, which facilitated movement across social boundaries. In contemporary ritual discussions, this often focuses on rites that move people through their life courses (e.g., naming, puberty, and marriage ceremonies). Originally, he took inspiration for his terminology from ceremonies used for crossing territorial boundaries, city and village entrances, and building thresholds. He called these "Rites of Passage" and described them as a three-stage sequence of magical acts (separation, transition, and incorporation), where each stage functioned to facilitate the process. He did not address migration directly, but one can infer from his discussion of travelers, warriors, and others needing magical passage that migration could fall within this framework.

In the next section, we discuss concepts of magic, ancestor veneration, and rites of passage within Pueblo ethnographies. We show how Pueblo beliefs and actions fit well with models of migration. We then discuss Anthony's (1990) migration model and previous studies of population movement in the American Southwest, emphasizing the often-neglected causal factor of religion. New proselytizing religions can become attractors of populations or, conversely, may motivate people to physically distance themselves from a new faith. Both processes likely occurred in the American Southwest generally and in the Jornada Branch of the Mogollon in particular.

The second part of our article focuses on our case study, Cottonwood Spring Pueblo (LA 175). This site consists of multiple but spatially close villages that form a large multiethnic community. These villages exhibit variable architecture, artifacts, and closure practices. We hypothesize that they derive from a mixing of Jornada Mogollon people. Some moved in from the northern frontier (adjacent to Ancestral Pueblo) and western frontier (adjacent to Mimbres Branch Mogollon) of the Jornada Branch region, whereas others moved in from the south (the Hueco Bolson and El Paso area). We argue that the northern immigrants moved to avoid the influx of Ancestral Pueblo peoples and their religions and, in the process, created an internal frontier of multiethnic communities that ran across the center of the Jornada region. Following Kopytoff (1987), we call this an internal Jornada frontier consisting of a line of multiethnic communities drawn together in part to preserve their religious ways in the face of external forces and in part to forge new opportunities to exchange pottery and other objects. The frontier begins on the west, among the Las Animas Creek communities, moves east across the Rio Grande Valley to San Andres Mountains communities of Cottonwood Wash and Fleck Draw, crosses into the Tularosa Basin to the Alamogordo communities, and finally moves through the Sacramento Mountains onto the eastern plains ending in the Roswell Oasis Community located at the conjunction of the Pecos and Hondo Rivers (Figure 1).

Rites of Passage and Migration

Van Gennep's (1960) *Rites of Passage* begins with a discussion of forms of magic. Summarizing previous studies, he identified multiple forms of magic, including sympathetic, contagious, direct, indirect, positive, and negative (see Frazer 1922; Haddon 1906; Hewitt 1902; Hubert and Mauss 1899; Marett

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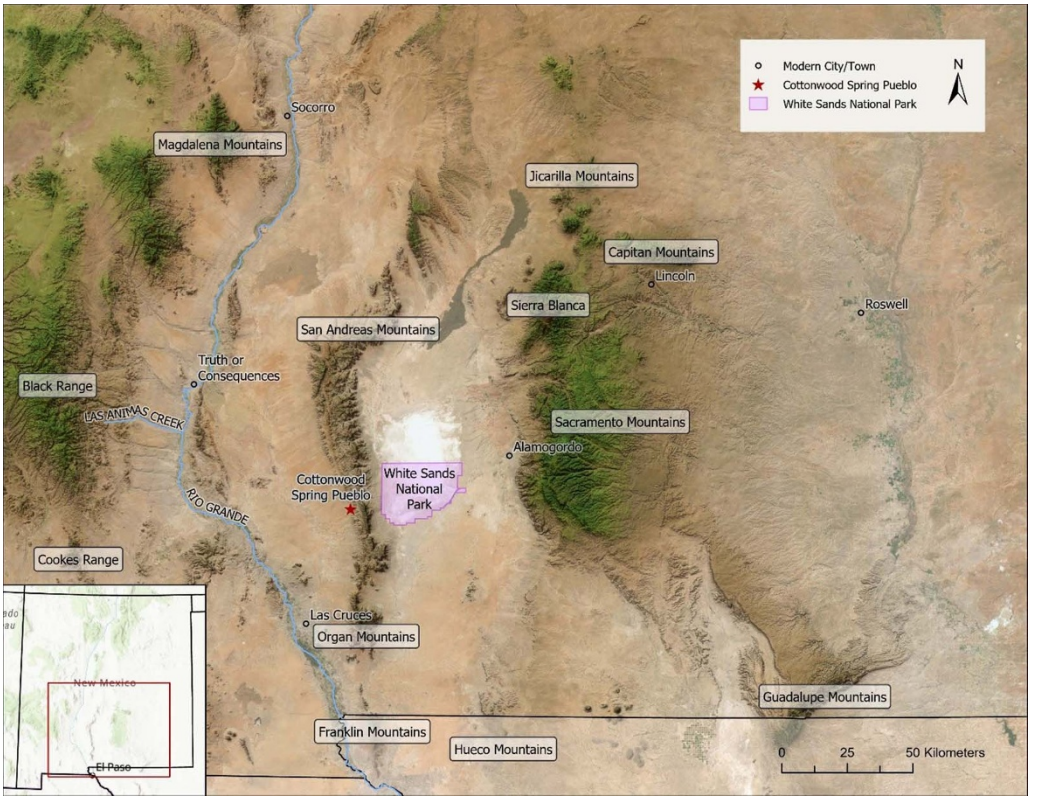


Figure 1. Jornada Region Southern New Mexico. (Color online)

1900; Tylor 1871). Any ritual including a rite of passage combines these forms of magic to accomplish its goals. For example, in the American Southwest closure deposits in villages included emplaced floor and fill artifacts (e.g., arrow points, crystals, minerals, and shell) that through imitation (sympathetic) or by touch (contagion) contain dangerous life-giving or life-taking powers. Burning and burying of these villages is a form of negative magic and makes them less accessible to witches. Simultaneously, closure ritual transfers animating essences of pueblo buildings and deposited artifacts to the afterlife. Therefore, we can imagine that they continue their material-culture (the tools, clothes, and houses) functions, albeit in spirit form, used by ancestors. This direct magical act of transmutation serves as a gift (Parsons 1996:206) to the ancestors who control the weather. Consequently, it is also an indirect form of magic that will hopefully lead to rain, crop, fertility, and other future favors.

In subsequent chapters, van Gennep (1960) brings this understanding of magic to bear on physical spaces and communal celebrations. This combination of themes brings rites of passage into focus. He reviews ritual for crossing power-laden and socially charged spaces at scales such as regions, towns, villages, houses, and shrines. He frequently refers these thresholds as "portals" that separate and sacralize these spaces. In houses, there are foundation deposits and rules about entry. For example, thresholds often contain magical objects. Villages have shrines, sacred rooms, and forbidden zones to the uninitiated or outsider. Shrines mark boundary thresholds in territories where deities and spirits patrol transition zones between them. His discussions of space logically lead to rites that facilitate physical movement within and between places. Such rites begin at a point of separation or threshold (Stage 1), facilitate movement across these thresholds into a liminal space (Stage 2), and finally end with rites of communal celebration that incorporate people into a new place or reincorporate them if returning home (Stage 3). On larger spatial scales, these rites of passage facilitate exchange, travel, war/conquest, and (we would argue) migration. On smaller scales, they make possible transit into ceremonial rooms

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or approaches to shrines and other places. Drawing on these physical examples, van Gennep (1960) also illustrates magical acts associated with changes in social roles as people move through social spaces of their life histories (e.g., birth, puberty, marriage, and death).

Magic and Pueblo Material Culture

The Smithsonian's brand of nineteenth-century evolutionary theory left little room for scholars to confuse their own rational/scientific thinking with that of the people they studied. In their evolutionary models, they assumed just the opposite—that is, to a large degree, "irrational" magic and animism characterized many cultures, including those of the Pueblo people. In theory, the relative amounts of animatism (Marett 1900), animism (Tylor 1871), dynamism (Hewitt 1902), or even fetishism in tandem with other expressions of reason (e.g., technology) helped these scholars to place cultures within evolutionary stages.

As a result, early evolutionists recorded a treasure trove of magical activities that they productively applied to Southwest archaeology (e.g., Bourke 1892; Cushing 1883; Fewkes 1901, 1919:220). They also recorded extensive oral traditions (e.g., Cushing 1920; Fewkes 1910) that universally featured migration. In their origin stories, Pueblo peoples moved through a series of worlds below ours, eventually emerging into our present one. Along the way, they became fully formed humans and acquired the attributes of Pueblo culture (e.g., pottery making, farming, hunting, masked dancing). The archaeological sites that dot the landscape offer them visible evidence of those primordial journeys. These emergence narratives provide a chartering logic (sensu Vansina 1985) for Pueblo organization and sanctification for most magical activities. In perhaps a more contemporary phrasing bereft of ethnocentric judgments about rationality, these early ethnographers explored and recorded the materiality of Pueblo life. They found in Pueblo oral traditions examples and lessons about the animate powers of things and recorded how people and other beings harness those powers. Subsequent ethnographers, particularly Elsie Clews Parsons (1996) synthesized these studies in her magnum opus, *Pueblo Indian Religion*.

Parsons (1996:88) described Pueblo magic as the manipulation of analogical relations of "resemblances." Magic, after all, represents manipulation of invisible relations or sympathies between things; for Pueblo peoples and many others, these invisible relations emanate from animating force(s) occupying things. Parsons's (1996) discussion of these "resemblances" would fall squarely within more universal categories of sympathetic magic and contagious magic as defined by Frazer (1922:11–45) and other later nineteenth- and early twentieth-century scholars (see van Gennep 1960:4–9).

Sympathetic magic through imitation of an object (e.g., arrow point, animal, spirit), process (e.g., water falling, ancestor dancing, culture hero hunting), or place (e.g., oceans, mountains, cardinal direction) can draw out its power and attach it to its imitation. Discussions of such magical technologies in the literature often lead to the short-hand expression of "like causes like" (Cushing 1883:9, 1920:634; Parsons 1996:88). In these ethnographies, we can see that the animacy or power inheres within one or more of its formal properties such as color, shape, or raw material. Such considerations offer archaeologists a starting point for studying magic objects.

Contagious magic relies on manipulation of a part of an object or something that was closely associated with it. Often, that means an actual piece of something is used to manipulate it. However, two separate materials once in intimate contact would also retain sympathetic links to each other. In either case, the linkage between the two objects persists despite the distance between them. To protect oneself, therefore, it is important to keep one's own body parts (hair, nails, a baby's umbilical cord) or intimate artifacts (clothes, tools, house) from falling into the wrong hands (e.g., witches). Purification rites accomplish these goals in part by severing sympathies between things. In the Southwest, this often involves magical use of ash or smoke (see Roth and Adams 2021). Such concerns and actions alone offer a proximate cause for the long history of closure ritual found in Southwest villages, especially given their relatively short duration of 50–100 years.

Parsons (1996:98) also describes the importance of locations (central places) and directions (cardinal as well as up and down) as sources of powers one can access or avoid through magical imitation or contact. For example, sleeping positions that resemble burials are taboo. Zuni—and Acoma—do not sleep with the head pointed toward the east because they bury people facing east (Parsons 1996:98–99).

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One can also gain magical access to places of power such as cardinal directions as well as up and down through their associated colors (Parsons 1996:98–100, 186). Hopi can, for example, imitate the red of the south as a means of accessing power of spirits from the south. Although such color manipulation and the corresponding meaning of directions are critical to all Pueblo peoples, particular Pueblo cultures assign different colors to different directions.

Clearly, sickness or death offer obvious contexts where magical powers of things come to the foreground. Witchcraft manipulation of hidden powers of things is universally regarded as a prime cause for illness in Pueblos (Simmons 1980). Magic, however, does not confine itself to particular religious institutions or ceremonies (e.g., healing, witches, ceremonial altars) but serves as a component of technology in everyday life. Magic facilitates building a house as well as a ceremonial chamber such as a kiva (Mindeleff 1891). A potter, ground stone maker, and flint knapper all tap into powers of materials and activate them or draw other powers to them; each brings tools to life during their creation.

A farmer prepares for planting by not only clearing the field of stones and brush but depositing a clay ball or stone, from an arroyo, that aids in the bringing of water to their field and serves as offerings to ancestors (Cushing 1920:157–158). This draws on its resemblance to rocks in an active river course as well as power it may possess from previous contact with running water. These imitative and contagious attributes of the stone allow it to attract water to the field. In addition to such strategically placed cobble(s) during field preparation, a farmer might also bury a mixture of turquoise, shell, and other primordially created materials. These inherently possess powers of primordial life, and the act of depositing them has the additional benefit of transmitting their essences to the spirit world for use by ancestors (Parsons 1996:206; Stevenson 1894:85). The ancestors may respond to this gift by visiting the field in one of their most potent manifestations—rain.

Pueblo rites of passage punctuate movements of people through places and inflection points in their life histories. Naming ceremonies, weddings, sodality initiations, warrior purifications, scalp taking, and death put such technologies to work in the form of gift exchanges, food preparation, making of clothes, and many other associated activities. Complex rites of passages, such as Pueblo weddings, join families creating economic, religious, and political changes, to the point that these ceremonials themselves are broken down into a series smaller rites of passage to manage the materiality they entail (Schlegel 1973). As with many artifact and human life trajectories, events in one part of a life redound to later parts. Wedding attire for Hopis become their funeral clothing later, when magical properties of their garments facilitate transition to the next world.

In Pueblo ethnographies, migration stories structure Pueblo worldviews; however, only hints of accompanying large-scale rites of passage remain. Ethnographers describe journeys or "pilgrimages" to distant holy places such as Zuni Salt Lake, the Grand Canyon, or important mountain peaks. These pilgrimages facilitate acquisition of critical power objects, such as minerals (turquoise, salt, pigments), shells (abalone, glycymeris, conch), plants, or power-filled ocean and lake water. Building on such ethnography, Miller (2023, 2024) identified prehistoric evidence of pilgrimage and movement of similar sacred objects in the Jornada region.

What these ethnographies do not describe are actual migrations or village closure rituals because such practices once commonplace ended with Spanish colonialism. Perhaps, the last large-scale migrations (see Snow 2012) occurred during and after the Pueblo Revolt (AD 1680–1700). Likely similar but smaller-scale movements happened but—like prehistory—were not observed by ethnographers. Because of this, we must ask, given the obvious importance of migration in all Pueblo oral traditions, could such relatively frequent events have been accomplished without magic? Indeed, given that they would have begun with closure rites, followed by dedication ceremonies when constructing new homes elsewhere, it seems reasonable that the journeys themselves would have been ritualized and that the entire process would have been a grand rite of passage. Such a suggestion—although perhaps jarring to hear—would fit well with the migration theory of Anthony (1990).

Migration Studies Theory

Anthony's (1990) watershed article on migration theory highlighted that archaeological questions should focus on migration processes rather than artifactual traits of migration. Cultural variability often

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precludes definitive trait lists where site unit intrusions are not obvious (sensu Rouse 1958). He instead calls for relationally defined units more appropriate to the variability of human behavior. Anthony (1990) highlighted, for example, that migrants often know the places they move to and may already have established social ties to it. If they need more information, they can send "scouts" out to it. In the American Southwest, a clear case could be made that exchange activities associated with public ceremonials, pilgrimages, weddings, hunting, or other activities leading to exchange of power objects (minerals, projectile points, shells), as well as circulation of ceramics across community boundaries, would contribute to such knowledge.

Once migrant communities become established, they often continue to maintain ties to their homelands, leading in some cases to return migrations and in other cases to larger movements of immigrants. Clearly, the continued exchange of materials by migrants living in new places would likely enhance communication and exchange between the old and new. For this reason, the relative frequencies of nonlocal pottery in particular contexts may measure migration.

A range of causal factors would either "push" migrants to new locations or "pull" them from old ones. Archaeologists often focus on environmental factors such as drought, but Anthony (1990) notes that they seldom drill down and ask who is pulled and who is pushed specifically: are they families, clans, villages, or entire communities? Not all groups would react the same way. For example, Carla Van West (1994) and others have demonstrated that despite the drought conditions of the late thirteenth century in the four corners of the American Southwest, out-migration dramatically exceeded by half what was environmentally necessary. However, if those communities were similar to later Pueblo communities, then a movement of half the population would no doubt have totally disrupted political and religious life to such an extent that the remainder might have chosen to leave to preserve some version of their existing social organization. For this reason, "push and pull" factors should be considered in relation to effects at various social scales.

Finally, Anthony (1990:898–899) reminds us that ideological concerns cannot be ignored in discussions about migration, citing the extreme example of 100,000 Helvetii burning down their own villages and then invading Gaul to seek "glory" and territory (Caesar 1917:9). Caesar (1917) stated that the Helvetii burned their homes to ensure that they had no option to return. Perhaps the Helvetii also ritualized their movement through space (sensu van Gennep 1960), and this was a form of ritual closure marking the beginning of their martial migration. In either case, Anthony's (1990) point is well taken.

With respect to Anthony's (1990) relational themes, we can ask how animate powers might shape them. Pueblo peoples, for example, personify environmental forces: ancestors take the forms of rain clouds, rain, and snow; deities become natural objects—sun, moon, and wind. When we extend the boundaries of society to include these social actors, we render "natural forces" as social ones (see Horton 1993). Consequently, reactions to environmental processes take the form of social relations with these nonhuman beings. Droughts, for example, create crop failure and famine as well as questions about why ancestors or other spirits would withhold their life-giving powers. Answers to such questions in oral traditions often address transgressions by community members such as selfishness, witchcraft, adultery, or incest. In addition to blaming themselves, people also question the effectiveness of their ritual technologies, leading in some cases to new rituals and religious movements. In such contexts, migrants might want to move either away from the solutions or toward them.

Previous Migration Studies in the Southwest

Between AD 900 and 1450, the Southwest witnessed several pulses of aggregation into larger communities and dispersal into smaller ones. These processes of population movements included short-distance moves as well as longer-distance migrations resulting in coalescent communities. The Medieval Climate Anomaly—or Medieval Warm Period—correlated with population growth and aggregation across the region's three culture traditions (Hohokam, Mogollon, and Ancestral Pueblo) between AD 1000 and 1150. In northwest New Mexico, the Chacoan Phenomenon flourished. Great houses abounded; ceremonial roadways connected people and places of power to leaders in Chaco Canyon who hoarded animate objects for use in elaborate magical technologies. Similarly, in southern New Mexico, Mimbres peoples shifted from pithouses to pueblos and spread their own version of a magic-laden materiality,

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which included plazas, kivas, and distinctive black-on-white pottery. In the west, Hohokam culture grew to its largest areal extent, and its oval ballcourts could be found from Flagstaff to Tucson. At the height of this Southwest population explosion, however, a disastrous drought struck the entire region between AD 1125 and 1145 (Grissino-Mayer et al. 1997). This environmental catastrophe brought the Southwest to its knees, leading to societal reorganizations, pueblo closures, and migration.

This mid-twelfth-century apocalypse seemingly revealed to the Southwest peoples problems with their existing social relations with nonhuman beings, which led them to question their ritual technologies. Such climatic failure would have ensured questions to spiritual leaders, questions about the spirit realm (ancestors and deities), and of course, questions about everyday objects, such as Mimbres Black-on-white or Gallup Black-on-white pottery.

The subsequent thirteenth century experienced below-average precipitation and ended with another severe drought known in the Ancestral Pueblo region as the "Great Drought" (Grissino-Mayer 1996:202; Grissino-Mayer et al. 1997:24). Not surprisingly, during the thirteenth century, large-scale migrations occurred within and between Ancestral Pueblo, Mogollon, and Hohokam areas. The Kayenta peoples of northern Arizona moved out the Ancestral Pueblo region south into the Mogollon Highlands of central Arizona (e.g., Point of Pines) and farther south into Hohokam territory (e.g., Davis Ranch, Goat Hill, Reeve Ruin), which possessed better watered valleys (see Di Peso 1958; Gerald 2019; Haury 1958; Lyons 2003; Woodson 1999). Haury (1958, 1989) described both a site unit intrusion at Point of Pines Pueblo focusing on a room block whose architecture resembled that of the Kayenta homeland and new forms of pottery (the Maverick Mountain series) that seemed to be Kayenta types (e.g., Kiet Siel Polychrome) executed using local materials (see Lyons and Crown 2022). Similarly, in the San Pedro River Valley, other pueblos (and their kivas) contrasted sharply with local Hohokam architecture (Clark et al. 2019).

In the east, other archaeologists have tracked the thirteenth-century migration of Mesa Verde peoples south into the northern Rio Grande Valley as well as farther south to Gallinas Springs Pueblo and to Pinnacle Ruin in central New Mexico (Ferguson et al. 2016; Lekson et al. 2002). Their architecture could be contrasted with that of local constructions. A new pottery type, Magdalena Black-on-white, found there resembles a locally made version of McElmo Black-on-white (Laumbach 2024:171–172).

In both areas, east and west, during the subsequent fourteenth century, descendants of these migrants forged coalescent communities from the Salt River in the west (Clark et al. 2013; Kowalewski 2007) to the Salinas region and beyond in the east. New religious movements such as the Katsina religion (Adams 1991) and the Southwest Regional Cult (Crown 1994) rose up in part to unite these peoples. As a result, we refer to this period as the magical fourteenth century. Several of those eastern pueblos—such as Quarai, Abo, and Gran Quivira—persisted into the seventeenth century (Rautman 2019; Spielmann 2017). We argue below that the ethnogenetic processes that forged these Salinas pueblos also pushed some people away south who did not embrace the kivas, architecture, ceramics, and other forms of materiality of the Ancestral Pueblo migrants.

In sum, we expect magic contributed to the practices associated with migration. If one thinks of particular moves as rites of passage, then the packing up and closing of buildings and other rituals associated with leaving form the first stage of separation. The move itself and associated transgression of territorial boundaries along with intrusion into potentially existing communities form the transition phase. Finally, the construction of new homes, shrines, and ceremonial rooms forms the final act that reincorporates the migrants into a new place. We expect such processes to include smaller and larger moves (including return migration). People would also likely move to places they have scouted or already know.

In shorter-distance moves, such as those we propose for the Jornada, migrants could follow already established exchange networks. This could lead to more exchange in those areas. For more distant moves, where such enhanced exchange is less feasible, it could lead to the re-creation of homeland objects using local materials (e.g., Kayenta ceramics becoming Maverick Mountain series or McElmo Black-and-white becoming Magdalena Black-on-white) or architecture such as Kayenta spinal room blocks at Point of Pines Pueblo. If people have social relations with the animate powers of their ceramics and architecture, then it makes sense that they would attempt to replicate them in new places. By the same logic, migrants' closure ceremonies, designed to interact or manipulate those forces, would also accompany

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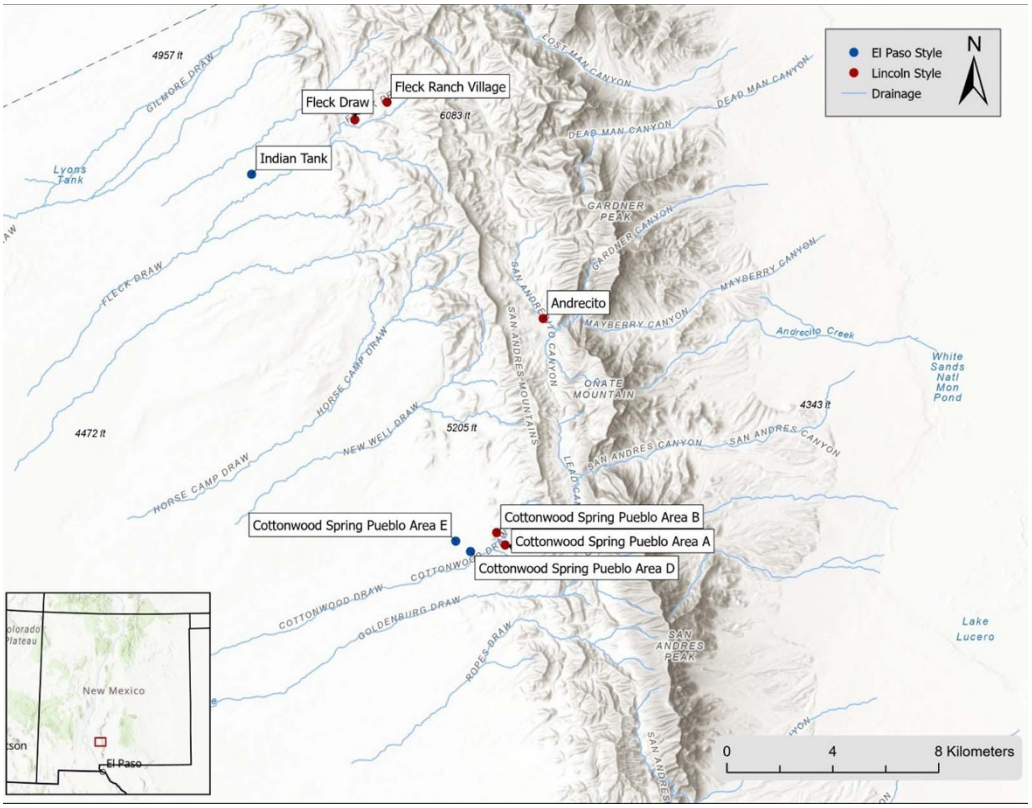


Figure 2. Jornada pueblos in the San Andres Mountains. (Color online)

them. In the case study below, we consider the hypothesis that Cottonwood Spring Pueblo Community resulted from regional migrations within the Jornada. We examine its architectural variation, ceramic assemblages, and closure practices to see if we can identify such processes at work among the groups at Cottonwood. We then look across the Jornada to assess how the Cottonwood Spring Pueblo Community fit into the larger Jornada variability of the El Paso phase (AD 1300–1450). We argue that this is one of several communities that form an internal frontier comprising southern, northern, and western peoples.

The Cottonwood Spring Pueblo Community: A Case Study

In southern New Mexico, a coalescent community (Cottonwood Spring Pueblo LA 175) formed during the El Paso phase (AD 1300–1450) along Cottonwood Draw on the west side of the San Andres Mountains (Figure 2). Similar to Kayenta and Mesa Verde migration cases, architecture (variable room sizes, variable construction materials), closure practices (different floor and fill processing), and the presence of particular artifacts (Seco Corrugated pottery, bone whistles/flutes, lithophones) suggest a multiethnic community of peoples from northern, western, and southern regions of the Jornada Branch of the Mogollon Culture (Lehmer 1948).

Cottonwood Spring Pueblo (LA 175) consists of multiple pueblo villages grouped into Areas A, B, D, E, F, and a hilltop shrine, Area C (Figure 3). We further subdivided these areas into loci. For example, in Area E we designated room blocks by Loci 1, 2, and 3. Rock imagery panels occur on the high points around Areas A, B, and C. Architecture in the Cottonwood Spring Pueblo Community represents a mix of southern (El Paso Style) and northern (Lincoln Style) Jornada construction traditions. This site entered archaeological discussion in 1925 when Dean W. Bloodgood, of the New Mexico College of Agriculture and Mechanic Arts (New Mexico State University), excavated a room in what we now call

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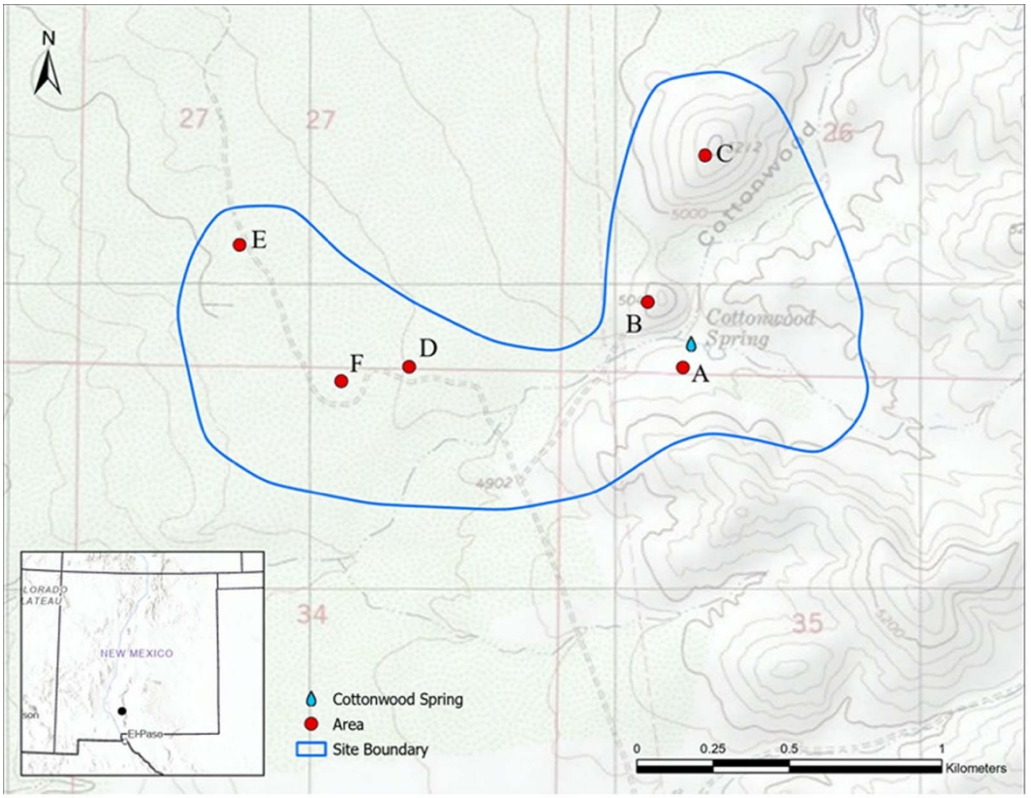


Figure 3. Cottonwood Spring Pueblo Community (San Andres Peak USGS). (Color online)

Area E in the northwest portion of the site. Perhaps, recognizing that the close proximity of pueblo room blocks formed one community, Kenneth Chapman (1926) from the Laboratory of Anthropology in Santa Fe gave this large complex one site number (LA 175). He noted a contrast between linear pueblo room blocks with plain adobe walls in Area E and those in Area A, near the spring, that possessed stone (*cimiento*)-laden adobe walls (vertical stones placed in adobe) arranged around plazas. This *cimiento* construction technique occurs primarily in the northern Jornada (Kelley 1984; Wiseman 2019) in association with the Sierra Blanca region Lincoln phase (AD 1300–1450) and contrasts with southern Jornada El Paso phase pueblos (AD 1300–1450). For this article, we define three forms of walls: (1) simple, poured adobe walls; (2) poured adobe with stones (*cimientos*) placed within them, similar to modern cement rebar reinforcement; and (3) jacal walls, where large base stones support walls created by a lattice of vertical posts and woven branches covered by adobe mud. In the Jornada region, we will refer to the simple adobe walls as the El Paso Style.

Subsequent work by Herbert Yeo (1949) led to the mapping of more linear adobe pueblos in Areas E and D. Lekson and Rorex (1987) later identified the foundations of a jacal-walled pueblo (Area B) that possessed one masonry room (northern tradition) located at the top of a small hill overlooking the whole community. They also designated the rock rings of a shrine on a larger adjacent hill as Area C. This diversity of construction materials and pueblo buildings occurs throughout the San Andres Mountains, and we call the jacal and *cimiento* forms collectively "Lincoln Style." This style is particularly dense along Fleck Draw, 17 km to the north of Cottonwood Spring, and in smaller washes and canyons between Fleck Draw and Cottonwood Draw. Despite this architectural diversity, ceramic types and frequencies generally resemble those of other El Paso phase sites. Some differences include elevated numbers of Seco Corrugated and Chupadero Black-on-white.

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Architectural Variability at Cottonwood

Beginning in 2012, New Mexico State University began working in the San Andres Mountains north of Las Cruces, New Mexico. To date, we have completed four archaeological field schools at Cottonwood Area A, two at Cottonwood Area E, and one at Cottonwood Area D, along with reconnaissance at a similar complex of sites along Fleck Draw to the north. These studies revealed a representative sample of Pueblo architecture (jacal, *cimiento*, plain adobe), artifacts, and closure practices. One pueblo, Cottonwood Area B, possesses a combination of jacal and masonry walls. Four pueblos display a mix of *cimiento*-laden walls and jacal: Fleck Draw Pueblo (LA 72851), Fleck Ranch Village (LA 142783), Andrecito Pueblo (LA 72149), and Cottonwood Area A (LA 175). Three more pueblos—Indian Tank (LA 59560), Cottonwood Area E, and Cottonwood Area D—display plain adobe walls of variable widths. Ceramics in Cottonwood Area D possess few fourteenth-century ceramics (e.g., Gila polychrome, Ramos Polychrome, Lincoln Black-on-red) relative to other Cottonwood pueblos and a higher percentage of Three Rivers Red-on-terracotta. We therefore suggest it lies in the late thirteenth or early fourteenth century at the beginning of the El Paso phase. Tree-ring samples from the largest pueblo, Cottonwood Area A, date construction of some rooms to the late fourteenth century (AD 1375–1400). We hypothesize that this architectural variability marks ethnic differences. We further argue that as animate materials, they exist in social relationships with their makers. Perhaps many ethnic distinctions in material culture derive from such animism. Similarly, these relationships also shape how people ceremonially close pueblos and allow us to use both materials and closure as traces of the northern Jornada migrants.

Construction Materials

Cottonwood Area B possesses a combination of jacal and masonry walls and closely resembles architecture of the Salinas region (see Caperton 1981:4–6) as well as similar sites in the Sierra Blanca region (Kelley 1984). Fleck Draw Pueblo (LA 72851), Fleck Ranch Village (LA 142783), Andrecito Pueblo (LA 72149), and Cottonwood Area A (LA 175) all contain *cimiento*-laden walls (Figure 4).

Cottonwood Area A possesses two plazas surrounded by *cimiento*-reinforced adobe walls. Ceramics indicate a fourteenth-century occupation, and tree-ring dates (1357v, 1360vv, 1364v, 1373b) also place the pueblo within the later fourteenth century (AD 1350–1400; Renteria 2020; Towner 2015). This architectural style resembles Lincoln phase (AD 1300–1450) villages in the Sierra Blanca and what Caperton (1981:6) called "transitional pueblos" in the Salinas. There, *cimiento*-reinforced adobe walls as well as plain adobe walls occur resting on masonry lower courses. These villages have plazas but do not typically possess kivas or full masonry walls. Eventually, however, Ancestral Pueblo wall forms and ceremonial structures become the norm in the area sometime in the late 1300s. Indeed, the early masonry pueblo at Gran Quivira consists of a series of concentric or round masonry walls surrounding a central circular kiva (Hayes et al. 1981). These foreign building materials and architectural forms derive from the Ancestral Pueblo migrants coming from farther north. In contrast to these northern styles of architecture, pueblos at Cottonwood Area D (LA 175) and Indian Tank (LA 59560) consist of plain adobe walls without *cimientos*. As noted above, we call this wall type the El Paso Style (Figure 5).

Room Size

In addition to construction materials, we compared room size (area) across the Cottonwood pueblos to differentiate northern from southern Jornada pueblos. Typically, northern Jornada rooms associated with the Lincoln phase (Wiseman 2019:2–26) are smaller than nouthern Jornada rooms associated with the El Paso phase (although there are exceptions). At Cottonwood Area A, the median room size is relatively small at 14.00 m^2. In the jacal pueblo at Area B, the median is 17.60 m^2, and in the adobe walled pueblos of Area E, it is 19.60 m^2. Area E, however, actually exhibits a bimodal distribution. Area E Locus 1 room block possesses a median of only 12.25 m^2, which is comparable to Area A. In contrast, Area E room blocks in Loci 2 and 3 have median rooms sizes of 22.08 m^2 and 26.91 m^2, respectively. Rooms in these two pueblos are approximately twice the size of those in Area A and Area E Locus 1. In both Loci 2 and 3 of Area E, the two largest rooms also had double walls, a phenomenon we have not seen in any other Jornada site. At this point, we want to explore possible explanation for these walls, including

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Figure 4. Jacal foundations at Cottonwood Area B (*top*), Andrecito Pueblo (*left*), and Fleck Ranch Village (*right*). (Color online)

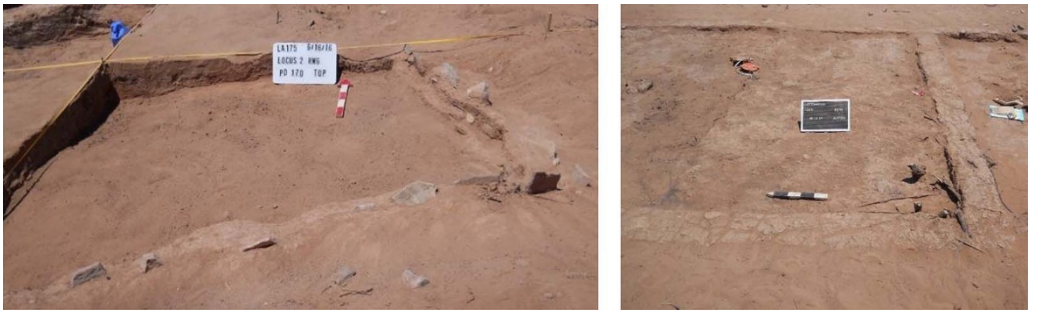


Figure 5. Cottonwood Area E plain adobe walls without *cimientos* (*left*); Cottonwood Area A adobe walls with *cimientos* (*right*). (Color online)

regional traditions, remodeling, or perhaps multiple stories. It seems Cottonwood Area E Locus 1 might represent a mix of El Paso Style (plain adobe) and Lincoln Style (small rooms).

Room and Pueblo Closure

Although assemblages were similar among the various Cottonwood pueblos we excavated, we did find some subtle artifactual differences in closure ritual. Closure in most rooms in Cottonwood Area A and in the two rooms excavated in Area E Locus 1 involved emplacement of floor artifacts, burning of roofs, and subsequent burial of the room that included adding of other objects to the burial fill (see Walker and Berryman 2023). At Cottonwood Area A, emplaced projectile points, crystals, ochre, and marine shell were concentrated in floor contexts (see Figure 6). For example, we recovered 34 projectile points distributed across nine room floors in Area A. In two excavated rooms at Area E Locus 1,

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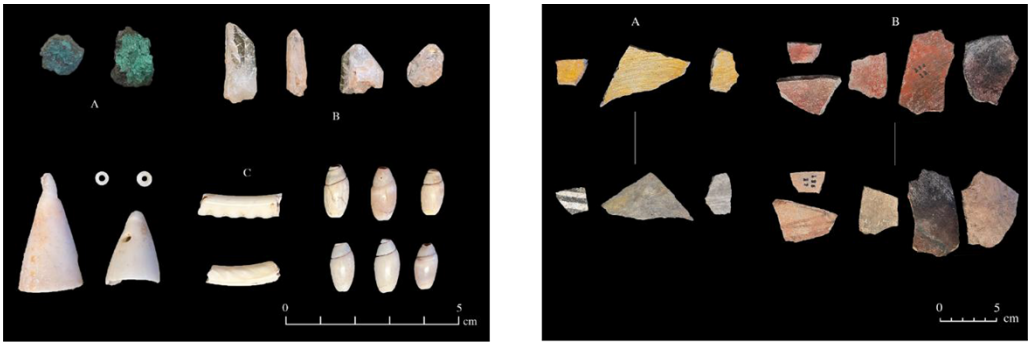


Figure 6. Closure artifacts collected from Cottonwood Spring Pueblo Area A: minerals, shell (*left*), and stained ceramics with ochre and limonite (*right*). (Color online)

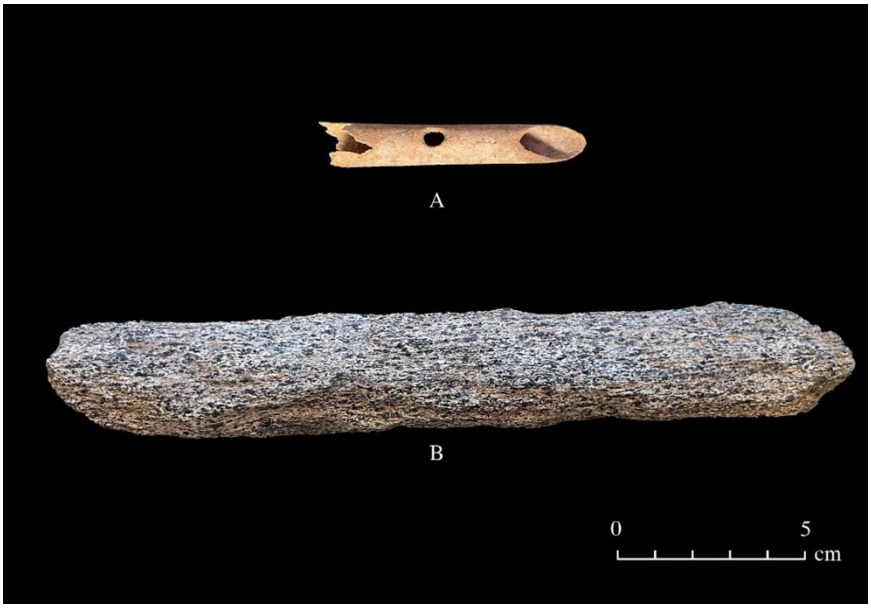


Figure 7. Cottonwood Spring Pueblo Area A: (A) bone whistle/flute; (B) stone lithophone. (Color online)

we also found nine points on two floors. In contrast, only one floor out of the six large rooms at Area E Locus 2 had a single point on its floor. In Area D, we excavated three rooms and several extramural trenches and recovered six points, none of which were from floors. In all cases, the rooms were habitation rooms; if we assume that per-capita projectile-point frequencies did not differ between villages, then it seems reasonable to explain their differential placement on floors because of different closure rituals.

At Cottonwood Area A, we also recovered a bone flute/whistle and a stone bell (see Brown 2014, 2021; Brown and Seltzer-Rogers 2021) that are similar to those found in closure deposits in the Sierra Blanca region (Figure 7). These artifact classes were absent in Cottonwood Areas D and E. In contrast, Area E produced three copper artifacts, a copper bell from Area E Locus 1, and two copper pendant-shaped artifacts (resembling earrings) from a hearth in Area E Locus 2.

In summary, architecture at Cottonwood looks like a mix of El Paso phase villages with Lincoln phase (AD 1300–1450) villages from Sierra Blanca, or the "transitional-phase pueblos" (AD 1300–1350) from the Salinas region (see Caperton 1981). It is also possible that some of the immigrants moved in from the northwest Rio Grande area pueblos (Puskas Pueblo [LA 126790], Las Animas Village [LA 3949],

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and Beyer site [LA 3948]) near Las Animas Creek. These western pueblos possess *cimiento* architecture similar to that found in Fleck Draw Pueblo (see Laumbach and Laumbach 2013; Stokes and Hungerford 2018:44–46). One could call Cottonwood Area A a Lincoln phase village and Cottonwood Areas D and E El Paso phase villages, but this simply labels their difference and defies the geographic component of the phases' names. Such is the nature of coalescent communities, perhaps.

Exchange and Migration in the San Andres Mountains

In the San Andres Mountains, Fleck Draw Pueblo, Fleck Ranch Village, Indian Tank, Andrecito Pueblo, Cottonwood Area A, and Cottonwood Area B all occur adjacent to springs. In addition, Cottonwood Area B has a commanding—perhaps defensive—view of the surrounding territory. The central valley of the San Andres Mountains offers a natural path for north–south travel that articulates with passages to the east and west (Kurota et al. 2019). Access to the west is available through the Cottonwood and Fleck Draw drainages. Two entry points to the east connect this central valley with the Tularosa Basin and Sacramento Mountains farther east. Archaic hunter-gatherer period sites and earlier farming villages concentrate along these corridors, documenting their long-term use (Browning 1991; Duran 1991; Kurota et al. 2019). Andrecito Pueblo, in the central valley, sits at the entrance to the northern east passage adjacent to Andrecito Spring. The large pueblo of Fleck Draw remains relatively unexplored but resembles Cottonwood Area A in size, architecture, and location.

These pueblos' locations in the passes and adjacent springs suggest that an initial wave of immigrants may have settled the smaller Andrecito, Fleck Ranch Village, and Cottonwood Area B pueblos (see Kemrer 2005:5). In subsequent moves, larger groups founded Cottonwood Area A and Fleck Draw pueblos. Although the landscape today possesses thick groves of mesquite bushes and coppice dunes, in the fourteenth century, these two watercourses offered grassy floodplain farming.

The most common ceramic types in the San Andres Mountains in the fourteenth century include El Paso Polychrome, Chupadero Black-on-white, Seco Corrugated, Playas Red, Lincoln Black-on-red, and Three Rivers Red-on-terracotta. Chupadero Black-on-white occurs in all Jornada sites but in varied frequencies. Potters living in northeastern Jornada and in the Salinas region just north manufactured this pottery (Clark 2006, 2017; Creel, Clark, and Neff 2002; Creel, Williams, et al. 2002). However, there is not much exchange between these two production centers (Clark 2017). Chupadero Black-on-white produced in the Sierra Blanca was exchanged broadly to the southern Jornada, whereas Chupadero Black-on-white produced in the Salinas region largely stayed within the region, with limited distribution west to the Rio Grande (Clark 2006, 2017; Creel, Clark, and Neff 2002). The distribution and significance of Seco Corrugated production commonly occurring as bowls with obliterated corrugation on their exteriors appears in high frequencies in pueblos to the northwest of Cottonwood (Critz 2025; Laumbach 2024). Pueblos located around modern-day Caballo Lake, such as the Beyer Site and Puskas Pueblo, form a southern source for Seco Corrugated production and also formed the western boundary of the Jornada Branch. A northern source for Seco Corrugated also occurs farther up the Rio Grande in the vicinity of Cañada Alamosa (Laumbach 2024). At Cottonwood, we identified Seco Corrugated from both production locales. Interestingly, Cottonwood Area A had both sources, whereas Area E was dominated by the southern source (Critz 2025).

Lincoln Black-on-red, a decorated type that commonly occurs as serving bowls, offers tantalizing clues to potential Jornada migration, identity, and power. This ceramic type was produced in the Sierra Blanca region and possibly in the northern Tularosa Basin (Wiseman 2017). Its manufacture coincides in time with movement of Ancestral Pueblo peoples into the Salinas just to the north of the Jornada. In the Salinas region, coalescent communities incorporated a new decorative type—Agua Fria Glaze-on-red—manufactured along the Rio Grande. Early line work in these two black-on-red forms differed, given that early Lincoln Black-on-red resembled the Three Rivers Red-on-terracotta that preceded it. However, later Lincoln Black-on-red designs resemble the Agua Fria designs. Although both can be found together, Lincoln Black-on-red usually predominates in the Jornada, whereas Agua Fria predominates in the Salinas region (see Laumbach 2024).

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During the last 30 years, archaeologists working in the San Andres Mountains have assumed that its architectural variability reflects some sort of intrusion of northern and eastern Jornada peoples into the San Andres, but they have not been sure how to approach it. After all, as Anthony (1990) notes, processualist scholars typically shunned migration or ignored it. In the Jornada case, it was easier to do so because unlike the Mesa Verde and Kayenta cases, the immigrants do not derive from another culture branch or tradition. The ceramics at Cottonwood clearly place Areas A, B, D, and E in the El Paso phase even if the architecture seems to pull them out of it. This diversity in architectural forms raises the following question: why do some pueblos have stones in their walls and others not given that both have access to stones?

In the thirteenth and fourteenth centuries, both jacal and adobe walls with and without *cimientos* occur in the northern Jornada region (Kelley 1984; Wiseman 2019). They also appear to the west in the post–AD 1150 villages of the Mimbres Branch Mogollon during the Black Mountain phase (AD 1150–1300) and Cliff phase (AD 1300–1450). However, these walls tend to have more stone in walls and foundations. They spread across multiple creeks and streams: (1) the drainages (Berrenda, Tierra Blanca, Percha, Las Animas, Seco, and Palomas Creeks) of the Rio Grande (Nelson and Hegmon 2001; Stokes and Hungerford 2018), (2) drainages (Antelope, Rio de Arenas, Cameron Creeks) of the Mimbres River (Creel 2006a; Nelson and Leblanc 1986:33–36; Putsavage 2015), and (3) drainages (Mogollon Creek, Duck Creek) of the Gila River (Lekson 2002; Wallace 1998). In the Mimbres Branch Mogollon during the earlier Mimbres Classic phase (AD 1000–1150), pueblos possessed cobble masonry construction that influenced later adobe pueblo forms in the area (e.g., Gomolak 1976:13; Laumbach 1982; Lekson 1990:7–9; Shafer 2003). In the subsequent Black Mountain phase (AD 1150–1300), large vertical stones were placed in trenches, then courses of adobe were layered over them. These upper layers of adobe contained high frequencies of smaller *cimientos*. These walls resembled a core of *cimiento* cobbles covered by adobe. As Putsavage (2015:169–170, Figures 5.8 and 5.11) notes for the Black Mountain–type site, "the main difference between the Classic Mimbres walls and the Locus 2 Black Mountain Phase walls is the amount of adobe." Creel (2006b:217–231) found a similar pattern in the Black Mountain–phase component of the Old Town site. In the following Cliff phase (Nelson and Leblanc 1986:33–36; Stokes and Hungerford 2018; Wallace 1998:78, Figures 37 and 42), pueblos retained these stone foundation walls but had fewer *cimientos* in the upper layers. For this reason, they differ from San Andres pueblos in terms of foundation stones, trenches, and the quantities of *cimientos*.

Cody Browning (1991) recognized the similarity of some San Andres villages to those built by peoples living along the eastern slopes of the Sacramento Mountains (Sierra Blanca). Gibbs (2003), referring to the northern boundary area of the Jornada, described possible "Anasazi" Pueblo influences based on the jacal, masonry, and *cimiento*-laden adobe walls known from the earlier components of the Salinas region. The Jornada Branch seems to have once included parts of the Salinas area. However, in the late AD 1200s and early AD 1300s, migrants from the Ancestral Pueblo region from the north and east moved into that province, replacing the architecture and many of the ceramics—albeit not the Chupadero Black-on-white. At that point, the Sierra Blanca become the new northern boundary of the Jornada Mogollon. Kemrer (2005) also argued that Sierra Blanca peoples moved into the San Andres area and created multiethnic communities.

Kemrer (2005) pointed out that the two largest pueblos in San Andres Mountains—Fleck Draw Pueblo and Cottonwood Area A—occur along large washes on the western face of the mountains adjacent to springs. These villages exhibit *cimiento*-reinforced adobe walls that contrast with the smooth adobe walls of nearby large pueblos, such as Indian Tank, Cottonwood Area D, and Cottonwood Area E. He noted that all of the simple adobe pueblos occurred downstream and farther away from the springs. He suggested that migrants from the Lincoln phase (northern Sacramento Mountains) and perhaps the Late Glencoe phase (AD 1300–1450) villages (southern Sacramento Mountains) contemporary with the El Paso phase moved into the San Andres Mountains in the later fourteenth century. He offered two explanations for their movement: (1) the potential pull of new religious movements, such as the Katsina religion (see Adams 1991) and southwestern regional cult (Crown 1994), and (2) the pull of shared defense in the event of war (see LeBlanc 1999). As part of his warfare interpretation, Kemrer (2005)

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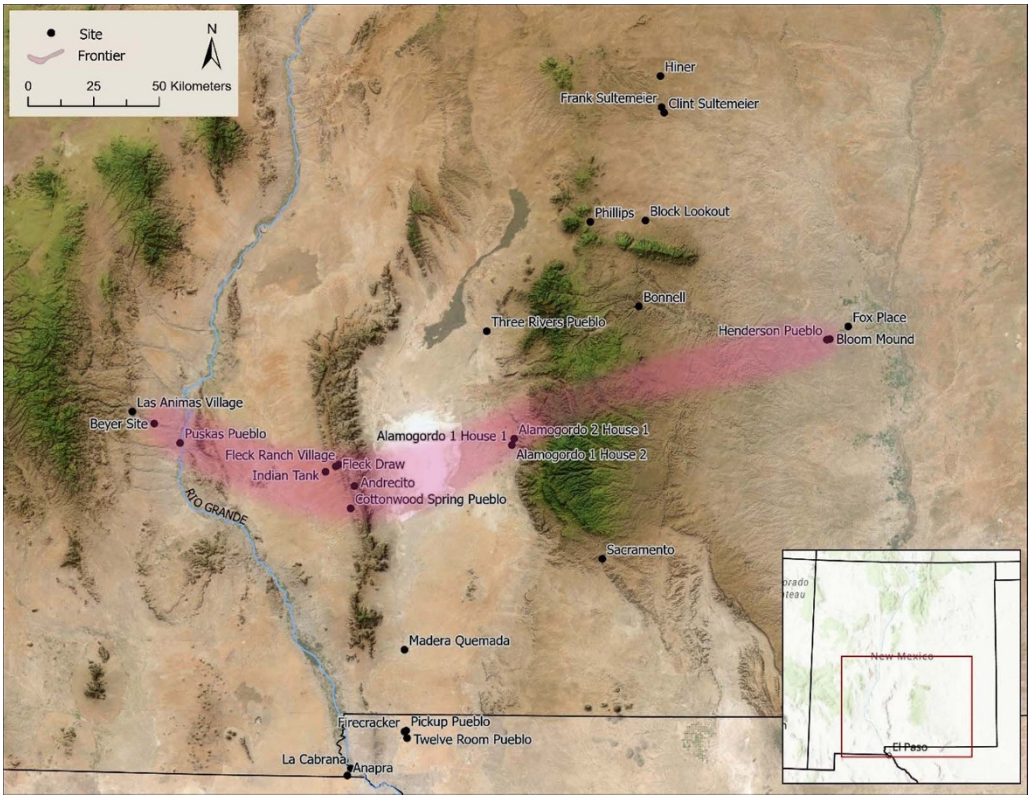


Figure 8. The magical frontier highlighted in color. (Color online)

suggested that the small jacal pueblo atop a hill in Cottonwood Area B was defensive. It possessed commanding views to the north, south, and west, and its single masonry room may have functioned as a watchtower of sorts. Given the strength of its walls, people could have more safely stood watch on its roof—unlike the flimsy jacal rooms adjacent to it. These warfare interpretations arise out of Kemrer's (2005) processual assumptions about resource competition during the thirteenth and fourteenth centuries (see also LeBlanc 1999). He assumes that large, burned sites resulted from conflict. However, as described below, stratigraphy in these and other Jornada pueblos does not match such interpretations but instead conforms with ceremonial closure (see Miller 2024; Miller and Graves 2009; Walker and Berryman 2023).

Artifact and Architectural Comparisons across the Jornada

Looking beyond Cottonwood Spring Pueblo, migration created other coalescent communities across the Jornada during the fourteenth century. We asked whether the material differences we see at Cottonwood make sense as part of a larger migration of peoples across the region. We hypothesize that differences in animistic understandings would inform choices people make when interacting with artifacts and architecture. Magic as a technology would underlie their construction choices, artifact types, and closure activities. Consequently, we divided the Jornada region into nine subregions following the spatial clustering of known villages and then compared their wall construction materials (adobe, stone, jacal), room sizes, and possible closure practices such as the burning of roofs, intentional placement of artifacts on room floors, and potential burial of rooms.

These regions across the Jornada represent clusters of pueblos forming communities. In a couple of cases, however, there are single sites (Three Rivers Pueblo and Sacramento Pueblo) that stand alone in space and get their own regional designation (Figure 8). The nine regions are (1) Sierra

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Blanca (e.g., Hiner, Frank Sultemeier, Clint Sultemeier, Phillips, Block Lookout, Bonnell), (2) Northern Tularosa (Three Rivers Pueblo), (3) Rio Grande (Las Animas Village, Puskas Pueblo, Beyer Site), (4) San Andres Mountains (Fleck Ranch Village, Fleck Draw Pueblo, Indian Tank, Andrecito Pueblo, and Cottonwood Spring Pueblo Areas A, B, D, and E), (5) Sacramento Mountains (Alamogordo Site 1 House 1, Alamogordo Site 1 House 2, Alamogordo Site 2 House 1), (6) Roswell Oasis (Fox Place, Bloom Mound, Henderson), (7) South Sacramento Mountains (Sacramento Pueblo), (8) Southern Tularosa Basin and Hueco Bolson (Madera Quemada, Pickup Pueblo, Twelve Room, Firecracker Pueblo), and (9) Southern Rio Grande (La Cabraña, Anapra). We left off Millington, a site in the La Junta region to the southwest along the Rio Grande near Big Bend. Recent study of Millington by Kenmotsu (2018) suggests that this pueblo itself represents a migration of Southern Tularosa Basin / Hueco Bolson people into the La Junta area.

We argue below that an internal frontier zone depicted in the highlighted portion of Figure 8 developed in the Jornada during the fourteenth century. It runs from the Rio Grande through the San Andres Mountains across the southern Tularosa Basin through the Sacramento Mountains to the confluence of the Pecos and Hondo Rivers at the Roswell Oasis. South of this line, there seems to be more El Paso–style architecture, whereas along the line, there is a mix of northern and El Paso styles. We hypothesize that people moved from north and south, creating new dynamic communities in the middle.

Across the Jornada, pueblos uniformly possess an orientation to the cardinal directions, likely using the North Star (see Miller and Graves 2009:101). Jornada pueblos vary in size (Miller and Graves 2009: Figures 3.1 and 3.11), and larger pueblos possess plazas formed by room blocks (see also Marshall 1973). Interestingly, many (but not all) of these villages occur along and to the north of the frontier. For example, in the Sierra Blanca region, most pueblos possess plazas. Along the frontier, there is a mix of village forms, and to the south, plazas fall off in frequency. This distribution suggests movement of people to the frontier but also raises the question of how plazas might have been needed for ritual activities. Indeed, the animate powers of materials and their arrangements rest at the heart of animistic magic.

Construction Materials and Room Sizes

In terms of construction materials, the northern Jornada above the frontier contains a mix of wall forms that include adobe and *cimiento* walls, jacal wall with *cimiento* foundations, and masonry walls, sometimes all in the same site (Kelley 1984; Wiseman 2019). However, south of the frontier, most sites possess plain adobe construction. Room sizes generally increase from north to south but vary a lot depending on room function. Table 1 describes the construction materials as well as average and median room sizes. Figure 9 illustrates room-size variability through a box and whisker plot. It is clear, in some cases, that large ceremonial rooms or small storage rooms change the averages dramatically. The median measure tends to show a more accurate point of comparison as a result.

Sierra Blanca Pueblos (Hiner, Frank Sultemeier, Clint Sultemeier, Phillips, Block Lookout, Bonnell)

The Lincoln phase pueblo of Hiner 1, a 120-room site on Gallo Wash, possesses a combination of adobe and jacal structures. Four rows of adobe rooms circumscribe its plaza, and jacal rooms create the outer walls of the pueblo. Kelley (1984) thought these jacales might have been ramada-like additions. The Phillips site, another Lincoln phase pueblo, seems to have all possible variations of adobe, jacal, and masonry (Kelley 1984:204–213). The Bonnell site, a Late Glencoe phase (AD 1300–1450) village, exhibits what Kelley (1984) described as pithouses arranged in groups that shared walls similar to pueblo room blocks. Although she called them pithouses, she noted they were quite shallow and had walls resembling those of jacal buildings. These sites north of the frontier, except for Bonnell, tend to have the smallest median room sizes. As noted below, Bloom Mound in the Roswell Oasis also resembles them in size. Those in the north also tend to have jacal construction or a mix of *cimientos* and masonry. South of the line, the pueblo walls are smooth adobe.

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Table 1. Summary of Rooms Sizes and Construction.

Region	Construction Materials	Average Room Size (m^2)	Median Room Size (m^2)	Region	Construction Materials	Average Room Size (m^2)	Median Room Size (m^2)
Sierra Blanca Pueblos				**South Sacramento Mountains Pueblo**			
Hiner	Adobe and jacal	5.41	5.01	Sacramento Pueblo	Adobe	13.99	12.23
Frank Sultemeier	Adobe and masonry	4.73	**7.05**	**Southern Tularosa Basin and Hueco Bolson Pueblos**			
Clint Sultemeier	Adobe	6.67	5.33	Madera Quemada	Adobe	14,99	12.31
Phillips	Adobe, jacal, and masonry	8.01	7.44	Pickup Pueblo	Adobe	18.64	17.20
Block Lookout	Adobe and masonry	12.26	6.69	Twelve Room	Adobe	19.29	15.10
Bonnell	Adobe and jacal	18.32	15.63	Firecracker Pueblo	Adobe	17.59	16.70
North Tularosa Pueblos				**Southern Rio Grande**			
Three Rivers Pueblo	Adobe	14.99	11.64	La Cabraña	Adobe	15.43	14.10
Rio Grande Pueblos				Anapra	Adobe	14.82	12.24
Las Animas Village	Adobe with *cimientos*	18.58	16.63	**San Andres Mountains**			
Puskas Pueblo	Adobe with *cimientos*	24.8	24.44	Fleck Ranch Village	Adobe with *cimientos*	Unknown	
Sacramento Mountains Pueblos				Fleck Draw Pueblo	Adobe with *cimientos*	Unknown	
Alamogordo Site 1 House 1	Adobe	16.44	14.08	Indian Tank	Adobe	Unknown	
Alamogordo Site 1 House 2	Adobe with *cimientos*	33.96	29.44	Andrecito Pueblo	Jacal	21.37	22.10
Alamogordo Site 2 House 1	Adobe with *cimientos*	32.2	25.20	Cottonwood Spring Area A	Adobe with *cimientos*	12.96	14.00
Roswell Oasis Pueblos				Cottonwood Spring Area B	Adobe with *cimientos*, jacal	19.49	17.60
Bloom Mound	Adobe, jacal	7.18	6.00	Cottonwood Spring Area D	Adobe	18.11	20.30
Henderson	Adobe with *cimientos*	12.16	13.05	Cottonwood Spring Area E1	Adobe	12.77	12.25
				Cottonwood Spring Area E2	Adobe	22.25	22.08
				Cottonwood Spring Area E3	Adobe	24.7	26.91

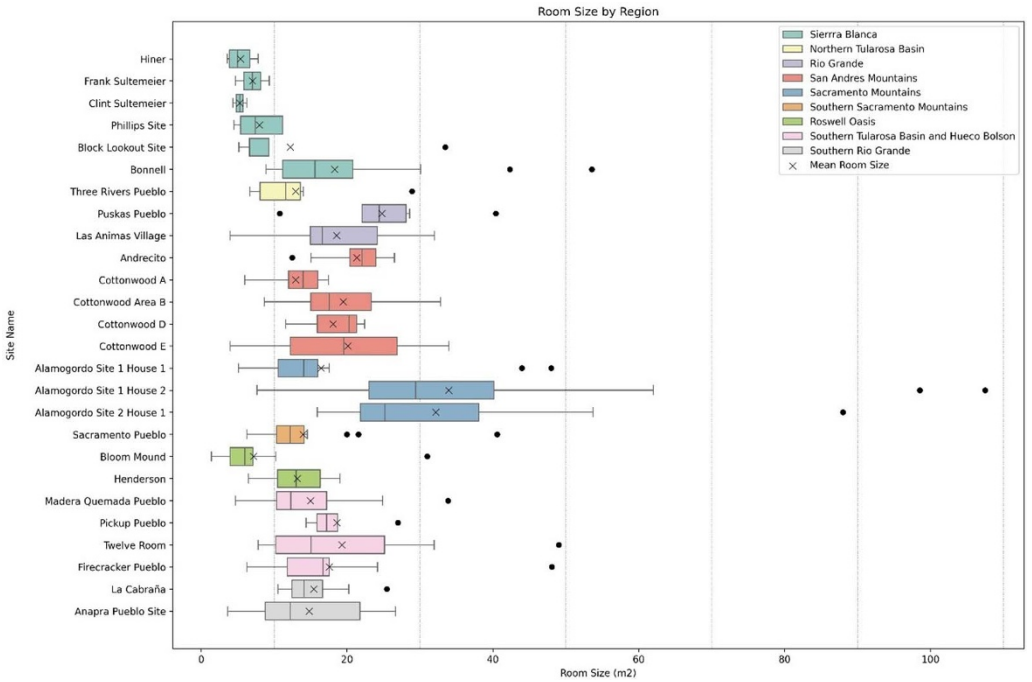


Figure 9. Room sizes by regions. (Color online)

North Tularosa Pueblos (Three Rivers Pueblo)

Cosgrove and Cosgrove (1965) excavated the Three Rivers Pueblo in the mid-1920s, long before current methods and terminology (i.e., metric measures) existed. The rooms have a median size of 11.64 m^2. Rather than try to divine the construction pattern from their brief descriptions of the walls, we let them speak for themselves. Here is their description of the walls of Room 2, which they generalized to the rest of the pueblo:

> Room 2 was excavated to the floor, and excellent smooth walls were found on all four sides. The east wall was especially instructive in the method of construction. Parts show large blocks of puddle adobe with thinner courses lying above. Very few rocks were used as reinforcements in the walls throughout the pueblo [Cosgrove and Cosgrove 1965:2].

Rio Grande Pueblos (Las Animas Village, Puskas Pueblo, Beyer Site)

There are three Jornada villages documented in the vicinity of Las Animas Creek, which drains from the west to the Rio Grande. Puskas Pueblo consists of an L-shaped room block and adjacent plaza. Prominent lines of *cimientos* mark the adobe walls. Caballo Lake covers the pueblo most of the year. This lake, formed by Caballo Dam, eroded much of the eastern portion of the site. Room sizes are large, with a median of 24.44 m^2, comparable to those of Cottonwood Areas E2 and E3. The Las Animas Village and the Beyer site are better preserved and possess *cimiento* foundations supporting adobe walls. Similar wall construction occurs in fourteenth-century Mimbres Branch Mogollon sites to the west in the Mimbres and Gila River valleys (see Nelson and LeBlanc 1986; Wallace 1998). These data suggest a western pattern, which may explain some of the large *cimiento* alignments along Fleck Draw Pueblo to the north of Cottonwood and perhaps a separate migration stream. In support of this hypothesis, the Rio Grande villages of Puskas Pueblo and Beyer site may also be the source of Seco Corrugated, a distinctive fourteenth-century ceramic type (Ferguson et al. 2024; Laumbach and Laumbach 2013). Seco Corrugated occurs in highest frequencies in the Rio Grande, and San Andres regions followed to a lesser degree across the frontier zone. Very little occurs north and south of the frontier.

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Sacramento Mountains Pueblos (Alamogordo Site 1 House 1, Alamogordo Site 1 House 2, Alamogordo Site 2 House 1)

In the Alamogordo communities (Lehmer 1948), villages exhibit a wide range of room sizes. Alamogordo Site 1 House 1 had a median room size of 14.08m^2, but Site 1 House 2 had a median of 25.20 m^2, and Site 2 House 1 had an even larger one at 29.44 m^2. These last two Alamogordo sites not only have the largest median room sizes but indicate use of *cimientos*. In contrast, *cimientos* do not occur in walls of the smaller rooms of Alamogordo Site 1 House 1. The Sacramento Mountain region exhibits the room-size diversity of Cottonwood, but the architectural element of *cimientos* is reversed and accompanies larger-sized rooms. Similarly, farther east in the Roswell Oasis, the larger rooms at Henderson have *cimientos*, and the smaller rooms of nearby Bloom Mound—an otherwise northern-style pueblo—have no *cimientos*. Consequently, these communities along the frontier appear to be mixes of northern and southern styes as well as room sizes.

Roswell Oasis Pueblos (Fox Place, Bloom Mound, Henderson)

In the Roswell Oasis, three villages of differing architectural form create an intersection of traditions. The "violently" closed Bloom Mound appears to have been a Lincoln phase pueblo, with adobe walls, jacal rooms, and a rectangular kiva (Clark and Speth 2022; Kelley 1984), albeit without *cimientos*. Whereas rectangular ceremonial rooms characterize most Jornada pueblos, subterranean kivas do not. The few known occur in Lincoln and Glencoe phase villages to the north and east, closer to the southern boundary of the Ancestral Pueblo Culture Tradition (Wiseman 1996). Rectangular examples similar to Bloom Mound also occur at Smokey Bear Pueblo, Bonnell, Angus Site, and Fox Place (see below). A round depression suggestive of a round kiva occurs at the Robinson Pueblo (Seltzer-Rogers 2022:118). Similar to plazas, kivas formed part of the local magical traditions in the north.

In the Roswell Oasis, Henderson resembles a combination of El Paso phase, Lincoln phase, and Late Glencoe phase construction (Speth 2004; see also Clark and Speth 2022). This Pueblo has an E shape, with the arms (Speth's (2004) "east," "center," and "west bars") of the E forming plaza boundaries. Similar to Lincoln-phase villages, the walls were constructed of *cimientos* and adobe; a suite of small rooms averaging between 9 m^2 and 12 m^2 forms the backbone, or "main bar," of the E. However, like Late Glencoe phase sites, such as Bonnell, they resembled shallow pithouses arranged into room suites. In contrast and similar to El Paso phase pueblos (albeit with *cimientos*), the arms of the E room block extending from the backbone consist of larger rooms with *cimientos*, ranging from 15 m^2 to 21 m^2. This variability creates an average room size of 12.16 m^2 and a median size of 13.05 m^2, which obscures the styles. Seriation of El Paso Polychrome jar rims suggests that the small rooms in the spine of the pueblo were first or earliest and that the larger rooms were added later, which created the E shape and plazas (Speth 2004:20; see also Speth and Staro 2012). Perhaps this later construction period represents a new configuration of migrants and materiality. Fox Place, approximately 16 km to the northeast (Wiseman 2002), resembles a mix of pithouse styles with a Late Glencoe phase kiva. A mural of a horned serpent spans two of the kiva walls. Horned-serpent iconography spreads across the southern Southwest during the fourteenth century and seems to have been part of the magic associated with the formation of the Jornada internal frontier.

South Sacramento Mountains Pueblo (Sacramento Pueblo)

Sacramento Pueblo has a median room size of 12.23 m^2. This pueblo offers an interesting mix of constructions styles and room sizes (Miller and Graves 2012:243). It possesses plain adobe walls constructed of smooth adobe similar to those south of the frontier. Its room sizes, however, run small and resemble villages in the Sierra Blanca to the north.

Southern Tularosa Basin and Hueco Bolson Pueblos (Madera Quemada, Pickup Pueblo, Twelve Room, Firecracker Pueblo)

The pueblos in this region consist of poured adobe walls without *cimientos*. Firecracker Pueblo, a linear-style pueblo, consists of approximately 14 measurable rooms (see O'Laughlin 2025:25-27). Two of the rooms resemble storage features. One measured less than 1 m on a side, and the other (Room 32)

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measured 4.4 m long and 1.2 m wide. Pickup Pueblo had a similar feature within a room, which was described as a bin. Finally, a large communal room exists near the eastern end of the room block. The median room size measures 16.70 m^2—including these small rooms and the communal room.

Madera Quemada is a single room block of 13 contiguous rooms with coursed adobe set in foundation trenches (Miller and Graves 2009:107). Rooms vary in size, with a median of size of 12.31 m^2. The six-room Pickup Pueblo consists of slightly larger rooms exhibiting a median of 17.20 m^2. Similar to Madera Quemada, wall construction is coursed adobe but with no apparent foundation trenches (Gerald 1978). Finally, Twelve Room (Moore 1947) exhibits a median room size of 15.10 m^2. Many of these pueblos possess large communal rooms.

Southern Rio Grande Pueblos (La Cabraña, Anapra)

The La Cabraña room block consists of 10 rooms in a linear arrangement (Foster and Bradley 2021). Narrow footer trenches, 15–20 cm wide, were dug into the ground, and adobe was poured in to form foundations for the adobe walls. The rooms at La Cabraña—including projected floor areas for Rooms 2, 8, and 10—ranged in size from 9.5 m^2 to 24.8 m^2, with an average room size of 15.43 m^2 and median size of 14.10 m^2. Limited excavations and mapping were conducted at Anapra in 1983. The pueblo consists of eight rooms. Again, room sizes vary, with an average of 14.82 m^2 and a median of 12.24 m^2 (Scarborough 1985:129).

San Andres Mountains Pueblos (Fleck Ranch Village, Fleck Draw Pueblo, Indian Tank, Andrecito Pueblo, and Cottonwood Spring Pueblo Areas A, B, D, and E)

Fleck Draw Pueblo, Fleck Ranch Village, and Cottonwood Area A exhibit *cimiento*-reinforced adobe walls (upright basal stone foundation) that contrast with smooth adobe walls found at Indian Tank, Cottonwood Area D, and Cottonwood Area E. Andrecito Pueblo, in the Middle of the San Andres Mountains, has jacal walls and a median room size of 22.10 m^2. At Cottonwood Area A, the median room size is 14.00 m^2; in Area B, 17.60 m^2; Area E1, 12.25 m^2; Area E2, 22.08 m^2; and Area E3, 26.91 m^2. Rooms in Areas E2 and E3 are almost twice the size of those found in Area A. In addition, in both Areas E2 and E3, the two largest rooms had double walls, a phenomenon not seen in other Jornada sites. Area A has *cimientos*, and Area B has jacal and masonry walls, whereas Areas E and D exhibit poured adobe—albeit of varied sizes and shapes (Kemrer 2010; Lekson and Rorex 1987; Walker and Berryman 2023). Both Andrecito and Cottonwood Area B are smaller pueblos, and unlike the Cottonwood Areas A, D, and E, they do not possess visible adobe wall melt on the surface, which suggests jacal construction. Indian Tank differs from the *cimiento* villages in architecture and setting; it is a square-shaped adobe pueblo with a central plaza and contains approximately 200 ground-floor rooms and at least one additional story. Indian Tank is comparable in size to Alamogordo Sites 1 and 2 (Miller and Graves 2009:42).

Pueblo Closure

Detailed evidence of ritual closure remains spotty across the Jornada due to variable recording and reporting practices during the last 100-plus years. Nonetheless, some information stands out. Burning is common across all regions. Room assemblages do not contain a full complement of household tools; instead, rooms possess few artifacts, often purposely placed on their floors. Violence, therefore, does not account for this nearly universal pattern of burning.

In the southwestern Tularosa Basin and Hueco Bolson as well as the Southern Rio Grande south of the frontier, a pattern appears of "Focal Object Deposits." We call this pattern "focal" because burning focuses on a selection of rooms and deposits of animate or power objects that occur in more specialized features and pits. Madera Quemada (Miller and Graves 2009), Twelve Room (Moore 1947), and La Cabraña (Foster and Bradley 2021:39) exhibit such features. For example, at Madera Quemada, Miller and Graves (2009:225–226) found prepared floor assemblages in domestic rooms and a large ritual deposit (Feature 11.2) in a peri-abandonment pit that intruded through the burned fill of rooms. This pit contained 153 items, including precious materials such as shells, crystals, pigments, fossils, palettes, and a speleothem. Interestingly, similar objects were found in prepared floor assemblages, such as pieces

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of malachite, fossil brachiopods, and selenite crystals (see Miller and Graves 2009:411–12, Figure 15.8) that Miller and Graves (2009) referred to as twining objects from the pit. They note that this practice suggested a communal act that included all the households of the pueblo. At Twelve Room, most rooms were not burned, and they had only a few power objects on floors. However, Room Two was burned, and it had a unique room arrangement of multiple compartments. One compartment contained a rich deposit perhaps analogous to the peri-abandonment pit at Madera Quemada. This deposit included three large ollas, eight bowls, an ochre stained-metate, stone balls, Olivella shell beads, and turquoise beads (Moore 1947:99).

In contrast to these focused deposits, those in the Sierra Blanca region tend to have artifact-rich layers spread across multiple burned rooms that included projectile points, shells, minerals, manos, metates, and bone tools (Kelley 1984). A similar pattern occurs at Bloom Mound in the Roswell Oasis (Kelley 1984:461–484) and at Cottonwood Area A in the San Andres Mountains.

At Cottonwood Area A, we found that site floors were prepared with special objects; inhabitants placed numerous projectile points, shells, and minerals on floors, then burned their roofs down over them. Afterward, the entire site was buried. Bloom Mound in the Roswell Oasis had a combination of these multiple room deposits, although it also had evidence of reburied and burned skeletons (see Kelley 1984; Clark and Speth 2022). Some suspect there was violence at the site, which resulted in multiple deaths followed by a closure of the pueblo that included interment of victims with other power objects.

It is hard to get to this level of comparison with most Jornada site reports, particularly older ones, such as that of the Three Rivers Pueblo (Cosgrove and Cosgrove 1965) or the Alamogordo sites mentioned above, but we suspect that burning followed by filling or burial of the rooms was widespread across all of the Jornada.

There were also a few artifacts recovered from Cottonwood Area A that tend to occur only rarely in the Jornada—and even then, mostly in the north. Emily Brown's (2014, 2021) recent Southwest musical-instrument studies indicate that lithophones, bone flutes, and one-stop bone whistles generally occur only in Ancestral Pueblo sites to the north of the Mogollon, but they have been found in a few sites in the Sierra Blanca region. A bird bone whistle/flute and a schist lithophone were recovered from Cottonwood Area A.

Discussion: Magic and Migration

What might have pushed or pulled people out of the Salinas and Sierra Blanca regions? What do we know about their knowledge of their destination? How did the process unfold? How might magic contribute to these processes?

Late thirteenth- and early fourteenth-century Salinas and Sierra Blanca regions of the northern Jornada area were faced with the intrusion of peoples moving south as part of the larger immigration of northern pueblo peoples into the Rio Grande Valley. Like dominos, people were moving south along the Rio Grande, seemingly pushed by the arrival of new people farther north behind them.

For most of its history, Chupadero Black-on-white pottery was produced in two regions: the Salinas area and the adjacent Sierra Blanca area. The Sierra Blanca area tended to supply the rest of the Jornada, whereas the Salinas area supplied mostly the Salinas region and some of the middle Rio Grande Valley (Clark 2017). During the twelfth and thirteenth centuries, exchange of Chupadero Black-on-white pottery contributed to a larger Jornada Mogollon identity. Because of this, end points in this exchange sphere facilitated migration destinations during the fourteenth century.

The Salinas region underwent a process of ethnogenesis during the fourteenth century (Graves 2017). Those who stayed behind in the region eventually built large stone pueblos, embraced Ancestral Pueblo architecture—including round kivas—and became the southernmost Ancestral Pueblo peoples. Those who left for points south and east, including the San Andres communities, chose a different path, initially retaining their jacal construction at sites such as Andrecito Pueblo and Cottonwood Area B. Eventually, as larger groups joined them a generation later, they constructed *cimiento*-reinforced adobe that still reflects the more traditional elements of their homeland (see Cottonwood Area A, Fleck Draw Pueblo, and Fleck Ranch Village). More generally, if we accept the assumption that Jornada people's perceptions

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Figure 10. Horned Serpent overlooking Cottonwood Area A. (Color online)

of animacy and the associated ritual technologies differed from those of ancestral peoples to their north, then this migration offered a form of resistance to incoming religious changes.

Those working in the Salinas region have argued that violence likely contributed to settlement patterns in the thirteenth and fourteenth centuries, noting that burned jacal and adobe sites characterize the province (Solometo et al. 2017). Many of these had shifted to higher, more defendable locations during the fourteenth century, albeit with some stone pueblos mixed in with them. Without excavated stratigraphic evidence, however, such burning is ambiguous. Ritual closure and burning of pithouses, jacals, and (later) pueblos has a long history in the Southwest. This pattern holds for the Jornada as well. Context is key. As Lyons and Crown (2022) have recently demonstrated, Kayenta migrants at Point of Pines Pueblo ritually destroyed their room block in an elaborate closure ceremony. Previous scholars had suggested the burning resulted from an attack on these migrants. Perhaps the burning of Salinas, like that in the Sierra Blanca and places farther south, also represents closure practices.

More broadly, the formation of a frontier zone across the middle of the Jornada documents widespread movements from the north, the south, and possibly the west. The combinations of architecture in these coalescent communities indicate that peoples were drawn to new places. However, late thirteenth- and fourteenth-century coalescent communities varied across the Jornada. The Horned Serpent ritual seems to have been shared in these new places despite their differences. A serpent mural adorns a kiva at Fox Place (Late Glencoe), Horned Serpent bone-effigy artifacts occur at Bonnell and Bloom Mound, and a prominent Horned Serpent rock art image also rests on the hillside overlooking Cottonwood Area A (Figure 10). Forward-curling Horned Serpent imagery appeared in the Mimbres to the west during the Mimbres Classic phase (AD 1000–1150) and then resurfaced in the Jornada and the Casas Grandes region to the south in the early fourteenth century. Horned Serpent depictions with backward-curling horns occur on Salado Polychrome ceramics that move into the Jornada and Casas Grandes regions from the west (see Phillips et al. 2006). Eventually, variants of these serpents find their way into historic pueblo ceremonialism.

Miller and colleagues (2024) recently dated goggled-eyed (sometimes called "Tlaloc") imagery in the Jornada and adjacent Mimbres regions, and they found three periods of use: an initial one dating to the AD 600s; a subsequent fluorescence in the AD 1000s, contemporary with the Mimbres horned serpent; and finally, during the fourteenth century. Consequently, revitalization of earlier cults

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accompanies aggregation or coalescence of communities as would occur in the frontier communities such as Cottonwood.

Magic creates invisible ties between the materials that people implement in their ritual technology. Animate forces are those ties that reside in the materials of everyday life, which include architecture, pottery, projectile points, and ornaments of shell, mineral, and bone. In our case study, Chupadero Black-on-white pottery would have possessed such power and therefore would have served to forge an identity among the Jornada who used and exchanged it. Similarly, local communities possessed their own understanding of what makes a wall, such as adobe, *cimientos*, and jacal. They also created their own rites of passage for themselves and their pueblos, leading to variable closure practices. Those interested in migration can therefore track people by their animate understanding of materials. Such migration may also derive from desires to preserve these types of traditions in the face of other migrants. Conversely, when migrants create multiethnic communities such as the Jornada Frontier, we can find new configurations of animacy and/or the revitalization of older practices, such as the Horned Serpent or goggle-eyed spirit.

The San Andres case and others offer the further understanding that magic as applied in ritual technologies can shape the evidence of migration (closure deposits, unique artifacts, architectural styles) as well as structuring it as a rite of passage. New religions can contribute to causes of movement. They could become attractors and eventually—as in the case of the Katsina religion among the Ancestral Pueblos—become the engine that transforms a multiethnic community into a stable community.

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