Journal of Archaeological Method and Theory (2023) 30:449–494
https://doi.org/10.1007/s10816-022-09565-7

Ritual Closure: Rites De Passage and Apotropaic Magic in an Animate World

William H. Walker[1] · **Judy Berryman**[1]

Accepted: 12 May 2022 / Published online: 18 June 2022

Abstract
Magic and witchcraft, classic topics in the anthropology of religion, involve everyday things such as ashes, ceramics, minerals, shell, and projectile points. In many cultures, people attribute agency to such artifacts, as well as architecture, begging the question what is the archaeological record of such animate beings? To understand past human lifeways more fully, we need to explore the formation processes associated with the interaction between people and other non-human actors. For example, what might we learn from a burned pueblo whose rooms contain ash, projectile points, crystals, and other items? In this paper we argue that deposits in ritually closed pueblos of the North American Southwest, like many other Neolithic villages, likely contain purposely deposited objects in an effort to neutralize the anima left in these places and to prophylactically protect their former inhabitants from future witchcraft. We present Cottonwood Spring Pueblo, New Mexico, as a case study.

Keywords Theory · Witchcraft · Ritual Closure · Apotropaic Magic · US Southwest · Neolithic

Ritual Closure and Apotropaic Magic

Ethnographies of indigenous peoples of the American Southwest consistently document perceptions that things such as artifacts, architecture, plants, animals, minerals, clouds, rain, and stars possess animate powers analogous to those that enliven people (Bunzel, 1992, 483). This animacy allows them to form social relationships with

✉ William H. Walker
wiwalker@nmsu.edu

Judy Berryman
Jberry12@nmsu.edu

[1] Department of Anthropology, New Mexico State University, Box 3BV, Las Cruces, NM 88001, USA

these materials that necessarily defy pragmatic and social scientific assumptions about what constitutes a tool, a person, a resource, or a force of nature. Not surprisingly, such categories also blend into each other in the creation of ritual technologies that harness these animate forces. We define ritual technologies as the use of material culture to interact with the hidden powers of the animate world (see Walker, 2001). For example, Southwest peoples attribute protection from witchcraft to the anima of ash, projectile points, crystals, minerals, ochre, and other artifacts. In this paper we argue that past pueblo peoples deployed such technologies in rites of passage (van Gennep, 1960) to close their pueblos and protect those who might come later from the potential dangers inherent in the materials left behind. We suggest archaeologists consider these purification and apotropaic magic techniques of closure in the formation processes they encounter.

For example, scholars working in similar contexts containing burned houses beyond the Southwest such as the Pre-Pottery Neolithic Middle East (e.g., Banning, 2011; Finlayson et al., 2011; Hadad, 2019; Hodder, 2006a, b); the Burned House Horizon (Chapman, 2000; Chapman & Bisserka, 2007; Stevanović, 2002; Tringham, 2005); Neolithic Ireland (Smyth, 2006); Formative Mesoamerica (Flannery, 1976:16–24); and Agro-pastoral Periods of northwest Argentina (Gordillo & Leiton, 2015; Nielsen & Walker, 1999) may encounter analogous manipulations of animate materials. While archaeologists seldom worry they will encounter witches, malignant spirits, ghosts, or transgress tabooed places that is not the case for most people in most cultures in the history of the world (Douglas, 1970; Kapur, 1983; Mair, 1976; Middleton & Winter, 1963; Simmons, 1974; Walker, 1970). Indeed, given the assumption that these dangers, particularly witchcraft, account for most sickness and death, such fears often rise to preoccupations. Apotropaic magic integrated into ritual closure technologies thwarts such dangers protecting both past inhabitants and future passersby from contact with dangerous materials.

We begin with discussions of rites of passage, object agency, and ritual closure. Although variable and often at odds with each other, theories addressing artifact or object agency share a recognition that artifacts facilitate activities and, therefore, causally contribute to those activities. As such, interactions between humans and nonhumans create a material matrix of things whose activities form the cultures we study. An understanding of culture comprised of human and nonhuman social actors works well in studying cultures that extend animacy or animatist (sensu Marett, 1900) powers to nonhuman things. In these cultures, we can also logically extend rites of passage to these nonhuman beings, including transitioning them from this world to the next. Any rite of passage includes a sequence of three kinds of rituals: separation, transition, and reincorporation. Similar to other rites of passage, the closure of buildings accomplishes a transition of the structure(s) from one place/role in society to another. For those leaving the structure behind, it also serves to separate and allow them to transition to a new home where they will reestablish their social life. Among Pueblo peoples whose origin stories emphasize migration, such rites would make sense. The archaeological record of the pueblos indicates relatively frequent movements accompanied by closure ritual.

We explore Southwestern ethnographies to understand origin, power, and use of objects (projectile points, shell, and minerals such as crystals, pigments, and

turquoise) often found in pueblo closure deposits. This literature demonstrates the apotropaic properties of these things and their value to ritual technologies. These objects figure prominently on pueblo altars, ceremonial attire, as well as in everyday life for protection. For example, arrow points, shell bracelets, even sticks of pigment, serve as amulets to fend off witchcraft.

In the second half of this paper, we introduce a case study of Cottonwood Spring Pueblo located on the western flanks of the San Andres Mountains of southern New Mexico. Our excavations document multiple burned rooms with few floor artifacts and a mix of apotropaic objects on room floors as well as sprinkled through overlying strata. This deposition would attract protective Pueblo ancestral spirits and deities by giving or transferring to them the anima of these materials. The resulting depositional object (sensu Lucas, 2012) exhibits apotropaic power to cut sympathies between people and what they left behind (rooms, artifact), rendering them useless in contagious magic. The closed pueblo protects future people from accidental contact with powers and repels actions of future witches or other malignant forces.

Ritual Closure as a Rite of Passage in an Animate World

Rites of passage mark social transitions (e.g., naming ceremonies, puberty ceremonies, marriage ceremonies, sodality initiations, funerary rituals) of people, artifacts, and architecture. They occur as a sequence of rituals: separation rituals, liminal or transition rites, and reincorporation rites (van Gennep, 1960). *Rites de Passages* begins with more literal discussions of passage rites such as those of strangers entering and leaving nations, cities, and homes. This seldom discussed chapter focuses on a materiality of these rites that is helpful to archaeology. For example, van Gennep (1960:15–25) remarks that laying of foundation deposits are liminal rites that remove existing and future dangers or taboos of a new home, allowing for a family to change residence. He notes transition rites make sense only when contextualized within a larger sequence of separation rites that preceded them and those of incorporation that follow them. In addition to a more expansive understanding of which occasions obligate such rites, he also emphasizes their variation. Some stages in the sequence require longer and more gradual timing, while others are more abrupt. Considering Hopi natal ceremonies at Oraibi Pueblo (see Voth, 1905), van Gennep begins by describing separation rites associated with a pregnant mother. Relatively fast transition rituals of birth and subsequent ritual deposition of the placenta and associated birthing tools precede a series of gradual reincorporation rituals over the course of 20 days. Finally contrary to Durkheim (1915:60) who segregated some forms of magic from religion, van Gennep (1960:14) defines magical rites as techniques that implement theoretical perspectives (religious beliefs).

In more contemporary terms one could say that shamans, religious sodality leaders, and priests employ ritual technologies in these ceremonies. Closure activities offer a technology that, while not regarded as science by archaeologists, would have been applied in that spirit (see Horton, 1997). These technologies deploy homeopathic and contagious magic that empower ritualists to manipulate, harness, or create invisible sympathies between objects (e.g., artifacts, bodies, buildings, clouds,

winds) to achieve desired outcomes. Following Frazier (1935:52–54) invisible linkages or "sympathies" exist between objects making their magical manipulation possible. He defined two broad forms of sympathies, homeopathic/imitative, and contagious. The homeopathic form allows one to create sympathies between objects that share resemblances; often rituals create these resemblances by acting them out or creating an image or copy (drawings, figurines) of the objects they wish to influence. For example, a witch shoots a poisoned object into a person and a healer acts out its removable by simulating the sucking of an arrowhead out of the patients body. Pueblo priests depict lightning and clouds in sand altars on pueblo kiva floors to bring rain. The reenactment of Jesus's last supper during Christian ceremonies establishes communion with God.

Contagious magic draws on still existing ties between objects that were once in contact with each other. This can include closely associated materials like a person and their personal possessions (clothing, tools, home) or a part of an object itself (a person's hair, mother/baby's placenta). Christian pilgrims wanting to heal themselves or collect grace, seek out bones, clothing, and other relics of saints resting in cathedrals. Pueblo priests manipulate scalps taken in battle to bring rain by harnessing the animate power of their enemies (Friederici, 1907). Similarly, Acoma priests push arrow points into walls, strengthening them by transferring the lightning anima of the projectiles into the building (Parsons, 1996:761–764).

We propose that ritual closures of buildings were parts of rites of passage that use such magic. These rites transferred animate forces of the building and their contents to the next realm. In so doing, ancestors could make use of them as homes, clothing, and food. The destruction itself is the ***transition*** rite for the building analogous to the cremation of a person. However, in an animate world such transition rites can also serve as ***separation*** rites for human participants who begin their migration to new homes elsewhere. From the perspective of the living, transitioning the building properly, including protective or apotropaic measures, literally separates them from the past inhabitants (the dead). The protective magic in this rite serves two ends: to cut the sympathies existing between the spirits of the dead, the house, and other materials, and secondly to cut the sympathies between the living migrants and these same materials. By removing these sympathies one can avoid ghost sickness as well as thwarting witches and others who might exploit those materials.

In human funerary practices one can also see these processes at work. For Catholic Christians, internment in holy ground creates a sympathetic link to Heaven for the soul to follow and offers protection against evil forces. While in heaven those souls can in turn intercede on behalf of the living. Among Pai, Yuman, Piman, and Athabascan speakers of the American Southwest, transitions to the afterlife include consideration of parts of the person's soul (e.g., Navajo), its need in the next life for personal possessions, and potential dangers created by a ghost lingering in the realm of the living. Ritual closure of the deceased's house (often through burning), including destruction of their property (foodstuffs, horses, clothing, tools), purifies what remains by covering it with ash (see Roth & Adams, 2021),and transfers the essence of these possessions to the afterlife. In studying the role of "knowledge" played in Luiseño culture, Kroeber (1925:656) noted that "knowledge" or "*ayellkwi*" was both dangerous and beneficial and had to be used in exacting rituals, including

counter-witchcraft in funerals. Raymond White (1953:569) observed that Luiseño practiced at least 18 ceremonies having to do with "*ayellkwi,*" including the clothes-burning and the feather-burying ceremony. The clothes-burning ceremony utilized ritual technology to separate the ghost from the living.

For Zoroastrians, decaying flesh left behind when the soul departs becomes possessed and polluted by a demon. If buried, the demon-filled corpse will pollute the earth and water; if cremated, it will pollute the air. Therefore, open-roofed towers of silence facilitate recycling of this dangerous material into the world of the living through vultures that consume exposed corpses (Zykov, 2016). Cultures differ about what materials constitute purity and danger (Douglas, 1966) and create differing obligatory actions and prohibited actions in their deployment of material culture (clothes, food, architecture, tools). Nonetheless, they share a similar need to confront forces such as witches, ghosts, and demons that would take advantage of the power of things to make people sick, to destroy their crops, prevent good weather, or any number of other problems.

Funerary rituals a common rite of passage exhibit fundamental ritual technologies developed worldwide to transition spirits from one plane to another. These ceremonies highlight the important roles agential objects play. Clothes, tools, animals, and other grave goods to help the ghost and ensure safety of the living from the dead. We assume that burning and burial associated with these practices also informs related techniques for disposal of other animate things such as houses, pottery, or animals. We therefore hypothesize that much of the burning and burial of hamlets, villages, and towns in the ancient American Southwest represents life histories of materials put to service in ritual technologies.

Adams (2016), in his review of ritual closure evidence of the Homol'ovi Pueblos, near Winslow Arizona, emphasizes that such activities often involve a number of sacrifices (e.g., corn, pottery, projectile points, manos) placed in the buried and burned layers of structures. He argues that these deposits offer insights into the participation of segments of the community (e.g., sodality groups, women, households). Community groups participating in these separation rites of passage would eventually benefit from future incorporation rites. He also notes specific buildings required additional sacrifices to seal them more securely because they contain killed witches.

We see these sacrifices and other forms of deposition as similar to the grave goods associated with human burials, cremations (see Montgomery, 1993), and other mortuary practices. In ritual closures and funerals, these ceremonies possess a number of "performance characteristics" (sensu Schiffer & Skibo, 1987; see also Schiffer, 2016) facilitating the manipulation of the anima of the materials involved. Closure practices facilitate the release or movement of animating forces (e.g., souls, forces) from one form of matter to another for a specific purpose, such as transmutation of objects between worlds. They also enhance remembrance or forgetting by combining ritual behavior, narratives, material objects, and representations with places (see Fentress & Wickham, 1992; Mills and Walker, 2008a, b; Van Dyke & Alcock, 2003:4). These memory-laden closure rituals also make possible the establishment of new communities as identities are shed during the closure while others retained. Such performance characteristics of rites of passage are critical in contexts of migration, a relatively common occurrence in the prehistory of the American Southwest.

We concentrate in this paper, however, on how apotropaic magic contributes to the strata formed in ritually closed pueblos and the kinds of objects that characterize them. To understand this archeological record requires reframing the artifacts, architecture, and other objects as the social actors and recognizing that they, like humans, participate in rites of passage.

Protective Magic, Object Agency, and The New Animism

In the 1990s through the early 2000s social theory in archaeology (e.g., Dobres & Hoffman, 1994; Dobres & Robb, 2000; Whiteley, 2002) turned to practice and agency theory of Bourdieu (1977), Giddens (1979), Sahlins (1976, 1981) and others in order to bridge materialist and idealist approaches to society. Growing out of this attention to practice of human actors, theorists rehabilitated the contributions of material culture to society homing in on its causal consequences in practice, eventually elevating objects analytically to agent-like societal roles (e.g., Gell, 1992; Latour, 1994). This turn to agency of objects (see Hicks & Beaudry, 2010) made intuitive sense to many anthropological archaeologists because human actors cross-culturally, particularly among the Native peoples of the Americas, often recognize material things as animate beings.

Object Agency

In his science and technology studies, Latour coined the term *actant* for non-human things with properties similar to actors. He devised a theoretical framework focusing on networks of interactors (human and non-human) in order to reframe causal understandings of human activity. Alfred Gell (1998) elaborated a theory of artifact agency in *Art and Agency*: *An Anthropological Theory*, illustrating how pieces of art, like other fabricated objects, play causal roles in activities beginning with their construction and continuing throughout their life histories (see also Gell, 1992). Although informants often attribute animate agency to pottery, statues, houses, and temples, Gell (1998) explicitly noted that those culturally specific understandings need not create debates over whether the artifacts are actually animate beings. From an analytical perspective, if the presence of an object in an interaction changes a person's practice, then that object has causal consequence analogous to a social actor.

In a parallel track to Gell (1998), Schiffer and Miller (1999) constructed a material culture-focused model of human communication that combined performance characteristic studies of technology (Schiffer & Skibo, 1987) and a synthetic model of inference (Schiffer, 1987) previously used in study of archaeological site formation processes. Like Gell, they recognized that the interaction between an artifact maker and the artifact depends on both of these *interactors* contributing to the process. They argued that these interactions, already modeled as behaviors, could be transformed analytically into exchanges of information. This transformation facilitates asking new questions, such as how do artifacts and other interactors contribute to human communication by receiving, sending, and emitting information? It is

striking that despite different terminology (Gell favored semiotics, see Keane, 2003; Pierce, 1974) and different bibliographies, Schiffer and Miller's communication model and Gell's artifact agency theory mirror each other closely.

In both, artifacts play a critical role in the transmission of information between people and things. Both also emphasize the critical methodological step of focusing on the reception of information rather than the sending of it. Although many social scientists explain people's actions by referring to their intentions, it is clear that such intentions do not equal actions. While one can observe senders and model their action, one cannot assume that what they sent was received. The receiver's reactions to information, however, offer a more accurate measure of what was received and acted upon. Schiffer and Miller (1999: 88–89) call this the three-body model to emphasize the critical importance artifacts play in human communication.

Subsequent archaeological theory wove various combinations of these object agency perspectives into American and European archaeology (e.g., Hodder, 2012; Knappett & Malafouris, 2008; Mills and Walker, 2008a, b; Olsen, 2010; Webmore & Whitmore, 2008). This work continues to provoke deep discussion of the role of ontology in archaeology (see Alberti, 2016). Although archaeologists do not equate objects with people, they recognize in many cultures people see them as analogous beings. Southwest archaeologists find such theory useful in the study of a range of topics including Pueblo religion, or "doings" (Fowles, 2013), resistance to Spanish colonization (Liebmann, 2012), exchange (Whalen, 2013), building closure (Miller and Graves 2009), witchcraft, warfare, and cannibalism (Walker, 1998, 2002, 2008a, b, 2009), and ritual center formation (VanPool & VanPool, 2016). Whalen (2013), for example, argued that the accumulation of a million shells at Casas Grandes, Chihuahua, one of the largest towns in the ancient Southwest, did not result from mass storage for future trading of a commodity (Di Peso, 1974) but instead the accumulation of the shells' animate power for use at the site. Similarly, Mills and Ferguson (2008) illustrate animacy of conch shells and other materials in historic and prehistoric pueblos. Consideration of object agency reveals an unanticipated discrepancy between an ethnographic record rife with magic designed to prevent, treat, and fight witches and other malignant forces and an archaeological record perceived as relatively free of such dangers (see Walker, 1998). Indeed, Adler (2021) recently argued that the burning and deposition of ash offers powerful protection against witchcraft in the American Southwest. Although as noted above witchcraft is not the only source of danger that rites of passage seek to protect against, ritual technologies designed to combat witchcraft are legion.

Witchcraft and Object Agency

One need not look far in ethnographies or histories to see the impact of witches on ritual technologies (Cohn, 1975, Evans-Pritchard, 1937; Fortune, 1932; Kluckhohn, 1944; Middleton, 1967; Walker, 1998; Watson & Roy, 1993). We define witches as those beings that use ritual technologies (magic) to harm others (e.g., sickness, droughts, floods) for their own selfish interests. Not surprisingly, Southwest cultures plagued by witches possess counter measures employed by ritual

practitioners such as shamans (Bahr et al., 1974), singers (McNeley, 1981), and priests (Bunzell 1932). The forces of witchcraft, similar to the dangers of Corona viruses fought by emergency room doctors, demand frequent attention and technological solutions. Historical archaeologists (e.g., Hoggard, 2019; Manning, 2014; Merrifield, 1987) have documented the prophylactic concealment of witch bottles, cats, pipes, shoes, and other objects within European and North American buildings. Where is the corresponding discussion in prehistoric contexts?

The scourge of witchcraft accusations and persecution thrive in part by the performance characteristics created by the hidden sympathies of animated material. The material matrices of people and things that comprise cultures literally surrounded people with potential dangers. Agential forces of animals, plants, artifacts, and architecture create seemingly infinite opportunities for those interested in manipulating them to their own selfish ends. Most critically, although seldom realized, this potential hangs over cultures like a guillotine positioned to behead them at any moment of crisis as they move from pedestrian witchcraft killings to full-blown persecution manias (see Blue, 1988). Just as all politicians have access to corrupting power, so do those trained in the ways of magical sympathies. Since the technological knowledge used in magic is more or less the same whether used by witch or witch doctor, ritual practitioners such as shamans, sodality members, and priests are always potential suspects. In those societies where witchcraft is innate and heritable (Simmons, 1974:86), whole families (women men, adults, and children) may be condemned as witches and killed. A commonly feared form of witchcraft, necromancy, highlights the potential dangers of the grave for those bent on the misuse of ritual technologies.

Among Inuit peoples (Merkur, 1970:13), for example, witches violate a grave by removing bones or artifacts purposely to offend the deceased's ghost. They then use their magical skills to direct that life-threatening force (the ghost) against someone else instead of themselves. However, human ghosts are not the only animate forces open to manipulation by witches; they also manipulate living prey animals. A witch could spoil a hunter's luck by smearing or touching his tools with parts of a corpse and the dirt of a grave. Prey animals would sense the ghost danger and stay away.

Some Inuit witches even use their skills to create *Tupilak,* evil spirits that do their work for them. These *Tupilak* are spiritual machines of sorts created by the witch's synthesis of the animating powers of various beings. Using animal parts (e.g., bear skulls, teeth, bird wings) and other materials they forge these powers into *Tupilak*. Visible only to shamans, these dark spirits act as familiars for the witches, causing sickness and bad weather.

Abundant examples of witchcraft characterize California ethnographies including discussions of northern California warfare. Sometimes a shaman was hired to "kill" an enemy instead of organizing a tribal expedition, as with the Shasta, Achomawi, Atsugewi, Modoc, and Wintu (Voegelin, 1942:109). Modoc also hired shamans to retaliate in intratribal disputes (Ray, 1963:10). Use of ritual in warfare emphasized that fighting represented a disturbance in the balance of people's lives, requiring aid of supernatural forces (Gifford & Kroeber, 1937:154). Witchcraft and magic were also a part of Chumash warfare. Kroeber mentioned that a chief would invite visitors to ceremonies and a refusal caused war as it created suspicion of witchcraft (Kroeber, 1925:556).

In the American Southwest, witchcraft figures in all understandings of sickness and other misfortunes (e.g., Cushing, 1967; Darling, 1998; Simmons, 1974; Underhill, 1946:265, 278). Among Pueblo peoples the responsibility for fighting witches often falls to warrior sodalities or leaders possessing powers of lightning and other primordial sources of strength (Parsons, 1996:115). Witches cause sickness and death through sending of diseases as well as manipulation of the weather, such as floods, droughts, freezes, heat (Parsons, 1996:12–13,62–68). They are fought from a distance through ritual manipulations of power objects as well as close up in witchcraft trials leading to executions or exile.

Methodologically we can detect the agency of objects in archaeological contexts, in part, by variability in their life histories, particularly by the contexts in which we find them. In a small number of ancient Southwestern pueblos, and pithouse villages that proceeded them, assemblages of violently dispatched individuals occur on house and kiva floors (Walker, 1998, 2008a). These floor locations represented places of contact between the world of the living and the underworld. During the Basketmaker Period (1000BC-A.D. 750), pithouses were loci of ritual activity including a floor feature, the *sipapu*, a small cavity recreating the original passageway between the underworld and the world of the living. When their descendants, the Pueblo peoples, began to construct above ground buildings, they retained their ceremonial spaces as subterranean buildings with sipapus. Earthen pithouses were lined with stone and turned into what we call kivas.

Why would violently dispatched individuals wind up there? Most Pueblo people would answer by reciting an origin story. A seminal event in Pueblo history was the introduction of death, occurring during their emergence from the world below this one. As their ancestors were climbing through the sipapu from below, a witch snuck through with them (in most versions through the help of Coyote). It seems that the ancients wanted to push the witches back down into the world below where they belong (see Walker, 2008b). Witchcraft killings are themselves rites of passage. In some, they confront the witch from afar using imitative and sympathetic magic, in others the fight occurs in person. In both cases the process is a rite of passage. They begin with a trial (rite of separation), followed by an execution (rite of transition), and end with purifying rituals that serve to reincorporate the witch fighters back into Pueblo life.

Inferences of unknown past behaviors depend on establishing known correlations between people and things using ethnographic and experimental sources (see Schiffer, 1987 Chapter 2). We suggest archaeologists employ a similar methodology for exploring how the powers of things can shape their life histories. For example, it seems that earlier ritual interactions in an object's life history tend to accompany and influence similar interactions later in their lives, including their use in discard activities (see Walker, 1995a, b), such as building and site closure rituals. We define ritual closure as a set of practices that respectfully transition the anima of a structure, or series of structures comprising a site, to another realm, often moving their material elements from systemic to archaeological context (sensu Schiffer, 1972).

Southwestern Ethnographic Examples

To illustrate how animate powers of materials could contribute to their deposition in closure rituals we surveyed ethnographies of Southwest peoples and culturally similar groups in southern California. The examples given below emphasize widespread use and power of particular objects but represent only a small sample. To narrow our study, we looked at four types of things: projectile points, minerals (e.g., turquoise, crystals, pigments), shells, and ash all commonly found in closure deposits in southwestern pueblos. Table 1 summarizes our findings.

Projectile Points

We begin with projectile points because archaeologists generally view them as practical tools for hunting and fighting and neglect to consider the magical sympathies of lightning they possess. Indeed, Pueblo hunters, warriors, and priests understand that this magical power facilitates killing of game and people, as well as calling of rain and repelling witches.

Projectile points possess anima that protects people from dangerous sources of power, like ghosts, lightning, and illnesses caused by witchcraft (Cushing, 1920:617; Bunzell, 1992:490; Darling, 1998; Hill, 1982:125, 130, 314; Levy, 1994). As a result, people commonly wear them as amulets (e.g., Sedig, 2014; Parsons, 1996:332; Stephen, 1936:137; White, 1932). Projectile points find their way onto Pueblo altars and other ritual contexts (Fewkes, 1899: Plate XVIII, 267, Plate XIX, 269; Voth, 1901: Plate XLIII, 77). Using imitative and contagious magic, Pueblo altars apply the power of arrow points in combination with other powerful things. Fewkes (1899) illustrates two exceptional examples from the Tewa Hopi village of Hano. Arrow points figure prominently on these Winter Solstice altars in association with eagle feathers, lightning extenders, drawn images of lightning, the great serpent, bear effigies, and mountain lion paws. The altar concentrates their animating power in this yearly renewal ceremony.

One can glean the logic of such power from oral traditions. Projectile points figure prominently as sacred weapons. Warrior Twins in emergence times used lightning in the form of arrow points to slay monsters and other dangerous beings (Parsons, 1996:1043). Like many cultures around the world, Pueblo traditions describe arrow points and other cryptocrystalline stone tool substances as created by lightning strikes (see Skeat, 1912). As Cushing (1883:10) says in his discussion of Zuni Fetishes: “although fashioned by man, it [arrow point] is regarded as originally the gift or ‘flesh’ of lightning, as made by the power of, and rendered more effective by these connections with the dread element; pursuant of which idea, the zig zag of lightning marks is added to the shafts of arrows.” Pueblo peoples harnessed this power to protect children, attaching points to cradle boards constructed from lightning-struck wood (Parson, 1996:332; White, 1932:134–135).

This arrow point power can also protect the boundary between the living and the dead (Parsons, 1996:106). At Taos Pueblo, mourners draw a protective line

Table 1 Summary of purification and protection powers of higher frequency materials

Item	Powers	Groups	Ethnographic Examples
Ash	Purification–power that can cure and retard malevolent forces	Hopi, Jicarilla Apache, Kiowa Apache, Laguna, Tewa, Zuni	Opler (1960:133-153); Opler and Bittle 1961:383-394); Parsons (1996:106-107, 183-184, 392); Robbins, Harrington and Freire-Marreco (1916:29); Stephen (1936 :371, 386, 458)
	Universal protective powers; disinfect or discharm after contact with an unclean substance	Acoma, Hopi, Laguna, Tewa, Zuni	Parsons (1920:118-122); Parsons (1996:458-459, 668-669); Stephen (1936: 371, 386); Stevenson (1904:3-634); Voth (1901:109; 1903:348).
Projectile Points	Protection from sources of power such as ghosts, lightning, or illnesses caused by witchcraft	Acoma, Hopi, Tewa, Santa Clara, Zuni	Cushing (1920:617); Bunzell (1992:490); Darling (1998); Fewkes (1899); Hill (1982:125, 130, 314); Levy (1994); Parsons (1996:329-332); Sedig (2014); Skeat (1912); Stephen (1936:137); White (1932);
	Altars and other ritual contexts; curation death rituals and afterlife	Hopi, Jemez	Fewkes (1899: Plate XVIII, 267, Plate XIX, 269); Parsons (1996:331,332); Voth (1901: Plate XLIII, 77)
	In mythology sacred weapons for slaying monsters	Acoma, Hopi, Tewa, Santa Clara, Zuni	Parsons (1996:1043)
	Fashioned from lightning and contains its power	Zuni	Skeat (1912); Cushing (1883:1); Parsons (1996:106,181)
	Point attached to infant cradle board	Acoma	
	Tip of shaman's wand	Kumeyaay	DuBois and Kroeber (1908); Thomas (1976:129)
	Dipping or aspersing holy water	Jemez, Zuni	Parsons (1996:331, 647)
	Empowering or Protective amulets	Acoma, Hopi, Isleta, Santa Clara, Tewa, Zuni	Parsons (1996:332); Parsons (1932:452) White (1932:134-135)
Crystals	Power that can be used to both harm and protect--powers can only be used by trained individuals	Chumash, Kumeyaay, Luiseno, Navajo, Yumans	Bean (1975); Devereux (1957); Kroeber (1925); Langenwalter (1980); Levi (1978); Reichard (1950); Voegelin (1938:64)

Table 1 (continued)

Item	Powers	Groups	Ethnographic Examples
	Use of crystal tipped wands in ceremonies	Chumash, Kumeyaay, Luiseno	DuBois and Kroeber (1908:98); Hoover (1975:105); Heye (1921:60); Putnam (1879:266); Olson (1930:19); Waterman (1910:299)
	Used to identify witches	Acoma, Cochiti, Hopi, Isleta, Laguna, Taos	(Lummis 1910:176); Parsons (1996:450, 959); (Scholes 1935; 220)
	Curing against witchcraft	Acoma, Hopi, Laguna, Tewa, Zuni	Parsons (1996:43,330,532,565, 711, 886; 1932:258; 1996); Stevenson (1904:415); Voth (1912:34); White (1932:608)
	Clairvoyance, Dreaming	Laguna, Zuni	Bunzel (1933); Parsons (1920; 1996:330, 450).
	Use as a fetish, as an effigy	Hopi, Tewa	Parsons (1996:330, 565)
	Used by Medicine Men, also used to make medicine water (Mentioned in Flood Songs)	Pimas	Russell (1908:111-112; 275-276)
	Used in purification of prayer sticks	Hopi	Stephen (1936: 493)
	Symbolizes the powers of fire and light	Navajo	Barnett 1973:46); Reichard (1950)
	Pendant	Isleta	Parson (1996:450,950)
	Refraction of sunlight to make holy water or placement in water to charge it.	Hopi, Zuni	Dorsey and Voth (1901); Parsons 1996:607,959); Stephen (1936: 493)
Pigment	Red paint on scalps during scalp dance	Taos	Parsons (1996: 645)
	Trade in Kaolin for mask and pottery painting	Acoma, Zuni	Parsons (1996:35); Bunzel (1932: 859)
	Red pigment offered to the wind to make it blow	Cochiti	Parsons (1996:136-137); Goldfrank (1927: 98)
	Pigments offered to deities	Isleta Taos, Tewa, Zuni	Cushing, (1883:35); Parsons, (1996:282, 298-99); Stevenson, (1904:352)
	Pigments used for protection	Hopi, Zuni	Bunzel (1932:491,861)
	Represents the living essence with individual spirits that need to be respected	Acoma, Hopi, Santa Clara, Tewa	Bunzel (1932); Cushing (1883; 1886; 1920); Parsons (1996); Stephen (1936); Trimble (2004:29); VanPool and Newsome (2012:246)

Table 1 (continued)

Item	Powers	Groups	Ethnographic Examples
	Power of prayer sticks pigments of blue or green malachite or copper mixed with white bean meal and water (Hopi)	Hopi, Zuni	Parsons (1996:274)
	Ritual painting, cleansing and power; use of red, white and black pigments/ochres	Chumash, Mojave, Yuman	Heizer and Whipple (1957:58) Harrington (1942:18); Kroeber (1925:729)
	Red pigments and sticks of black pigment carried as amulets	Zuni	Bunzel (1932: 491, 860); Parsons 1996:298-299).
	Yellow ochre a potent medicine	Zuni	Bunzel (1932: 860)
	Azurite or malachite mixed in a calcite matrix; made into a cake, rehydrated and then used to color masks at Acoma; wearing the masks--the body becomes charmed, and the dancer is protected	Acoma	Bunzel (1932:131)
	Mortuary Ritual	Acoma, Cochiti, Isleta, Laguna	Beaglehole (1937:39); Parsons (1996:70, 162)
Marine Shell	Use of shells in War Brother (twins) and Warrior Ritual	Hopi, Jemez, Zuni	Bourke (1892:551, fig 435435); Parsons (1996: 300, 331); (White 1932: plate 70)
	Charging or dipping Holy water	Hopi, San Juan, Zia, Zuni	Parsons (1996:331, 384, 441, 647, 689741)
	White shell is symbolic of peace, fertility, ritual purity, protection against disease or restoration to health	Chumash, Kumeyaay	Spier (1923)
	Warfare and war gods	Acoma, Hopi, Jemez, Laguna, Zuni	Parsons (1996:331, 537, 647, 665); Stevenson (1904: Plate CXXXVIII) Voth (1901: plate XXXVII); Stephen (1936:9)
	Hopi snake rituals, cosmological origins at Hopi and Zuni	Hopi, Zuni	Secakuku (2006); Stephen (1936:9); Voth (1903)
	Offered to deities	Laguna, Zuni	Parsons (1996:282, 299)
	Source of primordial power	Hopi, Keresans	Parsons 1996: 299); Voth 1903:349-353, Voth 1905:5-10

around graves with arrow points and at Isleta Pueblo they pass points over walls of the deceased's home to cleanse it (Parsons, 1996:332). Southern California Shamans tipped their magic wands with arrow points (DuBois & Kroeber, 1908). These wands, or *Hechicero sticks*, were used by witch doctors: "they put medicine into it to injure or destroy their enemies" (Thomas, 1976:129).

Arrow points can also empower other artifacts and architecture. The Acoma reenactment of an event entitled "Kachinas Are Going to Fight Us" illustrates the ambiguous power of points to either kill or protect, and by extension the duality of other empowered objects (White, 1932:88–94). This battle pitted Acoma and their Katsina allies against other enemy Katsina spirits. Before the reenactment of this mythical battle, the war society chiefs walk the town pushing their arrow points into the walls of all the houses to give them strength; their allied Katsina spirits also similarly touch the walls with their wooden staffs. During the battle, the attacking enemy Katsinas die and then the touch of the War Chief's arrow points revives them in order to kill them again. The War Chiefs also use points to heal scouts castrated during the battle. Like these arrow points, minerals also possess potent anima.

Minerals

Pigments In the Southwest, painting of things (e.g., pottery, masks, arrows, prayer sticks) creates a magical sympathy between them and the six cardinal directions and, by extension, spirits residing in those places. Each southwestern Pueblo group label the cardinal directions with a color. These associations, however, vary between cultures. At Hopi, cloud chiefs reside in the cardinal directions wearing cloud masks of different colors: north yellow mask cloud chief, west blue/green cloud mask chief, south red cloud mask chief, east white cloud mask chief, black above cloud mask chief, and below *Müy'ingwa* wears a mask of all colors (Parsons, 1996:172). Stephen (1936:333,592) notes that *Müy'ingwa* sits on a flower mound and all sacred birds and butterflies flutter before him. Each of these directional cloud deities wears black-painted legs, and therefore, Agave Society members at Hopi draw on this power by performing with their legs painted black. Some hints of associations between directions and shell also occur at Hopi. In the House Song, a ritual song sung at the beginning of most ceremonies, singers address the directional chiefs as fathers and name them by either colored stones or archaic terms for shells. To the north is the house of a light white yellow rock, to the west the turquoise house, to the south *aiwana* (abalone) and *ki* (pink shell, beads), to the east a clear stone and *ki* (pink shell), to above dark rock, and below beautiful rock (Voth, 1912:71–72).

Among the Tewa and at Taos, blue is north; for Picuris and Isleta it is black. For the Tewa, Taos, Picuris, and Isleta the west is yellow. The south is blue at Isleta and Picuris, but buff for Taos. For Zuni and Tewa all colors are above and black is below (Parsons, 1996:365).

Pigments bring color to the desert and offer the significant power of being the spark of life that turns a painted object, such as an arrow shaft, mask, pot, or prayer feather, into a living person (Bunzel, 1932:852; Parsons, 1996:341). Various tints of brown, red, green, blue, yellow, orange, and purple colors derive from iron-bearing

minerals, such as ochres, other ores, and stained earths. Colors such as white typically come from kaolin clay, limestone, and gypsum. Green and blue have copper origins, and black comes from graphite, powdered coal, charcoal, or soot (Parsons, 1996: 334–341).

Pueblo peoples traded pigments along with shell and other materials. Hopi obtained ochre from Havasupai peoples living to their north (Parsons, 1996:34). Acoma supplied Zuni with kaolin for painting masks and pottery slips (Bunzel, 1932:859). Zuni exchanged feathers for turquoise with Santo Domingo (Bunzel, 1932:861; Parsons, 1996: 341). Pigment processing was a collective activity of ritual groups, "just as there are grinding parties for the preparation of prayer-meal, societies had parties to grind pigments" (Cushing, 1883:35). Groups at Hopi also collectively renew their masks beginning by scraping off old paint and placing that residue in a shrine (Stephen, 1936: 395).

Harnessing the animating power of pigments occurs in many ritual activities including offerings to give thanks and to entice spiritual forces. One can raise the wind at Laguna by offering it red pigment (Parsons, 1996:136). Zuni deposit iridescent black and red pigments annually in War God shrines (Cushing, 1883:35; Stevenson, 1904:352). All the Pueblos took scalps in war and associated their vanquished foes' animacy with rain making power. At Isleta and Taos scalps were fed pollen, corn meal, and red pigment. Taos also painted scalps red (Parsons, 1996:351). Scalp dancers at Taos were painted black all over (Parsons, 1996:645). Taos also once had a warlike sodality, the Red Paint People, who performed while painted red all over and offered red pigments to the Night People such as the moon and stars (Parsons, 1996: 937).

Pigments require careful treatment given their potency. For example, Hopi elder priests paint a black shale pigment on their horned serpent effigies. Handling this dangerous pigment by younger men is forbidden (Stephen, 1936:311). By the same token, Zuni carry red and black sticks of pigment because their power makes them strong amulets against witches and other forces (Bunzel, 1932:491). The power of paint (Parsons, 1996: 488) and its viscous nature facilitates compounding its power by painting it on things. One can depict images or imitate their parts, such as the Agave Society leg painting, as well as through the contagious power of the substance itself transferred to things through its application. Both forms of magic likely were at work in funerary painting and other transformative use of color.

Hopi and Zuni blacken the chin of the deceased (Parsons, 1996:70). When ceremonial leaders die at Cochiti, they paint the face red; Laguna streaks the face red and black; and at Acoma they band it black and white. At Zuni, a deceased's hair may also be painted red and at Isleta they paint white zigzags on the corpse's arms and legs (Parsons, 1996:162–163). Among the Acoma, turquoise is often associated with maleness, the color yellow with femaleness, black with the dead, and red with blood or war. At Jemez Pueblo, turquoise and yellow were used for various types of prayer sticks in the summer, red and white sticks in the winter (Parsons, 1996: 274–275).

Ritual painting to harness power also occurred among groups in nearby California; red, white, and black paints were almost universal. Yellow, blue, and green pigments were much less common and were not always used as face and body paints.

Harrington (1942:18) noted that Chumash, Gabrieliño, and Yuman people used red ochre, white kaolin, and black charcoal. Kelly noted that "for red paint, the ochre was placed in a hole in a rock and fire kindled on top … [then] the coals were raked off, and after the ochre had cooled, it was brick red" (Kelly, 1932:116). According to Kroeber (1925:729), the Mohave painted their faces more effectively and frequently than any other tribe of California.

Crystals In the Southwest, crystals often contain powers associated with fire, light, and lightning (Barnett, 1973:46; Parsons, 1996: 330; Reichard, 1950). On the altar of the Oraibi Marau society at Hopi is a crystal placed into the tip of a wooden cone or mountain; this imitative creation serves as a chief fetish (Dorsey & Voth, 1901, 1901:Plate I; Voth, 1912:34). An altar setup for the Powamu Ceremony at Hopi included corn cobs and large crystals arrayed on the ground representing the six directions. In their center was a crenulate rimmed bowl holding medicine water and "six pieces of crystal, one piece of black spar, one piece of dogtooth spar" (Stephen, 1936: 251). Stephen (1936) also describes an altar setup for the Niman ceremony at Hopi. The priest places six ears of corn in the six directions and covers them with sacred meal and crystals (Stephen, 1936: 513–514, 517–518). He subsequently washes them off into a medicine bowl creating a mix of water, honey, and crystals. Medicine water can also be created by holding a crystal up to the sunlight entering the kiva and refracting its light into the water (Stephen, 1936:573).

The inherent power of crystals combined with their translucent qualities makes them useful for identifying sicknesses and creating medicines. One can gaze into a crystal to see objects or dangers created by witches (Parsons, 1996: 330,450,886,959). At Zuni, for example, a "doctor smokes, sings, mixes his medicine in a bowl, massages with ashes, locates the seat of pain with his crystals and sucks out the witch-sent object" (Parsons, 1996:135; see also Stevenson, 1904:415). At San Felipe Pueblo, every spring the War Captains set a date for a communal healing ceremony. During the ceremony healers pass through the crowd and suck out the witch-sent objects infecting everyone present (Parsons, 1996:532). A similar communal exorcism occurs in January at Isleta Pueblo (Parsons, 1996:542, 729).

In California, crystals are a potent component of the ritual technologies employed by shamans (see Bean, 1975; Devereux, 1957; Kroeber, 1925; Levi, 1978). A crystal is one of the more powerful objects. Among Yumans, only properly trained hands can manage this unpredictable power (Levi, 1978). Crystals have a will of their own and are capable of benevolent or evil powers, requiring "attention" lest they become dissatisfied.

Shamans monopolized use of these minerals. Among Chumash and Tubatulabal, crystals were included in the weather shaman's outfit and used to bring rain (Voegelin, 1938:64; Langenwalter, 1980). Levi (1978:45) reported that elderly Yuman informants reluctantly talked about crystals for fear that misfortune would come to them. Crystals also occur as tips on ceremonial wands. The most numerous archaeological examples of crystal-tipped wands, *paviut,* come from the southern coast of California, primarily from mainland and island Chumash sites (Hoover, 1975:105; Heye, 1921:60; Olson, 1930:19; Putnam, 1879:266). They painted the wooden handles red, white, and black (DuBois & Kroeber, 1908:98). Occasionally, Diegueño

shamans also tipped their wooden wands with stone projectile points (Thomas, 1976:128; Waterman, 1910:299). Lastly, shells also occur as another portable and powerful object.

Shell

Perhaps as a testament to the underlying potency of shell, these materials often occur as attributes of warriors and warrior gods. Secakuku (2006) observes that marine shells were central to the Hopi snake dance. During a snake-antelope ceremony in 1892, Stephen observed a snake member touches his shell laden bandoleer and states: "It is mine, it is me, I am the shell. I am a warrior" (Parsons, 1996:665).

The bandoleer's war power derives in part from a reed shaft tipped at one end by Olivella shells and a crystal, and at the other end a scallop shell. Hopi calls this object a rain knife as lightning fingertips forged its crystal. Olivella shells adorn Hopi, Zuni, and Jemez bandoleers. This close association between warriors and shells manifests itself in a range of ceremonial contexts. In the Laguna War dance *Ahina,* the war god dancer, *Ma'sewi,* has a blackened face and wears a bracelet of Olivella shells and carries bows and arrows (Parsons, 1996:537). Zuni and Hopi War Gods wear Abalone shell gorgets (Stevenson, 1904: Plate CXXXVIII; Voth, 1901:plate XXXVIII, 1903:287). At Jemez, they attach them to a miniature bow and Katsinas wear Olivella studded wrist guards. At Acoma, war god effigies wear Olivella shell wrist guards that contain their hearts (life force). Similarly, a wooden fetish used by a Walpi (Hopi) war chief is inlaid with white shell and Abalone (Stephen, 1936:9).

Like arrow points and crystals, shells can charge medicine water as well as serve as instruments for aspersing it (Parsons, 1996: 741). During the Zuni *Owinnahaiye*, a war society ceremony held in the fall, Ant Men Society members sing and paint the faces of two warriors and two War Chiefs with red and black pigments. They then place arrow points beneath these warriors' tongues, drip medicine water into their mouths from a shell, and give them a reed cigarette (Parsons, 1996: 647). The Hopi Flute and *Marau* Societies and the Keres *Kurena* Society dancers tie a cluster of Olivella shells to a crook as a rattle (Parsons, 1996: 384). At the end of such ceremonies shell-dipped water serves also to discharm participants (Parsons, 1996:441).

At Sia (Zia) Pueblo, members of the *Kapina* Society drink from an Abalone shell at the end of their ceremonies (Parsons, 1996:689). Similarly, at the end of a rain society ceremony at Zuni, a medicine bowl with shell dipper is passed around to the audience and ends with the dancers (Parsons, 1996: 695). It seems that shell, like turquoise, obsidian, crystals, and other stone materials, retains a primordial power from the beginning of the world. There are hints of this cosmological origin at Hopi and Zuni (Voth, 1903: 349–353). *Huring Wuhti*, Hard Substance Woman at Hopi, who lives in western waters, is the owner of shells, coral, and turquoise (Voth, 1905: 5–10). She resembles the Keresan Thought Woman who dwelt in the lowest most white world (first world) and her very ideas would manifest as creations.

Shell objects offer two helpful performance characteristics: a solid material with water (potent animacy) sympathies and a form that transports easily. Marine shell was widely preferred over the freshwater varieties due to their size, saltwater origin, and distant location (but see Adams, 2016). As a result, the power of marine shell, while perhaps enhanced by manufacture, does not necessarily require elaborate working to become valuable (see Claassen, 1998, 2010).

Establishing Relationships with the Spirit Realm

The ethnography of projectile points, pigments, crystals, and shell highlights how Pueblo ritual technologies harness their underlying primordial power. These materials become food and clothing for ancestors. This makes sense because as hard substances, they represent parts of mother earth (e.g., the ancestor of ancestors) within the various Pueblos. A protected home links people and ancestors using these objects.

Dressing and Feeding the Ancestors

Pueblo peoples conceptualize activation of the underlying power of these materials as transferring their essences to spiritual forces for their adornment. For example, they feed and clothe ancestral spirits and deities with these materials gaining their favor and protection. As Parsons (1996:206) notes: "Sun and all the spirits are thought of as liking the feathers that adorn and clothe, precious shell or turquoise, food in various forms, and in some cases rabbit sticks, gaming implements, or weapons." As described in the Zuni story "the Bear Wife," an exiled youth meets a Bear spirit who turns into a beautiful woman that takes him to the home of the Beast Gods and Beast priests (ancestral spirits). After marrying her, he decides to return to his Pueblo and the priest spirits tell him:

> You will think of us with shell, corn pollen and prayer meal […] The clothing that someone gave us long ago is now full of holes [...] When you reach your own country, for as many of us as are here you will make hair feathers […] Hair feathers and prayer meal, shell, corn pollen, sparkling paint, you will prepare […] You will take them down to your field. At the eastern end of the field you will give them to us. When with our supernatural power, we have clothed ourselves with hair feathers, the prayer meal, the pollen, the shell, the sparkling paint, then with our long life, our old age, we shall bless you. [Bunzell, 1933:239-240].

House Construction

It is also common to employ these objects in house construction rituals. Researchers (Brück, 1999; Fowles, 2013; Roth & Schriever, 2015) have shown that the concepts of "sacred" and "mundane" are intertwined and should not be categorized as dichotomous concepts. Cross-cultural research clearly demonstrates that a dwelling

(house) is a central location for the objectification of cultural values and beliefs (Blier, 1994; Duncan, 1985; Miller and Graves, 2009; Rapoport, 1969). The house is commonly constructed as a living microcosm encoding cultural worldviews and by integrating the outside world through ritual during planning, construction, use, and abandonment of the house (Blier, 1994; Eliade, 1959; Gray, 2006; Knapp and Ashmore, 1999; Saile, 1985).

> Pueblo house-construction rituals enabled a domestic structure and its spaces to become located with respect to a world framework. Through such procedures, beneficial supernatural aid was brought to the residents. Structures or villages were not proper home places unless they were made with this ritual accompaniment, and they became more secure through ritual reaffirmation or periodic strengthening and purification during the ceremonial year. The home so constructed became a model of the universe and of the position of Pueblo society within it [Saile, 1985:102–103].

We find this ethnographic record of particular powerful objects, as well as their uses to cloth ancestors and protect houses were likely similar to ancient object lives (Walker, 1995b). The history of Southwest closure studies has, in recent decades, established a strong case for consideration of the ritual nature of closure deposits. Nonetheless, similar to other regions of the world, Southwest archaeologists continue to debate formation processes associated with accidental burning, war, and ritual.

Archaeological Burning and Closure in the Southwest

Farmers in the American Southwest initially constructed hamlets and villages comprised of earthen pithouse architecture. Later they created stone or adobe above ground house compounds and pueblos. Frequent burning of pithouses occurred in all three of the Ancient Southwest's culture traditions (Ancestral Pueblo, Hohokam, Mogollon). With the rise of surface compounds (Hohokam area) and pueblos (Ancestral Pueblo, Mogollon) this burning continued, albeit ranging from select structures such as ceremonial rooms (e.g., kivas) to entire villages (see Cameron & Tomka, 1993; Creel & Anyon, 2003; LeBlanc, 1999; Miller and Graves, 2009; Reed & Henlser, 2001; Walker, 1996, 1998; Wilshusen, 1986). Archaeologists' consideration of burning tracks the history of archaeological theory relatively closely.

Early culture historians tended to ignore burning; however, when they acknowledged it they attributed burning to accidents or, occasionally, warfare. With the rise of structural functionalism and neosocialevolutionary theory, the burning became a subject of interest and explanations focused on warfare institutions (e.g., warrior sodalities) and their adaptive significance. Subsequent formation processes research, as well as postprocessual interest in beliefs and practice, challenged these warfare arguments with ritual deposition and closure explanations.

When considered within an archaeological site formation process analysis, accidental burning seldom adequately explains life histories of pithouses, pueblos, and their contents. The frequency of burned events alone, much less their stratigraphic

evidence, is totally at odds with the concept of accidents and any known ethnographic evidence from Southwest cultures. That thousands of pithouses and pueblos over more than two thousand years caught fire from lightning or errant embers in prehistory, but somehow became immune to these dangers in historical times, seems impossible. Warfare and ritual closure actions, in contrast, are well documented in the ethnography and history of the Southwest.

While early archaeologists often ignored burning, ethnographers and others attuned to cultural practices tended to gravitate toward funerary explanations. Frank Russell (1908), an ethnographer of the O'odham peoples, offered a ritual argument to account for the still visible burned pithouses and villages on the Hohokam landscape around Phoenix. He noted that funerary burning of a person's home and possessions likely accounted for many of the charred remains encountered in the Valley of the Sun. Several decades later, Gladwin et al. (1937) published a classic study of one of these villages (Snaketown) resulting in naming the Hohokam culture tradition. Most site reports of that era concentrated on defining material traits (e.g., pottery types, house types, projectile point types, ground stone types) rather than behaviors, cultural processes, or beliefs. However, Sayles, a realtor turned archaeologist (see Huckell et al., 1997), did not know enough to ignore the burning and went ahead and argued, as Russell did, that funerary burning likely accounted for much of the destruction encountered at Snaketown. Most culture historians ignored burning because whether a house or any other object was burned did not change the underlying trait it represented; a house was a house. Archaeologists occasionally offered up warfare as an explanation for large-scale migrations, such as the movement out of the Four Corners region of Utah, Colorado, Arizona, and New Mexico in the late thirteenth century. In the 1950s, however, structural functional arguments inspired by Harvard seminars filtered into Southwest Archaeology.

The rise of functionalism (Kluckhohn, 1940) and return of socioevolutionary theory (Steward, 1937) prompted some Southwest archaeologists to question the aims and methods of culture history (e.g., Brew, 1946; Taylor, 1948) and to look for processes that organize traits, such as warfare and religion. Watson Smith (1952) offered a behavioral method for identifying ritual architecture, and Richard Woodbury (1959) argued that burning and occasional bodies in burned buildings might be evidence of ancient warrior sodalities. The rise of processual archaeology in the 1960s completed the turn from culture as clusters of historically contingent traits to culture as adaptive systems of institutions and activities. Although ritual and religion initially took a backseat to questions about subsistence systems, variability in deposits created by human activity was hard to ignore.

Wilshusen's (1986, 1988) study of kiva burning and burials elaborated on Smith's (1952) earlier work. Wilshusen linked kiva sizes and features to variable abandonment techniques (e.g., burial, burning, feature closure, deposition of human remains). This linkage between archaeological site formation processes and ritual practice inspired a number of subsequent Southwest archaeologists (Adams, 2016; LaMotta & Schiffer, 1999; Miller and Graves, 2009; Montgomery, 1993; Van Keuren and Roos, 2013; Walker, 1996, 2002).

A small subset of pithouses and pueblos also contained unusual deposits of human remains indicative of some form of violence. Explanations of these include

warfare, cannibalism, captive abuse, and witchcraft persecution. Building on Woodbury's warfare thesis, several scholars link the burning and occasional bodies to warfare in contexts caused by resource scarcity and social evolution (Haas and Creamer, 1993; Kuckelman, 2016; Leblanc, 1999; Leblanc & Rice, 2001; Lekson, 2002; Mackey & Green, 1979; Plog & Solometo, 1997; Wilcox & Haas, 1994). The migration and movement of peoples, and relative carrying capacity of the environment, often correlate to periods of above- or below-average precipitation and temperature. As a result, there are times of scarcity in which warfare and other violence would make sense (see Kuckelman et al., 2000). In a related research tradition, methodologically influenced by bioanthropological studies of human remains (see Walker, 2008a), scholars have linked some pithouse and pueblo destruction to cannibalism (e.g., Billman et al., 1999; Turner & Turner, 1999; White, 1992). In still other cases, violence against female captives has also been identified (Martin et al., 2010, Olsterholtz, 2012). Finally, some of these human remains may have been victims of witchcraft persecution (Darling, 1998; Walker, 1995a, b, 1998, 2008a, b.)

Although not always informed by Pueblo ethnography many of these studies could find support in the activities of the historic Pueblos. In addition to killing witches, Pueblo peoples also had wars with each other supported by warrior sodalities. They maintained scalp houses, war ceremonials, and warrior heros in oral traditions. We are particularly interested in the importance that animacy and magic played in the life histories of the ritually closed Pueblos and associated artifacts.

Life History Modeling in an Animate World

Any archaeological interpretation, like a pueblo burned in a battle, entails a hypothetical life history whose variable traces (physical, spatial, relational, numerical) can serve as test implications (see Schiffer, 1987). For example, if a village was attacked and burned, one would expect to find relatively numerous (frequencies) useable (physical attributes) materials in places of use (associations, physical attributes), such as rooms and outside work areas (location, associational). If you find instead only a handful of whole objects, then one must refine the interpretation and the hypothetical life history. Walker's (1995a) dissertation sample of prehistoric Southwest pueblos found an average of one pot per burned room, far less than one would expect from a surprise attack. The life histories of materials (artifacts, buildings, human remains) found in burned Southwest pueblos do not conform to pitched battles resulting in de facto refuse (sensu Schiffer, 1987). We need to consider other factors, such as how the animacy of things would change the hypothetical life histories informing our interpretations.

The assumption that animacy of objects plays a role in the burning of rooms directs attention to contents of stratigraphic layers of "fill" or "trash" that often occur above or between floors and to architectural strata such as roof and wall layers (see Adams, 2016; Fladd & Barker, 2019; Fladd et al., 2021). Indeed, while floor contexts on average are relatively sparce and lack expected household assemblages, fill and other layers can contain unexplained materials such as projectile points, shell artifacts, minerals, and other objects. These enriched deposits (sensu Adams

& Fladd, 2017) indicate that the filling of rooms after their initial use as habitations is not random trash but instead often part of larger as yet undefined ritual closure processes.

Such enriched deposits make sense if you consider that the pueblos or particular rooms may have been alive. Pueblo ethnographic evidence suggests that people created technologies that drew on the powers of various objects. They manifest Katsina spirits (generalized ancestral spirits) by combining animate powers of masks, paint, turtle shells, evergreen tree boughs, shells, feathers, and other objects. Through the use of magical sympathies (Frazer, 1890:14; Tylor, 1871), priests call rain by imitating sounds of thunder by rolling stones across kiva floors and depicting lightning by rubbing white quartz stones together to create green sparks. It is just such objects, along with others, that occur in the fill of ritually closed kivas (see Walker, 1995b, 1998).

Although Pueblo closure practices and associated migration patterns ended with the imposition of Spanish colonial power, other deposition-oriented ritual technologies continued into the colonial era among non-Pueblo southwestern peoples. Funerary practices of Pai (Hualapai, Havasupai, Yavapai), Yuman (Cocopa, Quechan, Mohave, Maricopa), O'odham, and Athabascan (Navajo, Apache) cultures included burning of homes and personal possessions (Forde, 1931; Illif, 1901; Kelly, 1977; Parsons, 1920; Roberts, 1951; Russel, 2008; Stevenson, 1904). Fire made possible transmutation of the essence of these objects between this world and the next. The intersection between warfare and funerary practice can lead to some extreme but enlightening results.

Consider the battle between a combined force of Quechan, Mohave, and Apaches against the Maricopa and the Pima (see Kroeber & Fontana, 1986) known as the Massacre on the Gila. Mounted Pima killed many Quechan and Mohave warriors prompting frenzied funerary burning of houses and personal effects in their home villages on the Colorado River (Anonymous, 1857; Kroeber & Fontana, 1986:100). Artifacts in these burned homes included some ceremonial objects and many everyday possessions (tools, horses, bows, and arrow). The degree of destruction alarmed the US Military at Ft. Yuma, and they declared martial law to prevent burning of stored foods, shelters, and other productive goods. The soldiers whose own ritual technologies were quite different found these funerary rituals irrational. However, as Sahlin's (1976) notes, practical reason is culturally specific and follows local rather than universal logic.

When the performance characteristics of funerary acts are considered, we can see that in these societies destruction performs two important functions. It provides for the transmutation of materials, houses, food, clothing, tools, and other objects from this realm to another. It also serves to protect the living from the dead. Contact with the dead can lead to sickness and death. When the dead have their things in the next realm, they need not come looking for them and, in the process, make people sick. These funerary rites, like many rituals, take advantage of the purifying power of fire and ash (see Roth & Adams, 2021). Throughout the Southwest, among Pueblo and non-Pueblo peoples alike, fire renders materials less powerful and ash serves as a protective film warding off dangers (Forde, 1931; Parsons, 1916, 1920, 1996:106; Roberts, 1951; Stephen, 1936:97; Voth, 1901:107, 187, 196; Stevenson, 1904).

Pueblo peoples, unlike their neighbors, do not practice funerary destruction of homes in recent times. We suggest, however, they did ritually close their pueblos in the past treating them, perhaps, as a form of cremation. When faced with a short-distance move or long-distance migration they still had to resolve the potential dangers posed by the animate matrix of things. Social relations forged with animate materials had established strong sympathies (sensu Frazer, 1890) between themselves, their homes, and any materials they would leave behind. These sympathies made them vulnerable to sorcery. The burning and burial of materials seems a locally rational solution.

To distinguish between warfare and ritual abandonment one could consider a series of variables such as floor features, the deposition of whole or fragmentary artifacts, or how the structure was burned. Do the attributes of life histories conform to raids, catastrophic attacks, or purposely processed closures (see Walker, 1998)? Closure ritual exhibits two performance characteristics: preventing witches from using materials left behind and protecting innocent people by neutralizing dangerous materials.

Roof burning, beam removal, and selective placement of floor artifacts when considered alone do not conclusively distinguish ritual abandonment from warfare or fiery catastrophe. However, a structure with sealed floor features implies careful closure of the structure rather than warfare. When one looks at the relationship of materials more comprehensively within the site, it becomes easier to define ritually abandoned structures.

Cottonwood Spring Pueblo: A Case Study in Ritual Closure

In what follows is a case study of a ritually closed late prehistoric pueblo. Formation processes at this site illustrate many of these cultural understandings of the animate world described above. We find that projectile points, shell, pigments, crystals, and similar powerful objects were added to burned floor and roofing contexts during closure rites of passage. Other materials in contrast such as lithic debitage occur on surface and upper layers of fill because the site was purposely buried after being burned.

Cottonwood Spring Pueblo

Cottonwood Spring Pueblo is a community of four El Paso Phase (AD 1300–1450) villages located in southern New Mexico on the western flanks of the San Andres Mountains (Fig. 1). Originally described as one large site (Chapman, 1926; Lekson & Rorex, 1987; Yeo n.d.), this late-prehistoric community straddles the culture historical boundary between the Mimbres Branch of the Mogollon on the west (see Nelson & LeBlanc, 1986) and the Jornada Branch of the Mogollon on the east (Lehmer, 1948; Miller, 2005; Miller and Graves, 2009). These Cottonwood pueblos generally conform to a fourteenth-century Southwest pattern of migrant groups aggregating into communities of coalescent villages (Clark et al., 2017).

Fig. 1 Location of the study region in south central New Mexico

The pueblos nestle along a run-off and spring-fed wash. To date, two of these pueblos, Area A and E, have been partially tested (Walker, Berryman, & S. Berryman, 2020). Long linear roomblocks occur in areas D and E. These differ from the plaza-encircling room blocks of the pueblo at Area A (Fig. 2).

Ceramics and radiocarbon dating place the site in the AD 1300–1400 range. Four tree-ring samples from the village at Area A identify construction activities in the 1360s and 1370s, placing occupation in the last quarter of the fourteenth century.

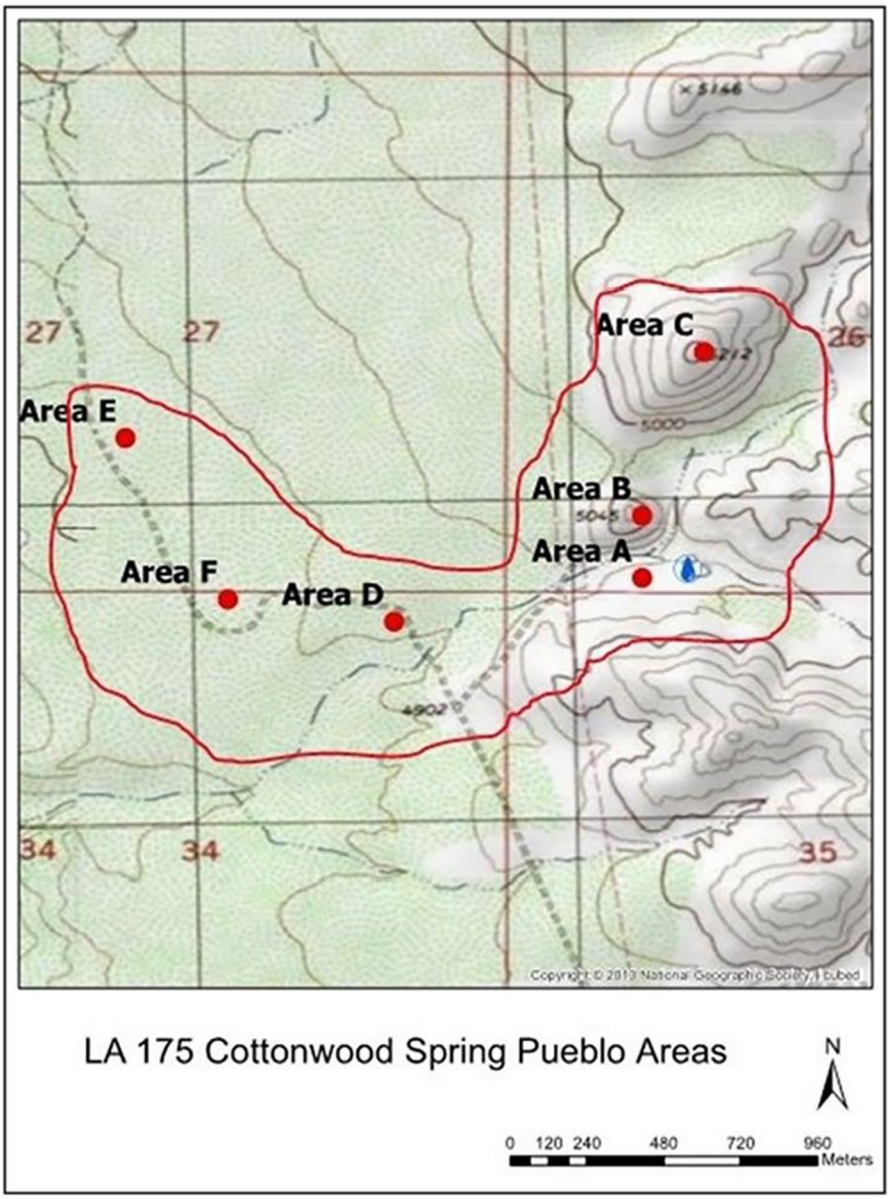

Fig. 2 Cottonwood Spring Pueblo, Areas A-F (Adapted from Lekson and Rorex 1987:15)

Room 100 had two dates (AD 1357 + v, AD 1360 + vv), and Room 2 (AD 1364 + v) and Room 6 (AD 1373B) had one date each (Laboratory of Tree Ring-Research, 2020). We recovered the most precise date (AD 1373B) from Room 6; others were missing outer rings. Towner (2002:73–75) explains the various symbols that qualify dates such as a near cutting date "+ v" and a bark cutting date "B."

Based on the spring near A and presence of contemporary and earlier rock art panels on hills near Areas A, B, and C, the Cottonwood community exemplifies a persistent place (Brown, 2019). The rock art panels display a mix of post-AD 1000 imagery (e.g., several masked figures and a horned serpent) as well earlier Archaic Period imagery (e.g., abstract netting, lines, and cupules) dating to before AD 200 (Berrier & Unglaub, 2010; Brown, 2019). In addition to the petroglyphs, a small shrine sits on the highest mesa (Area C) overlooking the whole community.

Within Area A (see Figs. 3 and 4), the ongoing La Frontera Archaeological Program (New Mexico State University, NMSU field school) has exposed 22 rooms, a possible plaza area, a ramada, and several extramural surfaces.

Across the site, all rooms were burned and only a few artifacts occur on floors or in places of use. Instead, they removed whole or still useable objects during the pueblo's closure, suggesting a planned gradual abandonment and permanent departure (Schlanger & Wilshusen, 1993; Varien, 1999). Rooms and storage pits were cleaned out. Loose surface sands of the pueblo have been disturbed by natural processes and several significant bulldozer cuts run through the site. Nonetheless, many rooms remain relatively undisturbed.

One can imagine that closing a pueblo would create dangers, since homes were places intimately associated with peoples' lives, spirits of ancestors, and other sources of power. The rooms and any objects left behind would be available to those intent on using these materials in harmful contagious magic. Rendering the rooms into charcoal and ash, tempered with powerful objects, hardened them against such

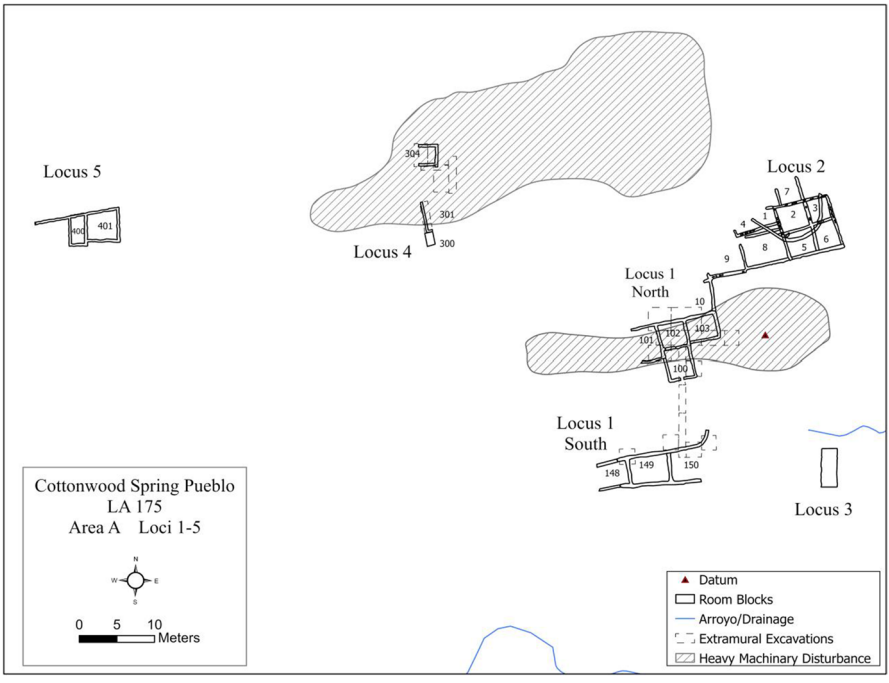

Fig. 3 Field Map showing locations of Area A Loci 1–5

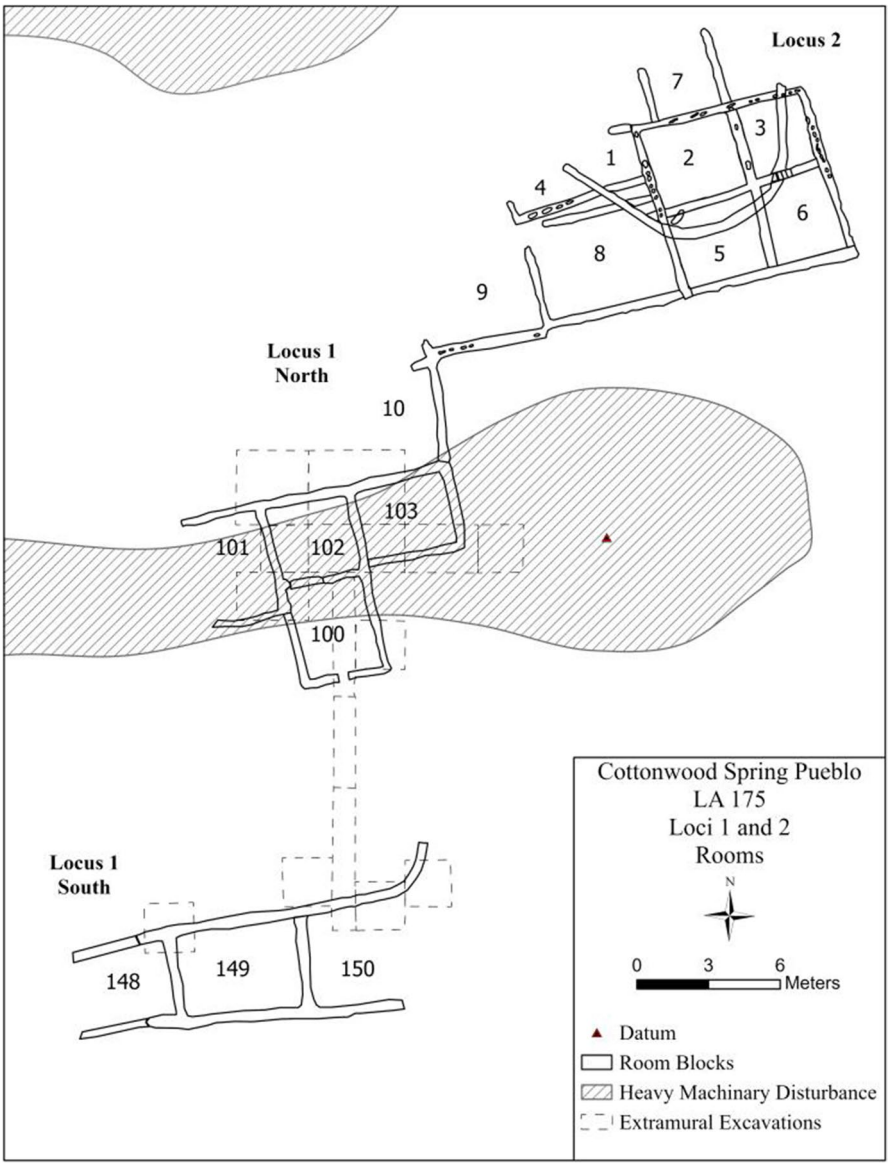

Fig. 4 Close-up of Loci 1 and 2

trespass. Alternatively, if these places were tainted by witchcraft, burning would have purified the area.

When we examine the objects intentionally left behind, we are confronted with the question: why these objects? The majority of objects recovered were sherds from different vessels (orphan sherds) and lithic debitage. A minority of objects included a mix of fragmentary and whole projectile points, shells, and minerals.

We also recovered unique items such as a bird bone whistle, a miniature ceramic bowl, ceramic spindle whorls, grooved abraders with staining, and a stone bowl (see Fig. 5).

To illustrate disposal differences resulting from closure activities we compare the find spots of higher-frequency materials (orphan sherds, lithic debitage, projectile points, shells, and minerals).

We sorted these contexts for analysis into Floors, Adobe Melt (a mixture of wall and roof adobe), Roof Fall, Surface layers, Disturbance layers, and a separate Midden (Locus 3). Surface materials occur in the loose sands above the other layers. These materials represent last-deposited strata. Being close to the surface these strata suffer from recent cultural practices of looting and natural processes such as rodent mixing, wind, and rain erosion. Some areas of the pueblo experienced bulldozing and these churned deposits leading to layers of mixed artifacts we classify as disturbed deposits. The adobe walls of the pueblo do not extend above the ground surface today. Most have fallen, pulled inward by the collapsing roofing. The remaining wall stubs and fallen wall parts then slowly melted in place leaving a hard crust beneath the loose sandy surface. Beneath this hard adobe layer, one typically finds a stratum comprised of secondary roofing beams, burned adobe, and melted adobe. All primary beams and all but two central room posts were removed prior to closure. Roofing layers typically fell directly onto structure floors. In the northwest portion of the site lies a large area containing dense clusters of artifacts and ash outside of the pueblo walls. We designated this area as the midden. A few structures

Fig. 5 Example of recovered unique artifacts (**A**-stained abrader; **B**- stone bowl; **C**- bone whistle; **D**-stone bell)

contain earlier floors also exhibiting earlier traces of fire. A mix of adobe and dirt covered them, creating the foundation for subsequent floors.

During excavation, separating these layers and their contents challenged the best excavators. Melted adobe from walls and roofing can be difficult to differentiate, as both can tumble onto floors, hence our category Adobe Melt. With that caveat, you can see below that while the majority of materials occur on floors and in surface or disturbed deposits, the melted adobe context accounts for artifacts that may have originally been incorporated into the walls or were added during the closure itself. We begin with, perhaps, one of the most overlooked ritual technology tools: projectile points (see Sedig, 2014; Soza, 2018, 33–38).

Projectile Points

We recovered 101 projectile points in Area A (Fig. 6). These include examples of earlier atlatl dart points as well as arrow points from the late prehistoric period. The majority occur on room floors. Obsidian arrow points derived from non-local sources arrived at the site through exchange (Dolan et al., 2017; Shackley, 1988; Shackley & Dolan, 2014).

Of the 101 points collected during the five seasons of excavation, 39 (38.6%) came from the floor contexts, 12 (11.9%) from the roof fall layers, 6 (5.9%) from adobe melt layers (5.9%), 13 (12.9%) from the surface, 16 (15.8%) from disturbed contexts, and 15 (14.9%) from midden deposits (Fig. 7). We believe recovery of these points did not result from accidents or battles, but instead a deliberate tempering of the room fill matrix during the closure ritual.

These contexts contrast markedly with those of debitage. The majority of points occur on floors, while the majority of debitage occurs in the surface layers (Fig. 8).

Fig. 6 Example of collected projectile points

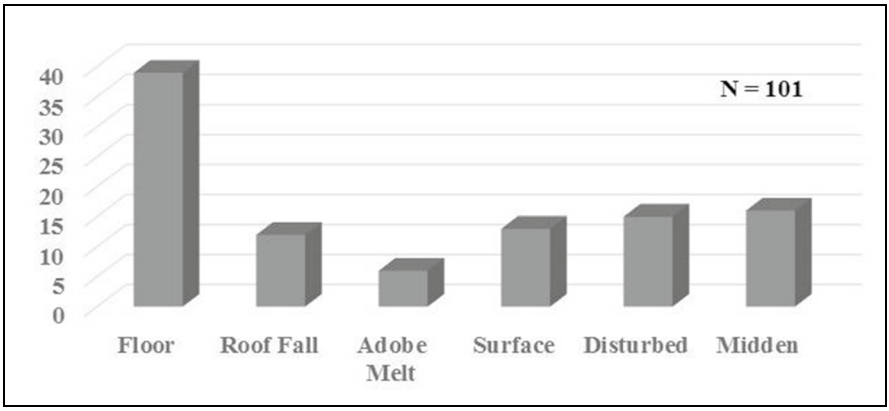

Fig. 7 Distribution of projectile points by percentage and context

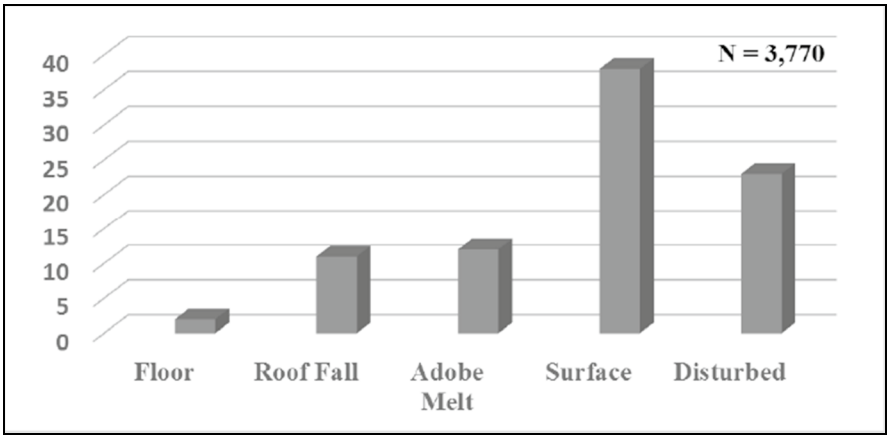

Fig. 8 Distribution of debitage by percentage and context

Ceramics

We recovered 15,232 sherds representing 31 ceramic types, with El Paso Brown (47.2%), El Paso Polychrome (30.0%), Seco Corrugated (10.4%), Chupadero Black-on-white (5.9%), Alma Plain 2.0%, and Salado Polychromes (1.2%) most frequent. These ceramics suggest a broad network of contacts across most of southern New Mexico. Imported ceramics include types from northern Chihuahua, the Sacramento/Capitan Mountains and Salinas (Chupadero Mesa) regions of central New Mexico, the Gila River Salado of western New Mexico, and the western drainages (e.g., Seco Creek) of the Rio Grande in south-central New Mexico.

The distribution of orphan sherds (the vast majority of sherds) was similar to that of the debitage (See Fig. 9). We define orphan sherds as those sherds that do not obviously refit those found in the same context; we assume their deposition occurred as individual pieces rather than as part of larger but broken ceramic vessels. The

majority of such sherds occur in the Disturbed and Surface layers, followed distantly by the Midden and Adobe Melt contexts. The Floor and Roof Fall contexts had the fewest orphan sherds.

We recovered two whole pots: 1 miniature El Paso brown bowl in a Room 7 surface context, and one large Seco Obliterated Corrugated bowl on the floor of Room 400. Three partial bowls came from Room 3; we found a Lincoln Black-on-red bowl on the floor, an El Paso Brown bowl in the adobe melt, and an El Paso Brown in the surface layer. We also recovered a partial Seco Obliterated Corrugated bowl from the midden.

Ceramic vessels, like all objects, were considered alive in a sense by Pueblo peoples (Bunzel, 1932; Cushing, 1883, 1886, 1920; Parsons, 1996; Stephen, 1936). The production of pottery combines forming, praying, painting, etc., all actions designed to produce a vessel that performs well, both materially and spiritually. Every aspect of ceramic production, from collecting the clay to the vessel's final discard, entails some type of ritual (VanPool & Newsome, 2012:246). During this process, each vessel was thought to have their own spirit. Once complete, the pot is a person (Trimble, 2004:29). Cushing wrote that "when a woman has made a vessel, dried, polished, and painted it, she will tell you with an air of relief that it is a 'Made Being'" (Cushing, 1886). As the clay wall contains the physical aspect of water, the paint is seen as a barrier to the supernatural aspects of the pot's animacy (Cushing, 1886). This animacy might explain placement of the few whole and broken pots on room floors, within the architectural fabric, and on roofs during closure of individual rooms (see DiPeso, 1974; Mills & Ferguson, 2008; Miller and Graves, 2009:206–211; Ortiz, 1969; Walker, 1996).

Thirty-two pigment-stained sherds occurred in the closure deposits indicating that these pigmented sherds, like points, found their way into the deposits for a reason (Fig. 10). In comparison, there were 38.0% stained sherds on floors vs. 5.1% unstained; 25.0% stained vs. 3.8% unstained in the roof fall; 6.0% stained vs. 10.7% unstained in the adobe melt; 6.0% stained vs 31.1% unstained in the surface layers; 25.0% stained vs. 13.2% unstained in the midden; and 0.0% stained vs. 36.1% unstained in the disturbed layers (Fig. 11).

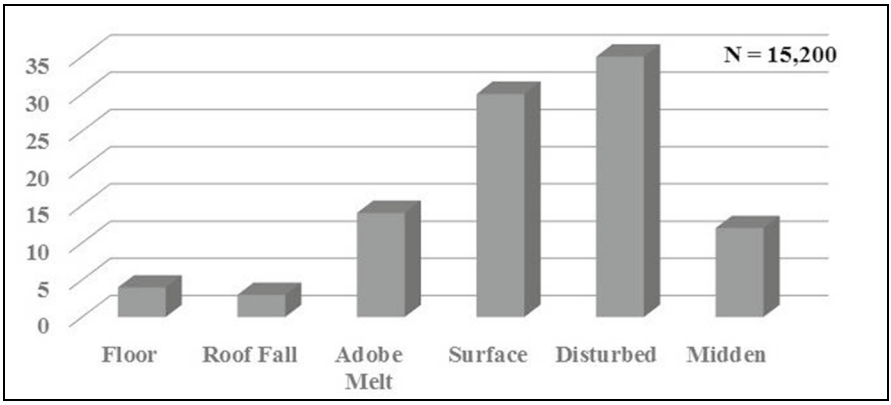

Fig. 9 Distribution of orphan sherds by percentage and context

Fig. 10 Example of ceramic sherds with red and yellow pigments

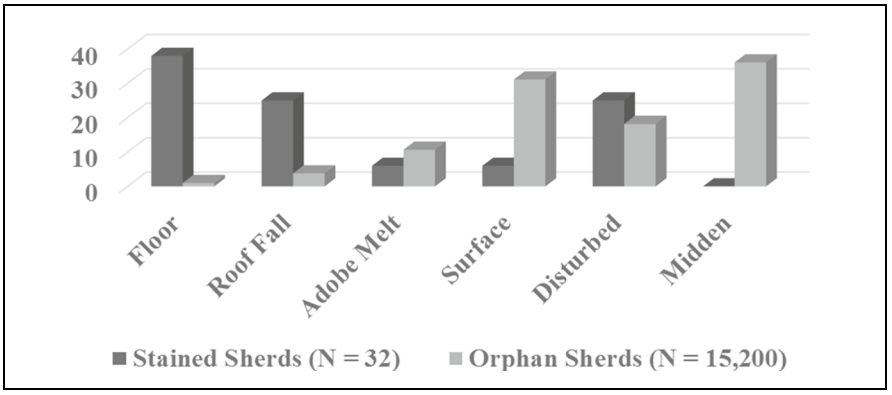

Fig. 11 Distribution of pigment stained and orphansherds by percentage and context

Minerals

Minerals formed the most variable group of items recovered within rooms at Cottonwood Spring Pueblo. These materials include various forms of ochre and nodules or crystalline sheets of mica, calcite, feldspar, gypsum/selenite, limestone, pumice, quartz, quartzite, and sandstone conglomerate. Some of these materials, such as selenite, limestone, and quartzite, were not particularly rare or unusual. Other paint and slip pigments include kaolinite, limonite, hematite, and malachite. These occur alone and, as noted above, as staining on sherds.

A total of 114 mineral specimens were collected from Area A (Fig. 12). These include 10 pieces of chalk/kaolin, 9 pieces of malachite, 10 chunks of ochre (both yellow and red), 20 quartz crystals, and 65 pieces of selenite (gypsum). As shown in Fig. 10, 18.4% occur on floors, 4.4% within the adobe melt, 15.8% in roof fall, 3.5% from the surface, 48.2% in disturbed context, and 9.6% in a midden deposit (Fig. 13). The most frequent mineral, selenite, occurs in 49 of 65 instances

Fig. 12 Example of collected minerals (Quartz Crystal and Malachite)

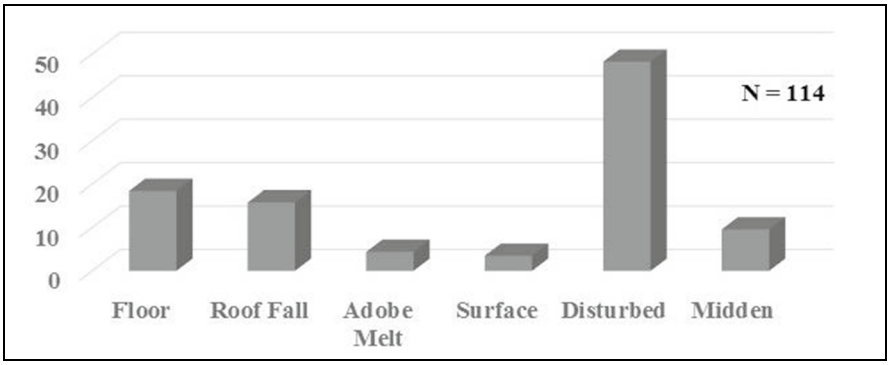

Fig. 13 Distribution of minerals by percentage and context

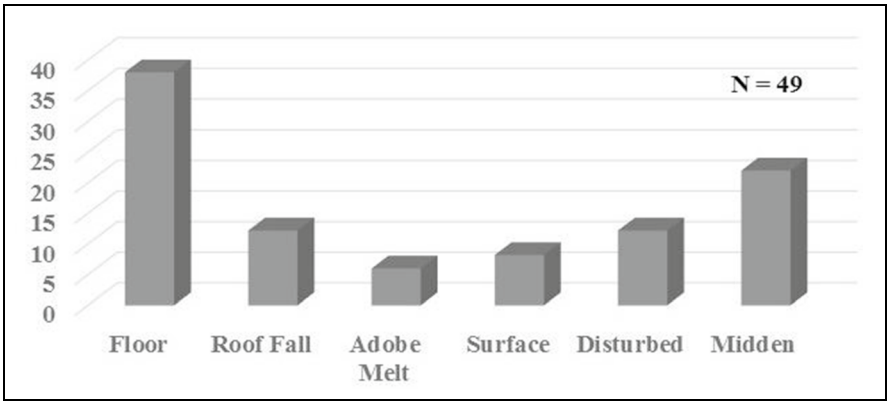

Fig. 14 Distribution of minerals excluding selenite by percentage and context

(75.4%) in disturbed contexts skewing the distribution toward that ambiguous context. When we run the percentages after removing the selenite (Fig. 14), the pattern changed, bringing into focus the importance of floor contexts. Remaining minerals occur on 38.8% of floors, 6.0% of adobe melt, 12.2% of roof fall, 8.2% of surface layers, 22.0% of midden deposits, and 12.2% of disturbed contexts.

Marine Shell

The use of marine shell within Jornada pueblos linked them to a larger exchange network stretching to the sea of Cortez and the California coast. Puebloan ceremonial activities focus on rain and fertility powers (Mills & Ferguson, 2008; Whalen, 2013; VanPool & Newsome, 2012; Van Pool and Van Pool, 2007) and often include shell.

One-hundred twelve (112) pieces of shell were recovered at Cottonwood Pueblo Area A (Fig. 15). These include 87 Olivella shell beads (*Olivella biplicata*), 6 shell tinklers (*Conus* sp.), 4 Gylcermis bracelet fragments (*Gylcermis sp.),* 5 Abalone worked shells, 2 pieces of clam shell, 4 fossil shells, and 4 pieces of modified shell. As shown in Fig. 16, 37% occur in floor contexts, 13% in adobe melt contexts, 7% in roof fall contexts, 5% in surface contexts, 21% in disturbed contexts, and 17% in midden contexts.

Area A Locus 2

Within these general site patterns, Locus 2 offers some interesting patterns of its own. This area demonstrates several construction episodes and less disturbed deposits than elsewhere in the site. Excavations have concentrated on Rooms 2, 3, and 6, with only Room 3 completely excavated (Fig. 17). These rooms, particularly Room 3, possess the highest concentrations of points, shell, minerals, and other materials.

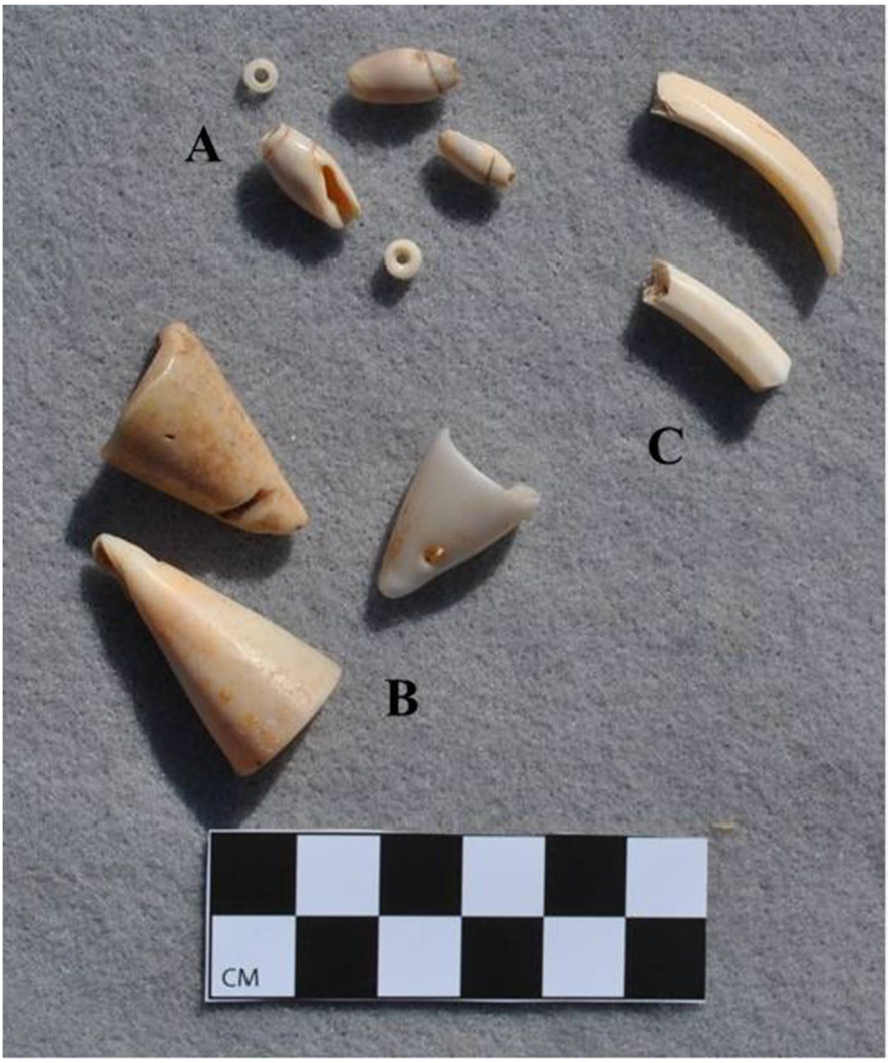

Fig. 15 Examples of collected shell (**A**-*Olivella* beads; **B**- *Conus* shell tinklers; **C**-Worked *Glycymeris*)

Room 3 had two floors (Fig. 18); the earlier floor exhibits burning and extends beneath the walls of Rooms 2 and 6. This extended floor suggests remodeling of a larger room from an earlier period. Following our ritual closure argument, the burning of both floors and the subsequent treatment of this area suggest the earlier room was of ceremonial importance, therefore creating a persistent place of power that required additional closure objects.

The high frequency of projectile points in this space resembles the enriched deposits often found in kivas. For example, strata in Kiva 279 at Chevlon Pueblo, Arizona, contained 60 of the site's 128 projectile points (Medeiros and Vonarx,

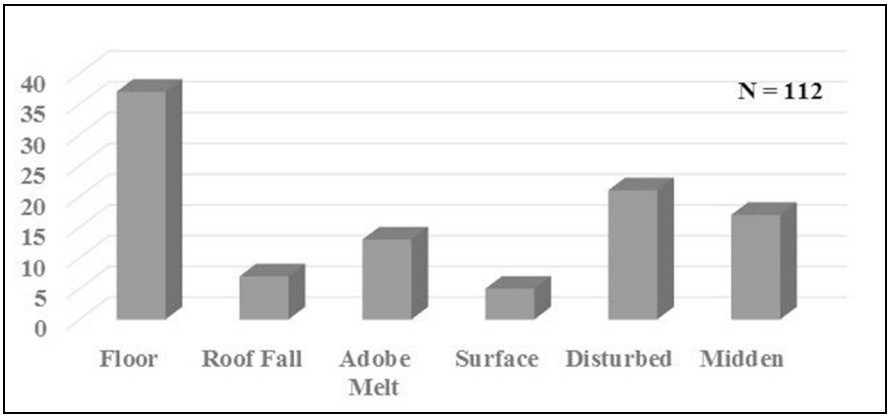

Fig. 16 Distribution of shell by percentage and context

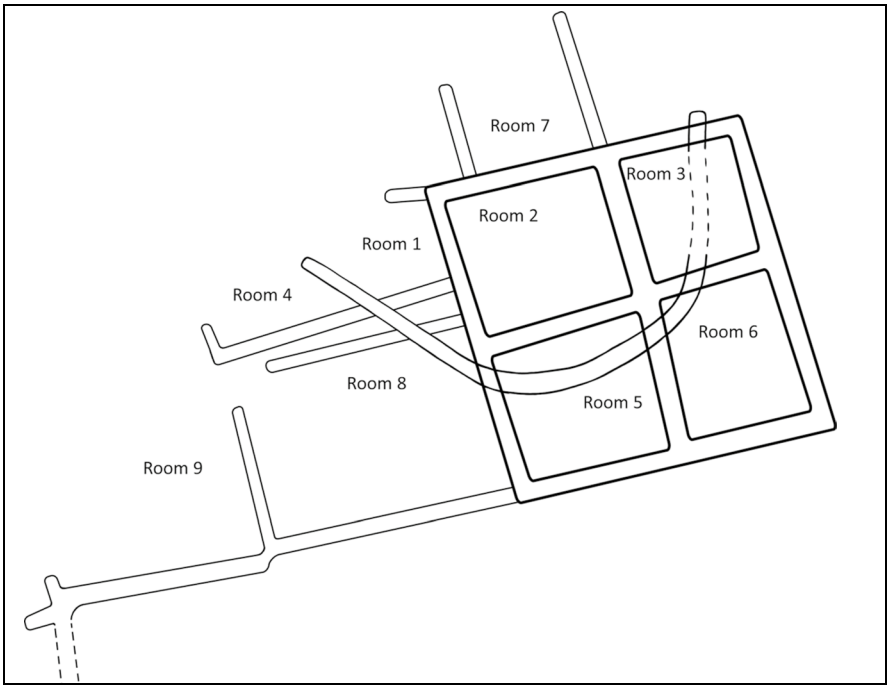

Fig. 17 Close-up of Locus 2 room configuration

2016:211–217). The succession of burned floors in Room 3 also shows that not all burning resulted from one event, such as the final closure of the pueblo (Corl, 2014).

In Room 3, floor artifacts include 10 projectile points, 1 grooved abrader, 13 shell beads, three pieces of selenite, two partially reconstructable ceramic bowls

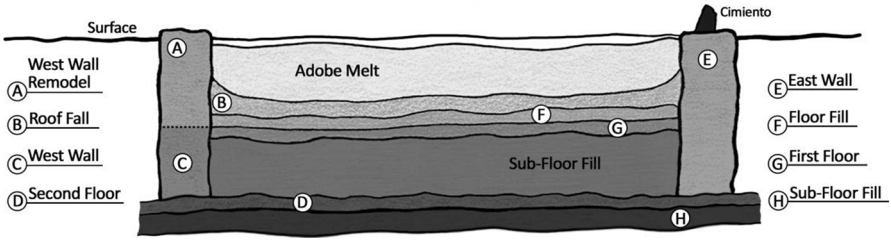

Fig. 18 Construction sequence for Room 3

(Lincoln Black-on-red and El Paso Brown), four quartz crystals, four ceramic sherds with ochre staining, two shell pendants, two chunks of malachite, and four red and yellow ochre chunks. An additional five projectile points and two shell beads were recovered within the adobe melt. Powerful artifacts recovered in adjacent Room 6 include 10 projectile points, four quartz crystals, 12 shell beads, 11 mineral samples (malachite, selenite), and four pieces of red and yellow ochre from the two floors. An additional projectile point and two quartz crystals were recovered from the adobe melt. Perhaps it is not surprising that a central culture hero of Tewa folktales is named Olivella Flower. Favored in his adventures by Spider Grandmother and Father Sun (see Parsons, 1996: 300), he often uses magical projectile points, shells, and other power-laden substances to get the best of his adversaries.

Ritual Closure: An Apotropaic Technology

Magical manipulation of earth substances (e.g., clay, pigments, rocks, shells) characterizes Neolithic and Formative Cultures across the world (e.g., Hodder, 1990, 2006a, b; Huffman, 2009; Smyth, 2006; Stevanović, 1997). The North American Southwest contributes to this pattern. As illustrated in Table 1, cultures in the region attribute numerous magical properties to projectile points, shell, minerals, and other materials that offer clues to depositional activities at the fourteen-century Cottonwood Spring Pueblo. These materials and many others (e.g., feathers, cotton, clay, plants) offer animating powers to Pueblo peoples who weave them together in the creation of their clothing (personal and ritual), houses (family and ceremonial), weapons, ceramics, fields, shrines, and altars. These Pueblo ritual technologies combine the powers of animate objects, synthesizing magical and practical attributes to create compound ritual tools. Clearly for them, however, it was simply a technology.

We see similar technologies at work in other contexts in the Southwest and beyond. Some scholars draw together the burning, depositing, breaking, and layering associated with closure using material culture metaphors such as houses (Hodder, 1990; Miller and Graves, 2009; Stevanović, 1997), pottery, textiles (Ortman, 2000), and clothing (Bunzel, 1933). For us, closure rituals resemble a cremation funeral for the pueblo (Montgomery, 1993); the addition of points and shell to the pueblo strata strengthened its grave against witchcraft; the ash and deposits wove together a discharming and powerful blanket shielding the village from danger.

In this paper, we argued that ritual technologies harnessed purifying and prophylactic materials such as projectile points, ceramic sherds with ochre staining, crystals, shell, and other items to close rooms and pueblos. The attributes of these materials, when put into ritual action, contribute to performance characteristics of releasing, attracting, and repelling spiritual forces including witches. Projectile points and pigments offer protection against the most powerful of witches. The colors of projectile points and shell facilitate the sympathetic link between the power of spirits of the directions (places) and these materials. The colors and translucency of crystals allow them to refract, concentrate, or absorb the light of the sun and ferret out sorcery. Like batteries, crystals can contribute to the making of medicine water. All three objects facilitate the transport, storage, and use of anima; they concentrate sympathies of lightning and water. This concentration in form also facilitates their wearability in ceremonial costume (wrist guards, bracelets, bandoleers), as well as personal attire (pendants, amulets). Shells in particular offer sound effects of rattles and tinklers. Finally, by combining these materials one can create a complex apotropaic force.

Zedeño's (2008) discussion of ceremonial and medicine bundles offers an apt analogy to these closure deposits. She argues that animate properties of things in the bundle, when combined with each other, create a force greater than the sum of its parts. Within Pueblo ritual technologies, this logic underlies a range of compound ritual tools including the formation of kivas (foundation deposits, murals, niches, sipaus), altars (multiple power objects and images), Katsina masks (wood, leather, plants, feathers, paints), Katsina outfits in their entirety (e.g., masks, bandoleers, sashes, wrist guards, rattles, belts), and shrines (place, architecture, offerings). Why not create a closure deposit following this same logic? When brought together in various archaeological contexts, such as room floors, adobe melt, and burned roofing, they would have transformed the pueblo into a power-filled object. The stratigraphy at Cottonwood indicates that the inhabitants placed power-laden objects on the floors, then burned the pueblo, and buried it. In the process they added more objects to the burned strata as well as the fill above it.

At Madera Quemada (AD 1300–1330), an earlier El Paso Phase pueblo, Miller and Graves (2009: 206) found turquoise, fossil, shell, and pigments or pigmented objects intentionally left on room floors, in subfloor pits, and postholes at closure. One room had a large peri-closure cache of powerful materials (e.g., crystals, ceramics, minerals, shell) that identified important distant places, perhaps sources of anima, to the Jornada Mogollon (Miller and Graves, 2009: 401–409). Following Levi Strauss, they suggested the Jornada may have been a House Society and this closure practice served as a public demonstration of these social bonds. How better to highlight such an institution than by contextualizing it within a larger landscape that housed the human and nonhuman beings forming ancient Jornada Mogollon Society. Clearly as a rite of passage, this funerary cremation and burial of a pueblo would have served the community as a rite of separation leading ultimately to a rite of incorporation in a new home.

Describing the spirituality of the material matrix of the Tewa, Ortiz recognized that magical sympathies created between people and the anima of the past still persist in archaeological sites. According to Ortiz (1969:20):

> Souls belong to a larger category of spirits and man-associated objects called x*ayeh*, which also includes fossilized bone, seashells, tools, weapons, and other objects rescued from ruins; in essence, all objects which have been used by people are endowed with sacredness because they are associated with the souls and with the sacred past.

If protective construction rituals begin the life of a house, then it seems reasonable that prophylactic closure rituals would help to complete it.

Acknowledgements We thank four anonymous reviewers as well as E. Charles Adams, Samantha Fladd, Beth Markle, and Amanda Semanko for their detailed comments on this paper. Amanda Semanko in particular read multiple copies offering indispensable suggestions and critiques. Madison Markle and Beth Markle also helped with illustrations. Finally, we thank the US Army's White Sands Missile Range and the US Department of Agriculture's Jornada Experimental Range for their support of this research.

Declarations

Conflict of interest We were not financially compensated for this work nor do we have nonfinancial conflicts of interests. We do want to acknowledge those who assisted us with this paper.

References

Adams, E. C. (2016). Closure and dedication practices in the Homol'ovi settlement cluster in Northern Arizona. *American Antiquity, 81*(1), 42–57. Cambridge University Press.

Adams, E. C., & Fladd, S. G. (2017). Composition and interpretation of stratified deposits in ancestral Hopi villages at Homol'ovi. *Anthropological and Archaeological Sciences, 9*, 1101–1114.

Adler, M. (2021). Fire, Ash, Sanctuary: Pyrotechnology as Protection in the Precolonial Northern Rio Grande. In B. Roth & E. C. Adams (Eds.), *Agent of change: The deposition and manipulation of ash in the past* (pp. 76–93). Berghahn Books.

Alberti, B. (2016). Archaeologies of ontology. *Annual Review of Anthropology, 45*, 163–179.

Anonymous [untitled] (1857). *San Diego Herald*. September 12. California.

Bahr, D. J. Gregorio, Lopez, D., Alvarez, A. & Fontana, B. L. (1974). *Piman shamanism and staying sickness (Ká: cim Múmkidag)*. University of Arizona Press.

Banning, E. B. (2011). So Fair a House Gobekli Tepe and the Identification of Temples in the Pre-Pottery Neolithic of the Near East. *Current Anthropology, 52*(5), 619–660.

Barnett, F. (1973). *Dictionary of prehistoric artifacts of the American Southwest*. Northland Press.

Beaglehole, E. (1937). Notes on Hopi economic life. *Yale University Publication in Anthropology, 15*, 1–88.

Bean, L. J. (1975). Power and its application in Native California. *Journal of California Anthropology, 2*, 25–33.

Bernardini, W., Koyiyumptewa, S.B., Schachner, G., & Kuwanwisiwma, L. (2021) (Eds). *Becoming Hopi: A history*. University of Arizona Press, Arizona.

Berrier, M., & Unglaub, L. (2010). *Mappers Notes and Photo Data Sheets LA 175*. Unpublished notes. Bureau of Land Management.

Billman, B., Lambert, P., & Leonard, B. (1999). Cannibalism, warfare, and drought in the Mesa Verde Region during the Twelfth Century AD. *American Antiquity, 65*(1), 145–178.

Blier, S. P. (1994). *The anatomy of architecture: Ontology and metaphor in Batammaliba architectural expression*. Cambridge University Press.

Blue, M. (1988). *The witch purge of 1878: Oral history and documentary history in the early reservation years*. Navajo Community College Press.

Bourdieu, P. (1977). *Outline of a theory of practice*. Translated. Richard Nice. Cambridge Studies in Social Anthropology Vol. 16. Cambridge: Cambridge University Press.

Bourke, J. G. (1892). Medicine men of the Apache. In *Ninth Annual Report of the Bureau of American Ethnology 1887–1888,* (pp. 443–64). Smithsonian Institution, Washington DC.

Brew, J. (1946). The archaeology of Alkali Ridge. Southeastern Utah: With a review of the prehistory of the Mesa Verde Division of the San Juan and some observations on archaeological systematics. *Papers of the Peabody Museum of Harvard University* Vol. XXI. Peabody Museum.

Brown, M. A. (2019). *Rock art as a ritual communicator: A theoretical evaluation*. Unpublished MA Thesis, Department of Anthropology, New Mexico State University, Las Cruces.

Brück, J. (1999). Ritual and rationality: Some problems of interpretation in European archaeology. *European Journal of Archaeology, 2*(3), 313–314.

Bunzel, R. (1932). Zuñi Katsinas: An analytical study. *Forty-seventh Annual Report of the Bureau of American Ethnology*. Smithsonian Institution.

Bunzel, R. (1933). Zuni Texts. *American Ethnological Society Publications*, Vol XV.

Bunzel, R. (1992). *Zuni Ceremonialism*. University of New Mexico Press.

Cameron, C. & Tomka, S. (1993) (Eds.). *Abandonment of settlements and regions*. Cambridge University Press. n

Chapman, J. (2000). *Fragmentation in archaeology: People, places, and broken objects in the prehistory of south-eastern Europe*. Routledge.

Chapman, J. & Bisserka, G. (2007). *Parts and wholes: Fragmentation in prehistoric context*. Oxbow Books.

Chapman, K. (1926). An archaeological site in the Jornada del Muerto. *El Palacio, 20*(6), 118–122.

Clark, J., Huntley, D., Hill, J. B., & Lyons, P. D. (2017). The Kayenta diaspora and Salado meta-identity in the Late Precontact US Southwest. In J. Card (Ed.), *Archaeology of hybrid material culture* (pp. 399–424). Center for Archaeological Investigations.

Claassen, C. (1998). *Shells*. Cambridge University Press.

Claassen, C. (2010). *Feasting with shellfish in the Southern Ohio Valley: Archaic sacred sites and rituals*. University of Tennessee Press.

Cohn, N. (1975). *Europe's inner demons: An enquiry inspired by the great witch-hu*nt. Sussex University Press.

Corl, K. (2015). A case study of burning in the Jornada Mogollon at Cottonwood Spring. *Collected Papers from the 18th Biennial Mogollon Archaeology Conference*. New Mexico State University, Las Cruces.

Creel, D., & Anyon, R. (2003). New perspectives on Mimbres communal pit structures and implications for ritual and cultural developments. *American Antiquity, 68*, 67–92.

Cushing, F. H. (1883). Zuni fetishes. In *Bureau of American Ethnology Annual Report No. 2, 3–45.* Smithsonian Institution.

Cushing, F.H. (1886). A study of Pueblo pottery as illustrated in Zuni growth. *Fourth Annual Report of Ethnology*, 482–521. Smithsonian Institution.

Cushing, F.H. (1920). *Zuñi breadstuff. Indian Notes and Monographs.* Museum of the American Indian Heye Foundation.

Cushing, F.H. (1967). *My adventures in Zuni*. Filter Press.

Darling, A. J. (1998). Mass inhumation and the execution of witches in the American Southwest. *American Anthropologist, 100*, 732–752.

Devereux, G. (1957). Dream of learning and individual ritual differences in Mojave shamanism. *American Anthropologist, 59*, 1036–1045.

Di Peso, C. (1974). *Casas Grandes: A fallen trading center of the Gran Chichimeca*, Vol. 1–3 The Medio Period. The Amerind Foundation and Northland Press.

Dobres, M., & Hoffman, C. (1994). Social agency and the dynamics of prehistoric technology. *Journal of Archaeological Method and Theory, 13*, 211–258.

Dobres, M., & Robb, J. (2000). *Agency in archaeology*. Routledge.

Dolan, S., Miller, M., Shackley, S., & Corl, K. (2017). El Paso Phase obsidian procurement in Southern New Mexico: Implications for Jornada Mogollon regional interaction and exchange. *Kiva, 83*(3), 267–291.

Dorsey, G. A., & Voth, H. R. (1901). The Oraibi Soyal ceremony: The Stanley McCormick Hopi expedition Publications of the Field Columbian Museum. *Anthropological Series, 3*(1), 2–59.

Douglas, M. (1970) (Ed.). *Witchcraft confessions and accusations*. Routledge.

Douglas, M. (1966). *Purity and danger: Analysis of the concepts of pollution and taboo*. Routledge.

DuBois, C. G., & Kroeber, A. L. (1908). The religion of the Luiseno Indians. *University of California Publications in American Ethnology and Archaeology, 8*, 69–173.

Duncan, J. S. (1985). The House as a symbol of social structure. In Altman I. & C. M. Werner (Eds.), *Home environments, human behavior and environment*, 8, 133–151.
Durkheim, E. (1915). *The elementary forms of the religious life*. Dover.
Eliade, M. (1959). *The sacred and the profane: The nature of religion*. Harcourt, Inc.
Evans-Pritchard, E. E. (1937). *Witchcraft, oracles, and magic among the Azande*. Clarendon Press.
Fentress, J. & Wickham, C. (1992). *Social memory: New perspectives on the past* . Blackwell.
Fewkes, J. W. (1899). The winter solstice altars at Hano Pueblo. *American Anthropologist, 1*(2), 251–276.
Finlayson, B., Mithen, S. J., Mohammad, N., Smith, S., Maričević, D., Pankhurst, N., & Yeoman, L. (2011). Architecture, sedentism, and social complexity at Pre-Pottery Neolithic A WF16, southern Jordan. *Proceedings of the National Academy of Sciences, 108*(20), 8183–8188.
Fladd, S., & Barker, C. (2019). Miniature in everything but meaning: A contextual analysis of miniature vessels at Homol'ovi I. *American Antiquity, 84*(1), 107–126.
Fladd, S., Hedquist, S., & Adams, E. C. (2021). Trash reconsidered: A relational approach to deposition in the Pueblo Southwest. *Journal of Anthropological Archaeology, 61*, 101–268.
Flannery, K.V. (1976) (Ed.). *The early Mesoamerican village*. Academic Press.
Fogelin, L., & Schiffer, M. (2015). Rites of passage and other rituals in the life histories of objects. *Cambridge Archaeological Journal, 25*(4), 815–827.
Forde, C. D. (1931). Ethnography of the Yuma Indians. *University of California Publications in American Archaeology and Ethnology, 28*(4), 81–278.
Fortune, R. F. (1932). *Sorcerers of Dubu: The social anthropology of the Dobu Islanders of the Western Pacific*. Routledge Publishers.
Fowles, S. M. (2013). *An archaeology of doings: Secularism and the study of Pueblo Religion*. School of advanced Research Press.
Frazer, J. (1890). *The golden bough: A study in magic and religion*, 2 Vols. Macmillan Company.
Friederici, G. (1907). Scalping in America. *Annual Report of the Smithsonian Institution for 1906*, (423–438). Smithsonian Institution.
Gell, A. (1992). The technology of enchantment and the enchantment of technology. In J. Coote & A. Shelton (Eds.), *Anthropology, Art and Aesthetics* (pp. 40–66). Oxford.
Gell, A. (1998). *Art and agency: An anthropological theory*. Clarendon Press.
Giddens, A. (1979). *Central problems in social theory: Action, structure and contradiction in social analysis*. University California Press.
Gifford, E. W. & Kroeber, A. L. (1937). Culture element distributions IV: Pomo. *University of California Publications in American Archaeology and Ethnology*, 37, 117–254. University of California Press.
Gladwin, H.S., Haury, E., Sayles, E. B., & Gladwin, N. (1937). *Excavations at Snaketown I: Material culture*. Medallion Papers No. 25. Gila Pueblo Foundation.
Goldfrank, E. S. (1927). *The Social and Ceremonial Organization of Cochiti*. Memoir XXXIII, American Anthropological Association.
Gordillo, I. & Leiton, D. (2015). El abandono en las sociedades formativas del noroeste argentino: casos y discusión. In M. A. Korstanje y M. Lazzari (Senior Eds.), M. Basile, F. Bugliani, V. Lema, L. Pereyra Domingorena y M. Quesada (Eds.), *Crónicas materiales precolombinas : arqueología de los primeros poblados del Noroeste* Argentino, (635–661). Sociedad Argentina de Antropología.
Gray, J. (2006). *Domestic Mandala: Architecture of lifeways in Nepal*. University of Adelaide.
Grissino-Mayer, H. D., Baisan, C. &. Swetam, T. (1997). *A 1,373 year reconstruction* ***of annual precipitation for the Southern Rio Grande Basin****. Fort Bliss, Texas.* US Army, Directorate of Environment, Natural Resources Division, for the Legacy Program.
Hadad, R. (2019). Ruin dynamics: Architectural destruction and the production of sedentary space at the dawn of the Neolithic Revolution. *Journal of Social Archaeology, 19*(1), 3–26.
Harrington, J. P. (1942). Culture element distributions: California: XIX. *University of California Archaeological Reports,* 7(1).
Hass, J. & Creamer, W. (1993). Stress and Warfare among the Kayenta Anasazi of the Thirteenth Century AD. *Fieldiana. Anthropology,* 21. Field Museum.
Heizer, R., & Whipple, M. A. (1957). *The California Indians*. University of California Press.
Heye, G. (1921). Certain artifacts from San Miguel Island, California. *Museum of the American Indian, Heye Foundation, Indian Notes and Monographs.* 7 (4).
Hicks, D., & Beaudry, M. C. (2010). *The Oxford handbook of material cultures*. Oxford University Press.
Hill, W. W. (1982). *An ethnography of Santa Clara Pueblo*. University of New Mexico Press.

Hodder, I. (1990). *The domestication of Europe: Structure and contingency in Neolithic societies*. Blackwell.
Hodder, I. (2006). This old house. *Natural History, 115*(5), 42–48.
Hodder, I. (2006b). *The Leopard's tale: Revealing the mysteries of Çatalhöyük*. Thames and Hudson.
Hodder, I. (2012). *Entangled: The relationships between humans and things*. Wiley-Blackwell.
Hoggard, B. (2019). *Magical house protection: The archaeology of counter-witchcraft*. Berghahn.
Hoover, R. (1975). *Chumash Sunsticks. the Masterkey, 49*(3), 105–109.
Horton, R. (1997). *Patterns of thought in Africa and the West: Essays on magic, religion and science*. Cambridge University Press.
Huckell, B. B., Creel, D. C., & Jacobs, G. M. (1997). E B "Ted" Sayles, pioneer Southwestern archaeologist. *Kiva, 63*(1), 69–85.
Huffman, T. (2009). A cultural proxy for drought: Ritual burning in the Iron Age of southern Africa. *Journal of Archaeological Science, 36*(4), 991–1005.
Illif, F. (1901). *People of the blue water: My adventures among the Walapai and Havasupai Indians*. Harper and Brothers.
Kapur, S. (1983). *Witchcraft in Western India*. Stosius Incorporated/Advent Books Division.
Keane, W. (2003). Semiotics and the social analysis of material things. *Language & Communication, 23*(3–4), 409–425.
Kelley, I. (1932). Ethnography of the Surprise Valley Paiute. *University of California, Publications in American Anthropology and Archaeology, 31*, 3.
Kelly, W. (1977). *Cocopah ethnography*. Anthropological Paper No. 29, University of Arizona.
Kluckhohn, C. (1940). The conceptual structure in Middle American studies. In C. L Hay, R. Linton, S. K. Lothrop, H. S. Shapiro, G. & C. Valliant. D. (Eds.), *The Maya and their neighbors*, (41–51). Appleton Century.
Kluckhohn, C. (1944). Navaho witchcraft. *Papers of the Peabody Museum of Archaeology and Ethnology* 22(2).
Knapp, A., & Ashmore, W. (1999). Archaeological landscapes: Constructed, conceptualized, ideational. In A. Knapp & W. Ashmore (Eds.), *Archaeologies of landscape: Contemporary perspectives* (pp. 1–30). Blackwood Publishers.
Knappett, C. & Malafouris, L. (2008) (Eds). *Material agency: Towards a non-anthropocentric approach*. Springer Science & Business Media.
Kroeber, A. L. (1908). A mission record of the California Indians. *University of California Publication in Anthropology and Archaeology, 8*, 1.
Kroeber, A.L. (1925). Handbook of the Indians of California. *Bureau of American Ethnology Bulletin 78*.
Kroeber, C., & Fontana, B. (1986). *Massacre on the Gila: An account of the last major battle between American Indians, with reflections on the origin of war*. University of Arizona Press.
Kuckelman, K. A. (2016). Cycles of subsistence stress, warfare, and population movement in the Northern San Juan. In A. M. VanDerwarker & G. D. Wilson (Eds.), *The Archaeology of Food and Warfare: Food Insecurity in Prehistory* (pp. 107–132). Springer.
Kuckelman, K. A., Lightfoot, R. R., & Martin, D. L. (2000). Changing patterns of violence in the northern San Juan Region. *Kiva, 66*(1), 147–165.
Laboratory of Tree Ring-Research. (2020). *Results from tree ring samples*. University of Arizona.
Langenwalter, P. (1980). A possible shaman's cache from Ca-Riv-102, Hemet California. *Journal of California and Great Basin Anthropology, 2*(2), 233–244.
Latour, B. (1994). *We have never been modern*. Porter, Harvard University Press.
LaMotta, V., & Schiffer, M. B. (1999). Formation processes on house floor assemblages. In P. Allison (Ed.), *The Archaeology of Household Activities* (pp. 19–29). Routledge.
LeBlanc, S.A. (1999). *Prehistoric warfare in the American Southwest*. The University of Utah Press.
LeBlanc, S.A. & Rice, G. (2001). D*eadly landscapes: Case studies in prehistoric southwestern Warfare*. University of Utah Press.
Lehmer, D. J. (1948). The Jornada Branch of the Mogollon. *Social Science Bulletin No. 17*, University of Arizona.
Lekson, S. A. (2002). War in the Southwest, war in the world. *American Antiquity., 67*(4), 607–624.
Lekson, S. A. & Rorex, A. (1987). *Archaeological survey of the Cottonwood Spring and Indian Tank sites, Dona Ana County, New Mexico.* Human Systems Research Report No. 8634. Human Systems Research.
Levi, J. M. (1978). Wii'ipay The living rocks-ethnographic notes on crystal magic among some California Yumans. *Journal of California Anthropology, 5*(l), 42–52.

Levy, J. E. (1994). Hopi shamanism: A reappraisal. In R. J. Demallie & A. Ortiz (Eds.), *North American Indian Anthropology: Essays on Society and Culture* (pp. 307–327). University of Oklahoma Press.
Liebmann, M. (2012). *Revolt: An archaeological history of Pueblo resistance and revitalization in Seventeenth Century New Mexico*. University of Arizona Press.
Lucas, G. (2012). *Understanding the archaeological record*. Cambridge University Press.
Lummis, C. F. (1910). *Pueblo Indian folk-stories*. The Century Co.
Mackey, J., & Green, R. C. (1979). Largo-Gallina towers: An explanation. *American Antiquity, 44*(1), 144–154.
Mair, L. (1976). Magic and witchcraft in Southern Uganda. *Africa, 46*(4), 415–415.
Manning, M. C. (2014). The material culture of ritual Concealments in the United Sites. In C. C. Fennel and M.C. Manning (Eds.), *Manifestations of magic: The archaeology and material culture of folk religion,* Special Edition of *Historical Archaeology* 48 (3), 52–83.
Marett, R. R. (1900). Pre-animistic religion. *Folklore, 11*(2), 162–184.
Martin, D., Harrod, R. P., & Fields, M. (2010). Beaten down and worked to the bone: Bioarcheological investigations of woman and violence in the ancient Southwest. *Landscapes of Violence, 1*(1), 3.
McNeley, J. K. (1981). *Holy wind in Navajo philosophy*. University of Arizona Press.
Medeiros, M. & Vonarx, A. J. (2016). Raw material Procurement, technological organization and ritual use: Contextualizing flaked stone and use at Chevelon. In E. C. Adams (Eds.), *Chevelon: Pueblo at Blue Running Water*,(pp.181–224). Arizona State Museum Archaeological Series 211. University of Arizona.
Merrifield, R. (1987). *The archaeology of ritual and magic*.
Merkur, D. (1970). Artic: Inuit. In D. E. Walker (Ed.), *Witchcraft and sorcery of the American Native peoples* (pp. 11–21). University of Idaho Press.
Middleton, J. M. (1967) (Eds). *Magic, witchcraft and curing*. American Museum of Natural History, Natural History Press.
Middleton, J. & Winter, E. H. (1963) (Eds). *Witchcraft and sorcery in East Africa*. Routledge and Paul Publishers.
Mills, B. J., & Ferguson, T. J. (2008). Animate objects: Shell trumpets and ritual networks in the Greater Southwest. *Journal of Archaeological Method and Theory, 15*, 338–361.
Mills, B. J. & Walker, W. H. (2008) (Eds). *Memory work: Archaeologies of material practices*. School for Advanced Research Press.
Miller, M. (2005). Revision of the Jornada Mogollon ceramic period sequence and alignment with the Great Southwest. In M. Thompson, J. Jurgena, & L. Jackson (Eds.), *Archaeology Between the Borders: Papers from the 13th Biennial Jornada Mogollon Conference* (pp. 59–88). El Paso Museum of Archaeology.
Miller, M & Graves, T. (2009) (Eds). *Madera Quemada: Archaeological investigations of a Fourteenth Century Jornada Mogollon Pueblo*. Fort Bliss Cultural Resources Report No. 03–12. Geo Marine Inc.
Montgomery, B. (1993). Ceramic analysis as a tool for discovering pueblo abandonment. In C. M. Cameron & S. A. Tomka (Eds.), *Abandonment of Settlements and Regions: Ethnoarchaeological and Archaeological Approaches* (pp. 157–174). Cambridge University Press.
Nelson, B. A. & LeBlanc, S.A. (1986). *Short-term sedentism in the American Southwest: The Mimbres Valley Salado*. University of New Mexico Press.
Nielsen, A. & Walker, W. H. (1999) Conquista ritual y dominacion politica en el Tawantinsuyu. El Caso de Los Amarillos (Jujuy, Argentina). In A. Zarankin y F. A. Acuto (Eds.), *Sed Non Siata: Teoría Social en La Arqueologia Latinoamerican Contemporanea*, (153–169). Ediciones Del Tridente.
Opler, M. E. (1960). Myth and practice in Jicarilla Apache. *Journal of American Folklore, 73*, 133–153.
Opler, M., & Bittle, W. (1961). The death practices and eschatology of the Kiowa Apache. *Journal of Anthropological Research, 17*, 383–391.
Olsen, B. (2010). *In defense of things: Archaeology and the ontology of objects*. Rowman Altamira.
Olson, R. R. (1930). Chumash prehistory. *University of California Publications in American Archaeology and Ethnology, 28*(1), 1–21.
Ortiz, A. (1969). *The Tewa world: Space, time, being and becoming in a Pueblo society*. The University of Chicago Press.
Ortman, S. G. (2000). Conceptual metaphor in the archaeological record: Methods and an example from the American Southwest. *American Antiquity, 65*(4), 613–645.
Olsterholtz, A. J. (2012). The social role of hobbling and torture: Violence in the Prehistoric Southwest. *International Journal of Paleopathology, 2*(2–3), 148–155.

Parsons, E. C. (1916). A few Zuni death beliefs and practices. *American Anthropologist, 18*, 245–256.
Parsons, E. C. (1920). Notes in ceremonialism at Laguna. *Anthropological Papers* Vol. 19, No. 14. American Museum of Natural History.
Parsons, E. C. (1932). Isleta. In *Forty-seventh Annual Report of the Bureau of American Ethnology* 1929–1930. Smithsonian Institution.
Parsons, E. C. (1996). *Pueblo Indian Religion, 2 Vols*. University of Nebraska Press.
Peirce, C. S. (1974). *Collected papers of Charles Sanders Peirce Vol. 2*. Harvard University Press.
Plog, S., & Solometo, J. (1997). The never changing and the ever-changing: The evolution of Western Pueblo ritual. *Cambridge Archaeological Journal, 7*(2), 161–182.
Putnam, F. W. (1879). Reports upon archaeological and ethnological collections from the vicinity of Santa Barbara, California, and from ruined pueblos of Arizona and New Mexico, and certain interior tribes. *United States Geographical Surveys, Archaeology 7.*
Rapoport, A. (1969). *House form and culture*. Prentice-Hall.
Ray, V. F. (1963). *Primitive pragmatists: The Modoc Indians of Northern California*. University of Washington Press.
Reed, P. F., & Henlser, K. N. (2001). Deciphering a Pueblo I household in the Central Chuska Valley. *New Mexico. Kiva, 67*(1), 31–58.
Reichard, G. A. (1950). *Navajo religion: A study of symbolism*. Princeton University Press.
Robbins, W. W., Harrington, J.P., & Freire-Marreco, B. W. (1916). Ethnobotany of the Tewa Indians. *Bureau of American Ethnology, Bulletin No. 55*. Smithsonian.
Roberts, J. M. (1951). Three Navaho households: A comparative study in small group culture. *Papers of the Peabody Museum of American Archaeology and Ethnology,* 40 (3). Harvard University.
Roth, B. & Adams, E. C. (2021) (Eds.). *Agent of change: The deposition and manipulation of ash in the past*. Berghahn Books.
Roth, B., & Schriever, B. (2015). Pithouse retirement and dedication in the Mimbres Mogollon region of Southwestern New Mexico. *Kiva, 81*, 179–200.
Russell, F. (1908). The Pima Indians. *Annual Report of the Bureau of American Ethnology* No. 26. Smithsonian.
Sahlins, M. (1976). *Culture and practical reason*. University of Chicago Press.
Sahlins, M. (1981). *Historical metaphors and mythical realities: Structure in the early history of the Sandwich Islands Kingdom.* University of Michigan Press.
Saile, D. (1985). The ritual establishment of home. In I. Altman & C. Werner (Eds.), *Home Environments* (pp. 87–111). Human Environment and Behavior Series.
Schiffer, M. B. (1972). Archaeological context and systemic context. *American Antiquity, 37*(2), 156–165.
Schiffer, M. B. (1987). *Formation processes of the archaeological record*. University of New Mexico Press.
Schiffer, M. B. (2016). *Behavioral archaeology: Principles and practices*. Routledge Publishers.
Schiffer, M. B., & Miller, A. R. (1999). *The material life of human beings: Artifacts, behavior, and communication*. Routledge.
Schiffer, M. B., & Skibo, J. M. (1987). Theory and experiment in the study of technological change. *Current Anthropology, 28*, 595–622.
Schlanger, S. H. & Wilshusen, R. (1993). Local abandonments and regional conditions in the North American Southwest. In C. Cameron & Tomka, S. (Eds.), *Abandonment of Settlements and Regions,* (85–98). Cambridge University Press.
Scholes, F. V. (1935). The first decade of the Inquisition in New Mexico. *New Mexico Historical Review, 10*(3), 195–241.
Secakuku, F. H, (2006). *Hopi and Quetzalcoatl: Is there a connection?* Unpublished Master's Thesis, Department of Anthropology, Northern Arizona University, Flagstaff.
Sedig, J. W. (2014). An analysis of non-utilitarian stone point function in the US Southwest. *Journal of Anthropological Archaeology, 34*, 120–132.
Shackley, S. (1988). Sources of archaeological obsidian in the Southwest: An archaeological, petrological, and geochemical study. *American Antiquity, 53*(4), 752–772.
Shackley, S. & Dolan, S. (2014). *Source provenance of obsidian artifacts from the El Paso Phase Cottonwood Spring Site (LA 175), Southern New Mexico*. Geoarchaeological X-Ray Fluorescence Spectrometry Laboratory, New Mexico.
Simmons, M. (1974). *Witchcraft in the Southwest*. Northland Press.
Skeat, W. W. (1912). Snakestones and stone thunderbolts as subjects for systematic investigation. *Folklore, 23*(1), 23–80.

Smith, W. (1952). *When is a Kiva? and other questions regarding Southwestern archaeology*. R. Thompson (Ed.). University of Arizona Press.
Smyth, J. (2006). The role of the house in Early Neolithic Ireland. *European Journal of Archaeology, 9*(2–3), 229–257.
Soza, D. R. (2018). *Points of view: Landscape persistence in Northeastern, AZ*. Unpublished Master's Thesis, School of Anthropology, University of Arizona.
Spier, L. (1923). Southern Diegueno customs. *University of California Publications in American Archaeology and Ethnography, 20*, 295–358.
Stephen, A. (1936). Hopi journal. E.C. Parsons (Ed.). Columbia University *Contributions to Anthropology* Vol. XXIII.
Stevanović, M. (1997). The age of clay: The social dynamics of house destruction. *Journal of Anthropological Archaeology, 16*(4), 334–395.
Stevanović, M. (2002). Burned houses in the Neolithic of Southeast Europe. In D. Gheorghiu (Ed.), *Fire in Archaeology*, (55–62). British Archaeological Reports (BAR).
Stevenson, M. C. (1904). The Zuni Indians, Their mythology, esoteric fraternities, and ceremonies. *Twenty-Third Annual Report of the Bureau of American Ethnology, 1901–1902*. Smithsonian.
Steward, J. H. (1937). Ecological aspects of Southwestern Society. *American Anthropologist, 39*, 87–104.
Taylor, W.W. (1948). *A Study of Archaeology*. Memoir No. 69. American Anthropological Society.
Thomas, D. H. (1976). A Diegueno Shaman's Wand: An Object Lesson Illustrating the Heirloom Hypothesis. *Journal of California Anthropology, 3*(1), 128–132.
Towner, R. (2002). Archaeological dendrochronology in the southwestern United States. *Evolutionary Anthropology, 11*, 68–84.
Tringham, R. (2005). Weaving house, life and death into places: A blueprint for a hypermedia narrative. In D. Bailey, A. Whittle, & V. Cummings (Eds.), *(Un) settling the Neolithic* (pp. 98–111). Oxbow.
Trimble, S. (2004). *Talking with the clay: The art of Pueblo pottery*. School of Advanced Research Press .
Turner, C. G. & Turner, J. (1999). *Man corn: Cannibalism and violence in the prehistoric American Southwest*. University of Utah Press.
Tylor, E. B. (1871). *Primitive culture: Research into the development of mythology, philosophy, religion, art and custom, 2 Vols*. Cambridge University Press.
Underhill, R. M. (1946). *Papago Indian religion*. Columbia University Press.
Van Dyke, R.M. & Alcock, S. (2003). *Archaeologies of Memory*. Oxford Publishers.
van Gennep, A. (1960). *Rites de passage*. University of Chicago Press.
Van Keuren, S., & Roos, C. (2013). Geoarchaeological evidence for ritual closure of a kiva at Fourmile Ruin, Arizona. *Journal of Archaeological Science, 40,* 615–625.
VanPool, C. S., & Newsome, E. (2012). The spirit in the material: A case study of animism in the American Southwest. *American Antiquity, 77*, 243–262.
VanPool, C., & VanPool, T. L. (2007). *Signs of the Casa Grandes shamans*. University of Utah Press.
VanPool, T. L., & VanPool, C. (2016). Animating architecture and the assembling of an elite city: Birth and dedication of nonhuman persons at Paquimé, Chihuahua. *Mexico. Journal of Anthropological Research, 72*(3), 311–336.
Varien, M. D. (1999). *Sedentism and mobility in a social landscape: Mesa Verde and beyond*. The University of Arizona Press.
Voegelin, W. (1938). Tubatulabal ethnography. *University of California Anthropological Records* 2(1).
Voegelin, W. (1942). Culture element distributions: XX, Northeast California. *University of Californian Anthropological Records, 7*(1), 1–251.
Voth, H. R. (1901). The Oraibi Powamu ceremony. *Anthropology Series*, III (2), 67–158. Field Museum, Illinois.
Voth, H. R. (1903). The Oraibi summer snake ceremony. *Anthropology Series*, III (4), 267–358. Field Museum, Illinois.
Voth, H. R. (1905). The traditions of the Hopi. Anthropology Series, VIII, 1–319. Field Museum, Illinois.
Voth, H. R., (1912). Notes on the Eagle Cult among the Hopi Indians. *Anthropology Series*, XI (2):107–109. Field Museum.
Walker, D. (1970) (Ed). Systems of North American witchcraft and sorcery. *Anthropological Monographs of the University of Idaho*, No. 1. University of Idaho Press.
Walker, W. H. (1995a). *Ritual prehistory: A Pueblo case study*. Unpublished Ph.D. dissertation. Department of Anthropology, University of Arizona.
Walker, W. H. (1995). Ceremonial trash? In J. M. Skibo, W. H. Walker, & A. E. Nielsen (Eds.), *Expanding archaeology* (pp. 67–79). University of Utah Press.

Walker, W. H. (1996). Ritual deposits: Another perspective. In C. E. Adams (Ed.), *River of Change: Prehistory of the Middle Little Colorado River Valley,* Arizona, (75–91). Arizona State Museum Archaeological Series Vol. 185.

Walker, W. H. (1998). Where are the witches of prehistory? *Journal of Archaeological Method and Theory, 5*(3), 245–308.

Walker, W. H. (2001). Ritual technology in an extranatural world. In M. Schiffer (Ed.), *Anthropological perspectives on technology* (pp. 87–106). University of New Mexico Press.

Walker, W. H. (2002). Stratigraphy and practical reason. *American Anthropologist, 104*(1), 159–177.

Walker, W. H. (2008). Witches, practice, and the context of pueblo cannibalism. In D. Nichols & P. Crown (Eds.), *Multidisciplinary Approaches to Social Violence in the Prehispanic American Southwest* (pp. 143–183). University of Arizona Press.

Walker, W. H. (2008). Practice and nonhuman social actors: The afterlife histories of witches and dogs in the American Southwest. In B. J. Mills & W. H. Walker (Eds.), *Memory work: Archaeologies of material practices* (pp. 137–157). School of American Research Press.

Walker, W. H. (2009). Warfare and the practice of supernatural agents. In W. H. Walker & A. E. Nielsen (Eds.), *Warfare in cultural context: Practice, agency, and the archaeology of violence* (pp. 109–136). University of Arizona Press.

Walker, W. H., & Berryman, J. (2021). Ashes arrows and sorcerers. In B. Roth & E. C. Adams (Eds.), *Agent of change: The deposition and manipulation of ash in the past* (pp. 196–212). Berghahn Books.

Walker, W. H., Berryman, S. & Berryman, J. (2020). *Preliminary Results from the NMSU Excavations at Cottonwood Spring Pueblo*. Unpublished manuscript, Anthropology Department, New Mexico State University.

Waterman, T. T. (1910). The religious practices of the Diegueno Indians. *University of California Publications in American Archaeology and Ethnology, 8*(6), 271–358.

Watson, C. W. & Roy, E. (1993). (Eds.). *Understanding witchcraft and sorcery in Southeast Asia*. University of Hawaii Press.

Webmore, T., & Whitmore, C. L. (2008). Things are us! A commentary of human/things relations under the banner of "social" archaeology. *Norwegian Archaeological Review, 41*, 53–70.

Whalen, M. E. (2013). Wealth, status, and ritual-marine shell at Casas Grandes. *Chihuahua Mexico. American Antiquity, 77*(3), 402–423.

White, L. (1932). The Acoma Indians. *Forty-seventh Annual Report of the Bureau of American Ethnology*, 1929–1930, (pp. 17–192). Smithsonian.

White, R. (1953). Two surviving Luiseno Indian ceremonies. *American Anthropologist, 55*(4), 569–578.

White, T. D. (1992). *Prehistoric cannibalism at Mancos 5MTUMR-2346*. Princeton University Press.

Whitely, P. M. (2002). Archaeology and oral tradition: The scientific importance of dialogue. *American Antiquity, 67*(3), 405–415.

Wilcox, D. R., & Hass, J. (1994). The scream of the butterfly: Competition and conflict in the prehistoric Southwest. In G. J. Gumerman (Ed.), *Themes in Southwest Prehistory* (pp. 211–238). School of American Research Press.

Wilshusen, R. (1986). The relationship between abandonment mode and ritual use in Pueblo I Anasazi Protokivas. *Journal of Field Archaeology, 13*(2), 245–254.

Wilshusen, R. (1988). Sipapus, ceremonial vaults, and foot drums (or A resounding argument for Protokivas. In E. Blinman, C. J. Phagan, & R. Wilshusen (Eds.), *Dolores Archaeological Program. Supporting Studies: Additive and Reductive Technologies* (649–671). Bureau of Reclamation, Engineering and Research Center.

Woodbury, R. B. (1959). A reconstruction of Pueblo warfare in the Southwestern United States. *Proceedings Of the International Congress of Americanists* XXXIII, 124–133.

Yeo, H. (n.d.). *Notes on the Cottonwood Wash*. Laboratory of Anthropology. New Mexico.

Zedeño, M. N. (2008). Bundled worlds: The roles and interactions of complex objects from the North American Plains. *Journal of Archaeological Method and Theory, 15*(4), 362–378.

Zykov A. (2016). *Zoroastrian funeral practices: Transition in conduct.* Threads of Continuity: Zoroastrian Life and Culture, Parzor Foundation.