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Identifying iconographic evidence for a mushroom cult in the preliterate Southern Levant

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ABSTRACT

Cultures using mind-altering psychedelic mushrooms in literate periods have been identified in the ancient Near East. key to their recognition in preliterate periods. One may assume that psychedelic substances such as mushrooms were elevated to the status of gods, and their secret identity embedded in the iconography of material items in a variety of media. I trace some of these images from late Holocene cultures until at least the Early Bronze Age, and suggest analogies from known contemporary cultures where the mycological cult was practiced. I note the presence of such a cult in the rock art of the Negev and Sinai deserts in Israel. Most of this art is thought to date within the last 5000 years. I also suggest a symbiotic relationship between man and ibex with the growth and collection of mushrooms linking the two.

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Introduction

Shrouded in secrecy, ancient mystery cults fascinate and capture the imagination. Doctrines of mystery cults were kept secret and few people knew them. They continue to vex scholars because the surviving evidence is problematic, comprising few written sources. The message of the Soma cult, for example, was concealed in incantations or special names in documents and other details were hidden in other innocuous forms, euphemisms and word play (Allegro 1970, 39–40; Wasson 1968; Furst, 1992 [1976]). This study examines the evidence for the cult of hallucinogenic fungi in the prehistoric periods of the Southern Levant. Clues to the mushroom cult are difficult to decipher and I suggest that they might also be embedded in ancient symbolic and esoteric representations.

An attempt to identify the presence of mushrooms and mind-altering substances in prehistoric periods must be approached with caution. It raises old controversies and skepticism surrounding the theories of Allegro in the 1930s, their repudiation and final vindication by Irvin and (With Herer) (2009).

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Evidence for the mushroom cult was both linguistic and graphic. Allegro's evidence was linguistic. He believed that many biblical stories and sayings derived from earlier fertility cults based on the use of the sacred mushroom. He discerned mushroom epithets behind many stories, names and phrases in the Old and New Testaments, either elaborated into folk tales or deliberately hidden in names and incantations.

In the foreword to Irvin et al's book (2009, ix), Brown (2005) notes that the huge body of proof in surviving and cultural artistic expressions of 'Christian' fertility cults brought by, for example, Irvin (2009, plates 1–43) would have added support to his arguments.

This evidence shows that elements of the ancient religion survived into at least medieval times where they were widely accepted in pagan and Christian folklore and religious practice. The many depictions of mushroom trees in Early Christian and later Renaissance churches and manuscripts would have supported Allegro's chronological theories for the existence of the cult in early Christianity, but also serves to show the variety of mushroom iconography. This study suggests that we can identify these graphic depictions of the mushroom in prehistoric times and they suggest the use of these fungal entheogens in ritual, for example in the rock art of the Negev and Sinai deserts in Israel.

The depictions of mushrooms on the mushroom trees are realistic, schematic or generic (Samorini 2001). Recognizable are the ochre-colored dotted *Amanita* and the smaller hooded psilocybin mushrooms. I note, in particular, circles and semi-circles attached to lines as in 'balloons' (e.g. Irvin 2009, 117). This motif of circle and line is common in the prehistoric Southern Levant.

Ethnological research has shown that the symbolic systems or religions of hunting peoples everywhere are essentially shamanistic, and suggest common historical and psychological origins. The ecstatic experience of the shaman lies at the center of shamanistic religion (Furst 1992 [1976], 4).

Non-chemical means were used to attain altered state of consciousness (Furst 1992 [1976], 10–12 and 75) but often, although not always or everywhere, the shaman's ecstatic dream has involved the use of some sacred hallucinogenic plant believed to wield power over the soul that inhabits all-natural phenomena in animistic shamanistic religion (Furst 1992[1976], 10). Fundamental to many if not all religious rituals, Weil (2004) argues that the desire to alter consciousness periodically is an innate norm.

Almost universally, traditional societies consider psychoactive plants to be divine entities, 'plants of the gods' that allow humans to contact spirits or deities to obtain knowledge, power and control over natural phenomena. More than mere sources of chemical substances, psychoactive plants are central sacred symbols in many religious rituals, imbued with important spiritual and social functions.

The main pharmacological classes of hallucinogenic mushrooms are the group mainly pertaining to the genus *Amanita* (Amanitaceae) and the larger

group of psilocybin mushrooms, mainly of the *Psilocybe, Panaeolus* and *Copelandia* genera (Samorini 2001).

It has become widely accepted that a particular mushroom was the center of a mystery cult in the Near East which persisted for thousands of years (Allegro 1970, 39; Wasson 1968).

The taboo against naming sacred plants in many tribal societies (Wasson et al. 1986, 62 f.) meant that images of the divine plant were embedded in iconography of symbolic artifacts and architecture. In the Near East, hints in the pictorial evidence might illuminate the presence of a cult, and identify the mushrooms used.

Depictions of mushrooms

There are countless images of mushrooms suggesting the existence of a mushroom cult in the Southern Levant in prehistoric millennia. I record some from the late Holocene to the Early Bronze Age. The recognition of use of these fungi in archaeological remains, like the linguistic evidence, is by indirect evidence – here by iconography of the mushroom. Depictions and mushroom effigies are hidden in material items, in rock art and seals, from tiny depictions to huge rock installations. They appear seemingly on every assemblage of material culture on flint and groundstone tools, on pottery and animal shapes. I present some of these together with speculation on the growth, collection and consumption of the magic mushrooms, with analogies from known contemporary cultures where the mycological cult was practiced. The elaboration of realistic and schematic mushrooms confirms their significance in the ritual carried out and depicted in the art.

Wasson identified the species of mushroom referred to as Soma in the ancient descriptions of Vedic religion, the *RgVeda* as the hallucinogenic mushroom *Amanita muscaria*. The cult of Soma has been traced to a proto-Uralic source possibly *c*6000 BCE (Wasson 1968, 164–167). I suggest that possible graphic evidence for the use of *A. muscaria* and a variation of psilocybin can be identified in the Southern Levant.

The ecological context of *A. muscaria* can be precisely traced since it has formed a symbiotic relationship with various coniferous and deciduous trees such as birches, pines and spruces, and can often be found growing near them. Samorini (1989) suggests that this relationship between hallucinogenic mushrooms and man came from the ancient populations of the Sahara Desert who inhabited this vast area when it was still covered with vegetation. Both *A. muscaria* and the psilocybin species are also coprolitic fungi, growing on the dung of animals.

Etymological clues to mushrooms

The clues to a possible earlier cult in early Holocene cultures surrounding the *A. muscaria* mushroom are few and indirect. For example, the mature *A. muscaria* mushroom was a brilliant red color with white spots. Allegro related it to the opal stone (Allegro 1970, 126). Finely polished opal bead fragments came from an Early Natufian surface collection at Tabaqa in the South Jordanian Steppe (Byrd and Colledge 1991) and from Wadi el Hasa in Southern Jordan (Byrd and Rollefson 1984).

Archaeological remains

The *A. muscaria* mushroom emerges as a little white ball (Wasson 1968, 35), turning to pale green. The fully grown mushroom has a brilliant red skin with white spots, and turns to a dull chestnut hue when gathered and dried.

Unique grinding stones made of pale green magmatic rock originate in Harifian sites (*c*8800 BCE–8000 BCE), previously described as bell or keyhole shaped but might equally and more aptly be called mushroom shaped. They are found in Abu Salem, Abu Maadi and Shluhat Harif (Goring-Morris 1987, 361; Scott 1977). Mushroom-shaped stones are also found in PPNB Atlit (Galili et al. 1993, Figure 18:2) and at Beidha in Jordan (Kirkbride 1966, 33, Figure 7:1–2).

Bead shapes in the Neolithic Levant, like schematic mushrooms, comprise cylindrical and circular disk shapes, schematic versions of the stipe and cap of the *A. muscaria* mushroom. A study of bead assemblages dating to the Late Epi-Paleolithic (Late Natufian) and Neolithic periods from the Southern Levant (Bar-Yosef Mayer 2013, 131) shows that beads were mostly pale green with some notably red/brown colors and some with white spots which can be associated with the *A. muscaria* species.

Tassili art

The oldest archaeological documentation attesting to the use of psychoactive mushrooms was identified in the Sahara Desert (Samorini 2019.) The representations of the Round Heads Period evoke possible magic-religious practices some 10,000 years ago. In the prehistoric paintings of Tassili n'Ajjer (Algeria) and in other mountainous areas of the Sahara, Samorini describes polychromic scenes of an ancient hallucinogenic mushroom cult, showing persons holding realistic mushroom-like objects in their hands, as well as mushrooms growing from their bodies. Mushroom-shaped heads and mushroom-shaped anthropomorphs add to the repertoire of this image (Samorini 2001, 260). He claims that the fungoid-like paintings in the caves of Tassili are proof of the relationship between humans and psychedelics in the ancient populations of the Sahara, when it was still a wild green land (Samorini 1989; Sansoni 1980). The art

includes elongated humans with delineated spread fingers or toes; these are suggested visual effects of the drug. McKenna (1992) hypothesized that the culture that inhabited the site used psilocybin mushrooms as part of its religious ritual life, citing rock paintings.

Pollen examination reveals that during the Round Heads Period this area was vegetated by highland flora with the presence of coniferous trees and oaks (Jefferson 1986, 97). It can be presumed that some of the mushrooms represented were intimately associated with these species of tree (Coulson and Campbell 2011).

The center of the art style is Tassili but examples are also to be found at Tdrart Acacus (Libya), Ennedi (Chad) and to a lesser extent at Jebel Uweinat (Egypt) (Muzzolini and Boccazzi 2014).

The mushroom shapes in this art are predominantly naturalistic – and the people themselves may represent a schematic mushroom shape.

Rock art from Negev and Sinai deserts, Israel

For this study, I examined a corpus of ~190 rock art panels from the Central Negev that had been assembled by Razy Yahel of Sde Boqer. Most of this art is thought to date within the last 5000 years (e.g. Eisenberg-Degen and Rosen 2013). For published examples from other sites in the Negev Desert, see for example Anati (1956, 1962), Eisenberg Degen (2012) and Eisenberg Degen and Rosen (2013).

The evidence from rock art in the Negev and Sinai includes some of the motifs and characteristics of the Tassili culture and suggests that there may have been contact between the two people. Round-headed people, are depicted; although they are often difficult to decipher.

Some humans appear to carry a circle and stick, described as carrying tools (Eisenberg Degen 2012 147, Figure 2.2.9.). The circle and line motif common in both Tassili and Israel rock art are recorded for example in Eisenberg Degen (2013, Table 14, 'd'). Anthropomorphic images carrying a stick and a circle represent a schematic motif of mushroom.

We suggest that the frequent depictions of the iconographic motif of a circle and a line denote a schematic mushroom, a common symbol in rock art in the Negev. Avner and Avner (1999) describe this motif of lines and circles which usually appears with the line below the circle and is sometimes called a ‘balloon’.

The universal archetype figure with elongated spread fingers and toes appears in Negev and Sinai rock art.

Sometimes, triangles replace the circles. The same forms and combinations appear in ancient stone structures, ranging in size from a few meters to several kilometers in length. In the southern Negev, the motif is engraved on a circular stone platform, at the foot of a small standing stone (Avner 1993,, 2002, ch. 4). In

an open-air sanctuary at Naḥal Paran it is engraved on a circular stone installation connected with an alignment reproducing in stone the 'balloon' motif.

In the abstract elements recorded from Har Michia and Giva't HaKetovot Survey, type f in curvilinear motifs are variations of line and circle/balloons (Eisenberg Degen 2012, Table 14).

Cross-cultural references

A number of motifs in the Near Eastern data were found to be present cross-culturally in cultures where natural psychedelics were used in their religious cults. Records of these were found recorded in their rock art.

In Siberia, for example, figures with round heads with rays emerging, 5000 years old, were found in an ancient burial in Karakol village in the Altai Republi. These images have been called celestial bodies (Verma 2020). Near the an eastern bank of the Pegtymel River in Siberia, petroglyphs from ~1000 BCE depicting anthropomorphic figures with mushrooms attached to their heads indicate that *A. muscaria* was used by the Chukotka people (Devlet 20002004, Figure 8.20).

In the Amazonian rainforests, amongst images on an eight-mile wall of prehistoric paintings dated to 12,500, round-head figures and figures holding the stick and round motif appear (Nikolic and Weber 2020).

Growth of mushrooms: ibex

Clues from the rock art of Negev and Sinai may point to the context of growth of the fungi. Almost all species of mushrooms cannot be cultivated (Wasson 1968, 13) but normally grow on ruminants' dung (Furst 1992[1976], 172–173).

An animal frequently depicted in the rock art of the Negev and Sinai that I describe is the male ibex. It is often shown alone, but also recurs in several compositions: with dogs or other predators, with hunters, with human 'orante' figures, human footprints, snakes, sun, stars, crosses and 'balloons' (circles and lines) (Avner, Kolska-Horwitz, and Horowitz 2016).

The faunal data clearly demonstrate that from the sixth millennium BCE onwards, the ibex played a negligible economic role for the Negev inhabitants despite being present in the region, as evidenced by their occasional remains in archaeological sites. Avner, Kolska-Horwitz, and Horowitz (2016) suggest that since ibex were not for subsistence, their ubiquitous presence in the rock art and the ibex hunt must have been ritual.

Their exaggerated horns have been deemed to relate to some symbolic function (Avner, Kolska-Horwitz, and Horowitz 2016). Mailland (2015) relates the semi-circular shape of exaggerated horn to a lunar goddess symbol.

From the Late Neolithic (6400–4600 cal. BCE) the osteological assemblage drastically changed – no ibex bones, or almost none, are found in excavated sites in the Negev (as well as in southern Jordan and southern Sinai).

However, depictions of ibex continue to appear in numerous instances in Near Eastern art through to the Early Bronze Age (see Horwitz and Horowitz in preparation).

Representation of deities by animals was very common all over the Near East, from at least the seventh millennium BCE onwards (e.g. Mellaart 1967, 117–130 and 181–182; Epstein 1982).

I propose that the ibex acquires its divine characteristic from a symbiotic relationship with man related to their pursuit and use of psychedelic mushrooms. It is known that many psychotropic mushrooms (above all, *Psilocybe* and *Panaeolus* genera) live in dung of certain quadrupeds and in particular bovines, cervides and equines (Samorini 1992). Fungi grow typically on the dung of cattle or native ruminant droppings which play host to mushrooms (Bell 1983). Samorini (1992) suggests that this ecological phenomenon led to the creation of mystico-religious relations between the mushroom and the animal which produces its natural habitat; for example, the sacred deer in the Mesoamerican cultures and the cow in Indian Hindu culture could be interpreted in this zoo-scatological manner (Wasson 1968, 44; Furst 1992 [1976]; Samorini 1989). Sukopova (2011, 208) notes too that the association of moufflon dung and toxic plants in Uan Afuda cave in the Central Sahara may have ritual motivation in Round Head art.

Dung

Fungi are independent of light energy for photosynthesis; fungal mycelia are able to ramify in dark places and can live as parasites of plants or animals (Bell 1983). They rely on organic matter as their food source.

The growth of mushrooms on the dung of animals can be hinted at by various kinds of evidence. The evidence for the elaboration of dung in imagery is known from Magdalenian mobile art where sculpted spear throwers made of reindeer antler depict a herbivore, a doe or an ibex that is defecating. Deer carvings from European Magdalenian sites Bedeilhad and Mas d'Azil show deer portrayed on spear throwers with their head turned backwards to their rear, where a turd emerges on which one or two birds are perched (Sauvet et al. 2008) (Figures 1,2).

Some suggest that the head of the deer from Mas d'Azil (Figure 4).was turned backwards to make it less breakable and the legs were brought together for the same reason. I suggest, however, that the backward-turned head of the animal, like in the Paleolithic examples, is a device to draw attention to the turd coming from its rear end.

There is an incised image of a backward-looking antlered animal image in the art of Tasilli n'Ager.

Iconographic cues for excretion are noted by Mithen (1990, 230–231), who describes cues from the Paleolithic of how excretion was depicted; one where both animals and feces are shown (such as in the spear throwers) and animals with the tail up in the posture of defecating. I suggest that the posture of the animal with the head turned backwards, as in the spear throwers, is in itself another cue to excretion. This posture seems to have survived over millennia as relating to the mushrooms growing on dung.

Many ibex with upturned tails are depicted in my data of rock art; over 40% of the ibex petroglyphs in Har Michia were presented with an up-turned tail (Eisenberg Degen 2012, 114; see figure 6)) and an ibex with raised tail and dung is depicted in Har Michia (2012, Figure 5a).

In his descriptions of excavations in cult sites, Avner (2002) notes several stone drawings of animals, for example at Uvda 6 (2002, Figure 5.149), all with raised tails.

Backward-looking ibexes with raised tail and grazing ibex with raised tail are frequently depicted, for example, in the assemblage of Bronze age strata cylinder seals from Tel Hazor (Ornan and Peri 2017). The seals also feature human figures wearing round brimmed hats; the tree made of rod and circle motifs seems to support the schematic mushroom theory (below).

Collection

Ethnographic literature describes the ritual surrounding the collection of psychoactive plants used for entering trance. The collection of deified plants like Soma, or the peyote in the New World, is described as a 'symbolic hunt'. The plant may be metaphorically described as a deer and shot at with arrows, and complex and lengthy rituals surround the division of its flesh (Furst 1992[1976], 123–124).

In Negev rock art, common iconic combinations are dogs chasing and attacking ibex. Avner, Kolska-Horwitz, and Horowitz (2016) interpret this as a ritual ibex hunt (Ingrams 1937). Serjeant (1976, 36) and Beeston (1937, 50–52) describe beliefs which relate the success of the hunt with rain. Soukopova (2011, 208) notes too the link between horned animals and rain in the art of Central Sahara.

In rituals surrounding the collection of the sacred mushroom, females exposed their genitals to draw mushrooms out of the earth with menses and urine (Allegro 1970, 77). This may relate to the occasional depiction of exposed females in the rock art, where the genitals are depicted as dissected squares or ovals (Figure 8).

Part of the ritual in the collection of psilocybin plants was to make a circle around a dot (Figure 9) . This motif is also reported from a pictograph in the Ramon Crater isenberg Degen 2012, 227).

Circle and line motif

The motif of stick and circle is prevalent in the symbolic imagery of the period. I suggest that its depictions denote a schematic mushroom a common symbol in rock art in the Negev. Sometimes, triangles replace the circles.

The same forms and combinations appear in ancient stone structures, ranging in size from a few meters to several kilometers in length. In the southern Negev, the motif is engraved on a circular stone platform, at the foot of a small standing stone. In an open-air sanctuary at Naḥal Paran it is engraved on a circular stone installation connected with an alignment, reproducing in stone the 'balloon' motif.

Such stone alignments, circles lines and triangles are known throughout the Near East deserts in various forms. Some in the Negev and Sinai were dated from the seventh to second millennia BCE (Avner 1984, 2002, ch. 5 and App. 1; Avner, Kolska-Horwitz, and Horowitz 2016). In the Eilat region, over 300 mountain Neolithic sites were recorded, comprising circular, oval and elongated low stone installations. Often, they comprise an elongated cell, with sizes ranging from a few meters to some hundred meters. The motif was related to graves and tumuli burial sites in Eilat, sixth and fifth millennia BCE (Avner 1991, 2002, App. 1; Eshed and Avner 2018). Avner assumes that their presence in cult-like contexts suggests that they have ritual meaning.

In the Sahara Desert similar combinations are found, of stone alignments, 'arms' or 'corridors', tens or hundreds of meters long, connected to tumuli tombs, to stone rings surrounding tombs or to circular stone platforms. Some propose functional interpretations for the alignments such as defensive walls (Evenari et al. 1958). In the abstract elements recorded from Har Michia and Giva't HaKetovot Survey, type f in curvilinear motifs are variations of line and circle/balloons (Eisenberg Degen 2012, Table 14).

In the rich and varied iconography of material items, the combined essential shapes of stalk and cap easily translate into male and female principles (Furst 1992[1976], 80). Avner too relates the recurring forms of the intersected circle or oval and triangle to an ideogram denoting a female genital; the tomb context to a womb; the lines to a phallus. The role of the phallus, he suggests, was to fertilize the tomb-womb, and ensure rebirth of the deceased. These motifs, apart from being genital shapes, are in fact schematic representations of a mushroom image comprising a stalk and cap. The same sexual genital interpretation for the two parts of the mushroom, the cap and the stem, is described by Allegro: 'The risen mushroom with canopy outstretched was seen by the ancients in the same sexual terms as the open groin of a woman penetrated by the male organ or as an axe head into which the shaft has been inserted' (1970, 40, 108). It was represented symbolically by the form of a cross. a common motif in rock art (Figure 10).

Schematic mushroom shapes were incorporated in the shapes of the animals depicted. The exaggerated male horns of the ibex form an arc and resemble the mushroom cap and the legs its stipe, thus the ibex depictions are also schematic mushrooms; as are the circle and line in depictions of ostriches (Figure 11). (Eisenberg Degen 2012, Figure 32).

Excavation of cult sites

Amongst sites described and excavated in desertic regions by Avner (1997, 1984) are dozens of cult installations mostly on mountains, dated to both the PPNB and Late Neolithic. Some of the sites consist of a circular and elongated cell, replicating the motif of lines and circles appearing in the rock art of the Negev and Sinai.

Sites have yielded evidence for substances which were commonly used as additives to the soma mushroom such as a threshing floor and groundstone to process barley (Avner 2002, Figure 2.38). The relationship to dung was suggested by stone drawings of animal images with erect tails (Avner 2002, Figure 5.150).

The poison found in three glands at the back of the head of certain toads was used as an additive to enhance the effect of the mushrooms. The toad is associated with mushroom (Gimbutas 1974; Wasson 1968, 185). Toads have been identified in the faunal remains, in the Kebaran period (*c.*18,000 to 12,500 BP), at the site of Urkan-E-Rub IIa (Hovers et al. 1988) where post-cranial elements of frogs and toads, *Anurida* and *Bufo viridis*, were found; *B. viridis* was found in PPNA Gilgal and at Ain Ghazal in Jordan (Rollefson and Kafafi 1988, 423–455).

Monumental mushroom images

Apart from the monumental desert stone structures of the line and circle, effigies of mushrooms are found in Tassili culture; huge sandstone towers eroded in the form of mushrooms are found, for example, in the Ennedi desert massif of Chad, Africa.

Another form of monumental mushroom effigies is the dolmen, single-chamber monumental tombs usually consisting of two or more vertical megaliths supporting a large flat horizontal capstone depicting the basic mushroom shape (see Samorini 2001, 261). This assumption was strengthened by research in the dolmen fields in the Galilee. A unique large dolmen from the dolmen field around Kibbutz Shamir in Upper Galilee Israel had motifs engraved on its ceiling (Figure 12). The dolmen dated from the Intermediate Bronze Age (Gonen and Berger 2020) (Figure 3). The engraved motifs are abstract, depicting a schematic mushroom shape – a vertical stipe entering a lunate-shaped cup in a trident-like manner, in the context of the burial. This motif is present in the rock art of Har

Michia (Eisenberg-Degen 2012, Table 14, d3–4) and Giv'at Haketovot (2012, Table 36, d3–4). The motif reproduces the shape of the psilocybin mushroom.

In addition, engraved panels on the inner walls of dolmen burial chambers at Meshushim (Gonen and Berger 2020, Figure 5c) depict a number of horned animals in the style of those in Negev rock art, suggesting a cultural affinity with Negev Desert populations (Figure 13). A large central horned animal is sitting with its head turned backwards – a cue for excretion and diverting attention to its dung as mentioned earlier.

The third find described by Gonen and Berger is the presence of cup-marks on dolmen walls at Umm El-Kalha and Shamir (Figure 1), and cup-marks in non-functional locations on dolmen. Fulvio (2010) speculates that cup-marks were present in areas where *A. muscaria* was used, suggesting a correlation between the presence of cup-marks and the ritual use of the fungus. He believes the cup-marks may also have been used as drying surfaces upon which large amounts of *Amanita* caps would be laid during the summer and sunny autumn days in order to preserve them for the later seasons (2010, 9). The cup-marks can be sexual symbols, as an abstract representation of the womb or vulva(Schwegler 1992, 27). Drying the mushroom caps, the female part of the fungus in vulva-shaped cupholes would seem to support such an idea. Cupholes were also present in Harifian sites where the mushroom effigies were found. The discovery of features relating to a mushroom cult on dolmens seems to confirm their description as mushroom shaped.

Sometimes one can recognize the presence of mushroom use in visual effects depicted in the rock art. The elongation of bodies or of hands and fingers is one such effect seen both in Tasilli art and our data (Rudgely 1993, 96).

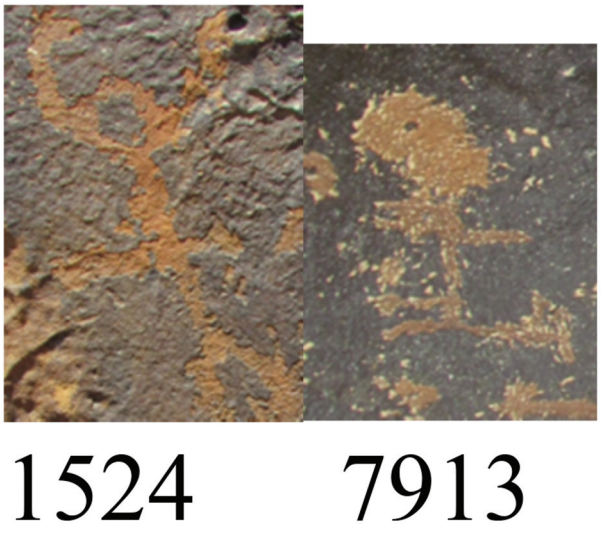

Figure 1. Round-headed people in Negev and Sinai rock art images 1524 and 7913.

4191 0098 0907

(a)

(b)

Figure 2. Human figures carrying objects – from Negev and Sinai rock art images 4191, 0098 and 0907.

5814

Figure 3. Elongated human figure with spread fingers and toes in Negev and Sinai rock art image 5814.

Figure 4. Backward-looking deer spear thrower from Mas d'Azil.

Figure 5. Incised image of a backward-looking antlered animal from rock art of Tassilli n'Ager.

Ibex in my data studies do not have a backward head, but have elaborate horns instead, and have either nothing at the rear or a clear blob with mostly upward pointing tails indicting defecation. The frequency of this excretion cue suggests that in fact the mushroom used in this ancient cult grew on ibex dung. Depictions of female ibex are extremely rare (Avner, Kolska-Horwitz, and Horowitz 2016, 35); female ibex, which hardly appear in the rock art, move their tail before copulation (Parrini, Cain III, and Krausman 2009, 830). Male ibex's rutting behavior is to clash horns with other males competing for females. Two male ibexes facing each other in a rutting position (Figure14) are recorded at the Survey of Giva't HaKetovot (Eisenberg-Degen 2012, Figure 181).

Figure 6. Three ibex with raised tails from Negev and Sinai rock art image 6796.

Figure 7. Ibex with raised tail and dung Har Michia (Eisenberg Degen 2012, Figure 5a).

Iconography of pottery

The mushroom stands on one leg. The iconographic motif of 'one-leggedness' was used in the morphology of particular vessels, probably for cultic use as found in the earliest pottery assemblages in the area. 'Ritual' vessels such as a bowls with raised bases, usually single legged, are described for example in the Yarmukian culture (e.g. Munhata, Shaar Hagolan phase) (Garfinkel 1992, 57, Figure 28 and 23–25, Figure 37); including bowls on one foot – decorated with painted entoptic images – nested zigzags and parallel lines, or several legs (Sadeh 1994, 38, Figure III.1:8). The single leg may relate to the phallic nature of mushroom stipes. One-legged or pedestal glasses are still used for wine today.

Figure 8. Exposed females in the rock art of Negev and Sinai images 1124 and 8720.

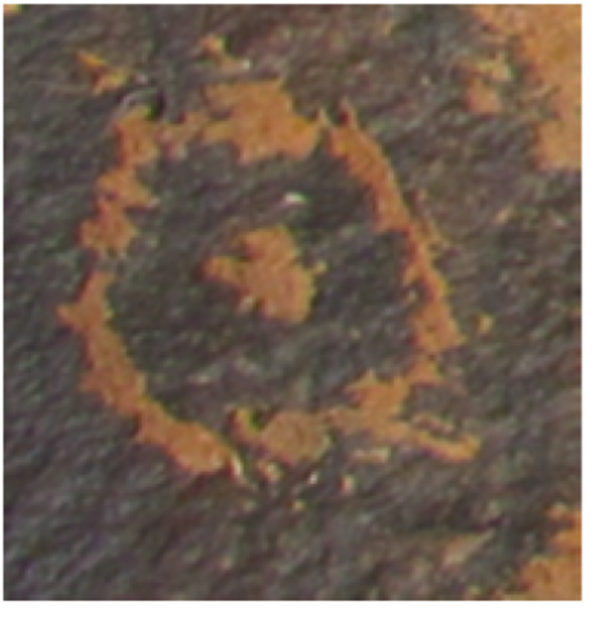

Figure 9. Flour circle around a plant in rock art of Negev and Sinai image 5599.

Figure 10. Motif of cross in rock art of Negev and Sinai images 1777 and 4020.

Figure 11. Motif of ostrich (Eisenberg Degen 2012, Figure 32).

Figure 12. Image 1796, image 1251 schematic motif of psilocybin mushroom.

A hidden myconic iconography my lie in the inverted *fossil directeur* jar of the three Pottery Neolithic cultures, the Yarmukian, the Lodian and the Wadi Raba. The bowl of a jar can be likened to the cap of an inverted mushroom; the variously shaped elongated necks of the jars could represent stems/phalli.

Discussion

I have suggested that an examination of the archaeological remains in the Southern Levant hint at the use of *A. muscaria* and a type of psilocybin mushrooms.

Figure 13. Gonen And Berger (2020, Figure 5c). Horned animal with head turned backwards. Meshushim.

Figure 14. Two male ibexes in a rutting position. Survey of Giva't HaKetovot (Eisenberg Degen 2012, Figure 181).

Amanita are intimately associated with coniferous trees and oaks, and the later image of two rampant ibex in a heraldic position with a tree, and the later depictions of mushroom trees, may illustrate the collection of these mushrooms.

The evidence, particularly for the psilocybin mushroom, consists mainly of an elaboration of the iconography of the mushroom. This study relates too to the ubiquitous presence of the depictions of ibex in the rock art of the Negev and Sinai. The repetitive depictions of the male ibex with exaggerated horns not only joins the iconographic mushroom images, but by virtue of features regarded as excretion cues such as a raised tail supports the suggestion that the mushroom used in this ancient cult in fact grew on ibex dung. This binds the ipbex images to a cult, confirming its ritual significance to the population responsible for the imagery.

I have shown that schematic mushroom iconography was concealed in almost every kind of imagery in the area through from the Harifian to at least

the Early Bronze Age. The appearance of horned animals alongside mushroom imagery confirms the use of dung-grown fungi.

For preliterate periods, it appears that this cult was hidden in the iconography of material items for those who could decipher its meaning.

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References

Allegro, J. M. 1970. *The Sacred Mushroom and the Cross*. London: Hodder and Stroughton.

Anati, E. 1956. "Depiction of Human Beings in Ancient Rock Drawings." *Bulletin of the Israel Exploration Society* 20: 1–12. Hebrew.

Anati, E. 1962. *Palestine before the Hebrews*. London: Jonathan Cape.

Avner, U. 1984. "Ancient Cult Sites in the Negev and Sinai Deserts." *Tel Aviv* 11: 115–131. doi:10.1179/tav.1984.1984.2.115.

Avner, U. 1991. "Late Neolithic-Early Chalcolithic Burial Site in Eilat." *AJA* 95 (4): 2001.

Avner, U. 1993. "*Masseboth* Sites in the Negev and Sinai and Their Significance." In *Biblical Archaeology Today 1990, Proceedings of theSecond International Congress on Biblical Archaeology*, edited by A. Biran and J. Aviram, 166–181. Jerusalem: Israel Exploration Society.

Avner, U. 1997. *'Cult Sites and Burials in Eastern Sinai, 6th to 3rd Millennium B.C.' Monograph*. Jerusalem: Israel Antiquities Authority.

Avner, U. 2002. "*Studies in the Material and Spiritual Culture of the Negev and Sinai Population during the 6th-3rd Millennia B.C.*" [Ph.D thesis]. Hebrew University, Jerusalem.

Avner, U., L. Kolska-Horwitz, and W. Horowitz. 2016. "Symbolism of the Ibex Motif in Negev Rock Art." *Journal of Arid Environments* 143: 35–43. doi:10.1016/j.jaridenv.2016.11.009.

Bar-Yosef Mayer, D. E. 2013. "Towards a Typology of Stone Beads in the Neolithic Levant." *Journal of Field Archaeology* 38: 129–142. doi:10.1179/0093469013Z.00000000043.

Beeston, A. F. I. 1937. *Sabaean Inscriptions*. Oxford: Oxford University Press.

Bell, A. 1983. *Dung Fungi: An Illustrated Guide to Coprophilous Fungi in New Zealand*. Wellington: Victoria University Press.

Brown, J. A. 2005. *John Marco Allegro: The Maverick of the Dead Sea Scrolls*. Michigan: Eerdmans Publisher.

Byrd, B. F., and S. M. Colledge. 1991. "Early Natufian Occupation along the Edge of the Southern Jordanian Steppe." In *The Natufian Culture in the Levant*, edited by O. Bar-Yosef and F. Valla, 265–276. Ann Arbor: International Monographs in Prehistory.

Byrd, B. F., and G. O. Rollefson. 1984. "Natufian Occupation in the Wadi El Hasa Southern Jordan." *Annual of the Department of Antiquities of Jordan* 28: 143–150.

Coulson, D., and A. Campbell 2011. "Rock Art of the Tassili N Ajjer, Algeria - Scandinavian Society for Rock Art." *A*doranten*.

Devlet, E. 20002004. "Rock Art Studies in Northern Russiu and the Far East." In *Rock Art Studies. News of the World*, Vol. 3. edited by P. Bahn, N. Franklin, and M. Strecker, 97-114. Oxford Oxbow Books.

Eisenberg Degen, D. 2012 "*Rock Art of the Central Negev: Documentation, Stylistic Analysis, Chronological Aspects, the Relation between Rock Art and the Natural Surroundings, and Reflections on the Mark Makers' Society through the Art*." Thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy Ben Gurion University of the Negev

Eisenberg-Degen, D., and S. A. Rosen. 2013. "Chronological Trends in Negev Rock Art: The Har Michia Petroglyphs as a Test Case." *Arts* 2: 225–252. doi:10.3390/arts2040225.

Epstein, C. 1982. "Cult Symbols in Chalcolithic Pales-tine." *Bolletino del Centro di Studi Prehistorici* 19: 63–82.

Eshed, V., and U. Avner 2018 "A Late Neolithic Chalcolithic Burial Site in Eilat, by the Red Sea, Israel." *IEJ* 68: 5–29.

Evenari, M., Y. Aharoni, L. Shanan, and N. H. Tadmor. 1958. "The Ancient Desert Agriculture of the Negev. III. Early Beginnings." *Israel Exploration Journal* 8: 231–268.

Fulvio, G. 2010. "On the Potential Use of Cup-Marks." *Anthropology of Consciousness* 21 (2): 205–220. doi:10.1111/j.1556-3537.2010.01029.x.

Furst, P. T. H. 19921976. *Hallucinogens and Culture*. California: Chandler and Sharp.

Galili, E., M. Weinstein-Evron, I. Hershkovitz, A. Gopher, M. Kislev, O. Lernau, L. KolskaHorowitz, and H. Lernau. 1993. "Atlit-Yam: A Prehistoric Site on the Sea Floor off the Israeli Coast." *Journal of Field Archaeology* 20 (2), 133-157.

Garfinkel, Y. 1992. "*The Material Culture in the Central Jordan Valley in the Pottery Neolithic and Early Chalcolithic Periods*." [Unpublished PhD thesis], Hebrew University, Jerusalem

Gimbutas, M. 1974. *Goddesses and Gods of Old Europe*. London: Thames and Hudson.

Gonen, S., and S. Berger. 2020. "Rock Art in South Levantine Dolmens." *Asian Archaeology* 4: 17–29. doi:10.1007/s41826-020-00033-3.

Goring-Morris, A. N. 1987. *At the Edge: Terminal PleistoceneHunter Gatherers in the Negev and Sinai*, 361. Oxford: British Archaeological Reports International Series.

Hovers, E., L. Kolska Horwitz, D. Bar-Yosef, and C. Cope-Miyashiro. 1988. "The Site of Urkan E Rub a Case Study of Subsistence and Mobility Patterns in the Kebaran Period in the Lower Jordan Valley." *Journal of the Israel Prehistoric Society* 21: 20–48.

Ingrams, W. H. 1937. "A Dance of the Ibex Hunters in the Hadhramaut." *Man* 37: 12–13.

Irvin, J., J. R. Irvin, and J. Herer. 2009. *Holy Mushroom: Evidence of Mushrooms in Judeo-Christianity*. Published by Gnostic Media Research & Publishing.

Irvin, J. R., and J. (With Herer). 2009. *The Holy Mushroom: Evidence of Mushrooms in Judeo-Christianity*. Crestline California: Gnostic Media.

Jefferson, T. 1986. "Historia y Vida No 304, *Pinturas de Tassili*." *AA.VV*.

Kirkbride, D. 1966. "Five Seasons at the pre-pottery Neolithic Village of Beidha in Jordan A Summary." *Palestinian Exploration Quarterly* 98: 8–72. doi:10.1179/peq.1966.98.1.8.

Mailland, F. 2015. "Ibex, Crescent and Swastika as Symbols of a Lunar God in the Rock Art of the Ancient near East and Central Asia." *Expression* 10: 48–52.

McKenna, T. 1992. *Food of the Gods: Bantam*. Reprint ed. 1 January 1993. New York: Bantam Publishers

Mellaart, J. 1967. *The Neolithic of the near East*. London: Thames and Hudson.

Mithen, S. 1990. *Thoughtful Foragers*. Cambridge: Cambridge University Press.

Muzzolini, A., and A. Boccazzi 2014. "The Rock-Paintings of Tikadiouine (Tassili n'Ajjer, Algeria) and the Iheren-Tahilahi Group." Published online by Cambridge University Press

Nikolic, I., and E. Weber 2020. "Eight-mile Wall of Prehistoric Paintings of Extinct Animals and People Painted by First Humans to Reach South America." 12, 500 *MAILONLINE*

Ornan, T., L. Peri, Ben-Tor A. Zuckerman, Sandhaus, D . 2017. "Cylinder Seals (Chapter 9)." In *Hazor VII. The 1990-2012 Excavations The Bronze Age*, edited by A. Ben-Tor, 475–513. Jerusalem: Israel Exploration Society.

Parrini, F., J. W. Cain III, and P. R. Krausman. 2009. "Capra ibex (Artiodactyla: Bovidae)." *Mammalian Species* 830: 1–12. doi:10.1644/830.1.

Rollefson, G. O., and Z. Kafafi 1988. Ghazal the Town of Ain Ghazal. http://menic.utexas.edu/ghazal

Rudgely, R. 1993. *The Alchemy of Culture*. London: British Museum Press.

Sadeh, S. 1994. "*Pottery of the Fifth Millennium B.C.in Israel and Neighboring Regions*." [Unpublished PhD thesis], Tel-Aviv University, Tel-Aviv.

Samorini, G. 1989. "Data from the Ethnomycology of Psychoactive Mushrooms." *International Journal of Medicinal Mushrooms* 3: 257–278 .

Samorini, G. 1992. "The Oldest Representations of Hallucinogenic Mushrooms in the World (9000-7000 B. P.)." *Integration Journal of Mind-moving Plants and Culture* 2/3 .

Samorini, G. 2001. "New Data from the Ethnomycology of Psychoactive Mushrooms." *International Journal of Medicinal Mushrooms* 3 (2–3): 22. doi:10.1615/IntJMedMushr.v3.i2-3.1670.

Samorini, G. 2019. "The Oldest Archeological Data Evidencing the Relationship of *Homo Sapiens* with Psychoactive Plants: A Worldwide Overview." *Journal of Psychedelic Studies* 3/2: 68-80.

Sansoni, U. 1980. "Quando il deserto era verde. Ricerche sull'arte rupestre del Sahara." *L'Umana Avventura, N* 11: 65–85. 3.

Sauvet, G., J. Fortea, C. Fritz, and G. Tosello. 2008. "Echanges culturels entre groupes humains paléolithiques entre 20.000 et 12.000 BP." *Bulletin de la Société Préhistorique Ariège-Pyrénées, tome LXIII* 2008: 73. *à 92*.

Schwegler, U. 1992. *Schalen-und Zeichensteine der Schweiz, Schweizerische Gesellschaft fur Ur- und Fruhgeschichte*. Basel.

Scott, T. R. 1977. "The Harifian of the Central Negev." In *Prehistory and Paleoenviroments in the Central Negev, Israel*, edited by A. E. Marks, 271–323. Vol. II. Dallas: Southern Methodist University Press.

Serjeant, R. B. 1976. *South Arabian Hunt*. London: Luzac and Company.

Soukopova, J. 2011. "The Earliest Rock Paintings of the Central Sahara: Approaching Interpretation." *Time and Mind* 4 (2): 193–216. doi:10.2752/175169711X12961583765333.

Verma, V. 2020. "Ancient Siberian People Drew Alien Figures On The Tomb Stones 5000 Years Ago." https://www.howandwhys.com/5000-year-old-ancient-siberian-alien-figures/

Wasson, R. G. 1968. *Soma Divine Mushroom of Immortality*. New York: Harcourt Brace Jovanovich.

Wasson, R. G., S. Kramrisch, J. Ott, and C. A. P. Puck. 1986. *Persephone's Quest: Entheogens and the Origins of Religion*. New Haven, Connecticut: Yale University Press.

Weil, A. 2004. "The Natural Mind: A Revolutionary Approach to the Drug Problem Mariner Books."