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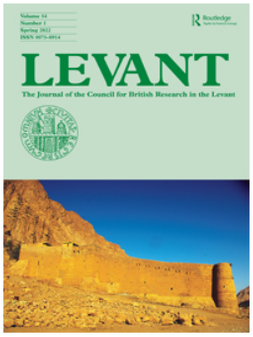

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Shamanism at the transition from foraging to farming in Southwest Asia: sacra, ritual, and performance at Neolithic WF16 (southern Jordan)

Steven Mithen

Shamanism is a pervasive form of ritual practice documented within hunter-gathering and farming societies throughout the world, and continuing within some present-day urban communities. Despite exhibiting considerable variation, shamanism has several recurrent features, notably the role of the shaman as a mediator between the spirit and human worlds. Shamanism has been cited to explain aspects of the Epipalaeolithic and Neolithic archaeological records in Southwest Asia and Anatolia. Building on that work, this contribution explores whether shamanism might account for intriguing finds from the early Neolithic settlement of WF16 in southern Jordan, notably a large quantity of bird bones, zoomorphic artefacts and architectural features. A range of interpretations for the evidence are considered with shamanism emerging as the most compelling, suggesting that shamanic thought and practice pervaded daily life at WF16. The paper concludes by proposing that shamanism played a key role in the Early Holocene transition from hunting and gathering to farming in Southwest Asia, as it provided a means for coping with the uncertainty arising from climate and economic change.

Keywords Shamanism, Neolithic, Wadi Faynan 16, southern Jordan

Introduction

The transition from foraging to farming in Southwest Asia involved changes in all aspects of human life, including economy, mobility, technology and ideology. The latter is most evident in the emergence of mortuary practices involving cranial removal during the 15th–13th millennium BP (Baird *et al.* 2013; Bocquentin *et al.* 2016), and the fluorescence of architecture and art in the northern Levant and Upper Tigris Basis during the 12th millennium BP (Benz and Bauer 2013; Dietrich *et al.* 2012). Shamanism has been cited as a form of religious practice that might underlie such developments (Benz and Bauer 2015; Grosman *et al.* 2008; Kolankaya-Bostanci 2014). This paper explores whether shamanic activity might account for currently unexplained aspects of Wadi Faynan 16 (WF16), a Pre-Pottery Neolithic A (PPNA) site in southern Jordan.

WF16 was discovered in 1996, evaluated between 1998–2001 (Finlayson and Mithen 2007) and excavated between 2008–2010 (Mithen *et al.* 2018), although only *c.* 20% of its deposits were explored (Fig. 1). Three phases of activity, spanning 11.84–10.8 ka BP, were identified, with the second phase represented by a dense cluster of pisé-constructed semi-subterranean structures, including a particularly large amphitheatre-like structure (Structure O75) (Fig 2; Fig. 3). The excavation report concluded that: 'people lived at the settlement for extended periods of time, with all the concomitant activities, including sleeping, eating, socialising, sex, childbirth, child rearing and rites of passage through puberty, into old age, death and post-mortuary practice'

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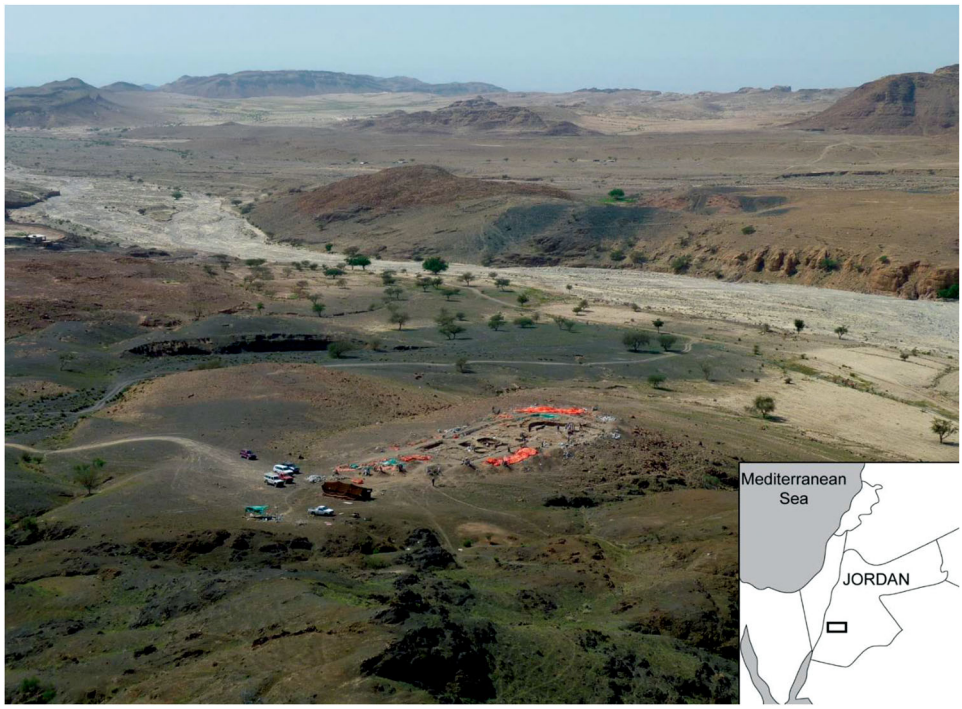

Figure 1 **WF16 in southern Jordan: looking west along Wadi Faynan to the Wadi Araba, with the site of WF16 under excavation in April 2010 (photo: S. Mithen).**

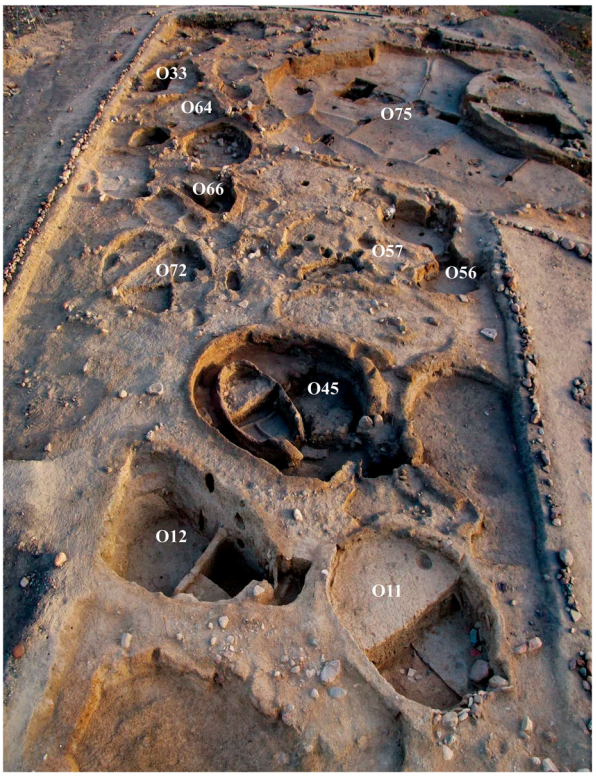

Figure 2 **W16 showing cluster of semi-subterranean structures undergoing excavation in April 2010, labelling those referred to in the text (photo: S. Mithen and B. Finlayson).**

(Mithen *et al.* 2018: 692). Analysis of the WF16 bird bones, and other sources of data, concluded that WF16 was home to a small resident population throughout the year, and in the spring was a place for gatherings of hunter-gatherer/cultivators, who exploited flocks of buzzards and other birds that rested within the wadi on their annual migration between Africa and Europe (Mithen *et al.* 2022).

While these interpretations characterize the overall nature of activity at WF16, they leave numerous aspects of its archaeological evidence unexplained. Most notably the quantity and diversity of bird bones, their spatial distribution and cut marks, zoomorphic and anthropomorphic carvings, a finely pointed stone baton, the large amphitheatre-like structure, and architectural features of the smaller, semi-subterranean structures. With shamanism having been proposed as an explanation for Late Epipalaeolithic and Early Neolithic activity elsewhere in Southwest Asia, this paper explores whether shamanism could provide a framework for interpreting these problematic finds from WF16.

Shamanism

Having originally been defined with reference to the Tungus peoples of Siberia, the term shamanism is now applied to a shared set of practices found throughout the world within hunter-gatherer,

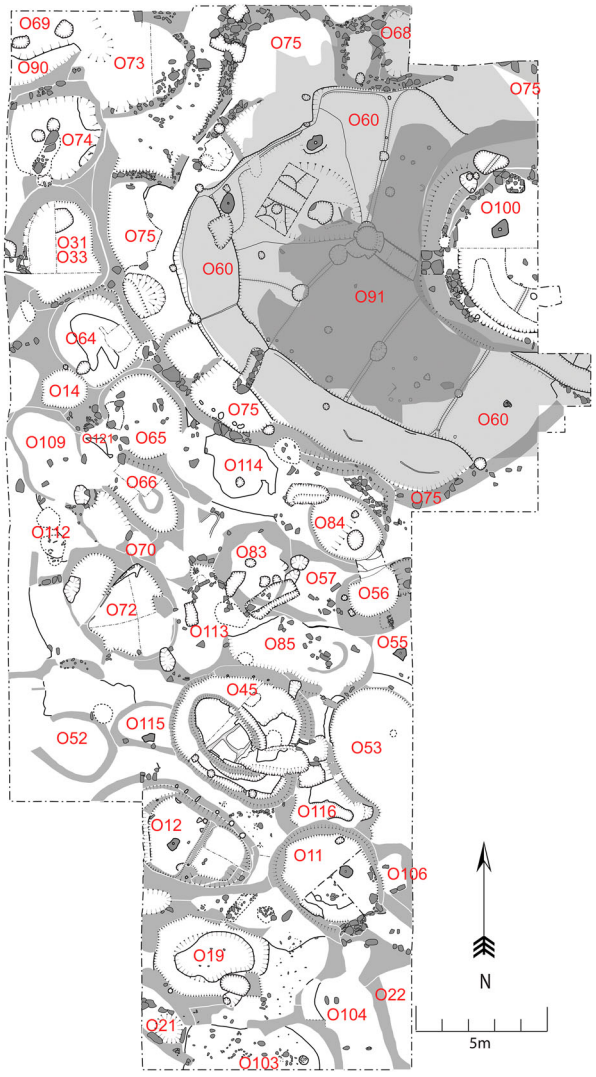

Figure 3 Site plan of WF16 following 2010 excavation (drawing: D. Maričević).

farming and urban communities (DuBois 2009; Eliade 1964; Furst 1994; Jones 2006). Shamanism is distinguished by several recurrent features. A shaman has expertise in mediating between the spirit and human worlds; he/she may be full-time or part-time, a professional or otherwise, a generalist or with a specific set of skills. Shamans often enter into altered states of consciousness during which they undertake journeys to the spirit world, seeking to influence its impact on the human world. As such, the defining feature of shamanism is best described as either a mode of communication with the supernatural (Lot-Falck 1977), or a set of techniques to make things happen in the world (Willerslev 2007), rather than a set of religious beliefs. Pentikäinen (1998: 87) refers to shamanism as a 'philosophy of mind'. In some societies this philosophy pervades all activities and persons, irrespective of whether they are identified as 'shamans' (e.g., the Khanty and Yukaghir of Siberia, Jordan 2001; Willerslev 2007).

While the notion of a three-tiered cosmos is common (Benz and Bauer 2015; DuBois 2009), shamanic ideas and practices are primarily recounted through stories, there being no doctrines or fixed ideology. Such stories illustrate how the spirit world is embedded and pervasive within the community's local environment. There is often extensive room for individual interpretation and expressions of limited, if any, understanding of the spirit world beyond knowing that it exists (e.g., Willerslev 2007 for Yukaghirs of Siberia; Praet 2009 for the Chachi of Ecuador). As Balzer (1996: 310) notes, the evidence for shamanism 'is rich but ultimately poetic to the point of unknowability without direct experience'.

The shaman seeks to influence the action of the spirits for the benefit of his/her community, or specific persons within it, for example, healing the sick or promoting hunting success. Shamanic rituals are also used to control the weather, locate murderers and thieves, find lost pigs and provide magical demonstrations for entertainment (Charles 1953; Schieffelin 1985). Shamanic practices can involve highly emotive ritual and theatrical performances at social gatherings, with music, dance, costume, and a range of material paraphernalia, referred to as sacra; they can also be private and solitary undertakings by the shaman. Altered states of consciousness for the shaman, and sometimes for other participants, are induced by drumming, chanting, rhythmic swaying and/or drugs. During his/her trance, the shaman is supported by his/her spirit helper who guides him/her to other tiers of the cosmos, sometimes involving a hazardous journey. The shaman may adopt the features of his/her alter ego, often a strong animal such as a raptor, raven, or feline (Benz and Bauer 2015).

While shamanism found throughout northern Eurasia and potentially North America might derive from a common source, possibly in the Late Pleistocene, its global distribution suggests such practices were frequently 'reinvented or rediscovered because of innate structures of the human mind and common features of a hunter-gatherer lifestyle' (Winkleman 2000: 77). Such innate structures encompass cognitive fluidity, the propensity to blend concepts, stores of knowledge and ways of thinking (Mithen 1996), universal features of the neuro-physiological system that enable people to enter, and then experience altered states of consciousness in a similar manner (Lewis-Willians and Dowson 1988), and those which induce realistic visions of people, animals and objects (Ramachandran and Blakeslee

1998). The 'common features of a hunter-gatherer lifestyle' that Winkelman cites are, presumably, the constant uncertainties about finding and killing game, weather conditions, social relationships, and the need to cure physical and mental ailments in the absence of modern (i.e., science-based) medicine.

While hunter-gatherer lifestyles and evolved features of the human mind might induce a propensity towards shamanic thought and practice, these would only have been realized and sustained to leave an archaeological trace if shamanism returned benefits to the participants. Such benefits would have arisen from the social gatherings and ceremonies that shamanism involved: enhanced social bonding from singing and dancing together (Savage *et al*. 2020); pleasurable sensations from the release of endorphins (Dunbar *et al*. 2012); exchanges of material items and information that enhanced decision making to achieve food security (Whallon 2006); enhanced co-operation and reproductive success (Apicella *et al.* 2012; Page *et al*. 2017); the 'placebo' healing effects from shamanic ceremonies (DuBois 2009: 147–48).

Identifying shamanism in the archaeological record

Recognizing shamanism in the archaeological record relies on identifying excavated artefacts and locations utilized as the 'sacra' during shamanic practices (VanPool 2009). While ethnographic accounts imply that sacra are less important than the songs and words spoken by shamans, sacra 'concretize the relations between shamans and the spirit world as well as those between shamans and their communities' (DuBois 2009: 176). Material objects, plant substances, public and private spaces — whether natural or constructed — help the shaman to enter and journey within the spirt world via an altered state of consciousness.

Despite considerable variability within the ethnographic record, there are recurrent features of sacra (DuBois 2009: 176–201): costumes, headdresses and body decoration that utilize the skins, teeth, bones and feathers of animal and birds; drums, rattles, and other noise makers; sticks referred to as staffs, curing sticks or wands; masks; pipes and other paraphernalia to ingest drugs; depictions and carvings of anthropomorphic and zoomorphic figures. Effigies are predominantly the shaman's 'tutelary' creatures — those which lend the shaman their attributes and provide a guide into the spirit world. These might be carefully made from durable materials and long lasting, or quickly fashioned for a specific purpose. For instance, whenever the Yukaghirs hunters killed an elk, a quick effigy was carved in wood, smeared in the elk's blood and left hanging in a tree (Willerslev 2007: 129). Paintings and rock engravings may depict shamanic visions (Lewis-Williams 2002a).

Most of the ethnographically described sacra is made from organic materials. The rare circumstances of preservation are likely to leave no more than ambiguous fragments of once complex and elaborate objects and costumes (for examples see Anawalt 2014 and Purev and Purvee 2004). Identification is further challenged because, although sometimes 'exquisitely fashioned', sacra can also be 'unassuming' and 'sometimes barely distinguishable from random assemblages of natural elements' (DuBois 2009: 201). Whatever the challenges, asking whether shamanic sacra are present is a requirement when investigating past lifeways and interpreting the archaeology of hunter-gatherers and early farmers. As VanPool (2009: 182) explains, this task is 'a hermeneutic process that requires archaeologists to work back and forth between the ethnographic and archaeological records'.

Shamanism in the Epipalaeolithic and Early Neolithic of Southwest Asia

This hermeneutic process has been adopted in previous studies invoking shamanism as a feature of practice in the Epipalaeolithic and Early Neolithic of Southwest Asia.

Grosman *et al.*'s (2008) identification of a 13th millennium BP Late Natufian burial at Hilazon Tachtit as a shaman, implicitly relied on interpreting the grave goods as sacra. These were unique for a Natufian burial, including 50 tortoise carapaces, marten skulls, an eagle wing bone, the forearm of a wild boar and a cow's tail. Grosman *et al.* noted that such animals are found within shamanic practices throughout the world, citing the role of the eagle within Inuit shamanism. The unusual location of the burial, within a previously unused cave on a steep escarpment and 10 km from known settlement, suggests that the elderly disabled women had once held a significant position with her community.

Benz and Bauer (2015) interpreted 12th millennium BP depictions from Upper Mesopotamia, the Upper Euphrates and the Upper Tigris Basin as indicative of shamanic practices, drawing on imagery from Körtik Tepe and Hasankeyef Höyük. Images of human-like figures on stone vessels were interpreted as shamans and 'the recurrent association of concentric circles, birds, snakes, scorpions and the human figure … might have symbolized the shaman's journey to the spiritual world' (Benz and

Bauer (2015: 9). Their cross-cultural ethnographic study of animals within shamanic practices identified: snakes as frequently transporting shamans into the underworld; ducks, geese and other large waterfowl doing likewise for the upperworld; and felines and eagles as dangerous animals that shamans can control. By also identifying shamanic themes within the depictions at Göbekli Tepe, Jerf el Ahmar and Tell 'Abra 3, Benz and Bauer (2015: 13) concluded that 'common ideological concepts with shamanic features were spread across northern Mesopotamia during the earliest Holocene'.

An equally persuasive case for shamanism can be made for the 10th millennium BP Neolithic in the southern Levant, based on objects excavated from Nahal Hemar cave in Israel (Bar-Yosef 1985; Bar-Yosef and Alon 1988; Borrell *et al*. 2020). The stone mask, modelled skull caps, beads and bone figurines from this cave have been interpreted as cult paraphernalia (Bar-Yosef 1985). Although shamanism has not been specifically invoked, masks are frequently used by shamans in northern regions to facilitate their engagement with, or protection from, the spirit world (Shuyun *et al*. 2003). Caves in mountain sides are sometimes viewed as 'doorways' into the spirit world and used for either private ritual or the storage of sacra (VanPool 2009).

The art and architecture of the 9th millennium BP Neolithic settlement of Çatalhöyük in Anatolia has also been interpreted as representing shamanic practices (Lewis-Williams 2004; Yuluğ 2018). The painted walls, sometimes with moulded and embedded parts of animals, are interpreted as the interface between the human and spirit world, with the acts of re-painting and re-plastering serving to coax out the spirits. Lewis-Williams (2004: 46) argued that the imagery at Çatalhöyük 'is consistent with a shamanic worldview that included a tiered cosmos, spirit-animals, supernatural personages, [and] concepts of supernatural potency'.

The settlement of WF16

Although basal deposits were not reached and redeposited traces of Epipalaeolithic activity are present, the earliest dated phase of settlement at WF16 lies between 11.84–11.30 ka BP, involving small, stone-walled, mud-mortared, circular structures (Phase 1). The pisé-constructed semi-subterranean structures were built and used between 11.30–10.80 ka BP, with a major focus of activity centred on 11.20 ka BP (Phase 2). These structures were frequently remodelled, resulting in the redeposition of artefact-bearing sediments, such as floor deposits becoming incorporated into pisé-walls. At *c*. 10.8 ka BP, there was a shift to free-standing circular structures, often with burials, cut into the earlier semi-subterranean structures, placed below their floors (Phase 3). The amphitheatre-like structure (O75) was re-used as a centralized midden for the settlement. These post-10.8 ka BP developments involved the redeposition of artefact-rich sediments, probably including the dumping of Phase 2 material into the new Phase 3 midden. This suggests an increased degree of sedentism and changes in social/ideological activity at WF16, with a preference for a large midden rather than an amphitheatre-like structure. The final activity is dated to *c*. 10.24 ka BP, although more recent deposits may have been entirely lost by erosion.

WF16 had a hunter-gatherer economy typical of the PPNA in the southern Levant. Plant material from the 2008–2010 excavation remains under study, but initial indications confirm that a wide range of seeds from legumes and grasses, including barley, were utilized (Mike Charles, pers. comm); as also recognized from the 1997–2003 site evaluation (Kennedy 2007). The current samples are insufficiently preserved to identify whether the barley grains are entirely wild or partially domesticated. The latter would not be surprising considering the archaeobotanical evidence from Dhra', 50 km north (Colledge *et al*. 2018), and the raised floors at WF16 of the type interpreted as granaries at Dhra' (Kuijt and Finlayson 2009; Mithen *et al*. 2018: figs 8.4, 14.41). The analysis of the mammalian remains is also on-going, but a clear pattern has emerged with a heavy focus on the exploitation of wild goat, probably ibex, some exploitation of gazelle and aurochs, and a limited presence of other taxa (Carruthers and Dennis 2007; Makarewicz and Finlayson 2021). The fauna appears considerably less diverse than at the contemporay sites of El-Hemmeh and Dhra', which have higher proportions and a greater range of small game.

While the economy appears similar to that from other PPNA sites in the southern Levant, WF16 has a more extensive and elaborate range of material culture. This includes relatively large assemblages of stone and shell beads; stone vessels with incised geometric designs; zoomorphic and anthropmorphic stone figures; decorated stone and bone plaques; and a number of objects without parallel within the region, including a polished stone baton and perforated limestone disc (Mithen *et al*. 2018: figs 30.11 and 14.7).

WF16 is also notable for its large quantity of bird bones (White, Finlayson *et al*. 2021). Some 17,700

bird bones were recovered from the 2008–2010 excavations, of which 7808 were identified to taxa. A minimum of 63 species, coming from 18 families, were identified, with Accipitridae (raptors) forming 90% of the assemblage (White, Finlayson *et al.* 2021); four of the key species are illustrated in Fig. 4. While at least 20 taxa of eagles, falcons, vultures and other raptors are present, the Accipitridae is dominated by the steppe buzzard (63.5% of its NISP). Flocks of buzzards are likely to have been systematically hunted while resting overnight in Faynan during their migration. Eagles, vultures and storks, primarily represented by wing bones alone, may have been trapped or hunted following chance encounters (White, Khoury *et al.* 2021).

The WF16 bird bone assemblage is significantly larger than those from the Neolithic sites of Shubayqa, Netiv Hagdud, Hallan Çemi and Jerf el Ahmar (Mithen *et al.* 2022). Considering the limited excavation at WF16 this must reflect a particular interest in birds at the site, rather than enhanced preservation and recovery. While the range of taxa is equivalent to that elsewhere, the focus on raptors and especially steppe buzzards is unique for the PPNA (Mithen *et al.* 2022).

How can this intense interest in birds at WF16, especially raptors, be explained? Why were buzzards skinned? Wings and feathers removed from large birds? Some utilitarian purposes can be proposed. As with other PPNA sites, WF16 has large frequencies of El-Khiam points, some of which have impact fractures and wear traces that indicate their use as projectile points (Smith 2007). Numerous grooved stones, traditionally interpreted as shaft-straighteners were also recovered (e.g., Mithen *et al.* 2018: fig. 6.9) suggesting the on-site manufacture of arrows, which might have been fletched with feathers from raptors and other large birds. The frequencies of El-Khiam points and shaft-straighteners are not, however, notably larger than at other PPNA sites, which leaves the much higher frequency of bird bones unexplained. Similarly, while bird skins, sinews and bones might have been used for clothing and tools, the demand for these would have been no higher than that at other Neolithic sites. It may, in fact, have been less, considering the arguments for sedentary populations at Hallan Çemi, but only seasonal gatherings at WF16 (Mithen *et al.* 2022; Zeder and Spitzer 2016). Only one worked bird bone was found within the assemblage of 17,700 bird bones — the distal humerus of a mallard (White, Koury *et al.* 2021). Similarly, there is a limited case for the intense exploitation of birds for food. Bird bones were discarded in a manner quite different from those of mammals and the waste from making stone tools, suggesting birds were primarily exploited for non-utilitarian purposes (White, Finlayson *et al.* 2021). This is confirmed by patterns of burning, cutmarks and body-part representation. Those indicating cooking and consumption predominately come from ducks and game birds, while raptors and larger waterfowl have cut marks indicating wing and feather removal. Buzzards and possibly Black Kites had been skinned (White, Khoury *et al.* 2021).

While some of the birds at WF16 may have been caught for their feathers to fletch arrows, to provide raw materials for clothing and tool making, as well as for their meat and fat, these explanations alone are insufficient to account for the bird bone assemblage — its size, taxonomic diversity, cut marks and pattern of discard. Could the use of birds within shamanic activity at WF16 account for this evidence?

Birds and shamanism

Birds are a recurrent feature of shamanisn throughout the world. While large raptors, wildfowl and ravens play particularly important roles, Pritchard (2013: 97) states that 'there are no boring birds'. Pritchard is an academic and descendant of the Mi'kmaq people of Canada; his 2013 book provides a comprehensive review of bird shamanism in Native North American communities. Another key source is Balzer's (1996) overview of birds in Siberian shamanism.

Birds connect the three tiers of the cosmos because they can walk on the earth, sometimes swim on and dive below water, and fly into the sky. Being adept at all three, waterfowl are especially revered. Moreover birds are 'associated with the world-mediating trees, rooted in the lower world, flourishing on earth and branching into the sky' (Balzer 1996: 311). By connecting the three tiers of the cosmos, birds coincide with the ritual function of the shaman who must also serve this intermediary role (Pavlinskaya 1994). Shamans frequently adopt particular types of birds as helpers, their tutelary creatures, selecting those with the qualities they wish to attain. Stories of shamanic exploits often describe how the shaman takes the form of his/her helper-birds when visiting people and places (e.g., Balzer 1996: 307; Pritchard 2013). Balzer (1996: 311) described how 'the personalities, talents, and emotions of shamans resonate with specific birds, as hunters (eagle), scavengers (raven), singers (lark, cuckoo), divers (loon), and flitters (woodgrouse)'.

Figure 4 **Key birds exploited at WF16 and referred to in the text: (a) Steppe Buzzard (photo: F. Khoury); (b) Steppe Eagle (photo: F. Khoury); (c) Northern Bald Ibis (photo: Charles J. Sharp at Wikimedia Commons CC BY-SA 4-0 EDIT); (d) Litte Egret (photo: Bengt Nyman via Flickr CC By 2-0300).**

In his review of bird shamanism, Pritchard (2013) highlights the role of four birds within the worldview of Native North Americans. Eagles convey messages of the 'great spirit', those that fly the highest, come closest to the creator and are able to see the furthest. Hawks are associated with having clear vision and inspire clever thinking. They are messengers from the spirit world and, like eagles, cannot be corrupted by sorcerers. Crows are great communicators and story tellers, they shape-shift to transit between the upper and lower words, and are frequent bringers of warnings, although they keep secrets. Owls are described as the favourite birds of shamanic healers throughout the world, being able to transmit the power of the creator/spirits into the shaman for curing the sick. They bring messages from the dead, but, like crows, can be used by sorcerers. These are, of course, generic features subject to immense variation between Native North American communities, partly subject to their enviroments. Those living below the direct flight path of eagles, for instance, have the greatest reverence for this bird, believing they bless outdoor ceremonial gatherings when circling above.

While eagles, hawks, crows and owls are especially prominent, all types of birds, from the most exotic to the most commonplace, can act as messengers from the spirit world and exhibit characteristics that shamans may wish to borrow (Pritchard 2013). Amongst native North Americans, egrets and cranes are peacemakers; the heron is a healer; ducks provide role models for mating rituals; migratory geese are associated with the shaman's jouney into the spirt world. Pritchard explains these roles through story telling: rather than having an explicit doctrine or ideology, there is a 'mysticism that surrounds the shaman's relationship with birds' (Pritchard 2013: 133).

As with animal helpers, bird-helpers might be 'housed' within a painted image or figurine, carved in wood or stone, or modelled in clay. It is said that the first shaman of the Siberian Sakha had birds and animals carved from pieces of willow, into which he blew life. They then hid themselves, after

which the shamanic helper spirits arrived (Balzer 1996). During the Sakha festivals of the 1990s, carved figures of eagles were placed on top of posts raised at the festival sites (Balzer 1996). Such images and models might be manipulated during shamanic practices or attached to costumes. Pritchard (2013: 219–21) describes how each member of a 17th century Algonkin-speaking war party carried carved replicas of their spirit-helpers, most of which were birds. He cites the description of a French explorer and Jesuit missionary of the 1600s named Diliette: ' … after eating with great appetite they all go their mats and spread out their birds on a skin stretched in the middle of the cabin and with the *chichicoyas* (rattles) they sing a whole night, saying stone falcon, or crow, I pray to you that when I pursue the enemy I may go with the same speed in running as you do in flying, in order that I may be admired by my colleagues and feared by our enemies' (Diliette, cited by Pritchard 2013: 2019).

Plumage colours are meaningful: for Native North Amercians white is associated with wisdom; yellow with love and joy; black with the power of the earth; while red embodies the creator's life-giving power and the gift of fire. Multi-coloured birds are, therefore, particularly salient. Unsurprisingly, hummingbirds are associated with rainbows, which, in shamanic practices throughout the world, are recognized, as providing pathways between the earth and the sky (Eliade 1964: 183–84).

Pritchard (2013) explains how feathers can represent the qualities of the entire bird. Those of hawks are preferred for fletching because they will be swift and sure in flight; bundles of goosedown are held within the hand when saying a prayer and then relased to float upwards, equivalent to a puff of smoke from a sacred fire; eagle feathers can act as a two-way transmitter between human beings and the master spirits. Feathers are worn as signs of accomplishments: those of vultures and buzzards for a healer, because they are used to clean wounds; eagle feathers as a sign of bravery; swan feathers to indcate success in warfare.

Feathers, bird skins, bird bones and objects symbolizing feathers, are key components of shamanic costumes and sacra, endowing the shamans with the attributes of their bird helper-spirits for their journeys into the spirit world. The cloaks of Mongolian shamans were primarily made from animal skins and bird feathers, notably those of owls and eagles, arranged in groups holding symbolic significance. Some cloaks contained flaps that resembled wings, used to mimic the flight of raptors from whom the shamans sought spiritual guidance (Purev and Purvee 2004). Jochelson (1933: 111) described how the full shaman's cloak 'represents a bird's skin, with the help of which the shaman is transformed into a bird … he is a bird-man … supposed to rise to the upper world by means of his cloak'. For Pavlinskaya (1994: 258), the cloak-wearing shaman became 'incarnated' into the bird. Performance and song can have the same transformative effects. When writing about the manioc drinking festival of the Huaoani of western Amazonia, Rival (2002: 14) describes how singing transformed the participants into the birds that were gorging on the fruit within the trees.

Amongst the Siberian shamans, and most likely elsewhere, such costumes were elaborate creations involving a wide range of imagery, materials and craft skills (Pavlinskaya 1994). Their manufacture was a time-consuming and expensive process, often involving ritual acts. Shamans gradually acquired their attire as they undertook training and became recognized within their communities (Diakonova 1994; Diószegi 1963; Humphrey 1994). Anawalt (2014: 56) describes how each spring, when the migratory birds returned, the cloaks had to be symbolically 'brought to life' via a reviving ceremony performed by old and experienced shamans.

Charles (1953) describes how Azande shamans from Africa used feathers from geese, parrots, marsh and bush birds in their headdresses, while Native North American shamans used eagle feathers and sometimes carried stuffed owl skins. The Guaikura shamans from South America used fans made from feathers. The Huichol shamans from Central America attached feathers to their healing sticks. Spiritual power emanated from the tips of the hanging feathers, which were passed over the affected portions of the body (Charles 1953: 106).

A shamanic interpretation of bird bones at WF16

Wadi Faynan and its surrounding region lies below the flyway for buzzards, kites, eagles, vultures and storks on their annual springtime migration along the Rift Valley from Africa to Europe, and their return in the autumn. More than 300,000 steppe buzzards, 200,000 honey buzzards, 25,000 black kites and 19,000 steppe eagles have been recorded passing the Gulf of Aqaba in a single season (Porter and Beaman 1985). When excavating at WF16, flocks of such birds were often seen high in the sky, sometimes appearing to circle around the knoll on which the Neolithic site is located; lone eagles and storks would appear within the wadi, and, just as suddenly,

be gone. The same must have occurred between 12,000 and 10,000 years ago when WF16's semi-subterranean, pise-constructured structures were newly built.

This is the type of environment Pritchard cites as inspiring great reverence for such birds as messengers from the spirit world. Recognizing how such views are pervasive amongst hunter-gatherers, arising from Winkleman's (2000: 77) 'innate structures of the human mind and common features of a hunter-gatherer lifestyle', it is not unreasonable to suppose that the Neolithic people of Faynan viewed such birds in a similar manner.

Several of the larger birds represented at WF16 have striking plumage, for example, the Lappet Faced Vulture and White Stork. Most notable is the Northern Bald Ibis (Fig. 4c), which had head plumes and an iridescent black plumage — this bird, now extinct in the wild, was held sacred in ancient Egyptian ideology. It is the fifth most common taxa at WF16 (NISP = 76), with its bones having the highest frequency of cut marks, suggesting careful dissection; using the birds for food while also removing their wings and feathers. Remains of the Northern Bald Ibis were concentrated within Structure O72 (NISP = 24, Fig. 2), where wings from at least three birds were present, this structure had the lowest frequency of Accipitridae (although still 75%, NISP = 158). Could O72 have been the dwelling or sacred space of a shaman that had adopted this bird as its spirit helper?

The only possible bird burial comes from Structure O66: a Little Egret (Fig. 4d), another bird with striking plumage, and a type frequently cited in ethnographic accounts of shamanism. The head, neck, right upper wing, legs and feet were articulated and found adjacent to a wall, possibly within a niche (Fig. 5). Cut marks suggest that plumes were stripped from the head and neck, primary feathers removed from the right wing, and the trunk used as a source of food. The entire left wing was missing. These remains might represent the casual discard of a carcass that escaped later post-depositional disturbance. Structure O66 also contained a low ring of pisé associated with a set of coarse stone tools, which may once have supported a cup-hole mortar.

The bones of other birds were heavily concentrated in three structures, O11, O56 and O45 (Fig. 2). The first of these had the highest frequency of buzzards in any location, with 59 sets of toes, suggesting that O11 was a focus for skinning and detaching wings and feathers. The highest density of bird bones was found in O56, a particularly small structure containing a stone workbench (Fig. 6). It also contained the highest density of stone beads and a large fragment of bitumen, possibly from a basket. The stone bench was indented, indicating the manufacture of stone beads, with its surrounding deposits containing scrapers and hammerstones. Was O56 a place where

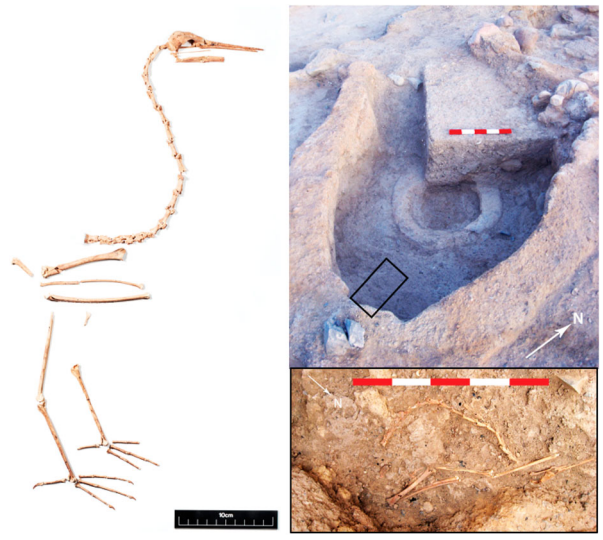

Figure 5 **'Burial' of Little Egret in Structure O66 (photos: J. White, S. Mithen and B. Finlayson).**

Figure 6 **Structure O56, showing the workbench with drilled holes and coarse stone artefacts (photo: S. Mithen and B. Finlayson).**

shamanic costumes, using bird bones, skins and beads, were made? Or stored? Or 'brought to life' again ready for ceremonies to greet the spring migration? More generally, a wide range of stone and bone tools for drilling, perforating, piercing, grinding and polishing were recovered from WF16, suggesting extensive craft activities (e.g., Mithen *et al*. 2018: fig. 35.18). Bone and flint tools were also associated with the so-called cult items in Nahal Hamar cave, potentially having been used in their manufacture (Borrell *et al*. 2020).

Object 45 (Fig. 2) is the best preserved and most extensively excavated structure at WF16 (Mithen *et al.* 2018). Although Accipitridae dominate (94%) the bird bones identified from this structure (NISP = 2975), the assemblage contains a wide range of taxa, including the sole specimen of crane identified at WF16. As described below, both Structure O56 and Structure O45 have further evidence for shamanic activity.

Figure 7 **Fragments of shamans' staffs? (a) WF16 SF1366; (b) SF531 (photos: S. Mithen and B. Finlayson).**

While buzzards and other raptors predominate at WF16, several of the other excavated taxa are frequently cited in ethnographic accounts of shamanism: the femur of a fan-tailed raven and wing phalanx of a fan-tailed/brown-necked raven had cut marks; cut marks on a desert eagle owl indicate the removal of feathers from its feet; and a greylag goose had been stripped of its primary feathers (White, Khoury *et al.* 2021). Recalling Pritchard's (2013) refence to the significance of colour, the European roller, a bird with attractive blue plumage, must also be noted.

It is not unreasonable to suppose that the buzzard skins, the wings and feathers from the Greylag Goose, Common Crane, White Stork, Northern Bald Ibis, eagles and vultures, were used for body decoration and costumes at WF16. The many and sometimes elaborate beads and penants found at WF16 (e.g., Mithen *et al*. 2018: fig. 35.16) were also likely used for such ornamentation. Equally, it is not unreasonable to suggest that whoever wore such costumes became 'incarnated' into the birds. Moreover, WF16 has locations potentially suited to shamanic performances — the large amphiteatre-like structure, O75, close to Structures O11 and O56 where costumes might have been made and stored, along with O66 and O72 where private, bird-related shamanic rituals, associated with the Little Egret and the Northern Bald Ibis, may have occurred.

Phase 3 deposits at WF16, primarily coming from the midden that filled the former amphitheater-like structure, contain significantly fewer bird bones than those from Phase 2. Their densty falls from 0.124 to 0.03 bones/litre of sediment, while the ratio of bird bone (number) to animal bone (weight) falls from 1:6 to 1:179. Although still dominated by Accipitridae, there is an increase in the frequency of game birds exploited as a food source (White, Finlayson *et al.* 2021). Given that the midden is likely to include re-deposited sediment from Phase 2, it is likely that the reduction in the frequency of bird bones was more significant than these figures indicate, potentially reflecting reduced shamanic activity after 10.8 ka BP.

Artefacts from WF16 as shamanic sacra

Polished bone and stone points as shamans' staffs

SF1366 is a 7.5 cm end fragment of a polished bone point, with a rounded tip (Fig. 7a). SF531 is a finely

polished stone 'baton', 24.4 cm in length, 2.2 cm in diameter at its base, and gently tapering to a point (Fig. 7b). It is made from a hard grey/white stone, coming from a still unidentified source, and made so that it ends in a brilliant white tip. Flake removals at its base suggest it had once been inserted into a wooden haft; it has no signs of use or abrasion. While there are no comparable artefacts from the southern Levant, it has similarities to a 150 mm long 'baton' from Gusir Höyük (Upper Tigris Basin), made from greenstone and with incised lines (Karul 2011).

What function did the polished, rounded bone point and stone baton from WF16 fulfil? All the other bone points from WF16 have sharp tips, lack highly polished surfaces, are considerably smaller, and are interpreted as piercing tools (e.g., Mithen *et al.* 2018: fig. 35.18). A utilitarian function cannot be entirely ruled out for WF16 SF1366. It might have been a hunting weapon with a rounded end, used to stun small game to avoid damaging their pelts, or it could have been used when working hides: although possible, these suggestions conflict with its deliberately polished surface. Similarly, the pointed stone baton could, feasibly, have been part of a spear, or a tool for working wood: though such ideas seem unlikely due to the time required for its manufacture, its evident aesthetic qualities, the absence of wear and damage, and the lack of any known parallel for a utilitarian artefact of this type from the Neolithic. Could these objects be fragments of shamans' staffs?

Staffs — sometimes called wands or medicine sticks — are a recurrent feature of shamanic sacra. They either accompanied, or were a counterpart to, the drum seen throughout the Siberian region, providing one of the key tools used within shamanic practices (DuBois 2009). Those of the Darkhat, of northern Mongolia, are made from birchwood or juniper and end in either, a two-pronged fork or the carving of a horse's head. Strips of coloured fabric and metal objects are sometimes attached (Diószegi 1963). Among the Siberian Tuva, the staffs are painted with red clay. They are used by novice shamans before they acquire their drum and may have been kept throughout their lives (Diószegi 1963). Anawalt (2014: 30) illustrates a shaman's staff used by a novice within a Siberian Evenk community: 70 cm long, made from wood with a fork-like head, and with multi-coloured streamers attached.

The Japanese *Itako* shamans place carved figures of horses or women on the end of their staffs to create *oshirasama*, each shaman having two of these for communication with the spirits (Blacker 1975). Each year the carved heads are wrapped in a new layer of fabric. Some *oshirasama* acquire upward of 100 layers, indicating they had been continuously used over several generations. Shamans within the Tamgaly Valley of

Figure 8 Structure O33 showing backfill over the floor on which artefact SF531 was found, as inset (photos: S. Mithen and B. Finlayson).

Central Asia use staffs shaped like crosiers (Basilov 1976). Such staffs are depicted in Bronze Age petroglyphs from the same region; they are held by figures who appear dressed in horse hide and bird feathers, and interpreted as shamans (Rozwadowski 2001).

Hurst Thomas (1976) described a shaman's wand from the Diegueño Native Americas of California: 44 cm long, 3.8 cm wide at the base and tapering to a point, with the first 9 cm of the handle end painted red. Catalogued as a *hechicerro* stick, it was acquired by the American Museum in 1903, within a collection of Diegueño material culture. Its accession entry reads: 'used by witch-doctors in various ways. They put medicine into it to injure or destroy their enemies. Not material medicine but the evil power of the heart. The hechiceros are still powerful though few in number. They are sent from a distance of 60 miles to heal the sick. They still perform wonderful cures' Hurst Thomas (1976: 129). He noted how a chipped-stone projectile point, likely dating to 1500 BC, had once been inserted into its base and suggests that the point had been found by the late 19th century shaman and added to his wand to increase its potency.

The possibility that SF1366 and SF531 are parts of shamans' staffs/wand is supported by their discovery contexts. SF1366 was found in floor deposits within Structure O75, the amphitheatre-like structure that was likely used for performance and ceremony. SF531 was found on the floor of a one-metre deep, semi-subterranean, pisé-built structure (Fig. 8). It was associated with two hammerstones, a bone point, a small collection of animal bones and charred plant material, a collection that seems to capture all three types of 'exquisitely fashioned', 'unassuming' and 'random assemblages of natural elements' that DuBois (2009) notes might represent sacra. The structure appears to have been deliberately and rapidly back-filled with pisé-rubble. Although a date for the backfilling has not been ascertained, it is not unreasonable to suppose that it occurred as part of the reconfiguration of the site *c*. 10.8 ka BP.

The deliberate burial of this artefact may be significant; a recurrent concern within communities that have, or had, shamanism is how to dispose of sacra. The need to dispose of sacra might arise when a shaman died with no heir, or when a fundamental change in spiritual practice took place. As DuBois (2009: 201) writes:

> Through special enlivening rituals or repeated supernatural use, the items acquire a sacral weight of great consequence for the shaman and the wider community. Shamanic items are heavy with meaning and power, and ethnographers have repeatedly noted that when communities abandon their shamanic traditions, they are often at a loss to know how to dispose safely if he material goods that had sustained that tradition in their midst.

DuBois (2009) describes how in recent times sacra has been donated to museums to absolve the community of the responsibility and liability of the still potent objects. That option was not available in the Neolithic: deep burial of a shaman's staff/wand, still potent but without a shaman to wield its power, may have been an alternative. The Natufian burial of a shaman at Hilazon Tachtit, 10 km from the nearest settlement, or the placement of a sacra stone mask in the isolated cave of Nahal Hemar, might represent other examples of the safe disposal of either sacra and/or the deceased shaman. Willerslev (2007: 122) describes how the Yukaghirs fear dead shamans — their ghosts could kill anyone who mentions their name.

Zoomorphic figurines as shamanic tutelary creatures

The zoomorphic carvings found at WF16 are unique in the PPNA of the southern Levant. While such figures might be toys or ornaments without symbolic meaning, this seems unlikely considering the time invested in their manufacture. Neither are they sufficient in number to be considered as totems of particular social groups within the WF16 community. Following the interpretation of zoomorphic figures from the Northern Levant by Benz and Bauer (2015), it is worth asking if those found at WF16 represent the spirit animals that guided shamans during their journeys while in a trance state?

SF1365 is a zoomorphic figure carved from stone, *c*. 10 cm by 3.5 cm, of an indeterminate animal (Fig. 9a). One of its sides is incised with vertical lines, giving the impression of ribs. It was found within the midden that accumulated in the former amphitheatre-like structure, possibly within redeposited sediment from Phase 2, arising from re-structuring at, or soon after, 10.8 ka BP. Although without parallels in the southern Levant, this figure is similar to the so-called *halb skelettierten* from Göbekli Tepe, a group of animal and human sculptures that are also depicted with prominent ribs (Schmidt 2013). Whether these represent de-fleshed, excarnated or emaciated creatures is also unknown, but they have been taken to imply death (Hodder and Meskell 2011; Schmidt 1999).

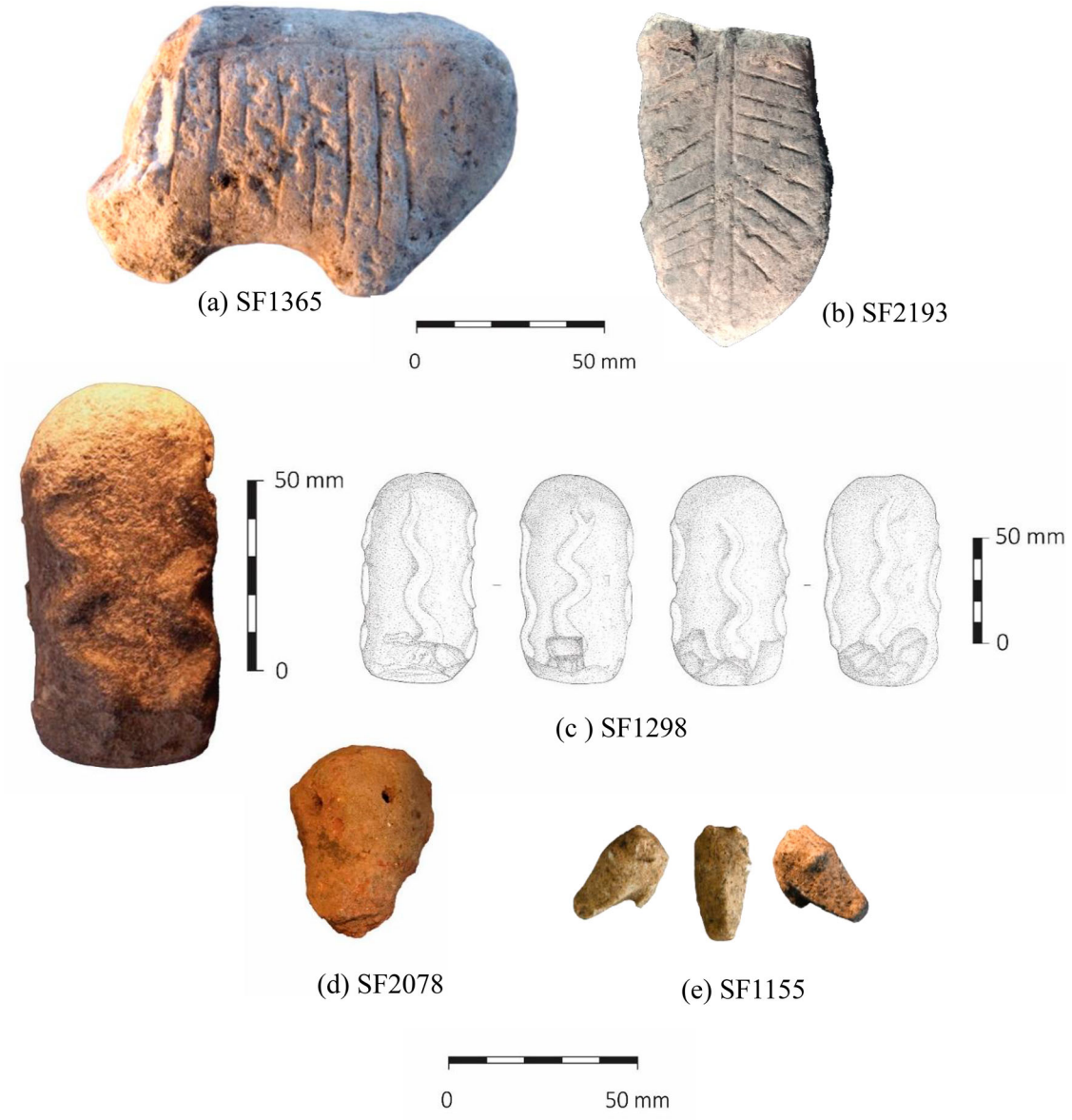

Figure 9 **Possible tutelary creatures from WF16, carved in stone (a) SF1155; (b) SF2193; (c) SF1298; (d) SF2078, mud-clay; (e) SF155 (photos: S. Mithen and B. Finlayson).**

A different perspective is gained by noting how shamans from North America and Siberia depicted ribs and other bones on animal figurines to denote them as their spirit helpers. Anawalt (2014: 80) explains that in 'shamanic thought, the skeleton as seen through the skin, symbolizes the seat of the soul because both the skins and skeleton outlast the soft flesh of the body' — hence they represent life rather than death. Shamanic costumes from Siberia once contained pendants representing animal skeletons (Pavlinskaya 1994: 58).

SF2193 is a small stone plaque incised with radiating lines, recovered from floor deposit within the amphitheatre-like structure (Fig. 9b). Could this be a schematic skeleton? If so, might it provide a Neolithic equivalent to those Siberian pendants? Shamanic costumes in Siberia also had pieces of iron and copper attached to denote ribs. According to Anawalt (2014: 26), these commemorated the initiation phase of a shaman, when his body was ritually tortured and dismantled by spirits before being reassembled.

As Benz and Bauer (2015) note, snakes are pervasive in shamanic thought, frequently acting as spirit guides to the underworld. The costumes of Tuva shamans of Siberia have plaits called snakes, although

they were also understood as birds' feathers (Diakonova 1994). In other traditions, snake-like tassels were given heads, eyes, noses and a tail, and could number over 1000 on a single costume, creating a powerful visual impression and, with accompanying pendants and bells, acoustic effects (Dubois 2009: 177). SF1298 is the only known depiction of snakes from the southern Levant (Fig. 9c). Four of these are carved along the length of a solid stone cylinder, their heads damaged by detached flakes; one of them has a forked tail. This artefact was also recovered from the midden that accumulated within the amphitheatre-like structure during Phase 3. Unlike most of the WF16 coarse stone artefacts, it is heavily worn, giving the impression of extensive handling. As such, it is reminiscent of the repeatedly wrapped *oshirasama,* items of sacra used over many generations.

Carving the snakes on SF1298 would have been time consuming. In contrast, SF2078 is a zoomorphic head moulded in mud-clay that would have taken but a few moments to create (Fig. 9d). Is this the head of an animal, or just a chance resemblance within an amorphous piece of mud-clay from the excavation? If the former, it most closely resembles the head of a snake, perhaps one quickly moulded during a shamanic ritual to invoke help from a snake-spirit helper. Based on the ethnographic record, we should expect most of the zoomorphic figurines to have been made from organic materials such as wood, plants, feathers, hair and hide, and, therefore, failing to survive in the archaeological record.

Not all tutelary creatures are of potentially dangerous animals. Images of deer occupied a central place in shamanic practices throughout northern Eurasia, the deer being considered a 'personification of the sun deity and the entire circle of ideas connected with the sun, such as the succession of day and night, the organization of the cosmic order, the possession of the heaven's fire, and so on' (Pavlinskaya 1994: 259). A 'heavenly hunt' myth recounted how the deer (the sun) runs across the heavens from east to west, pursued by the hunter who catches it at the end of this heavenly chase. The myth was expressed in shamanic rituals, such as that of the Selkups: 'First the shaman performs the life cycle, from birth to death, of the deer whose skin was taken to make the drum. Then the shaman faces the most difficult task — to catch the soul of the deer. After great efforts and much time, the soul of the deer is surrounded, and the shaman imitates the hunting of the deer, shooting arrows at it from a small bow' (Pavlinskaya 1994: 259–60).

Hunting ibex/wild goat would have fulfilled a similar role in the WF16 economy to that of deer within the 19th and 20th century Siberian communities. As such, WF16 SF1155, a small ibex/wild goat head, carved in stone, might have been used within shamanic ritual expressing the Neolithic equivalent of the heavenly hunt (Fig. 9e). This was also found within the midden filling the former amphitheatre-like structure. Whether it is a complete carving, a fragment from a whole animal, or had been attached to a stick remains unclear. Had the ibex/wild goat been the spirit-helper of a WF16 shaman who used its effigies when seeking help and guidance for a journey into the spirit world?

The face of shamanism?

SF238 is a small (*c*. 5 cm x 2 cm) carving, in stone, of a head with two faces, inverted from each other (Fig. 10). This was found within the midden that accumulated in the former amphitheatre-like structure (O75). The depiction of human heads and faces is pervasive within the sacra of shamanism throughout the world, for example, on the headbands and staffs of Siberian shamans (Diószegi 1963). Masks are frequently used by shamans in northern regions to facilitate their engagement with, or protection from, the spirit world (Shuyun *et al*. 2003). Miniature masks were stitched onto clothing and tiny heads carved from ivory and antler were attached to sticks used in healing, divination and prognosticating rituals (Anawalt 2014). The miniature masks from Siberia are strikingly resonant with those from Jerf el Ahmar, Göbekli Tepe and Nevalı Çori (Dietrich *et al*. 2018), while the bone 'wand' engraved with two human faces from the early PPNB deposits of Tell Qarassa (Ibáñez *et al.* 2014) recalls how faces were often carved onto shamans' staffs. Likewise, the tiny heads described by Anawalt (2014) resonate with those found with the stone mask in Nahal Hemar cave (Bar-Yosef 1985). All these small faces/heads are a similar size to that from WF16.

The two-faced nature of the WF16 head is unlike any other known figure from the Neolithic of Southwest Asia, and — as far as I am aware — from the ethnographic record regarding shamanism. Willerslev's (2007: 46) description of how the Yukaghirs have an ambivalent view towards some of their spirits, viewing them as shifting between being altruistic and wicked — two faced — might be relevant. If so, we should expect the faces on SF238 to be rather different, but they both carry the same happy, smiling expression.

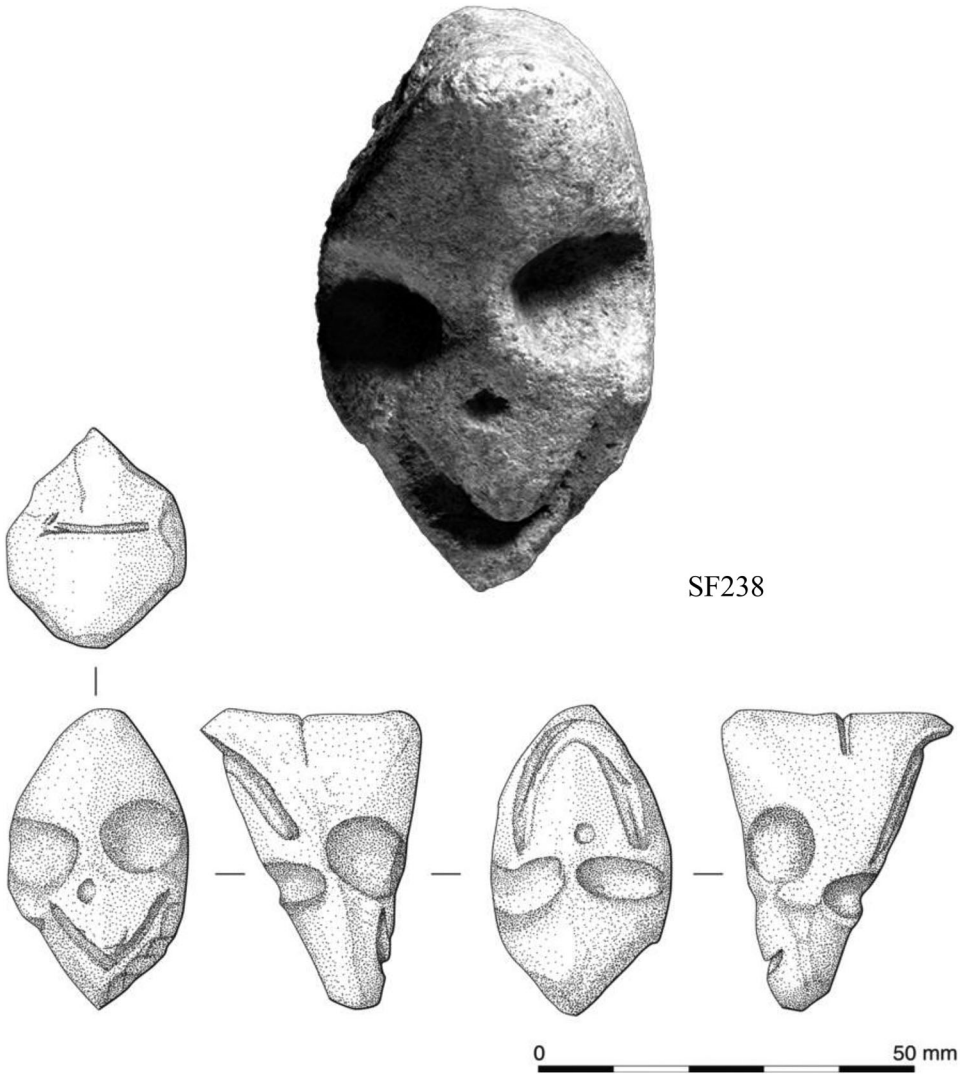

Figure 10 A double-faced head, carved in stone SF238 (photos: S. Mithen and B. Finlayson).

Phalli, sex and shamanism

Figure 11 illustrates two unambiguous phalli from WF16, a small version carved in bone with a scrotum (Fig. 11a, SF2389), and a larger realistic figure (Fig. 11b, SF1005), and two that are more ambiguous, one broken but covered in red ochre (Fig. 11c, SF339) and one possibly unfinished (Fig. 11d, SF1056) — although the last might be the rough out for a pestle. As Mithen *et al.* (2005) argue, that ambiguity might itself be significant, noting that various pestles from WF16 have a phallic appearance, suggesting their use within the typical PPNA cup-hole mortar might have been a metaphor for sexual intercourse. The only other phalli from the Neolithic of Southwest Asia (known to me) come from Göbekli Tepe and, possibly, the late PPNB site of Ba'ja. Three have been recorded at Göbekli Tepe, one of which is 80 cm in length (Dietrich *et al.* 2019; O. Dietrich *pers. comm.*) and several animals and humans are depicted in an ithyphallic state. Gebel *et al.* (2020: 19, fig. 29) described a 'small phallic-shaped item' from Ba'ja, but whether this was intended to be the representation of a phallus remains unclear.

While several explanations of such phalli can be proposed, ranging from sex toys (cf. Taylor 1996) to an ideological interest in masculinity (cf. Hodder and Meskell 2011), we should consider the role of sex and phallic imagery within shamanism.

Within his detailed study of shamanism among the Siberian Yukaghirs, Willerslev (2007) describes the close association between hunting and sex, which involves the animal prey being viewed as an erotic object. He notes this association is found amongst hunter-gatherers throughout the world, citing Reichel-Dolmatoff's (1971: 220) account of hunter-prey relationships among Amazonian Tukano: 'The relationship between man the hunter and his prey has … a marked erotic component. The hunt is practically a courtship and a sexual act'. Willerslev

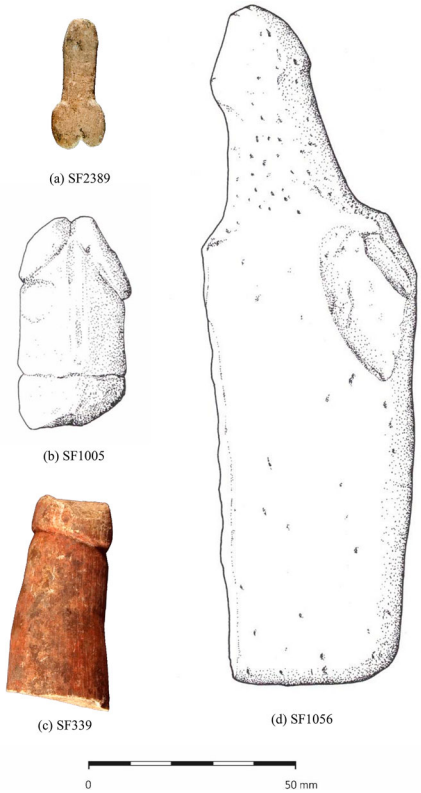

Figure 11 Phalli from WF16 (a) SF339, bone (b) SF2389, stone with red ochre; (c) SF1005, stone; (d) SF1006, stone (photos: S. Mithen and B. Finlayson; drawing: S. Lamb).

Figure 12 Possible shamanic charms from WF16 (a) SF82; (b) SF2177; (c) SF853; (d) SF2390; (e) SF1564; (f) SF332; (g) SF711; (h) SF1356 (photos: S. Mithen and B. Finlayson).

(2007: 113) argues this arises from the role of mimesis within hunting: when closely imitating the animal, the hunter attains a moment of transcendence when he is neither human nor animal, and neither female nor male. Sexual intercourse, Willerslev argues, affords a similar kind of experience in which two bodies blend to a point that they become of the same kind. For the Yukaghir, such blending with their prey is an informal type of shamanism, while 'the acquisition of shamanic power is conceptualized as a process of establishing intimate sexual relationships with a selected number of spirits' (Willerslev 2007: 131).

This is evident when shamans enter trance states when seeking to engage with their spirit helpers. Dubois (2009: 77–81) describes how the relationship between a shaman and his tutelary spirit can have a sexual character, sometimes experienced as a sexual encounter and viewed as marriage. Lewis (2003: 35) describes how sexual imagery 'abounds in shamanic discourse', characterizing the movements and gestures of the shaman within his animal costume as sexual play, and suggesting that the beating of the drum represents sexual intercourse. As with hunting and sex, Lewis notes that sexual imagery and symbolism is not specific to Siberia shamanism, but is a pervasive feature of shamanic trance states throughout the world, citing examples from Africa, Amazonia and South Asia.

In the context of such ethnographic evidence, and that proposed for shamanism at WF16, the presence of carved phalli at WF16 can reasonably be interpreted as further evidence for sacra; the suggestion being that these were used during trance states to facilitate engagement with spirit animals, either in private or public ritual performances. Two of the phalli (SF2389 and SF339) come from deposits within the same structure, O45, which is described below as a possible location for shamanic private ritual.

Shamanic 'charms' from WF16?

WF16 has produced a range of small stone and bone plaques with geometric designs (Fig. 12 a–f). These are open to several interpretations: decorative items, mnemonic devices, tokens, gifts to form friendships and alliances. Carvings of an ambiguous form (Fig. 12 g–h) might also be considered. These might

be preforms for zoomorphic figures, or simply parts of multi-component tools and structures. A further possibility is that these artefacts were items of sacra used in shamanic rituals.

Such objects were often highly abstract, small, kept in pouches or pockets and are sometimes described as 'charms' (Dubois 2009: 13, 193). One of the most interesting of the WF16 objects is SF853 (Fig. 12c) — a wavy line between two rows of dots. While appearing to be an abstract design, this has been noted as strikingly similar to the tracks made by rodents across the sand (Sam Smith, pers. comm.). Is this the depiction of a shamanic journey, equivalent to the frequent representation of animal footprints and trails within shamanic rock art (e.g., Devlet *et al.* 2015)? It is not unreasonable to suggest that the geometric image on SF82 (Fig. 12a) might relate to the flow of water: rivers are known to be significant in shamanic thought. SF711 and SF1356 (Figs 12 g, h) might be abstracted zoomorphic forms as are found for tutelary creatures (e.g., Anawalt 2014: figs 41, 46).

Spirits within the walls?

During the early stages of excavating Structure O56, a large ibex/wild goat horn core was partially exposed, the rest being embedded within the near solid pisé of a wall (Fig. 13a). Due to its fragile nature and the rarity of such horncores, a box section was excavated through the wall to reveal, and then remove, the complete horncore. The horncore had been deliberately incorporated into the wall during construction, along with a large stone and half a stone platter. With pisé setting extremely hard and Structure O56 being relatively small, it seems unlikely that the horn core had been embedded to provide structural support. An experimental pisé wall constructed in Faynan in 2010 (Flohr *et al.* 2015) and inspected in

Figure 13 **(a) Ibex/wild goat horn core embedded into the pisé wall of Structure O56; (b) fox skull within post-pipe in Structure O75 (photos: S. Mithen and B. Finlayson).**

February 2022 (Fig. 20a) remained intact, showing hardly any signs of erosion.

A second example of an animal skull embedded within a structure, comes from the fill of a large post-pipe moulded into the wall of Structure O75. This contained a near complete fox skull (Fig. 13b): because of its preservation, an accidental inclusion into the fill is unlikely. The fox head/skull must have been placed when the post contained within the post-pipe had been removed, suggesting that the posts were inserted for periodic events, rather than forming permanent structural features of O75. As with horncores, foxes and small carnivores in general, are extremely rare within the WF16 faunal remains.

Why were these animal parts placed into the infrastructure of WF16? One explanation follows the arguments made by Lewis-Williams (2004) for why animal paintings, bucrania and embedded animal parts are found within the walls of Çatalhöyük. Lewis-Williams proposes that the walls provided an interface between the human and spirit world, with the acts of repainting and re-plastering serving to coax out the spirits represented by imagery and embedded animal parts. Drawing on various ethnographic analogies, Lewis-Williams made a similar interpretation for the rock faces within the Upper Palaeolithic painted caves of France and Spain: 'it is as if the rock were a living membrane between those who ventured in [the caves] and one of the lowest levels of the tiered cosmos; behind the membrane lay a realm inhabited by spirit animals and spirits themselves' (Lewis-Williams 2002b: 214).

Did the walls at WF16 act as a membrane between the human and spirit world? As noted above, Structure O56 contained the highest density of bird bones and stone beads, suggesting it may have been where shamanic costumes were made/or stored. If so, these costumes might have gained added potency from the animal spirits embedded in the walls. The placement of the fox skull within the post-pipe, resonates with Willerslev's (2007: 130) description of how the Yukaghirs position the skulls of killed animals in locations designed to manage their relationships with their spirits. Given that the WF16 excavation strategy made marginal investigation of wall construction, it remains unknown whether further horncores or other parts of animals were embedded into its infrastructure.

Architecture for public performance and private ritual

Shamanism can involve both theatrical-like public performances with audience participation and solitary, private ritual. Neither requires constructed spaces, these events often occur in the open air, at locations that may have been deemed spiritually significant. In other cases, however, architecture and built structures play a key role. The following considers two structures at WF16 as possible locations for shamanic activity.

Was Structure O75 a space for shamanic healing?

Structure O75 is a 20 m x 18 m structure at the northern end of WF16, tightly surrounded on its southern side by smaller structures (Figs 2, 3 and 14). The best estimate for its construction is 11.32–11.24 ka BP. Although partly eroded and concealed by a later Phase 3 building (O100), the form of O75 remains clear. It had a bilateral symmetry around an axis formed by a trough, 0.7 m wide and 1.20 m deep, extending beyond the outer wall of the structure. The trough had vertical, plastered sides and its base had been re-surfaced on at least two occasions.

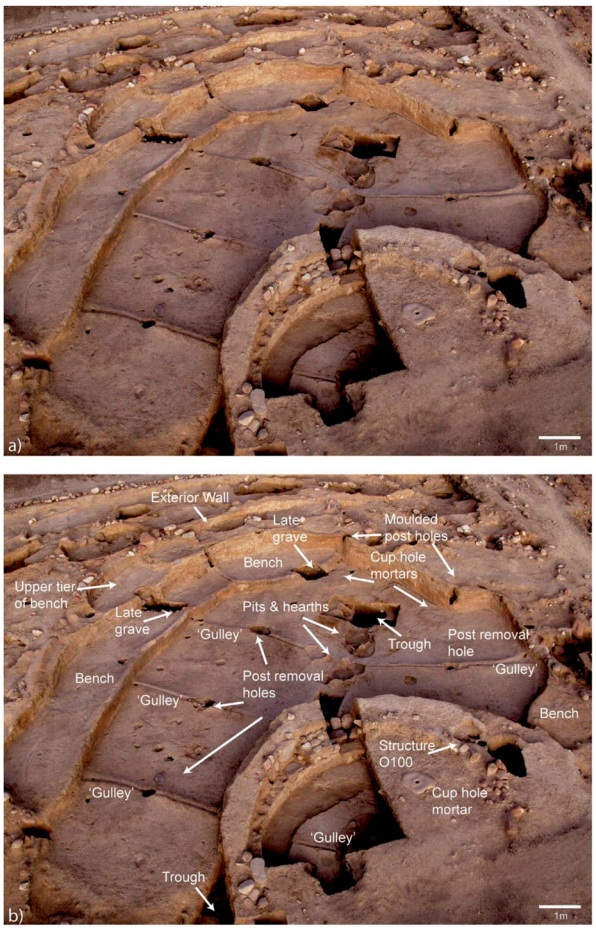

Figure 14 Structure O75, with later Phase 3 Structure O100 in the foreground (photos: S. Mithen and B. Finlayson).

The mud-plaster floor of O75 has evidence for re-surfacing, with a major repair at its north-western end, where two cup-hole mortars were set into slightly raised platforms, close to a sequence of hearths moulded into the floor. The floor is surrounded by a bench, *c*. 1 m deep and 0.5 m high, part of which has a second tier of similar dimensions. The face of the lower bench on the south side is decorated with a wave pattern and red pigment, and had undergone multiple replastering events. Although heavily eroded, there appears to have been a platform at the north-west apex of the structure.

Three pairs of raised gullies/ridges are moulded into the floor, evenly spaced and running at an angle from the central trough to the base of the bench on each side of the structure. Each raised gully/ridge has a shallow pit at its midway point, from which a large post appears to have been removed. At least eight post-pipes had been moulded into the surrounding wall, while a series of smaller post-pads, post-holes and stake-holes are found throughout the structure.

The structural elements of O75 are open to various interpretations. The two embedded mortars suggest a communal work place for processing plant material, a version of that found at Jerf el Ahmar (Willcox and Stordeur 2012). The post-pipes and post-holes may have held substantial posts that supported rafters and a roof that covered all or part of the structure (Fig. 15). The gullies/ridges may have demarcated divisions within the structure for separate activities, or groups of persons, while the tiered benches may have been for sleeping and storage. As such, the structure would not be unlike the longhouses described for native Amazonians (Hugh-Jones 1979: fig. 5). Although these are larger than O75, they also have massive vertical posts supporting a roof and compartments on either side. They are used by family groups. Their floors have cooking places and posts for grating manioc, the larger ones contain areas for singing and dancing. Central troughs are lacking in such longhouses. In this interpretation for O75 at WF16, the trough might have simply functioned as a drain.

Whether or not a type of longhouse, O75 might have been used for shamanic performances. With its tiered benches, it lends itself to theatrical-like events. The most notable of these are healing ceremonies, referred to as exorcism in the older literature. Although we must be cautious about his 1950s approach to the exotic, Charles (1953) drew on examples from across the world to conclude that 'drama in shaman exorcism is very widespread … [and] … usually involves careful preparations for full publicity, and an eager audience; impressive setting and lighting, costume and makeup, theatrical properties and sound effects … active participation by the patient and audience' (Charles 1953: 96). Sullivan (1994: 39) described how 'public display of the sick and dramatic triumphs over the forces of disease are themselves spectacles that promote good health … shamanic cure astonishes spectators and compels them to admire what is real and life-giving …

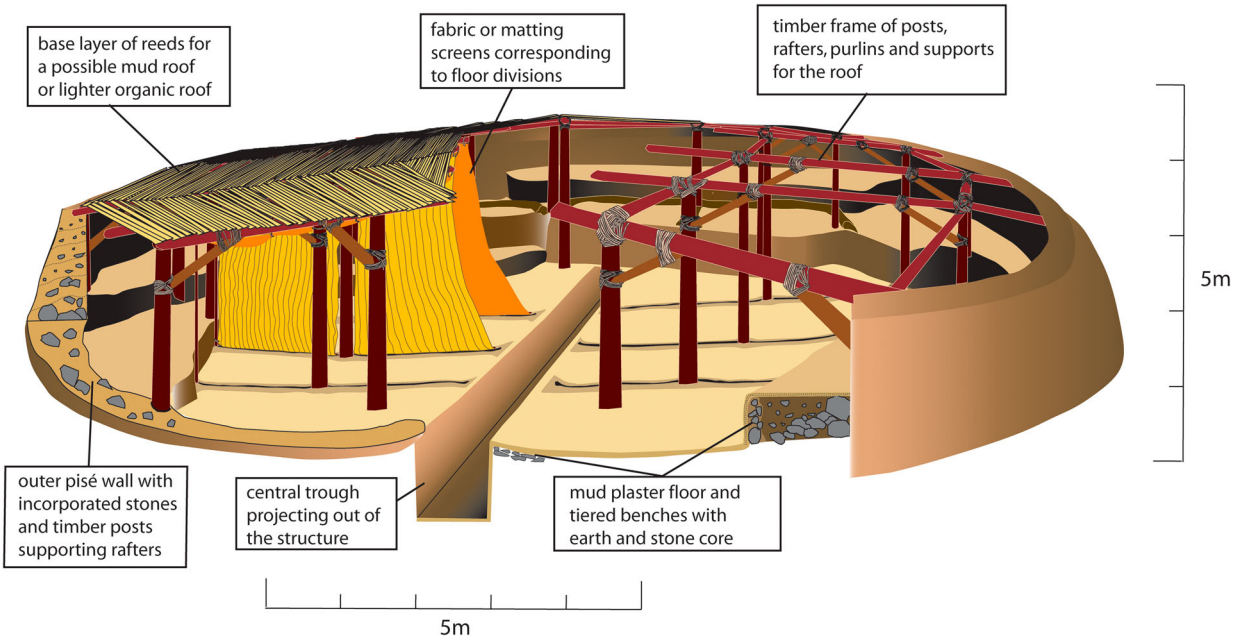

Figure 15 Reconstruction drawing of Structure 075 (drawing: D. Maričević).

dramatic performances of cure that re-enact the gestures of mythical shamans give the public what ecstasy offers the shaman: a visible encounter with the forces that are at work on other planes of existence'.

Such healing ceremonies took place both outside and indoors, within structures ranging from dancing grounds to small huts and large public auditoriums (Charles 1953). In this view, the tiered benches of O75 would be for the audience who gathered to watch and engage with the performance, while the shallow post-holes and moulded post-pipes might have held temporary posts mounted with bird images, as erected at shamanic festivals in Siberia (Balzer 1996).

Dubois (2009: 103) describes the importance of such venues for public performance by shamans. They allow shamans to compete against each other, to build their reputations by using verbal duels, display their healing skills and seek to gain favour with the audience. The term 'audience' is misleading because participation was both mandatory and essential for the healing of either the patient or the whole community (Dubois 2009: 89; Schieffelin 1985). While shamans are known to have used various tricks and sleight of hand during healing ceremonies, such as ventriloquism and extracting illness from a patient in the form of a pebble or a bone, the 'efficacious influence of narrative, symbols, catharsis, social bonding and placebos' should not be dismissed (Dubois 2009: 150).

Several features of the ethnographically described healing ceremonies resonate with the archaeological evidence from O75. They use sacra of the type potentially present at WF16. The use of bird skin and feathers in cloaks, headdresses, fans and sticks has already been noted. Cuna shamans, from Central America, use sticks carved with images of human figures. In some cases, shamans place objects on the floor, including unworked pebbles, effigies of their spirit-helpers, animal bones, claws and bundles of leaves (Charles 1953; Praet 2009).

A more striking line of evidence is the use of burial. The African Chagga are described as burying the patient (a man) and his wife in a ditch, covering them with earth and stones, and then lighting a fire above them to cook refreshments. The 'medical treatment' involved drumming. The patient sweated below ground until the drumming reached its climax, causing the buried man (and presumably his wife) to rise from the ground and dance frenziedly, while answering questions about the spirit who had possessed him (Charles 1953: 97). Among the Murngin people of Australia (now referred to as the Yolngu), the patient is placed in a hole in the ground. Water is poured over his/her body, which is then rubbed with red ochre (Charles 1953: 115).

Could these examples suggest a use for the trough within O75? Did the trough represent access to a lower tier of the cosmos, where shamans or their patients could engage with the spirit world? One can readily imagine the theatrical disappearance of a shaman into the trough during a performance, and/or his sudden appearance. Alternatively, the trough may have provided some form of entrance passage into the ritual space of O75, its floor plan having a striking similarity to the geometric design on the WF16 stone plaque proposed above as representing a skeleton (Fig. 9b).

Pigment use is a recurrent feature of healing ceremonies. It was used to paint the faces and bodies of both the shaman and the patient (Charles 1953: 104). Might the cup-hole mortars embedded into the floor of O75 (Fig. 16) have been used for grinding pigment? Although no colouration was detected on these mortars, ochre, burnt limestone and sources of yellow and red pigment were found throughout WF16 in the form of small nodules, ready for, or the remnants from, grinding. Three pestles from space O57 (Figs 2 and 3) were each stained a different colour — purple, yellow and orange — and found close to a cup-hole mortar that dominated the space. Two coloured surfaces were recorded at WF16 — the face of the lower bench in O75 and a red-painted floor within Structure O64 (Mithen *et al*. 2018).

In healing ceremonies, the Tehuelche, from Patagonia, cover sick children with white clay. Some of the human bones within the burials at WF16 have black pigment and patches of white plaster: could these be the burials of those who were treated without success during healing ceremonies? Or maybe of those who had acquired shamanic power? Pigment and/or plaster is also found on human bones from the Early Neolithic in the Upper Tigris Basin (Erdal 2015; Miyake *et al.* 2012), where shamanism has been invoked (Benz and Bauer 2015), and on Epipalaeolithic skeletal remains from Azraq 18 (Bocquentin and Garrard 2016), Shubaqya 1 (Richter *et al.* 2019) and Nahal Ein Gev II (Friesem *et al*. 2019). Red staining has also been found on the bones of a child burial from late PPNB Ba'ja (Benz *et al.* 2020).

Another possible use for O75's cup-hole mortars, is the preparation of narcotic plant substances that facilitated entry into an altered state of consciousness for the shaman and/or patient. The collecting,

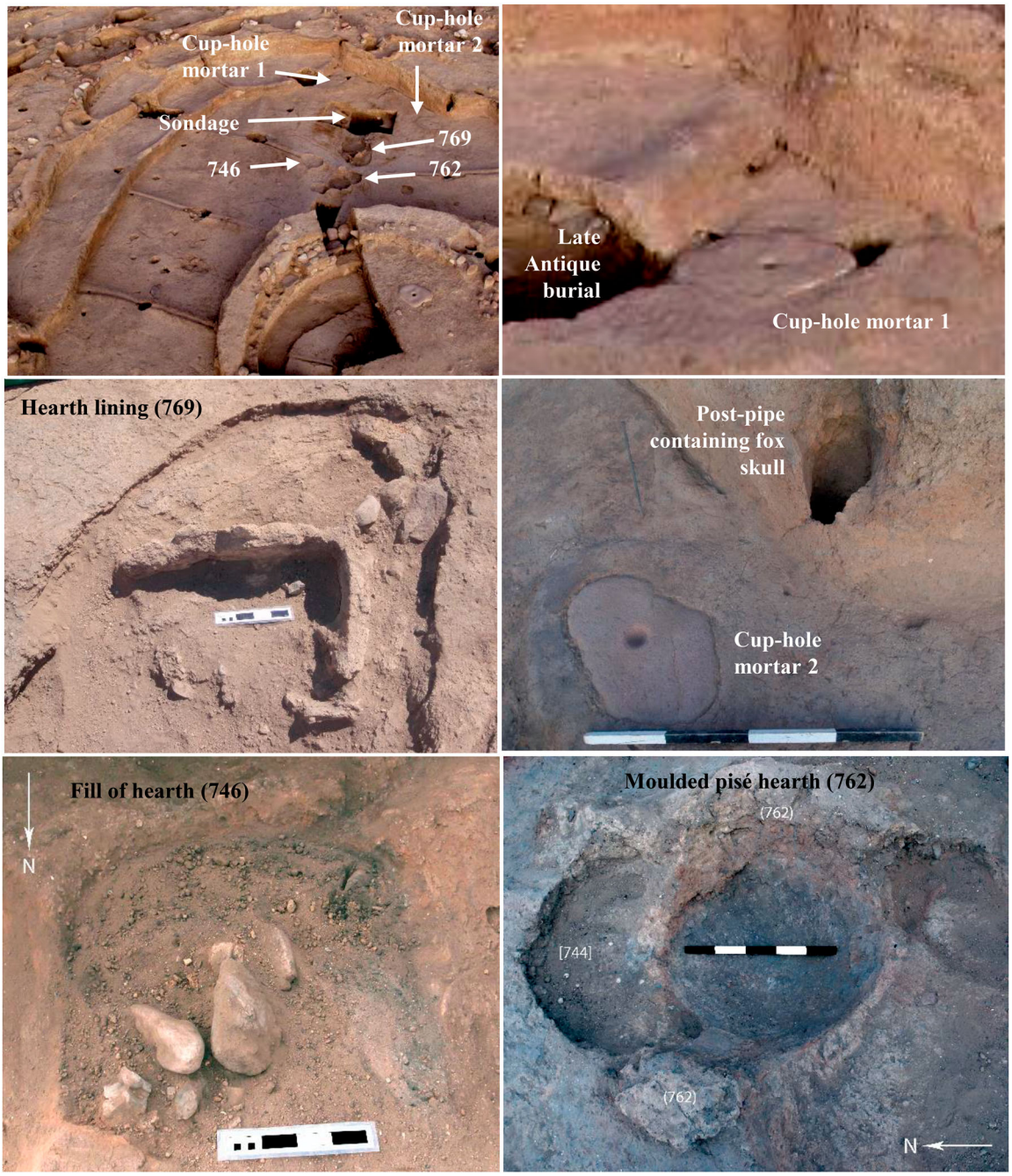

Figure 16 **The north-west end of Structure O75 showing cup-hole mortars and hearths (drawing: D. Maričević; photos: S. Mithen and B. Finlayson).**

preparation and administration of these, were often part of the healing ceremonies observed by the community (Dubois 2009: 162). Accounts of healing ceremonies describe how shamans and patients might take narcotic drinks or intoxicate themselves using smoke (Charles 1953). Although a wide range of seeds from grasses, legumes, fruits and weeds have been recovered from WF16, none of those currently identified have known hallucinogenic qualities, but cataloguing remains on-going. The use of smoke is certainly possible as the O75 raised cup-hole mortars are located close to hearths (Fig. 16).

Fire is another recurrent feature of healing ceremonies. For instance, 'a Kwakiutl shaman discovers by feeling the head of a patient that the soul has left the body. Thereupon a large fire is made, the people assemble after dark to sit watching, and the shaman by incantations catches the soul, which he shows standing on the palm of his hand. It looks like a mannikin, or like a small bird. He puts it on the crown of

Figure 17 **Capra horn cores within features at WF16 (a) with a hearth (762) constructed in the floor of Structure O75; (b) within the trough in the floor of Structure O75; (c) within a pit adjacent to hearths in a mud-clay surface constructed over the floor of Structure O75, prior to the formation of the midden (photos: S. Mithen and B. Finlayson).**

the head of the patient, whence it slides into his head' (Charles 1953: 115–16). The surfaces surrounding the hearths on O75 are blackened or reddened, indicating intense heat.

The hearths may have prepared food for feasting and/or ritual purposes. One of the hearths in the floor of O75 contained an ibex/wild goat horncore (Fig. 17a); another ibex/wild goat horncore was found within the trough (Fig. 17b), and a third within a pit adjacent to hearths made into a later mud-clay floor constructed within O75, prior to the accumulation of midden (Fig. 17c). Ibex/wild goat dominates the faunal assemblage from WF16, but such horncores and teeth are extremely rare from the midden deposits, suggesting that the deposition of ibex/wild goat horncores, and possibly heads, occurred elsewhere. The Yugaghir of Siberia leave elk heads at kill sites, stringing these up in trees with quickly carved wooden elk effigies soaked in the animals' blood (Willerslev 2007).

An attractive analogy for the horncores found at WF16 is the ritualistic consumption of elk heads by the Khanty of Siberia. This occurs at holy sites during seasonal gatherings to request community health, welfare and continued hunting success from the forest spirit. Elk heads are the best gift for the forest spirit and are consumed with tea and vodka (Jordan 2001). Equivalent gifts may have been made at WF16, to whichever spirit needed appeasing, by the ritual consumption of ibex/wild goat heads, resulting in horncores being deposited in pits, in the trough, embedded into walls, or remaining within abandoned hearths in the floor of Structure O75 (Figs 13 and 17).

Was Structure O75 a domestic longhouse or sacred space for shamanic healing? A strict distinction is unlikely: Amazonian longhouses were structured on symbolic principles, while shamanic healing often took place within domestic structures, as described by Schieffelin (1985) for the longhouses of the Kaluli of Papua New Guinea.

Spaces for private ritual

While healing ceremonies were public performances, shamans also engaged in solitary and private ritual. Whereas costumes and masks were for public display, shamans had collections of objects for private use, kept in pouches or hiding places. These might be small effigies, fragments of skin, claws or teeth of their spirit helper animal, as well as other talismans that are unlikely to be recognized as such by archaeologists (DuBois 2009: 190). Lewis-Williams (2002b: 167–68) describes the private rituals of native North American shamans as vision quests, their aim being to see the spirit animal(s) that would become their helper(s) and source of power. The rituals involved isolation in the vicinity of rock art, where fasting, enduring cold and the taking of hallucinogens would induce dreams, or waking visions, in which the spirit animals would appear, and the shaman would have a sense of out-of-body travel. That travel often took the shaman through a portal and into the rock itself, into the supernatural world.

WF16 is surrounded by cliffs and crags that would lend themselves to such experiences, some of which have petroglyphs of animals and signs, although these are likely to be later in date than WF16 (Pinkett and Mithen 2007). Solitary, private ritual might, however, have also taken place within the

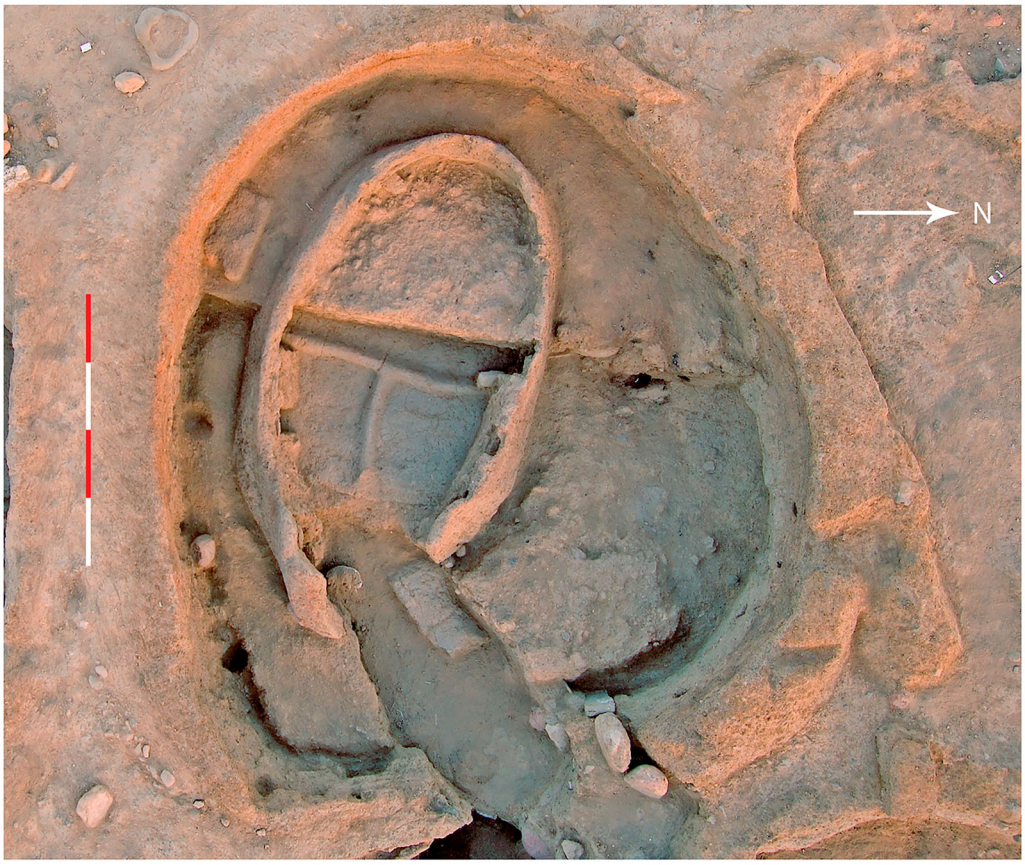

Figure 18 Structure O45 under excavation in 2010 (photo: S. Mithen and B. Finlayson).

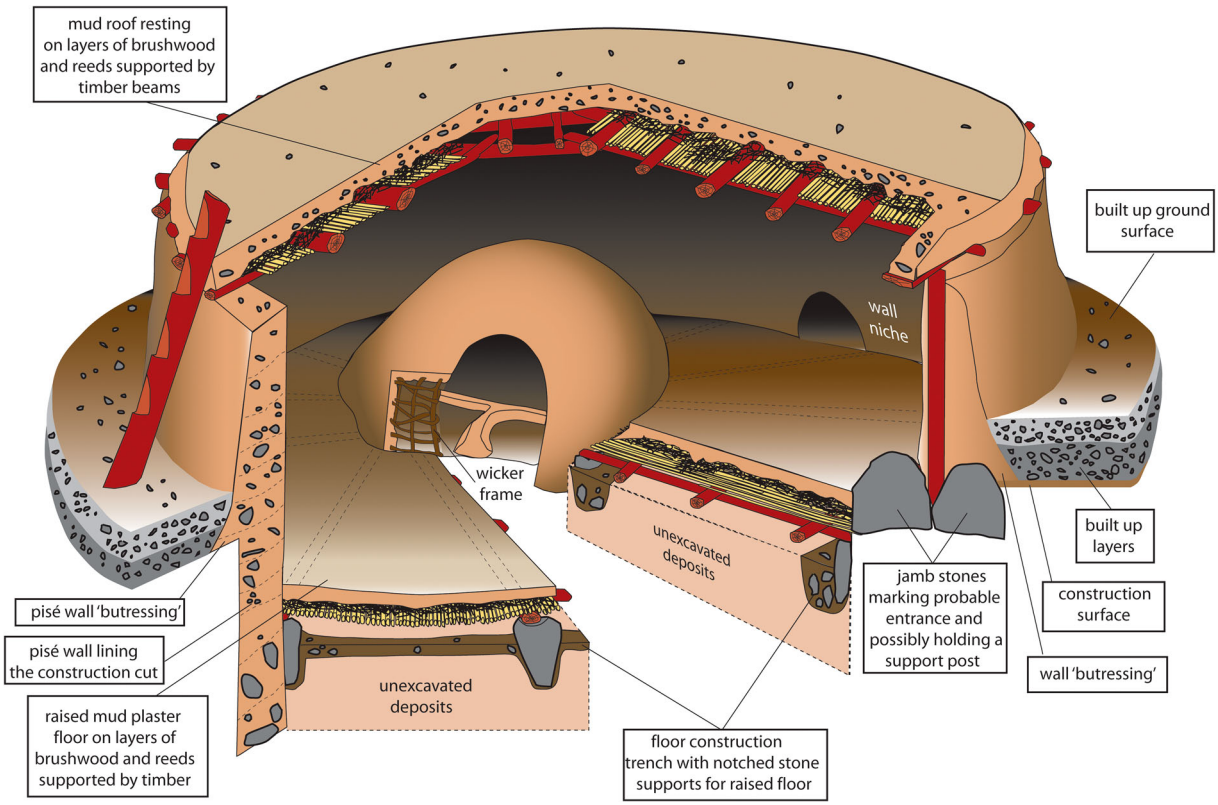

Figure 19 Reconstruction drawing of Structure O45 (drawing: D. Maričević).

small, circular semi-subterranean structures at the WF16 settlement itself. Shamanic cultures sometimes view the house as a model for the multi-tiered cosmos. Eliade (1964: 260–61) describes how amongst Siberian groups the tent roof is seen as the sky, with the stars represented by holes in the fabric, while Diakonova (1994: 296) describes how the orientation and placement of objects within dwellings are based on the shamanic concept of the world. Could the semi-subterranean structures at WF16 have been viewed in a similar manner, with the space below ground level facilitating access to the underworld? Could these have been the location for private ritual?

Structure O45 is the best preserved of these structures and the most extensively excavated. Having been constructed at *c.* 11.20 ka BP, it had burned down, either accidentally or deliberately, at *c.* 10.80 ka BP, with further use of the collapsed structure until *c.* 10.3 ka BP (Fig. 18). It was later disturbed by a Late Antique burial. As illustrated in the reconstruction drawing (Fig. 19), this structure was semi-subterranean, with walls of pisé and a mud-roof constructed on layers of brushwood supported by timber beams. Notched stones were used to hold timbers supporting a raised mud-plaster floor on layers of brushwood and reeds. Two niches had been moulded into the interior face of the pisé wall. This contained a construction with thin, inward curving mud-clay walls, made on a wicker frame that may have converged to make a dome, with a floor partitioned by low ridges.

Such structures at WF16 may have been used for entirely utilitarian purposes. By being semi-subterranean, internal variations of temperature would have been less than those outside: relatively warm in winter and cool in summer. This would have enhanced their value as places for food storage and for sleeping. The private space afforded by structures such as O45 may have been important for activities such as sex, childbirth and feeding, care of the elderly and those in ill health.

While acknowledging that such activities that would leave little, if any, archaeological trace, the evidence for domestic activity within O45 is sparse. There was no trace of a hearth moulded into the mud-clay floor. Its interior provided limited light and the space was dominated by the mud-clay construction. The function of this probably domed structure is unknown. Its floor was entirely clean of artefacts, plant remains and bone; at 10 cm in height the internal partitions would have been ineffective dividers had the purpose been to compartmentalize stored items, such as harvested plants. Tool making had evidently taken place outside; partly on the roof

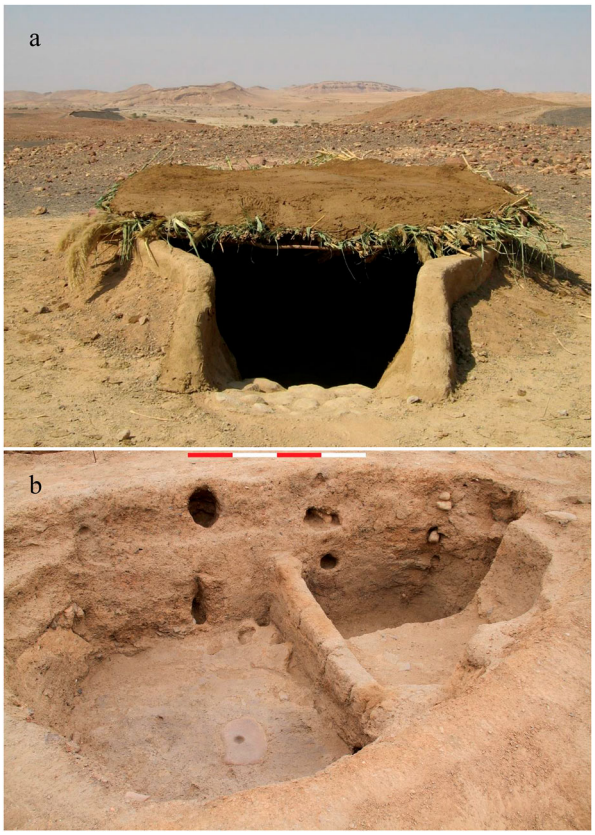

Figure 20 **(a) Reconstruction of Structure of O45 (photo: B. Finlayson); (b) Structure O12, showing intrusions into mud pisé that may have been used for a ladder.**

given the flint knapping debris that remained on the surface of its collapse.

While there is no evidence for domestic activities and food storage, Structure O45 has features and finds that suggest it may have been a place of shamanic ritual and/or where sacra were cached. First, as its experimental replica (Flohr *et al.* 2015) shows, O45's entrance appeared as a hole into the ground, see Fig. 20a. Holes, such as burrows, caves, or those in constructions such as yurts, are considered, in shamanic thought, to provide access to the underworld (Rozwadowski 2019). All the small semi-subterranean structures at WF16 would have had a similar hole-like entrance; some, such as Structure O12 (Fig. 2 and 3), appear to have been considerably deeper that O45, requiring a ladder for access (Fig. 20b).

The Temazal structures of Mesoamerica provide an intriguing ethnographic analogy for O45. These are small, domed structures, many with floor areas equivalent to O45, providing space for sitting in and little else (Sheets and Mahoney 2021). They are used as sweat baths for curing respiratory problems and restoring the balance between 'hot' and 'cold' in the body. Temazal are sometimes viewed as portals into the vagina and womb, and used for giving birth; they are also understood analogies for caves that are portals to the underworld. Both sweat baths and caves are locations that facilitate access to gods, spirits and the supernatural domain (Sheets and Mahoney 2021).

There was a pit at the entrance to O45 containing a curious mix of bones and artefacts, including the articulated lower leg and foot bones of a juvenile goat, the ribs of older animals, a tortoise carapace, human molar, quartz rubbing stone, ground-stone pestle and a large flint flake. Tortoise carapaces are prominent in the Hilazon Tachtit Natufian shaman burial and within burials at Körtik Tepe, also interpreted as relating to shamanism. The tortoise carapace found in the O45 pit is the only one recovered from WF16. The other objects are reminiscent of the 'sometimes unassuming' and 'sometimes barely distinguishable from random assemblages of natural elements' that can constitute sacra (DuBois 2009: 201). The 'disease objects' that were commonly removed from patients by sleight of hand, were often no more than pebbles, crystals, bits of wood and bone (Charles 1953: 106).

Artefacts confidently assigned to being on the floor of structure O45 prior to burning down included, several hammerstones, pestles, a large pendant, a miniature phallus (Fig. 11a), decorated plaque (Fig. 12d) and several pieces of yellow and reddish sandstone blocks that could have been used for pigment. The fill of the Late Antique burial, that cut through O45's collapsed deposits, contained incised and pierced stone objects, shell beads and a stone phallus covered in red ochre (Fig. 11c) — these would have come from the original floor deposits of O45. The collapsed deposits also contained carved and incised stone objects, as well as the scattered fragments of human crania and a lower mandible. These are assumed to have come from a single skull displayed within the interior, which was smashed and scattered when the structure burned down. Elsewhere at WF16 a piece of crania with a drilled hole was found, suggesting a skull had been suspended; similar has been found at Göbekli Tepe (Gresky *et al.* 2017). Willerslev (2007: 123) describes how amongst the Yukaghirs, during the late 19th century, the skull of a deceased shaman was placed on a wooden pole as a spirit effigy, being fed and asked questions daily by the living shaman. A cache of shaman's sacra, removed from a longhouse in Yakuta, contained a skull thought to be that of a previous shaman (Anawalt 2014: fig. 98).

Table 1 Summary of possible interpretations and additional/alternative shamanic interpretations of selected artefacts and architecture from WF16

Archaeological finds	Possible interpretations	Additional/alternative shamanic interpretation	Case for shamanic interpretation
Bird bones (Figs 4 and 5)	• Birds as a source of food • Skins, sinews, feathers and bones as materials for clothing and tool making • Feathers for fletching arrows	Feathers and skins for shamanic costumes and paraphernalia	• Quantity, range and diversity of taxa represented • Striking plumage of some taxa • Discard patterns contrast with those of mammal bones and tool making debris, including possible burial of a Little Egret • Cut marks and extent of burning are not commensurate with use of food alone • Location of WF16 below migratory flyway
Polished bone point with rounded tip: SF1366 (Fig. 7a) Polished 'baton' in white/grey stone with sharp tip and flaked base: SF531 (Figs 7b and 8)	• Spear points • Tools for working hides and wood • Status symbols	Fragments from shaman staffs	• Lack of comparable artefacts • Highly polished surfaces with no evident wear traces • Investment in manufacture • Context of discard
Zoomorphic figures: SF1365 (exposed ribs), SF2193, SF1298 (snakes) SF2078 (snake), SF1155 (ibex/wild goat) (Fig. 9)	• Toys • Decorative ornaments • Totemic symbols	Representations of tutelary creatures used in shamanic ritual	• Ethnographic analogy for the figure with exposed ribs for SF1365 • Role of snakes in shamanic thought and actions • Unpersuasive case for use of these as toys, decorative ornaments or totemic symbols
Two-sided stone face: SF238 (Fig. 10)	• Decorative ornament	Item of sacra used in shamanic activity	• Depiction of human faces within shamanic paraphernalia
Phalli: SF339, SF1005, SF2389, SF1056 (Fig. 11)	• Sex toys • Symbols of masculinity	Item of sacra used in shamanic activity to facilitate engagement with spirit animals	• Ethnographic accounts of sex and eroticism in shamanic activity
Engraved/incised stone and bone plaques: e.g., SF82, SF853, SF2390, SF1564, SF332 (Fig. 12) Carvings of ambiguous form, possibly zoomorphic: SF711, SF1356 (Fig. 12)	• Decorative items for clothing and body ornamentation • Mnemonic devices • Gifts for form friendships and alliances • Parts of multicomponent tools or structures	Item of sacra used in shamanic activity	• Some of the 'geometric' imagery might be depiction of tracks and journeys as found in ethnographically documented shamanic art • Small size of objects suggesting private rather than public use

Continued

Table 1 ***Continued***

Archaeological finds	Possible interpretations	Additional/alternative shamanic interpretation	Case for shamanic interpretation
Horncore embedded in wall of Structure O56 (Fig. 13) Fox skull in post-pipe of Structure O75 (Fig. 13)	• To provide structural support for the pies • Discard of fauna remains	Items of sacra to represent the 'hidden' spirit world	• Pisé walls would not have required structural support from fauna material • Horncore and fox skull would not have been as well preserved if they are been simply discarded into construction material • Scarcity of horncores and fox skulls at WF16
O75 — the amphitheatre-like structure (Figs 14–17)	• A longhouse, similar to those found in Amazonia • A communal work area	An arena used for shamanic performance, most likely related to healing	• Architecture that suggests benches for watching performance • Possible sacra recovered for floor deposits • Central trough as access to underworld • Cup-holed mortars as locations for preparation of pigments and narcotic substances • Traces of fire, hearths and deposition of horncores
O45, O56 and other small, circular semi-subterranean structure (Figs 2, 6, 18–20)	• Structures for domestic and private activities	Structures for storing sacra and private shamanic ritual	• Semi-subterranean structures represent access into underworld • Absence of hearth and presence of possible sacra in O45, including pierced human skull, phalli and tortoise carapace • Wall niches providing storage for sacra • High densities of bird bones in O56 and O45 • Burning down of O45

The two wall niches of O45 provide possible storage areas for sacra. One of these was excavated and found to contain a quarter of a stone bowl and a thick stone platter, which appear to have been deliberately positioned together. Two other combinations of a bowl fragment and stone platter were found elsewhere at WF16, suggesting a significant combination rather than a chance juxtaposition.

Whether the differences between O45 and other structures at WF16 — the internal possibly domed structure, its high density of bird bone with the only example of a crane, the two phalli, human skull, tortoise carapace, pigment stones — reflect the extent of excavation, or indicate a specific role within the settlement, remains unclear. The latter is favoured by associating these objects with shamanic ritual and interpreting the internal structure and niches as being stores for sacra.

Two other aspects of O45 might also be significant. First, it is in the middle of the clustered structures, adjacent to both Structure O11, which had the highest density of buzzard bones, and Structure O72, with a high frequency of Northern Bald Ibis bones; it is also close to O56 where shamanic costumes may have been made and stored. Second, O45 was burned down. While this might have been from natural causes, it is curious that the adjacent structures appear not to have been affected. If deliberate,

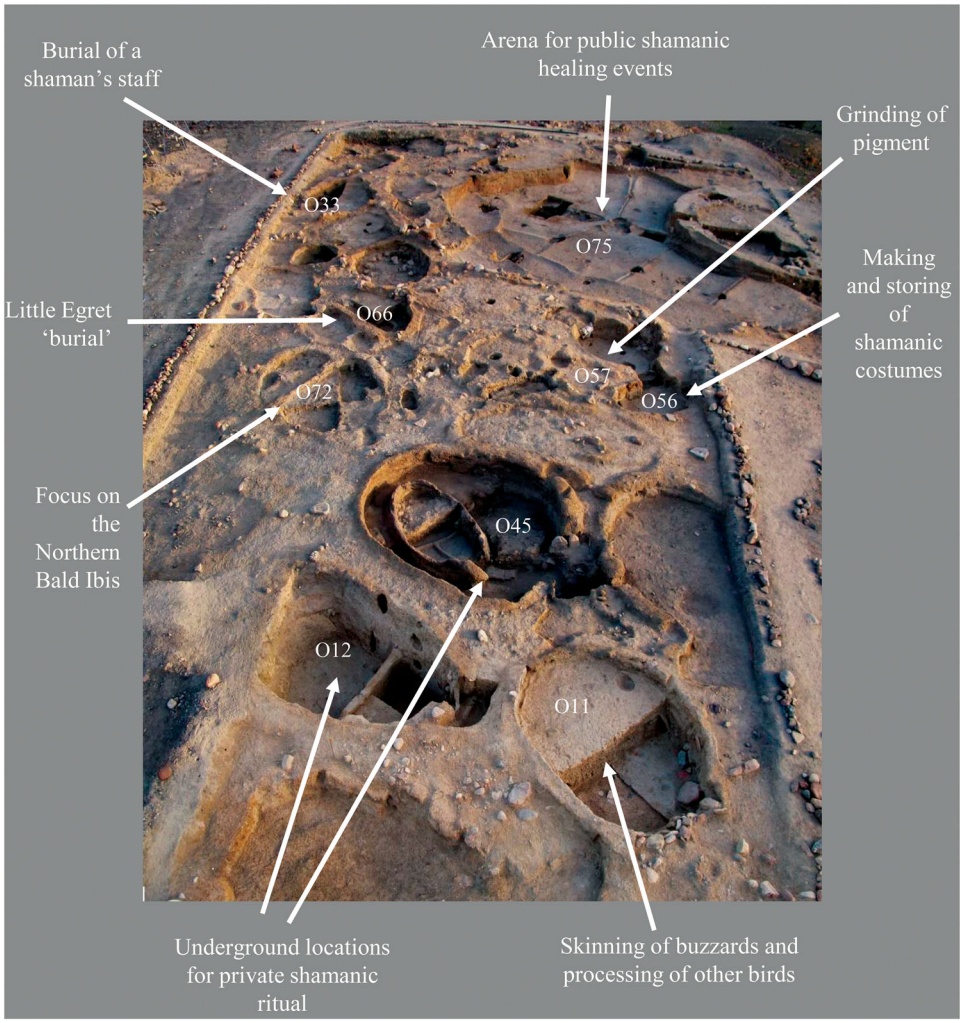

Figure 21 Summary of proposed shamanic activities at WF16.

it might have been comparable to and contemporary with the backfilling of Structure O33, proposed as a deliberate act to bury a shaman's staff. Might the burning of O45 have served a similar purpose, the destruction of a location still potent with stored sacra and a history of shamanic ritual?

Conclusion

Given the nature of the archaeological record — often poorly preserved and always open to multiple interpretations — making inferences about past thought and ritual practice is fraught with difficulties. The ethnographic record is an essential tool, but must be used with caution. This contribution has sought to avoid direct analogies by focussing on recurrent features of shamanism and grounding these in universal propensities of the human mind when engaged in a hunter-gatherer lifestyle.

For each category of material — the bird bones, pointed bone and stone artefacts, zoomorphic and anthropomorphic carvings, engraved stone and bone plaques, the horncore skull embedded within a wall, Structures O75 and O45 — non-shamanic interpretations have been considered, Table 1. While these have been found insufficient, they are not entirely excluded by proposing a shamanic role. Eagles can be spirit birds while also providing feathers for fletching arrows; longhouses can be used for both domestic purposes and shamanic events; semi-subterranean structures regulate temperature change while also providing symbolic access to the underworld. More generally, artefacts and behavioural acts always have multiple meanings and roles within hunter-gatherer communities, with no separation between the sacred and profane: an animal can be identified as a kin relation, and yet be killed, butchered and eaten. This is the nature of the cognitive fluid mind (Mithen 1996).

While any one of the specific shamanic interpretations proposed for artefacts or structures at WF16

can be challenged, their cogency arises from the whole package (Fig. 21): shamanism draws together aspects of WF16 that otherwise remain isolated from each other. By demonstrating how the character of the bird bones, the form and context of artefacts, and aspects of WF16's architecture, that otherwise lack interpretation, can all be understood by citing shamanism, any one of those interpretations becomes more compelling than would otherwise be the case.

The view presented here, is that shamanic thought and practice pervaded daily life at WF16 in the manner found within groups such as the Yukaghirs of Siberia (Willerslev 2007), or the Cachi of Ecuador (Praet 2009). To emphasize, I am not proposing that WF16 was a place devoted to shamanic activities, a form of ritual centre. While some individuals may have been recognized as possessing greater shamanic power than others, and likely performed within the O75 structure during seasonal gatherings, there is no evidence for a single, high-status shaman. Had one of these existed, ethnographic accounts suggest he/she would have been buried at some distance from the settlement.

WF16 was a 'normal' Early Neolithic settlement. As recognized within the excavation report: 'people lived at the settlement for extended periods of time, with all the concomitant activities, including sleeping, eating, socialising, sex, childbirth, child rearing and rites of passage through puberty, into old age, death and post-mortuary practice' (Mithen *et al.* 2018: 692). It was a location from which hunting and gathering took place, food was prepared, stone tools were made and used, and so forth. What is now being proposed, is that shamanic thought and practice pervaded many, if not all, of those activities; they all required some form of engagement with the spirit world, at times involving the use of sacra, architectural structures and — leaving no archaeological trace — particular words to be either spoken or sung.

This interpretation relates specifically to the Phase 2 settlement at WF16, 11.30–10.80 ka BP. The evidence is too sparse to comment on the earlier phase of settlement, begun by at least 11.84 ka BP, while there is evidence for a significant change at 10.80 ka BP, involving a marked reduction, if not end, of shamanic activity. At this date, the semi-subterranean structures were replaced by free-standing circular structures with an increased frequency of burial. The reuse of Structure O75, as an area for midden disposal, removed a venue for shamanic performance, while there was a marked reduction in the relative frequency of bird bones to animal bones within the midden that accumulated. Some of the bird bones within the midden may have been redeposited from Phase 2 contexts as the settlement was restructured, which might also account for the presence of the proposed sacra in the midden. The destruction of Structure O45 by fire is also dated to 10.8 ka BP. Although it cannot be determined whether that fire was accidental or deliberate, the latter may have served to destroy a structure that had been a focus for shamanic activity. Although no dating is available, it is not unreasonable to suppose the deliberate back fill of Structure O33, that buried a possible shaman staff, occurred at the same time.

Was shamanism an equally pervasive feature of contemporary PPNA settlement elsewhere in the region? This is difficult to determine because only Dhra' (Finlayson *et al.* 2003) in the immediate vicinity of WF16 has a chronological overlap with WF16 Phase 2. There is no evident trace of sacra at Dhra', nor at El-Hemmeh (Makarewicz and Rose 2011) or Zaharat-Adh Dhra' (Edwards and House 2007), both of which date after 10.8 ka BP (and hence contemporary with WF16 Phase 3). Although a full study is required, the same appears to be the case for PPNA sites to the west of the Wadi Araba/Jordan Valley, such as Netiv Hagdud (Bar-Yosef and Gopher 1997) and Gesher (Bar-Yosef *et al.* 2010), both also predominately dating to the 11th millennium BP. Nevertheless, all of these sites and their finds warrant examination from the perspective of shamanism. Recent discoveries, such as the flint 'figurines' from Kharaysin (Ibáñez, *et al.* 2020) and possible use of animal bones to make figurines from Shubayqa 6 (Yeomans *et al.* 2021) might be reinterpreted from a shamanic perspective.

The closest material culture overlap with WF16 comes from the Late Natufian site of Nahal Ein Gev II, in the north of the Jordan Valley (Grosman *et al.* 2016). While this is dated to *c.* 12.00 ka BP, the Late Natufian is recognized as having a chronological overlap with the earliest PPNA (Grosman 2013). WF16 and Nahal Ein Gev II share features such as double-holed greenstone beads, small stone faces (Grosman *et al.* 2017), plaster coverings over burials (Friesem *et al.* 2019) and geometric designs (Shaham and Grosman 2019). As described above, shamanism has been cited in relation to the Late Natufian burial at Hilazon Tachtit (Grosman *et al.* 2008).

The impression is that the intensity of shamanism varies both chronologically and geographically throughout Southwest Asia: prominent in the 13th millennium Late Natufian of the Jordan Valley and the 12th millennium PPNA at WF16; in the northern Levant and Upper Tigris Basin during the 12th millennium BP (Benz and Bauer 2015); with some traces in the Later Neolithic at

Nahal Hemar cave (Bar-Yosef 1985) and Çatalhöyük (Lewis-Williams 2004).

Such variation might simply reflect localized tradition: some communities developing a greater involvement with the spirit world than others — just as we find in the modern world. One of the striking aspects of the PPNA settlements in the southern Levant is how each appears to have distinctive features with regard to their architecture, mortuary practices and technology, such as at WF16, Dhra' (Finlayson *et al.* 2003), El-Hemmeh (Makarewicz and Rose 2011) and Zaharat-Adh Dhra' (Edwards and House 2007). There is no reason why, as part of this localized cultural variation, the extent of shamanic activity would not also have varied between settlements.

If an explanation is required as to why shamanism might have been more prevalent at some settlements and in some time periods than others, then it is worth considering the level of insecurity being experienced by communities of hunter-gatherers and early farmers. Winkleman (2000) had referred to shamanism partly arising from 'common features of a hunter-gatherer lifestyle', which are likely to include uncertainties about finding and killing game, and weather conditions. These uncertainties will have become more intense during periods of climate change, such as, the Late Pleistocene climatic fluctuations associated with the Natufian and the Early Holocene global warming associated with the PPNA. Similarly, the uncertainties arising from economic change — the introduction of plant cultivation and animal herding that eventually led to domestication. These will have disrupted patterns of hunting and gathering, and involved considerable experimentation and risk, with periodic failure during their adoption. The community that used WF16 between 11.30 and 10.80 ka BP may have experienced a heightened sense of insecurity within their world, perhaps arising from the particular challenges of their environment, which had a relatively low rainfall compared to elsewhere in the southern Levant. For perhaps no more than 500 years, shamanism became pervasive in the thoughts and actions of the WF16 community prior to their uncertainties becoming resolved, as manifest by the new form of architecture at WF16 and what appears to have been a deliberate termination of shamanic activities.

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