

Animating Architecture and the Assembly of an Elite City: Birth and Dedication of Nonhuman Persons at Paquimé, Chihuahua, Mexico

TODD L. VANPOOL, *Department of Anthropology, 202 Swallow Hall, University of Missouri, Columbia, MO 65211, USA. Email: VanPoolT@missouri.edu*

CHRISTINE S. VANPOOL, *Department of Anthropology, University of Missouri*

We discuss the role of dedication ceremonies at Paquimé, Chihuahua, Mexico, using an animistic perspective involving other-than-human, spiritually potent agents who influence and are influenced by humans. Animated agents can include artifacts and architecture, which humans create through negotiating with other agents (e.g., the potter negotiates with the clay, kiln, and fire to make pottery). Dedication ceremonies in such cases help bring active agents to life and imbue them with the specific characteristics that humans want them to have. We illustrate this process using Puebloan ethnology from the North American Southwest and then explore three cases of architectural dedication at Paquimé: the Mound of the Serpent, a pot under a water reservoir, and a central support post within the structure. These cases reflect the use of the architecture to help ensure access to water, which in turn helped Paquimé's elites establish their city as preeminent in the region.

Key words: animism, architecture, Paquimé (Casas Grandes), ritual dedication, Southwestern (North America) archaeology

The concepts of materiality and what has been called the “New Animism” (to distinguish it from the “old animism” associated with E. B. Tylor and his unilineal evolutionary scheme) contribute to current anthropology theory by compelling anthropologists to acknowledge the importance of considering alternate ontologies in our study of non-Western cultures. This in turn has provided greater insight into the archaeological record and the cultures it reflects (e.g., Harrison-Buck 2012; Hill 2011; Schwarz 2013; Zedeño 2008). Much of this work rests on the recognition that many cultures, especially politically simple and mid-level societies, accept “other-than-human” persons such as animals, natural features, and artifacts (broadly defined) (Bird-David 1999; Ingold 2006; Latour 2005; Low 2014; Viveiros de Castro 1998). This perspective is called animism (a.k.a. New Animism), an ontology which holds that at least some, and perhaps all, objects possess life-essences that animate

Published online: July 8, 2016

Journal of Anthropological Research (Fall 2016). ©2016 by The University of New Mexico.

All rights reserved. 0091-7710/2016/7203-0004\$10.00

them, thereby allowing them to interact with each other and with humans as active agents (Alberti and Bray 2009; Brown and Walker 2008; Gell 1998; Harvey 2006; Low 2014; Mills and Walker 2008; Robinson 2013; Sillar 2009; VanPool and Newsome 2012). Animistic ontology has proven so useful in archaeology that it is a core concept of cognitive studies using material culture ranging from rock art (e.g., Hampson 2013; Robinson 2013) to faunal and botanical materials (e.g., Hill 2011; Walker 2008) to ceramic and lithic artifacts (e.g., Burt 2013; Hampson 2013; VanPool and Newsome 2012) to entire regions of the landscape (e.g., Sellers 2010). As is to be expected with any new conceptual framework, the initial use of animistic applications has tended to focus on generalized principles and the creation of a broadly applicable framework (e.g., Harvey 2006). Such foundation work is indispensable, but it is just a starting point for further explorations of the cross-cultural variation in animistic ontologies (Bird-David 2006; Low 2014; Robinson 2013).

Here we focus on understanding the structure of animistic thought in the prehistoric North American Southwest using ethnographic and archaeological data. In addition to providing greater insight into the archaeology of the region, in particular the creation of “made beings” (sensu Cushing 1886:510–15) at the site of Paquimé, Chihuahua, Mexico, our analysis also adds to the study of animism by illustrating the role and importance of humans in the creation of new animated beings that are partly formed through dedication ceremonies. These newly created agents are perceived as having a special relationship with humans because they are existentially dependent on human agents. In our case study, architectural Made Beings created by humans in collaboration with other animated beings interacted with and structured the lives of the people inhabiting Paquimé, the economic, political, and religious center of the Medio period (AD 1200 to 1450) Casas Grandes culture. Given architecture’s continual importance to their lives, the settlement’s inhabitants took care through the creation process (in the form of dedication ritual) to ensure the newly created architectural beings had the “right attributes” as living entities. We begin our analysis with a consideration of animism and its relationship to Southwestern Made Beings that underlie this process. We then provide three examples in which dedication activities were used to link Paquimé to water and water deities, such as the horned/plumed serpent.

STUDYING ANIMISM

Ontology is the conceptual framework outlining the fundamental nature of reality and the categories of existence. It structures each culture’s metaphysical system and helps determine a culture’s cosmology (e.g., the nature of the universe, the role of humans as spiritual creatures, and the nature of deities and their relationships to humans). Ontologies vary among people within any given culture, but most cultures are characterized by a specific range of ontological precepts. These are, in fact, part of the *longue durée* that helps structure and maintain individual cultures (Giddens 1984). As such, ontology is one of the key cultural attributes structuring how people

interact with each other and their environment (e.g., the treatment of menstruating women; religious food taboos). One factor in ontological variation is the metaphysical essence of nonhumans. All cultures have the concept of spirits and an ontological position regarding the relationship between a human's body and spirit(s) (Astuti 2001; Lambek 1998; Steadman et al. 1996). Animistic ontology sees similar spirit/matter associations in nonhuman objects and "regards other objects in the world about [people] as being on a parity of existence with [humans] in that they are conceived as having sentient and volitional life" (Gilmore 1919:8; see also Viveiros de Castro 1998; Willerslev 2007:2). Animistic cultures differ with regard to the kinds and frequencies of spiritual essences accorded to different types of objects; some cultures accord spiritual existences to biological entities (i.e., nonhuman animals and plants), nonbiological natural features (e.g., rivers, clouds, and mountains), and even manmade objects such as carved shell trumpets and architectural features such as kivas, hogans, and shrines (Christie 2008; Harrison-Buck 2012; Mills and Ferguson 2008; Walker 2008). Animated objects form what Hallowell (1960) calls "nonhuman persons" who might even have spiritual lives that parallel those of humans, with their own kinship structures and social relationships (Viveiros de Castro 1998).

While not synonymous with it, animism fits within a larger perspective of materiality, an analytic framework which holds that artifacts (again, broadly defined) have at least some form of agency that allows them to affect and be affected by the behavior of humans (Ingold 2010; Meskell 2005). For example, a flintknapper recognizes that a newly created stone tool reflects the characteristics of the stone and knapping tools, just as it reflects the knapper's efforts. The stone, the knapping tools, and the knapper are all agents that contribute to the finished stone tool (see Ingold 2010). Likewise, architectural features and the layout of space are major, and at times *the* major, factors influencing many aspects of human interaction (Moore 1996; Snead 2008). Architecture is therefore considered an agent that controls, as well as reflects, human behavior. Not all perspectives using materiality require the assumption of nonhuman spirits, but all animistic approaches necessarily fit within the larger materiality framework, given their premise that humans and nonhuman persons interact with each other in a relational manner based on their spiritual essences (e.g., Zedeño [2008] describes how spiritually potent medicine bundles influence the lives of those entrusted with their care).

Early anthropologists were astounded by how common animism was among indigenous groups throughout the world (Malinowski 1948; Tylor 1958 [1871]), and some even argued that animism is the core of all of the major world religions (e.g., Gilmore 1919; Harris 1989:399; Moro et al. 2008:16). Animism further seems to be a universal characteristic, with some people using animistic ontologies in at least some specific cases even in societies that typically deny nonhuman spirits (Boyer 1996) (e.g., the Catholic view of communion in the broader Western culture, which tends to deny metaphysical properties to nonhuman objects). Recognizing its ubiquity, anthropologists are now beginning to consider the significance of animism to

the patterns perceived in the material record (Alberti and Bray 2009; Brown and Walker 2008; Losey 2010).

Webster (2010), for example, notes that archaeologists and other researchers have long studied the Navajo *hooghan* (a.k.a. hogan) as buildings but generally have not considered their ontological status and how metaphysical considerations might influence them. Using ethnographic and archaeological evidence, she notes that these semisubterranean structures are considered “other-than-human persons” created during the Blessingway ceremony with the active participation of supernatural entities, and that hooghans mediate the social relationships among humans, directly reflect the structure of the Navajo universe (which is itself conceived of as a giant hooghan), and share “blessings and a reciprocal relationship with the Diné [Navajo] who share his/her space” (Webster 2010:9). As such, they “have rational faculties, will, voice, desires, and needs held in common with human persons” (Webster 2010:126). The internal features of the hooghans are directly formed to reflect star alignments and important deities (e.g., Corn Plant Woman, Mountain Woman). The creation, use, and maintenance of these features of the living hooghan are in fact one of the primary means by which humans can enter into “intentional, interpersonal, and interdependent” relations with these beings (Webster 2010:142–43). Although hooghans are a useful house form in the Southwestern environment, their social significance can only be understood based on their ontological status as the center of human action, which is why Navajo communities continue to include hooghans even in contexts in which Western-style houses are used, and why the loss of the hooghan in some contexts (e.g., off-reservation residence) is conceptually linked to increased social discord and a loss of proper relationships with both other Navajo and important other-than-human persons (Webster 2010). As illustrated by this example, an animistic perspective focuses on understanding the underlying cognitive meaning, as opposed to ecological or functional, significance of the archaeological record.

One desirable product of studies by Webster (2010) and others is increased understanding of the cross-cultural variation in animistic perspectives. As with any ontological model, an animistic framework is only useful when it fits the studied culture. Not all cultures use animism, and the variation in animistic perspectives means that one cannot uncritically project a particular animistic framework onto any given culture (Porr and Bell 2012; Robinson 2013). Viveiros de Castro (1998), for example, provides a detailed description of the complex animistic relationships among animals and humans in Amazonian groups. Applying this structure to other cultures using different animistic frameworks would obscure the underlying cognitive structure and may well lead to a misunderstanding of the archaeological evidence. Fortunately, perfectly detailed correspondence between the archaeologists’ and the emic animistic framework for a given culture is unnecessary. Although we “cannot get inside the heads of past people through an act of empathy,” we can “put ourselves inside a set of material circumstances which were integrated into a mean-

ingful world in the past” (Thomas 2001:180–81). By doing so, we can identify and interpret meaningful associations within an animistic framework if we can identify its broad parameters, and even improve our understanding of the animistic system through a hermeneutic process. As with many aspects of cosmology and religion, direct historical analogy is a useful starting point given that ethnographically studied cultures often reflect similar ontological perspectives as those held by prehistoric peoples (e.g., Hill [2011] uses Arctic ethnologies to understand late prehistoric Arctic animistic ontologies). We use this approach here to understand animism in the North American Southwest, especially as it relates to the dedication of architecture.

ARCHITECTURE AND THE CREATION OF NONHUMAN BEINGS AMONG SOUTHWESTERN GROUPS

Approaches that don’t consider the perceived metaphysical existence of nonhuman objects typically view dedication and closure rituals as a means of setting aside a place as a locus of activity and ultimately ending/transforming this association (Adams 2016). Even when ritual offerings are involved, these approaches view the target of these votive offerings to be supernatural entities that transcend the building/object, as opposed to the building/object itself (Osborne 2004). We suggest this view is linked to what Ingold (2010) calls the *hylomorphic* model, an ontological view of creation/manufacture described by Aristotle in which matter (*hyle*) is brought together with form (*morphe*). In this perspective, humans are active agents who modify inactive material into new, explicitly planned forms (e.g., a builder uses wood and other inactive materials to build a house).

Hylomorphic frameworks are common sense in most Western traditions, but Ingold (2010) suggests that the dichotomy between active human and passive material does not fit with the general creative process as conceived in most cultures. Instead, creation is typically a “weaving” of different “lines of becoming” as the craftsman interacts in an iterative process with material in a way that requires improvisation and flexibility. As concrete examples, a carpenter must take into account the wood’s grain when shaping it and a flintknapper must take into account the characteristics of the raw material when knapping. The material itself is an agent and, in an animistic framework, is a co-creator in the creative process. Further, the agency and its related spiritual essence can extend not just to the materials that are being worked but to the materials before they are worked and to the resulting products (VanPool and Newsome 2012; Zedeño 2008).

Ritualized human behavior structures the negotiation between humans and the materials they work/create in a nonhylomorphic creative framework. In an animistic framework, such rituals will focus at least in part on the spiritual essence of the nonhuman persons. These rituals can be quite practical and beneficial (e.g., rules for adding flux to clay to make it easier to fire), but they can also be invested with ontological significance beyond any practical consideration (e.g., scattering corn meal at clay sources to thank Mother Earth [VanPool and Newsome 2012]). The

ethnographic record of the Puebloan people of the American Southwest is replete with examples that reflect the nonhylomorphic perspective Ingold (2010) discusses and the importance of ritual in negotiating with the nonhuman agents involved in making and using objects. For example, today and historically, Pueblos typically consider pottery making to entail the creation of a newly formed Made Being produced through negotiation among Mother Clay, the potter, and the pot itself (Trimble 2004). These three agents interact and compromise to create a new entity that has its own spiritual essence, as is illustrated in Rose Naranjo's statement:

The clay is very selfish. It will form itself to what the clay wants to be. The clay says, "I want to be this, not what you want me to be." The clay forms itself, but if the potter has "a good intention," is "one with the clay," the pot will please both the clay and the shaper. It will be an extension of the potter's spirit (Trimble 2004:13).

Cushing (1886:510) reported that a Zuni woman who had just finished forming and painting an olla said "with an air of relief that it is a 'Made Being.'" To complete the pot, though, the clay, the pot, and the artisan must further negotiate with additional nonhuman beings, including the kiln and the fire. Cushing (1886:510) reported that maize, one of the most potent gifts humans can give to nonhuman beings, was offered to help ensure a pot's survival through firing. Rina Swentzell says, "In the delicate firing phase, the potter talks to the fire, asking it to be gentle and considerate" (Brody and Swentzell 1996:31). The kiln is often made on "a firing ground blessed by a medicine man—a secret and sacred place" that is specifically blessed (in a dedication ceremony) to help ensure its cooperation in making pottery, according to Trimble (2004:28).

During the firing process, the pot becomes a finished, animate being. Cushing (1886:510) reported that

the noise made by a pot when struck or when simmering on the fire is supposed to be the voice of its associated being. The clang of a pot when it breaks or suddenly cracks in burning is the cry of this being as it escapes or separates from the vessel. That it has departed is argued from the fact that the vase when cracked or fragmentary never resounds as it did when whole.

These statements about pottery reflect both that the pot is considered "a person" with its own spirit (i.e., an animated being) and that its creation is the result of negotiation among many different agents.

The placement of maize and the treatment of the fire as a sentient being reflect the negotiation among agents inherent in the nonhylomorphic perspective Ingold (2010) describes. Such "offerings" serve as specific signals designed to affect the actions of nonhuman agents and help form a new, living being. Thus, Made Beings

have a life history of their own that includes birth, life, and death (Adams 2016; Fogelin and Schiffer 2015; VanPool and Newsome 2012). As nonhuman beings interacting within human society, they undergo rites of passage during their journey from birth to death (just as humans do). Dedication ceremonies are rituals related to this life history, typically framing the birth of these animated objects. Although they might have practical benefits, dedication ceremonies likely have a deeper ontological significance.

The built environment is critical for human action, and it structures human behavior and social relations in ways that are both obvious and likely unacknowledged (to both the people living in the structures and the archaeologist analyzing them) (Hodder 2011). This in turn makes them very significant nonhuman persons in those cultures that acknowledge their spiritual agency. Within an animistic ontology, the dedication of architectural features will focus on negotiating with potent nonhuman beings, possibly including the newly created being as well as any nonhuman co-creators/co-users. Understanding the dedication ceremony will consequently provide insight into (1) the sorts of agents with which past people interacted (i.e., the ontological classification within a cosmological system), (2) the metaphysical/semantic relationship among humans and these nonhuman agents (i.e., the interrelationships between ontological classes), and (3) the nature of the newly formed architectural being with which humans interact. We further note that such dedications are not limited to architecture but can potentially extend to any class of humanmade objects (e.g., the dedication of pots, boats, bows, cemeteries, agricultural irrigation systems, or even cities).

Southwestern ethnography provides examples illustrating the link between dedication ceremonies and animistic agents. For example, Bunzel (1992:485) observed that the creation of Zuni prayer sticks is considered a creative process in which new, spiritually potent beings are created. These newly formed beings are dedicated by Zuni using the following prayer:

We made our plume wands into living beings.
 With the flesh of our mother,
 Clay Woman,
 Four times clothing our plume wands with flesh,
 We made them into living beings.
 Holding them fast,
 We made them our representatives in prayer.

This example reflects both the ontological significance of dedication ceremonies and the fact that dedication ceremonies can be extended to objects other than the built environment.

Parsons (1939:198) notes that houses “are alive and sentient” among the Pueblos (and the Navajo, as discussed above [Webster 2010]). Dedication rituals are part of

their birth, and closure rituals are part of their spiritual transition from living to dead. The architectural entity is more than a place where humans conduct activities. It is a person who has been invested by humans (and other beings) during its “birth” with certain roles and characteristics. Dedication activity reflects the specific contributions humans made to this new Made Being and, as such, provides profound insight into the form and characteristics of the newly created being.

Beaglehole and Beaglehole (1937:58; see also Mindeleff 1891:100–103) report that the Hopi perform various dedicatory rites and rituals during and after construction to ensure that a house or kiva guards against evil spirits, has “roots so that it will stand solid and strong,” and will make the occupants fertile and happy. These rituals include placing cactus on the four cornerstones prior to erecting the structure; walking around the construction site in a counterclockwise direction while scattering tobacco, corn meal, and piki bread; placing prayer sticks at the structure’s corners and in its rafters; and saying certain prayers. Mindeleff (1891:118, 129) records specific dedication ceremonies for Tusayan (Hopi) kivas, such as the head of the kiva society circling the construction site singing “The House Song” and laying the four cornerstones, as well as circling and “feed[ing]” the kiva by throwing corn meal and piki crumbs onto *baho* (prayer sticks) placed in the roof. Ellis (1952) discusses the use during an eight-day Jemez kiva rededication ceremony of hidden spaces and reeds stuck through walls to allow Corn Mother (impersonated by a hidden man speaking into a small pot) and other nonhuman persons to speak to those within the kiva. The kiva’s plaster also was mixed with ground bits of colored pigment and pulverized seeds from every blossoming plant in the region (Ellis 1952:149), symbolically tying the kiva to fertility and the landscape. These examples also indicate possible ways of identifying and differentiating “dedication” activity as opposed to architectural use and maintenance. Dedication rituals will be associated with various phases of construction, including at its start (e.g., the placement and blessing of the four cornerstones), during construction (e.g., placing pollen and minerals in plaster), and at the end (e.g., placing prayer sticks in the rafters). Although not all aspects of dedication ritual will leave archaeological evidence, context and stratigraphic relationships will help us to identify it.

Here we consider architectural Made Beings and their births at Paquimé. In particular, we explore what we can learn about the architectural entities based on the evidence of the dedication rituals performed there.

MADE BEINGS AT PAQUIMÉ

Paquimé was the center of the Medio period (AD 1200–1450) Casas Grandes culture, which encompassed northern Chihuahua, westernmost Texas, southern New Mexico, southeastern Arizona, and northeastern Sonora (Figure 1). The Medio period was one of the most expansive, politically complex cultural systems in the prehistoric Southwest and was characterized by distinctive polychrome pottery and architectural features such as ball courts, butterfly-shaped rooms, and raised



Figure 1. The Casas Grandes region.

platform hearths (Di Peso 1974; Whalen and Minnis 2009). Paquimé was the largest settlement in the region and was unique in the Southwest with regard to the quality and quantity of West Mexico ritual architecture and trade goods (Bradley 2000; Di Peso et al. 1974). Although only half of the site was excavated, Charles Di Peso and Eduardo Contreras, the site's excavators, recovered literally tons of ocean shell, the largest assemblage of copper items in the North American Southwest, and the largest, best-formed Mesoamerican-style ball courts north of West Mexico. The people of Paquimé were influenced by, and likely culturally integrated with, the Aztatlán tradition of West Mexico (Foster 1999; Kelley 2000; Mathiowetz 2011;

Riley 2005; T. VanPool et al. 2008). The Aztatlán influence then spread to other Southwestern people and is reflected in later cultures, including the historic Pueblos from whom our ethnographic discussion is derived (Riley 2005; Mathiowetz et al. 2015; C. VanPool et al. 2008).

As the economic and ritual heart of the Medio period system, Paquimé included a large roomblock filled with habitation and ritual rooms; platform mounds where public ceremonies were completed; a reservoir system that carried running water through the community; two I-shaped ballcourts and a T-shaped ballcourt; and large ovens for making sweet roasted agave and perhaps even alcoholic beverages (Di Peso et al. 1974). The architecture is atypical for most Southwestern groups in terms of its size and embellishment. It is massively “overbuilt,” with adobe walls often exceeding 1 m in thickness, and is ornately constructed. When the Spanish first documented the site in the 1500s, they likened its beauty to a Roman city, filled with paved alleyways, beautiful mosaics, and walls rising three or more stories tall (Gamboa 2002:41). Unfortunately, the settlement was impacted by an earthquake that toppled many walls and by more than 100 years of looting, but the site remains one of the most impressive in the North American Southwest as reflected by its designation as a World Heritage Site by the United Nations in 1998.

The ubiquity of animistic perspectives among Mesoamerican and Southwestern people and the detailed description of ritually significant features at Paquimé have prompted applications of animistic ontologies to various aspects of the site. Walker and McGahee (2006) consider the linkage between technology and ritual in an animistic analysis of water-related features—in particular the large, kiva-like room at the House of the Serpent (near the Mound of the Serpent discussed below), the canal system running through the community, and the Walk-in Well (a remarkable hand-dug well extending to the water table several stories underground). They posit that these features may have been considered living agents and find that water-related features were a focus of abandonment activity as the settlement was systematically closed by the elites who lived there, suggesting that the ritual leaders considered these agents central to the community. Whalen (2013) expands the analysis of water-related animism to the tons of ocean shell kept in two storerooms, as well as ocean shell found in mortuary and other contexts. He argues that the stockpiling of ocean shell is inconsistent with economic or prestige models but instead reflects the concentration of animated shell to increase their potency and act as “sources of power, protectors of their surroundings, and creators or maintainers of a sacred landscape” (Whalen 2013:636). VanPool and Newsome (2012) consider animism as reflected in architecture and pottery. Their examples focus on the intentional “killing” of Made Beings, such as the ritual breaking of ceramic hand drums at Paquimé, which they suggest reflects the intentional transition from life to death of these objects so their spirits could act as intermediaries between the worlds of the living and the dead. Our current analysis builds on these studies, several of which focused on the closing or end of the life history of animated, non-human beings.

We focus instead on the beginning of the life sequence, embodied as dedication, to evaluate what can be learned of Casas Grandes culture.

THREE EXAMPLES OF ANIMATING ARCHITECTURE

Paquimé's architecture reflects several cases of ritual dedication, including the burial of two apparent victims of human sacrifice under the center marker of one of the ball courts (Di Peso 1974:414–17) and the placement of eight subfloor corner caches containing stone and shell beads in an oddly shaped “butterfly” room (Room 36-14), so named because its 16 short wall segments create a symmetrical shape that reminded Di Peso (1974:435; Di Peso et al. 1974[5]:666, 669) of the wings of a butterfly. Here we explore in detail three important features reflecting dedication activities—an effigy mound, a reservoir that was central to the water system, and one of the large, three-story, apartment-like compounds—but these examples reflect the ubiquitous emphasis on ritual elaboration and dedication throughout the city. We select these features for three reasons. First, their stratigraphy and context directly indicate dedication activities. Second, their clear ritual associations illustrate the negotiation central to the animistic framework described above. Finally, previous analyses have identified them as centrally significant religious features associated with public ritual. They would consequently have been well known to the site's inhabitants, and their associations would be expected to be generally reflective of Casas Grandes cosmology, as opposed to being excessively esoteric or individualistic. Put another way, like the ethnographic analogues we present here (e.g., house dedications), our examples should reflect the general animistic practices of the Casas Grandes people, as opposed to the behavior of a single individual or a small group of esoteric practitioners. We treat each specific architectural component as a Made Being but suspect that the entire site was conceived of as a Made Being too. Our focus is determining what can be learned about the architecture's ontological status and perceived spiritual essence through its dedication. This will provide insight into the desired agency of each architectural attribute.

Mound of the Serpent

The Mound of the Serpent is a 113-m-long, north-south-oriented mound. At one end is a raised platform (14.0 m long by 10.3 m wide by 1.2 m high) shaped like a serpent's head attached to a sinuous body/retaining wall (70 cm high and ranging in width between 3.5 m and 1.3 m) that redirected water away from the city (Di Peso et al. 1974[5]:478); its importance as a water control feature is illustrated by an arroyo having formed through the serpent's body after the site's abandonment, thereby damaging the feature and the site. The serpent points to a large spring roughly 6 km away that is decorated with horned/plumed serpent rock art and is the source of the water in Paquimé's main canal (Walker and McGahee 2006:197).

The head was likely the site of public ritual, given its size and form. The serpent's eyes were large, solidified caliche blocks and were the last components of the mound

to be put into place, suggesting they were the focus of ritual dedication. The eastern eye (which faced toward the city) was left blank except for a mortar hole ground through it, but the western eye had an incised Mesoamerican-style “plumed serpent,” which had two sets of three backward-flowing lines similar to feathers flowing from the top of the head and from the middle hump of the back (Figure 2). As reflected by the mound, but also in pottery, wall murals, and rock art symbolism, the horned/plumed serpent was a principal spiritual being in Casas Grandes cosmology (Di Peso 1974:548–49; Kidder 1916; Schaafsma 2001; VanPool and VanPool 2007). Its symbolic portrayal reflects that it was considered an active agent that directly interacted with shamans and other beings (VanPool and VanPool 2007). The shape of the mound reflects an obvious connection between the mound itself and horned/plumed serpents.

Puebloan horned/plumed serpent traditions reflect direct historical continuity with the Casas Grandes serpent (Schaafsma 2001; C. VanPool et al. 2008), so direct historical analogy is useful for understanding the mound’s perceived agency. Puebloan people consider horned/plumed serpents supernatural entities that span and negotiate the upper world, the middle (or terrestrial) world, and the underworld. They can herd clouds in the air or move across land to create arroyos, but most of the time they are underwater creatures that cause earthquakes and control groundwater at springs and in rivers (Bunzel 1992:515; Dutton 1963:49; Parsons 1939:184; Schaafsma 2001). Similar associations are evident throughout Mesoamerica, where plumed serpents such as the feathered rattlesnake Quetzalcoatl, one of the preeminent Mesoamerican deities, are associated with wind, water, and rain (Miller and Taube 1993:140–42; Schaafsma 2001). The prehistoric horned/plumed serpents in the Casas Grandes region have similar associations, being represented in rock art at springs and serving as one of the major deities of a shaman-based religious system focused on water control and fertility (VanPool and VanPool 2007; see also Schaafsma 2001). Thus, ethnographic evidence and archaeological context indicate that horned/plumed serpents were considered potent agents that controlled water.

The Mound of the Serpent represents the horned/plumed serpent as a water control device; he is literally controlling water, making him the direct personification of a water-controlling, terrestrial serpent. In this personification, he is an active agent impacting the daily life of humans at Paquimé. The eyes provide further insight

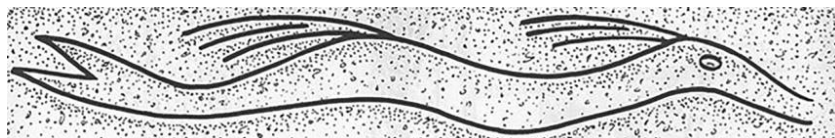


Figure 2. Serpent image incised into the western eye of the Mound of the Serpent (adapted from Di Peso et al. 1974[5]:477).

into his interaction with humans. The etching on the western eye indicates that the Serpent Mound was either seeing a reflection of himself in the sky or was viewing another serpent to the west. The mortar hole in the eastern eye, which faces the city, was worn through, limiting its practical utility for grinding maize and most other resources, although maize or other materials could be ground there in ceremonial contexts. The placement of the hole somewhat resembles a pupil—perhaps allowing the serpent to keep a watchful eye on the inhabitants. Similar use of stones as animated beings is present among the Pueblos. For example, a stone in the plaza at Zia was the home of Gacítwa (Whiteman), who was given offerings of ground maize and could grant supernatural power to virtuous people (White 1962:114; see also Hoebel 1979; Parsons 1929:246). Although speculative, the eastern eye with its mortar hole may have served both as a means of preparing ceremonial votive offerings and as the seat of the mound's spirit through which humans could more directly interact with it. The creation of a water-retaining Serpent Mound, and its embellishment with additional serpent symbolism emphasize the connection between water control and the subsequent Made Being. The literal personification of the serpent as a being directly controlling water at Paquimé underscores its active role in water management, and thereby the need for humans to negotiate with it in order to promote and maintain life at the settlement.

The Reservoir Pot

At the bottom of the larger and later of the two sequentially used water reservoirs at Paquimé was a Playas Red jar with a shell necklace around its neck (Di Peso et al. 1974[5]:836; VanPool and Newsome 2012). The pot was filled with shells, turquoise, and a bovine horn and placed in a covered chamber dug into the reservoir's bottom (Figure 3); in both Mesoamerican and Southwestern traditions, shell and turquoise are associated with water, an unsurprising symbolic link for a reservoir (Weigand and García de Weigand 2001; Whalen 2013:634). This jar was placed in the reservoir before the latter was filled and therefore reflects dedication activity (Di Peso et al. 1974[5]:837). Di Peso et al. (1974[5]:837) suggested that the jar was a votive offering made to help ensure the success of the reservoir. An animistic ontology prompts us to build further on Di Peso's suggestion to propose that the vessel and the reservoir were themselves considered active agents who were the focus of human negotiation. As such, the placement of the pot reflects the humans' efforts to negotiate with other active participants and contributes to the reservoir's newly formed animism. Consequently, it was focused on bringing the reservoir "to life," as opposed to asking some supernatural third party for aid.

We note, though, that ethnographic research among the Pueblos suggests that living objects, including people, can be polysemous, so the two interpretations are not mutually exclusive. The Playas Red jar may have served to create the reservoir as an active water-being while also acting as a conduit for supernatural aid (VanPool

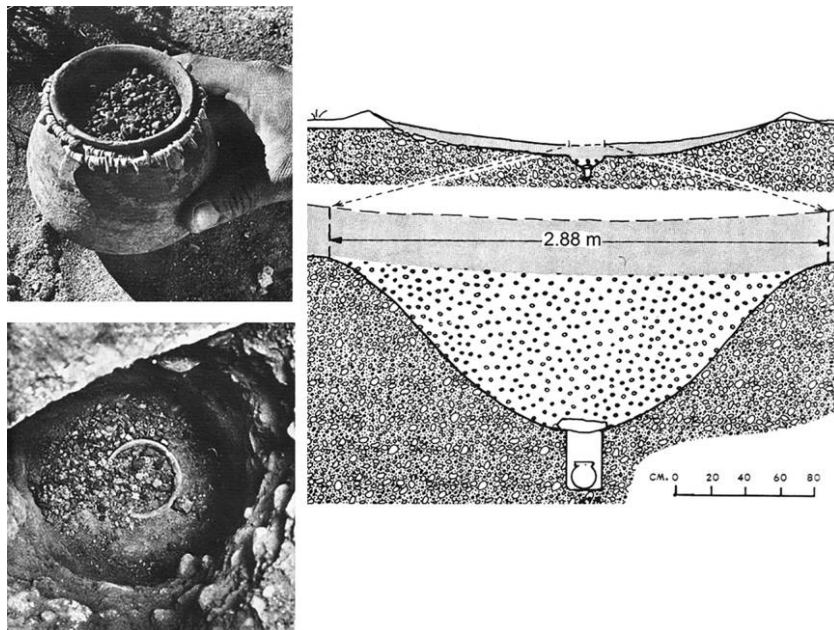


Figure 3. Playas Red pot from Reservoir 2: two views taken during excavation and profile showing provenience (adapted from Di Peso et al. 1974[5]:836 and Di Peso 1974:347).

and VanPool 2012), a role that is consistent with Bunzel's (1992:485) discussion of prayer sticks presented above. Puebloan ethnology includes several examples of offerings being given to animated springs to help feed and aid their spirits as well as offerings being given to supernatural third parties at springs. The Hopi for example used springs as shrines where they deposit offerings to supernatural beings (Bradfield 1973:172–73). The Hopi Water Clan also placed offerings of bread, prayer feathers, and tobacco into bowls that were placed on the bottom of springs to feed and strengthen them (Beaglehole and Beaglehole 1937:30–31). The Zuni held an elaborate yearly ritual to provide offerings of prayer sticks to the Zuni Salt Lake (Stevenson 1904:354–55). These cases are different than the Paquimé example in that the reservoir is humanmade and the pot with its contents was placed before the reservoir was filled, but they do show that bodies of water were considered living beings that could be strengthened and influenced through human interaction.

Further, Puebloan imagery and ritual contains many instances in which bowls are shown as the entryway for horned serpents. For example, the Hopi Lakon ceremony includes the ritual reenactment of oral traditions in which horned/plumed serpents sprang from bowls buried at ancestral settlements during the migration to Hopi. These bowls then gushed water, creating a new, living spring (Hieb 1973:114). The Hopi Kuysiplölqangw “Water-Vase Serpent” ceremony also includes horned/plumed serpent puppets that rise from water jars, although this ceremony seems

to emphasize the destructive, vengeful aspect of the serpent (Figure 4; Geertz and Lomatuway'ma 1987). Although speculative, it is possible that a major purpose of the reservoir bowl was to interact with the horned/plumed serpent to help bring the reservoir to life.



Figure 4. A depiction of a horned/plumed serpent rising from a bowl and “wrestling” with mudheads (Museum of Anthropology, University of Missouri, MAC 2015-10-018). Geertz and Lomatuway'ma (1987:241–46) report nearly identical painted and carved scenes that they suggest are linked to the Hopi Kuyisplölöqangw ceremony. See the electronic edition for a color version of this image.

The Support Posts in Unit 8

Unit 8 is a house cluster organized around enclosed plazas (Figure 5), one of which included the previously mentioned Walk-in Well (Di Peso et al. 1974[4]:363–64). This well was central to Paquimé's religious architecture, and it, as well as many rooms throughout the unit, appears to have been a focus of ritual dedication, renewal, and/or closure (VanPool and VanPool 2007; Walker 2002; Walker and McGahee 2006). Our focus here is on Family Cluster 2, a multi-level complex with five rooms that were excavated archaeologically and several more that were not (Di Peso et al. 1974[4]:402–11). The excavated rooms were connected through doorways, a hallway with stairs, and a long, central room with two T-shaped doors that opened to habitation rooms. The large central room (Room 21-8) was a ceremonial location dominated by three massive support posts oriented on a north-south axis (Di Peso et al. 1974[4]:408–10). The northern post appears to have been preeminent and shows clear evidence of dedication ritual, including a possible human sacrifice (Di Peso et al. 1974[4]:410). The post was placed in a posthole (0.7 m in diameter by 1.1 m deep) that contained five turquoise bead pendants (CG/2284) covered with a large stone seating disk (CG/2328). The large wooden post was placed on top of the disk and a child, 2 to 5 years old, was wrapped around its base (Burial 23-8). The hole was then filled with gravel and rock and plastered over during the floor's construction. Di Peso (1974:566; Di Peso et al. 1974[4]:410) and subsequent authors (e.g., Rakita 2009:120; Ravesloot 2003) interpreted the child as a sacrifice who was interred as the post was put into place. Given that the post was placed as part of the initial building of the multistory house unit and the materials placed round it were buried and then sealed with a prepared adobe floor and post collar, the placement of the turquoise pendants, the footing stone, and the child were part of the dedication of the post and, presumably, the surrounding structure. Two other children, one placed

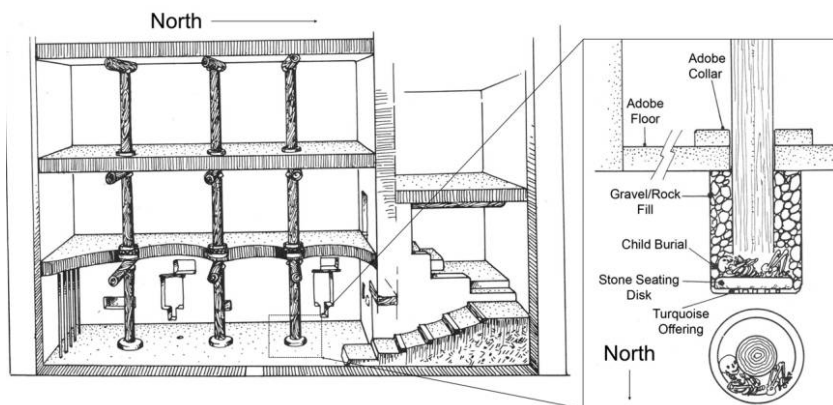


Figure 5. Plan and profile and elevation drawing of location of child sacrifice associated with northern post in House Cluster 2, Unit 8 (adapted from Di Peso et al. 1974[5]:408, 410).

nearby in the room and the other under the staircase, may have been related sacrifices. These fit a more general pattern of human sacrifices in ritually significant locations at Paquimé (e.g., sacrifices under the ball courts and a skullcap placed on the floor at the entryway of the Walk-in Well) (Ravesloot 2003).

Puebloan ethnographies report that cornerstones and posts are loci of dedicatory rituals to bring the building to life. Like the human-style necklace adorning the reservoir pot discussed above, the child sacrifice and other offerings “adorn” this post; they could have been placed elsewhere in the room or even more broadly on the site, but their placement with this feature at the time of its creation/dedication reflects a singular association with it. Thus we suggest that, as with the reservoir pot, the offerings helped with the negotiation between the nonhuman and human agents necessary to birth the new building. As before, the dedication provides insight into the character of the newly formed agent, and archaeological context along with direct historical analogy can provide insight about the specific meaning of the sacrifice. Turquoise was a precious stone that was symbolically associated with water among historic and prehistoric Southwestern and Mesoamerican cultures (Kantner 2010; Weigand and García de Weigand 2001). Its inclusion beneath the footing stone suggests that humans associated the subsequent Made Being with water. This link is further indicated by the child sacrifice associated with the footing stone and perhaps the child burials elsewhere in the room. Puebloan ethnography indicates that human sacrifice was associated with the horned/plumed serpent (Geertz and Lomatuway’ma 1987:179–81; Parsons 1939:185), an association with a deep history as illustrated by archaeological evidence such as a prehistoric kiva mural depicting a horned/plumed serpent attacking a human (Hibben 1975: fig. 42). Human sacrifice is also associated in Hopi emergence myths with enabling the movement of the sun (Malotki and Lomatuway’ma 1987:92, 94; Wallis 1936:8–9), but this seems to be a lesser association relative to the connection with the horned/plumed serpent; other Puebloan emergence myths do not seem to include child sacrifices, and the Hopi story indicates the sacrifice was a singular, one-time event required to grease the path of the sun (Malotki and Lomatuway’ma 1987:94). In contrast, many Puebloan traditions indicate that the horned/plumed serpent required periodic sacrifices. For example, Tewa legend states that the horned/plumed serpent would provide “abundance if a human life was offered to him every month” (James 1927:127–38). The association between child sacrifices and water is further strengthened by the Zuni myth linking child sacrifice to the creation of kachinas, who were initially children sacrificed to water to atone for sins of the village (Bunzel 1932:846).

The recurrent association of child sacrifice and water symbolism in related archaeological and ethnographically studied cultures suggests that the child sacrifice was likewise associated with water at Paquimé, an interpretation strengthened by the inclusion of turquoise. We propose that the placement of water-related dedicatory offerings in association with the main, northernmost post supporting this unit reflects that the structure itself was a living agent designed to help humans facilitate

access to water in the same manner as the stockpiling of ocean shell discussed by Whalen (2013). The nearby placement (about 30 m away) of the Walk-in Well, which was also associated with water ritual (VanPool and VanPool 2007; Walker and Lucero 2000), complements the essence of the unit as a living being; the building itself was an agent that helped humans negotiate with creatures such as horned/plumed serpents to help ensure access to water. The association between the horned/plumed serpent and the preeminent support post would be even more significant given that horned/plumed serpents were responsible for earthquakes, a meaningful concern given that the Casas Grandes area is prone to mild to moderate earthquakes (Doser and Rodriguez 1993; Sanford et al. 1972; Suter 2001; walls at Paquimé were toppled during the Parral earthquake of 1928). As an animated person, the post and the associated building were physically and spiritually powerful Made Beings that interacted with the serpent, humans, and the earth, acting as an intermediary and facilitating this complex and potentially dangerous interaction. The placement of at least one and possibly more child sacrifices here during the building's construction were part of the human contribution to the creation of this entity that both "brought it to life" and helped insure its cooperation.

The pine tree from the mountains used for the post and the adobe used for the collar may have further increased the support post's suitability as an intermediary. Mountains are often spiritually powerful beings and are associated with rain, water, and the horned/plumed serpent or other water deities in Mesoamerica and the Puebloan Southwest (Ortiz 1969; Phillips et al. 2006; see also Christie 2008). Wood from these locations is consequently associated with water, the mountains, and the powerful deities who live there (Whiting 1939:45). The adobe may have been mixed with flowering plants, minerals, and other materials to increase its potency, as was done historically among the Pueblos (Ellis 1952:149).

DISCUSSION AND CONCLUSIONS

Anthropologists recognize that it is essential to understand the cognitive importance of aspects of the archaeological record to fully understand past cultures (Ashmore 2015; Christie 2008; Walker 2008). Creating such understandings is an interpretive process contingent on the inference to the best explanation, a framework in which interpretations are evaluated relative to their fit to the available data (Fogelin 2007; Kelley 2001; Kelley and Hannen 1988). This analytic framework enables archaeologists to evaluate phenomenon even in interpretive contexts using empirical data. We have employed inference to the best explanation here to argue that the people who lived at Paquimé shared the Southwestern perspective of animism, and that dedication ritual at Paquimé shows a strong emphasis on the creation of Made Beings focused on water and water-related deities. Our arguments for animism in the Casas Grandes region build on previous work (e.g., VanPool and Newsome 2012; Walker and McGahee 2006; Whalen 2013) that indicates animism has a deep history in the region, especially at Paquimé. Our discussion emphasizes the role dedication ritual

has in bringing Made Beings to life and influencing their interaction with humans and other-than-human persons. We focus on examples where stratigraphic and other contextual information indicate dedication activity during the construction of the feature (the child sacrifice and other materials sealed around the post, and the pot at the reservoir's bottom) or at the end of construction (the Mound of the Serpent's eyes, which were placed as the last components of the effigy mound's head and consequently helped make it active as a seeing, watching entity). This reasoning obviously includes interpretive aspects, as does all archaeological reasoning. However, this interpretation fits well with Southwestern animistic ontologies in general. It is also internally consistent (as well as consistent with the previous discussions of Paquimé). It therefore fits Fogelin's (2007) criteria of "highly successful explanations."

Animistic perspectives hold that other-than-human persons influence and are influenced by humans. This reciprocal influence leads to complex webs of interaction that include collaboration in the creation of new other-than-human beings. The negotiation required of this collaboration can be, and we suspect typically is, marked using material symbols and ritual such as those illustrated in the ethnographic examples of Southwestern pottery production and prayer sticks presented above. In making Made Beings, humans negotiate with nonhuman persons (e.g., adobe to build a wall) and attempt to facilitate the negotiation among nonhuman persons (e.g., the support post and the horned/plumed serpent). Given that it is a collaborative effort, humans cannot wholly determine the characteristics of Made Beings, but they can influence them through dedication, maintenance, and closing/killing rituals. In doing so, they reject the hylomorphic perspective of craft production and employ an ontological framework that accords creative agency to nonhuman entities. Within this conceptual framework, we suggest that dedication ceremonies are central to creating the purpose and personality of the Made Being.

In our specific cases from Paquimé, the central focus is on water ritual, as various features were transformed into Water Beings. The creation and dedication of the Mound of the Serpent brought a major water-controlling supernatural directly into the community, where he directly controlled water. The Reservoir Pot adorned with the shell necklace and filled with turquoise helped create and maintain the water reservoir. The offering of turquoise and child sacrifices in Unit 8 were used to create a living being that protected the people from earthquakes and helped humans negotiate with the horned/plumed serpent and perhaps other supernatural entities to maintain a stable community. All three of these cases illustrate an animistic ontology that is consistent with (1) ethnographic and archaeological evidence indicating a deep history of animism throughout the New World, and the North American Southwest in particular, and (2) the archaeological record as it is currently understood in the region. Taken together, all three examples of dedicatory offerings focus on water, at least two of which (but possibly all three) are likely linked specifically to horned/plumed serpents. The emergent emphasis indicates both that water ritual was significant to the people at Paquimé and that the various Made Beings within

the settlement were active agents who, at least ideally, cooperated with humans to ensure their access to water and to negotiate with significant entities, such as the horned/plumed serpent. An animistic understanding of Paquimé transforms its architecture from being a passive series of walls and roofs into a spiritually powerful entity that helped ensure the access to water and stability that was required for the settlement's continued existence. The Made Beings then enabled ongoing human interaction with human and nonhuman beings, as documented ethnographically among the Pueblos (Bunzel 1992; Parsons 1939:207–9). The features we discuss here and those discussed elsewhere (e.g., Whalen 2013; VanPool and Newsome 2012; VanPool and VanPool 2012; Walker and McGahee 2006) both reflected and shaped the conceptual world of the Casas Grandes people.

One benefit of applying the animistic ontology is that it allows archaeologists to account for and derive insights into the cosmology and cognitive aspects of Paquimé (and, more broadly, Casas Grandes archaeology) in a way that simple functional (hylomorphic) analysis cannot. Animistic ontologies are not necessarily “right,” just as functional analyses are not necessarily “wrong,” but different sorts of relationships become evident when we look at the archaeological record using different conceptual/analytic tools. Studies of ontology, cosmology, and religion require the application of the appropriate conceptual tools, just as use-wear studies do. Ethnographic and archaeological data indicate a long tradition of animism in Puebloan and Ancestral Puebloan people. Using this ontological framework provides greater insight into past cognitive structures than is otherwise possible. Further, performance-based/functionalist approaches typically applied to the study of sites such as Paquimé do not necessarily conflict with the animistic perspective we apply here. Jones (2004), for example, discusses how color, an attribute that is often measured quantitatively, can both help identify and be explained by the role of artifacts as nonhuman persons. As he observes, archaeological science is not inconsistent with, and can in truth be strengthened by, considering materiality. We suggest that the importance of materiality and a flexible ontological approach is absolutely essential in studying dedication among Late Prehistoric Puebloan groups. We seek a deeper understanding of dedication rituals, not just to record them. Accomplishing this task will be greatly simplified, and may only be possible, when a more encompassing ontological framework is used.

Given that Paquimé was the economic and ritual center of the region, the function of the community itself and its individual features to help maintain access to water gives it and its associated elites a central importance to the “sacred landscape” of the entire region, an importance that is further illustrated by the massive quantities of shell discussed by Whalen (2013). Further analysis is necessary to determine if similar dedication rituals were used to form other settlements as water-producing/controlling Made Beings throughout the Casas Grandes region, which we anticipate is the case. Still, Paquimé was uniquely structured to be pre-eminent through the creation of a living reservoir, massive animated structures,

and even a sentient water-controlling horned serpent effigy mound, all of which is in addition to the previously noted concentration of copper, macaw and turkey burials, turquoise, Mesoamerican architecture, and ocean shell. As a living Made Being, Paquimé was thus a central character in human negation not only with water-controlling supernaturals such as the horned/plumed serpent but also with humans across the region and possibly the whole of the Southwest. Its unique manifestation as such a powerful water-related Made Being would have strengthened the standing of the elites residing there and was likely a central feature in the pilgrimages to the community. This standing in turn helped strengthen the Medio period social hierarchy discussed by such authors as Phillips and Gamboa (2015), Rakita (2009), Ravesloot (1988), VanPool et al. (2005), and Whalen and Minnis (2009) and was likely central to the adoption of aspects of Aztatlán religion across the whole of the Southwest (Riley 2005).

NOTE

The authors thank Myles Miller, Darrel Creel, Gordon Rakita, and Elizabeth Newsome, all of whom provided very helpful comments on this project, and Rob'yn Johnston and Candice Sall for their help with fig. 4. We also appreciate the insightful comments on an earlier version of this article provided by David Phillips, Lars Fogelin, Lawrence Straus, June-el Piper, and an anonymous reviewer.

REFERENCES CITED

- Adams, E. C. 2016. Closure and dedication practices in the Homol'ovi settlement cluster, northeastern Arizona. *American Antiquity* 81:42–57.
- Alberti, B., and T. L. Bray. 2009. Animating archaeology: Of subjects, objects and alternative ontologies. *Cambridge Archaeological Journal* 19:337–343.
- Ashmore, W. 2015. What were ancient Maya landscapes really like? *Journal of Anthropological Research* 71:305–326.
- Astuti, R. 2001. Are we all natural dualists? A cognitive developmental approach. *Journal of the Royal Anthropological Institute* 7:429–447.
- Beaglehole, E., and P. Beaglehole. 1937. *Notes on Hopi economic life*. New Haven: Yale University Press.
- Bird-David, N. 1999. “Animism” revisited: On personhood, environment and relational epistemology. *Current Anthropology* 40:S67–S91.
- . 2006. Animistic epistemology: Why do some hunter-gatherers not depict animals? *Ethos* 71(1):33–50.
- Boyer, P. 1996. What makes anthropomorphism natural? Intuitive ontology and cultural representations. *Journal of the Royal Anthropological Institute* 2:83–97.
- Bradfield, Maitland. 1973. *Natural history of associations: A study in the meaning of community*. New York: International Universities Press.
- Bradley, R. J. E. 2000. “Recent advances in Chihuahuan archaeology,” in *Greater Mesoamerica: The archaeology of West and Northwest Mexico*. Edited by M. S. Foster and S. Gorenstein, pp. 221–40. Salt Lake City: University of Utah Press.

- Brody, J. J., and R. Swentzell. 1996. *To touch the past: The painted pottery of the Mimbres people*. New York: Hudson Hill Press.
- Brown, L. A., and W. H. Walker. 2008. Prologue: Archaeology, animism and nonhuman agents. *Journal of Archaeological Method and Theory* 15:297–99.
- Bunzel, R. L. 1932. “Zuni katchinas: An analytical study,” in *Forty-seventh Annual Report of the Bureau of American Ethnology*, pp. 837–903. Washington, DC: Government Printing Office.
- . 1992. *Zuni ceremonialism*. Albuquerque: University of New Mexico Press. (originally published in 1932)
- Burt, C. K. 2013. “Ritually killed ceramic vessels in mortuary contexts across the prehistoric Southwest,” in *Advances in Jornada Mogollon archaeology: Proceedings from the 17th Jornada Mogollon Conference*. Edited by T. L. VanPool, E. M. McCarthy, and C. S. VanPool, pp. 211–26. Texas: El Paso Museum of Archaeology.
- Christie, J. J. 2008. Inka roads, lines, and rock shrines: A discussion of the contexts of trail markers. *Journal of Anthropological Research* 64:41–66.
- Cushing, F. H. 1886. “A study of Pueblo pottery as illustrative of Zuñi culture growth,” in *Fourth Annual Report of the Bureau of American Ethnology, 1882–83*, pp. 467–522. Washington, DC: Government Printing Office.
- Di Peso, C. C. 1974. *Casas Grandes: A fallen trading center of the Gran Chichimeca*, Vol. 2. Dragoon, Arizona: Amerind Foundation.
- Di Peso, C. C., J. B. Rinaldo, and G. J. Fenner. 1974. *Casas Grandes: A fallen trading center of the Gran Chichimeca*, Vols. 4–8. Dragoon, Arizona: Amerind Foundation.
- Doser, D. I., and J. Rodriguez. 1993. The seismicity of Chihuahua, Mexico, and the 1928 Parral earthquake. *Physics of the Earth and Planetary Interiors* 78:97–104.
- Dutton, B. P. 1963. *Sun Father's way: The kiva murals of Kuaua*. Albuquerque: University of New Mexico Press.
- Ellis, F. H. 1952. Jemez kiva magic and its relation to features of prehistoric kivas. *Southwestern Journal of Anthropology* 8:147–63.
- Fogelin, L. 2007. Inference to the best explanation: A common and effective form of archaeological reasoning. *American Antiquity* 72:603–26.
- Fogelin, L., and M. B. Schiffer. 2015. Rites of passage and other rituals in the life histories of objects. *Cambridge Archaeological Journal* 25:815–27.
- Foster, M. S. 1999. “The Aztatlan Tradition of West and Northwest Mexico and Casas Grandes: Speculations on the Medio period florescence,” in *The Casas Grandes world*. Edited by C. F. Schaafsma and C. L. Riley, pp. 149–63. Salt Lake City: University of Utah Press.
- Gamboa, E. 2002. “Casas Grandes culture,” in *Talking birds, plumed serpents, and painted women: The ceramics of Casas Grandes*. Edited by J. Sturh, pp. 41–43. Tucson: Tucson Museum of Art and Historic Block.
- Geertz, A. W., and M. Lomatuway'ma. 1987. *Children of cottonwood: Piety and ceremonialism in Hopi Indian puppetry*. Lincoln: University of Nebraska Press.
- Gell, A. 1998. *Art and agency: An anthropological theory*. Oxford: Clarendon Press.
- Giddens, A. 1984. *The constitution of society: Outline of the theory of structuration*. Berkeley: University of California Press.
- Gilmore, G. W. 1919. *Animism or thought currents of primitive peoples*. Boston: Marshall Jones.

- Hallowell, I. 1960. "Ojibwa ontology, behavior and world view," in *Culture in history: Essays in honor of Paul Radin*. Edited by S. Diamond, pp. 19–52. New York: Columbia University Press.
- Hampson, J. 2013. The materiality of rock art and quartz: A case study from Mpumalanga Province, South Africa. *Cambridge Archaeological Journal* 23:363–72.
- Harris, M. 1989. *Our kind: Who we are, where we came from, where we are going*. New York: Harper and Row.
- Harrison-Buck, E. 2012. Architecture as animate landscape: Circular shrines in the ancient Maya lowlands. *American Anthropologist* 114:64–80.
- Harvey, G. 2006. *Animism: Respecting the living world*. New York: Columbia University Press.
- Hibben, F. C. 1975. *Kiva art of the Anasazi at Pottery Mound*. Las Vegas: KC Publications.
- Hieb, L. A. 1973. *The Hopi ritual clown: Life as it should not be*. Ann Arbor: University Microfilms.
- Hill, E. 2011. Animals as agents: Hunting ritual and relational ontologies in prehistoric Alaska and Chukotka. *Cambridge Archaeological Journal* 21:407–26.
- Hodder, I. 2011. Human-thing entanglement: Towards an integrated archaeological perspective. *Journal of the Royal Anthropological Institute* 17:154–77.
- Hoebel, E. A. 1979. "Zia Pueblo," in *Handbook of North American Indians*, Vol. 9: Southwest. Edited by A. Ortiz, pp. 407–17. Washington, DC: Smithsonian Institution.
- Ingold, T. 2006. Rethinking the animate, re-animating thought. *Ethnos* 71:9–20.
- . 2010. The textility of making. *Cambridge Journal of Economics* 34:91–102.
- James, A. 1927. *Tewa firelight tales*. New York: Longmans, Green.
- Jones, A., 2004. Archaeometry and materiality: Materials-based analysis in theory and practice. *Archaeometry* 46:327–38.
- Kantner, J. 2010. Implications of human behavioral ecology for understanding complex human behavior: Resource monopolization, package size, and turquoise. *Journal of Anthropological Research* 66:231–57.
- Kelley, J. C. 2000. "The Aztatlán mercantile system: Mobile traders and the northwestward expansion of Mesoamerican civilization," in *Greater Mesoamerica: The archaeology of West and Northwest Mexico*. Edited by M. S. Foster and S. Gorenstein, pp. 137–54. Salt Lake City: University of Utah Press.
- Kelley, J. H. 2001. "A middle-of-the-road view of archaeology," in *Examining the course of Southwestern archaeology: The Durango Conference, September 1995*. Edited by D. A. Phillips Jr. and L. Sebastian, pp. 129–44. Albuquerque: New Mexico Archeological Council Special Publication 3.
- Kelley, J. H., and M. P. Hanen. 1988. *Archaeology and the methodology of science*. Albuquerque: University of New Mexico Press.
- Kidder, A.V. 1916. "The pottery of the Casas Grandes district, Chihuahua," in *Holmes anniversary volume: Anthropological essays*. Edited by F.W. Hodge, pp. 253–68. Washington, DC: J.W. Bryan Press.
- Lambek, M. 1998. "Body and mind in mind, body and mind in body: Some anthropological interventions in a long conversation," in *Bodies and persons: Comparative perspectives from Africa and Melanesia*. Edited by M. Lambek, and A. Strathern, pp. 103–23. Cambridge: Cambridge University Press.

- Latour, B. 2005. *Reassembling the social: An introduction to actor-network-theory*. Oxford: Oxford University Press.
- Losey, R. 2010. Animism as a means of exploring archaeological fishing structures on Willapa Bay, Washington, USA. *Cambridge Archaeological Journal* 10:17–32.
- Low, C. 2014. Khoe-San ethnography, ‘New Animism’ and the interpretation of southern African rock art. *South African Archaeological Bulletin* 69:164–72.
- Malinowski, B. 1948. *Magic, science and religion and other essays*. Boston: Beacon Press.
- Malotki, E., and M. Lomatuway’ma. 1987. *Maasaw: Profile of a Hopi god*. Lincoln: University of Nebraska Press.
- Mathiowetz, M. 2011. *The diurnal path of the sun: Ideology and interregional interaction in ancient Northwest Mesoamerica and the American Southwest*. PhD dissertation, University of California, Riverside.
- Mathiowetz, M., P. Schaafsma, J. Coltman, and K. Taube. 2015. The darts of dawn: The Tlahuizcalpantecuhtli Venus Complex in the iconography of Mesoamerica and the American Southwest. *Journal of the Southwest* 57:1–102.
- Meskell, L. 2005. *Archaeologies of materiality*. Malden, MA: Blackwell.
- Miller, M. E., and K. A. Taube. 1993. *The gods and symbols of ancient Mexico and the Maya: An illustrated dictionary of Mesamerican religion*. London: Thames and Hudson.
- Mills, B. J., and T. J. Ferguson. 2008. Animate objects: Shell trumpets and ritual networks in the Greater Southwest. *Journal of Archaeological Method and Theory* 15:338–61.
- Mills, B. J., and W. H. Walker. 2008. “Introduction: Memory, materiality, and depositional practice” in *Memory work: Archaeologies of material practices*. Edited by B. J. Mills, and W. H. Walker, pp. 3–23. Santa Fe: School for Advanced Research Press.
- Mindeleff, V. 1891. *A study of Pueblo architecture: Tusayan and Cibola*. U.S. Bureau of American Ethnology Eighth Annual Report. Washington, DC: Government Printing Office.
- Moore, J. D. 1996. The archaeology of plazas and the proxemics of ritual: Three Andean traditions. *American Anthropologist* 98:789–802.
- Moro, P. A., J. E. Myers, and A. C. Lehmann. 2008. “Introduction” and introductory paragraphs, in *Magic, witchcraft, and religion: Anthropological study of the supernatural* (seventh ed.). Edited by P. A. Moro, J. E. Myers, and A. C. Lehmann, pp. 1–5, 16. Boston: McGraw-Hill.
- Ortiz, A. 1969. *The Tewa world: Space, time and becoming in a Pueblo society*. Chicago: University of Chicago Press.
- Osborne, R. 2004. Hoards, votives, offerings: The archaeology of the dedicated object. *World Archaeology* 36:1–10.
- Parsons, E. W. C. 1929. *Social organization of the Tewa of New Mexico*. *Memoirs of the American Anthropological Association* 39.
- . 1939. *Pueblo Indian religion*. Chicago: University of Chicago Press.
- Phillips, D. A., Jr., and E. Gamboa. 2015. “The end of Paquimé and the Casas Grandes culture,” in *Ancient Paquimé and the Casas Grandes world*. Edited by P. E. Minnis and M. E. Whalen, pp. 148–71. Tucson: University of Arizona Press.
- Phillips, D. A., Jr., C. S. VanPool, and T. L. VanPool. 2006. “The Horned Serpent tradition in the North American Southwest,” in *Religion in the prehispanic Southwest*. Edited by C. S. VanPool, T. L. VanPool, and D. A. Phillips, Jr., pp. 17–30. Salt Lake City: University of Utah Press.

- Porr, M., and H. R. Bell. 2012. "Rock-art," "animism" and two-way thinking: Towards a complementary epistemology in the understanding of material culture and "rock-art" of hunting and gathering people. *Journal of Archaeological Method and Theory* 19:161–205.
- Rakita, G. F. M. 2009. *Ancestors and elites: Emergent complexity and ritual practices in the Casas Grandes polity*. Lanham, MD: AltaMira Press.
- Ravesloot, J. C. 1988. *Mortuary practices and social differentiation at Casas Grandes, Chihuahua, Mexico*. Anthropological Papers of the University of Arizona 49. Tucson: University of Arizona Press.
- . 2003. El sacrificio en Casas Grandes. *Arqueología Mexicana* 11 (Sept/Oct):36–39.
- Riley, C. L. 2005. *Becoming Aztlan: Mesoamerican influences in the Greater Southwest (A.D. 1200–1500)*. Salt Lake City: University of Utah Press.
- Robinson, D. W. 2013. Drawing upon the past: Temporal ontology and mythological ideology in south-central California rock art. *Cambridge Archaeological Journal* 23:373–94.
- Schaafsma, P. 2001. "Quetzalcoatl and the Horned and Feathered Serpent of the Southwest," in *The road to Aztlan: Art from a mythic homeland*. Edited by V. M. Fields and Z. Zamudio-Taylor, pp. 138–49. California: Los Angeles Museum of Art and Albuquerque: University of New Mexico Press.
- Schwarz, K. R. 2013. Architecture, materialization and the duality of structure: A Maya case study of structurally shaped innovation. *Cambridge Archaeological Journal* 23:307–32.
- Sanford, A. R., A. J. Budding, J. P. Hoffman, O. S. Alptekin, C. A. Rush, and T. R. Toppozada. 1972. *Seismicity of the Rio Grande rift in New Mexico*. Socorro: New Mexico Bureau of Mines and Mineral Resources.
- Sellers, I. 2010. Bordering on the supernatural: Merging animism and the frontier in archaeology. *PlatForum* 11:74–88.
- Sillar, B. 2009. The social agency of things? Animism and materiality in the Andes. *Cambridge Archaeological Journal* 19:367–77.
- Snead, J. E. 2008. *Ancestral landscapes of the Pueblo world*. Tucson: University of Arizona Press.
- Steadman, L. B., C. T. Palmer, and C. F. Tilley. 1996. The universality of ancestor worship. *Ethnology* 35:63–76.
- Stevenson, Matilda Coxe Evans. 1904. *Zuni Indians: Their mythology, esoteric fraternities, and ceremonies*. Twenty-third Annual Report of the Bureau of American Ethnology, 1901–1902. Washington, DC: Government Printing Office.
- Suter, M. 2001. The historical seismicity of northeastern Sonora and northwestern Chihuahua, Mexico (28–32 N, 106–111 W). *Journal of South American Earth Sciences* 14:521–32.
- Thomas, J. 2001. "Archaeologists of place and landscape," in *Archaeological theory today*. Edited by I. Hodder, pp. 165–84. Cambridge: Polity Press.
- Trimble, S. 2004. *Talking with the clay: The art of Pueblo pottery* (fourth ed.). Santa Fe: SAR Press.
- Tylor, E. B. 1958. *Primitive culture*. New York: Harper and Row. (Originally published in 1871)
- VanPool, C. S., and E. Newsome. 2012. The spirit in the material: A case study of animism in the American Southwest. *American Antiquity* 77:243–62.
- VanPool, C. S., and T. L. VanPool. 2007. *Signs of the Casas Grandes shamans*. Salt Lake City: University of Utah Press.
- . 2012. "Breath and being: Contextualizing object persons at Paquimé, Chihuahua, Mexico," in *Archaeology of spiritualities*. Edited by K. Rountree, C. Morris, and A. D. Peatfield, pp. 87–106. New York: Springer.

- VanPool, C. S., T. L. VanPool, and M. Harmon. 2008. "Plumed and Horned Serpents of the American Southwest," in *Touching the past: Ritual, religion, and trade of Casas Grandes*. Edited by G. Nielsen-Grimm and P. Stavast, pp. 47–58. Provo: Museum of Peoples and Cultures, Brigham Young University.
- VanPool, T. L., C. S. VanPool, and R. D. Leonard. 2005. "The Casas Grandes core and periphery," in *Archaeology between the borders: Papers from the 13th Biennial Jornada Mogollon Conference*. Edited by M. Thompson, J. Jurgena, and L. Jackson, pp. 25–35. El Paso: El Paso Museum of Archaeology.
- VanPool, T. L., C. S. VanPool, G. F. M. Rakita, and R. D. Leonard. 2008. "Birds, bells, and shells: The long reach of the Aztatlán trading tradition," in *Touching the past: Ritual, religion, and trade of Casas Grandes*. Edited by G. Nielsen-Grimm, and P. Stavast, pp. 5–14. Provo: Museum of Peoples and Cultures, Brigham Young University.
- Viveiros de Castro, E. 1998. Cosmological deixis and Amer-Indian perspectivism. *Journal of the Royal Anthropological Institute* 4:469–88.
- Walker, W. H. 2002. Stratigraphy and practical reason. *American Anthropologist* 104:159–77.
- . 2008. "Practice and nonhuman social actors: The afterlife of witches and dogs in the American Southwest," in *Memory work: Archaeologies of material practice*. Edited by B. J. Mills, and W. H. Walker, pp. 137–57. Santa Fe: School for Advanced Research Press.
- Walker, W. H., and L. J. Lucero. 2000. "The depositional history of ritual and power," in *Agency in archaeology*. Edited by M-A. Dobres and J. Robb, pp. 130–47. London: Routledge.
- Walker, W. H., and G. McGahee. 2006. "Animated waters: Ritual technology at Casas Grandes, Chihuahua," in *Precolumbian water management: Ideology, ritual, and power*. Edited by L. J. Lucero and B. W. Fash, pp. 195–210. Tucson: University of Arizona Press.
- Wallis, W. 1936. Folk tales from Shumopovi, Second Mesa. *Journal of American Folklore* 49:1–68.
- Webster, Aleksasha K. 2010. *Diné hooghan: Sacred space or family member*. PhD dissertation, Arizona State University.
- Weigand, P. C., and A. García de Weigand. 2001. "A macroeconomic study of the relationships between the ancient cultures of the American Southwest and Mesoamerica," in *The road to Aztlan: Art from a mythic homeland*. Edited by V. M. Fields and V. Zamudio-Taylor, pp. 184–95. Los Angeles: Los Angeles County Museum of Art.
- Whalen, M. E. 2013. Wealth, status, ritual, and marine shell at Casas Grandes, Chihuahua, Mexico. *American Antiquity* 78:624–39.
- Whalen, M. E., and P. E. Minnis. 2009. *The neighbors of Casas Grandes: Excavating Medio period communities of Northwest Chihuahua, Mexico*. Tucson: University of Arizona Press.
- White, L.A. 1962. *The Pueblo of Sia, New Mexico*. Bureau of American Ethnology Bulletin 184. Washington, DC: Government Printing Office.
- Whiting, Alfred F. 1939. *Ethnobotany of the Hopi*. Bulletin 15. Flagstaff: Museum of Northern Arizona.
- Willerslev, R. 2007. *Soul hunters: Hunting, animism, and personhood among the Siberian Yukaghirs*. Berkeley: University of California Press.
- Zedeño, M. N. 2008. Bundled worlds: The roles and interactions of complex objects from the North American Plains. *Journal of Archaeological Method and Theory* 15:362–78.