Supplementary Information

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References for SI


Amiet, P. 1961. La glyptique Mésopotamienne archaique. Paris


Symbolism of the ibex motif in Negev rock art

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\textbf{A B S T R A C T}

The male ibex is the dominant zoomorphic motif in rock art of the Negev desert, Israel. It recurs in thousands of petroglyphs, either alone or in association with several recurring images; commonly with dogs or other predators but also with hunters. These associations occur in all chronological phases of Negev rock art, implying that they had an enduring symbolic significance. Here we address only some aspects of ibex iconography, focusing on its association with dogs, hunters and astral symbols. We discuss the possible meaning of these associations with regard to the ritual hunting of ibex and connection to deities associated with rainfall, seasonal cycles and celestial constellations.

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\section{1. Introduction}

Thousands of rock engravings are found in the Negev desert of Israel. In a few areas of this desert they have been systematically recorded; at Har Karkom (Anati, 1993:61–91, 1996, 2001:121–128, 154, 2015), Timna (Rothenberg, 2001, 2003), Har Miḥia, ’Ezuz and Ramat Matred (Eisenberg-Degen and Rosen, 2013; Eisenberg-Degen and Nash, 2017), while in the broader region, surveys are currently being undertaken by members of the Negev Rock Art Center (Razy Yahel of Sde Boqer and Lior Schwimer of the Israel Nature and Parks Authority). Though absolute dating of petroglyphs is problematic, relative chronology is possible based on superimposition and varying shades of patination of engravings on a given panel. Additional information regarding their date can be obtained from the presence of period-specific images such as domestic animals. Since the approximate time of appearance of domestic animals in the region is known from archaeozoological studies and other sources, they can supply a terminus post-quem for these images. Based on these parameters, different times have been suggested for the beginning of the Negev Rock art; the Early Neolithic, ca. 10,000 BCE (Anati, 2015:16, 58) or from the 6th millennium BCE (Eisenberg-Degen and Nash, 2014:16). However, in many rock art sites, more exact dating of engravings is possible when comparing their patination to that of adjacent inscriptions (Fig. 1a–d), written in Thamudic (1st and 2nd centuries CE, Halun, 1990:36), Nabataean (2nd century BCE to 4th century CE, Negev, 1991:209; Healey, 2007) and Early Islamic (7th-8th centuries CE, Sharon, 1990:9). As a result, we learn that much of the Negev rock art is only 1000–2000 years old, while the remainder is either earlier or later.

The identification of ibex amongst the zoomorphs depicted in Negev rock art is unambiguous, due to its portrayal with extremely arched and large horns, often exaggerated (Figs. 1 and 2). Given the current situation of petroglyph surveys in the region it would be premature to present detailed statistics for the region as a whole, but the impression is that the adult, male ibex is the most commonly depicted zoomorphic motif. For example, according to Anati and Maillard (2009:25) ibex account for 57.5% of all zoomorphic elements at Har Karkom. They comprise 74% of horned ungulates depicted in all engraving phases at Har Miḥia; 78% of all horned ungulates portrayed at Giva’at HaKetovot (Eisenberg-Degen and Rosen, 2013:245–246); and ca. 40% of all zoomorphic motifs in the Nahal Nizzana catchment (Schwimer, 2015; calculated from Fig. on pg. 113). Moreover, as noted by these researchers, on many panels, images of ibex have been reworked, indicating their importance throughout the entire chronological span of the Negev rock art. In contrast, depictions of female ibex and domestic goat...
are extremely rare. Interestingly, irrespective of period, the male ibex recurs with the same combinations of motifs. For example; ibex attacked by dogs or other predators - either from behind or in front (Anati, 1999:26–27; Degen-Eisenberg and Nash, 2015: Fig. 7); ibex hunted by archers and/or riders (Rothenberg, 1972:120; Anati, 1999:26; Eisenberg-Degen and Nash, 2014: Fig. 5); ibex with human footprints (Anati, 1999:32; Degen-Eisenberg and Nash, 2017); ornate figures (anthropomorph with raised arms) (Eisenberg-Degen and Nash, 2014: Fig. 6); male and female fertility symbols (Schwimer, 2015:113–114), amongst others. All these associations are meaningful, especially since they are common in both rock art and the general art of the greater Near East (e.g. Porada, 1948: No. 600, Plate LXXXIV; Anati, 1972: Fig. 26; Clark, 2001:80; Abdul Nayeem, 2000:202; Schmidt, 2009: Figs. 4, 5 and 9; Vahdati, 2011: Fig. 6:9). In this paper, only two associations are addressed, the ibex-dog or ibex-dog-hunter, and ibex with celestial symbols.

2. Background to the Negev ibex

The species of ibex found today in the Negev desert, and most probably in the past, is the Nubian ibex (Capra nubiana, SI Fig. 1). This species is well adapted to arid and hyper-arid environments, but restricted to steep mountainous terrain (Harrison and Bates, 1991:180–83; Habibi, 1994:46–54, 63–69). Ibex in the Negev and surrounding areas were almost decimated due to massive hunting with firearms following World War I (Yom-Tov and Mendelssohn, 1988; Paz, 2001), but since then greatly recovered due to prohibition of hunting in Israel. In the past, the numbers of ibex in the Negev desert were probably higher than today, given the abundance of their remains in prehistoric archaeozoological record. For example, in three Natufian sites (14,000–9500 BCE) in the Negev Highlands, ibex bones are dominant and comprise 26% of the osteological assemblage from Upper Besor 6, 36% from Rosh Ḥorsha and 66% from Rosh Zin (Horwitz and Avner, in press) as was the case in the 5th-3rd millennia BCE sites in the 'Uvda Valley (Horwitz, unpublished data). In the Northern Negev, no ibex bones were found in Chalcolithic sites (ca. 4600–3600 BCE; e.g. Grigson, 1987, 1995), nor in any 3rd
Fig. 2. Ibex and dogs: A-D. Various compositions from Har Karkom, SW Negev Highlands. E-G. Dogs kill ibex: E, F. Har Karkom, G. ‘Uvda Valley, southern Negev.

Fig. 3. Ibex hunting scenes: A-B. Har Karkom (for B- c.f. Anati, 1996:28), C. Har Eldad.
millennium BCE Early Bronze Age sites, even those located in the Negev Highlands, despite the latter being the most suitable natural habitat for ibex herds (Horwitz et al., 2002; Hakker-Orion, 2014). Likewise, ibex remains are absent in Middle Bronze Age (ca. 2000–1550 BCE), Iron Age (ca. 1200–586 BCE) and Persian (ca. 586–332 BCE) period sites in the Negev (Horwitz and Raphael, 1995; Hakker-Orion, 1999, 2004, 2007; Sapir-Hen and Ben-Yosef, 2014) with a few, tentatively identified ibex bones in only one Persian period fortress, Horvat Rogem (Hakker-Orion, 2004). With the exception of two ibex bones identified among 1300 bones at the Late Roman fortress of Yotvata in the southern ‘Araba Valley (Halbmaier, 2015), to date, no ibex remains have been found in any of the Roman, Byzantine or Early Islamic sites in the Negev (37 BCE–1099 CE, e.g. Horwitz, 1995, 1998; Horwitz et al., 1997; Kishon et al., in press). The paucity of ibex bones in sites post-dating the 6th millennium BCE is further highlighted by the opposite picture for gazelle, a species whose remains are present in many ancient Negev millennium BCE is further highlighted by the opposite picture for gazelle, a species whose remains are present in many ancient Negev sites, albeit in low percentages (e.g. Hakker-Orion, 1999, 2004, 2007, 2014). However, depictions of gazelles are extremely rare in the Negev rock art (c.f. Eisenberg-Degen and Rosen, 2013; Schwimer, 2015).

The faunal data clearly demonstrates that from the 6th 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 and its continued presence in the Negev up until today (Yom-Tov and Mendelsohn, 1988). The main reason is undoubtedly the adoration of animal husbandry by the desert populations around 6000 BCE, a mode of subsistence which replaced hunting (Avner, 1990:127, 1998:152; 2002:12, 32, 152; Rosen et al., 2005; Babenko and Khassanov, 2007). However, as noted in the introduction, the bulk of the Negev rock art appears to have been engraved by the agro-pastoral inhabitants of the Negev and not by earlier hunter-gatherers.

In light of the above data, the dominance of the ibex in the Negev rock art is remarkable and clearly not a naturalistic depiction of an important dietary element. Due to its power, large horns, unique climbing ability and adaptation to a variety of harsh environments, it has been suggested that the ibex was impressive enough to stimulate artistic depictions (c.f. Keel and Uehlinger, 1998:20). Another suggestion is that for Negev herding societies the ibex symbolized wildlife and virility (Eisenberg-Degen and Nash, 2014). As valid as these arguments are, they do not seem to explain the ibex’s dominance in rock art. This impression is enhanced by the fact that ibex engravings are prominent even in steppe zones, away from their natural, mountainous habitat, e.g. at Giv‘at HaKetovot (NW Negev, Eisenberg-Degen and Rosen, 2013) or in the sandy steppe of southern Sinai (U. Avner, personal observation). So, the question remains, what was the source of the importance of ibex?

3. Ibex hunting versus ritual killing

In Negev rock art, the most common iconic combinations are ibex with dogs, the latter are depicted attacking the ibex, chasing, confronting, mounted on their backs or surrounding them (Fig. 2a–d). In some scenes, the ibex is depicted upside-down next to an upright dog (Fig. 2e–g), while in others the dog is portrayed upside-down and the ibex upright. We interpret the animal portrayed upside-down as representing one that is dead, while the upright animal is alive.

In other instances, ibex are shown hunted by archers, with or without the support of dogs (Fig. 3a–c). Ample similar associations of the ibex with dogs and with hunters are known from both the rock art and the general art of the Near East (for a few examples see SI Figs. 2–3). As suggested by several researchers (e.g. Fares, 2006:41–2; Rollefson et al., 2008:18; Judd, 2011:193; Anati, 2015:71–2, 115–142), the hunting scenes reflect economic reality and represent sympathetic magic, intended to ensure a successful hunt. However, since ibex did not play a major economic role for desert communities after the Early Neolithic, a possible option is that the hunt depicted was a ritual. A ritual-social explanation, based on pre-Islamic poetry, has been offered by Corbett (2010:180–182) who related the ibex hunt to an initiation event from adolescence to adulthood.

As will be discussed below, basing ourselves on several different sources including artistic iconography of the Near East spanning different periods (e.g. Porada, 1948; Keel and Uehlinger, 1998), we propose that the ritual nature of the ibex hunt as depicted in Negev rock art holds greater symbolic dimensions. Two examples of rock engravings support this impression. Fig. 4a appears to represent a person holding an ibex by the horns while another is shooting an arrow at the animal. Given this interpretation, the ibex appears to have been captured sometime before, while the scene focuses on the very act of the kill. In the second (Fig. 4b), the hunter seems to be shooting an arrow through the ibex’s horns to kill the dog behind it and so ‘saves’ the ibex. This scene is not common, but is also not an isolated occurrence. In additional examples from Negev petroglyphs, the dog depicted as behind or in front of the ibex is upside-down (i.e. dead) (Fig. 4c, d). This theme is paralleled and well-illuminated in examples from the greater Near East (listed in ascending chronological order). For example, an Achaemenid seal impression from Persepolis (5th century BCE, Iran), presenting a hunter shooting arrows at a lioness attacking an ibex—so ‘saving’ the ibex (SI Fig. 4a). Another parallel is an Akkadian seal impression (ca. 1700 BCE, Mesopotamia), presenting two scenes (SI Fig. 4b). In the upper one the dog kills the ibex, as in many other examples (Fig. 2 and SI Figs. 2–3), while in the lower, the snake kills the dog, thereby “saving” the ibex. In a third example, a seal from Dilmun (ca. 1800 BCE, Bahrain), the ibex and the snake are both above the dog, i.e. defeating him (SI Fig. 4c). Further examples are found on glyptics from Iran (ca. 1800 BCE) and Cyprus (ca. 1600 BCE) where the ibex is often depicted both upright and upside-down (SI Fig. 5a–d) which, following this reasoning, means that the ibex is depicted both alive and dead.

The assemblage of examples from rock art and from the general art of the Near East illuminates the symbolic association of the dog and the ibex. Since the dog so often attacks the ibex and also kills it, we suggest that the dog probably represents death and the underworld, similar to Anubis (the jackal god) in ancient Egypt (Hart, 1990: 21–27; Altermüller, 1975) or Cerberus in the Greek mythology (Bloomfield, 1905). The ibex, on the other hand, depicted both alive (upright) and dead (upside-down), may represent a cycle of life and death, possibly a dying and resurrected god such as Dumuzi in Mesopotamia, Ba‘al in Cana‘an, Osiris in Egypt and Adonis in Greece (Frazer, 1913: Vols. IV, V, VI, VIII; Mettinger, 2001). Ample artistic representations from the greater Near East support identification of the ibex as a divine symbol that undergoes resurrection (see below). In the context of Egyptian rock art, Huyge (2002:201) similarly interprets the ibex as a symbol of renewal and rejuvenation. The cycle relates directly to nature and to the change of seasons, which strongly influences the life of desert societies. The month of July (Akkadian–Durûzu, Hebrew–Tamuz) is the month of the death of the Mesopotamian god Dumuzi. At this time, vegetation is parched, water sources are scarce, animals and humans are stressed. In the autumn season (December), Dumuzi returns from the underworld, bringing rain that revives the vegetation and restores nourishment to animals and humans (Mettinger, 2001:Ch. 7, with references). The death and resurrection cycle is well represented in a rock engraving from Nahal ‘Amram, southern ‘Araba
4. Ibex and rain

The ritual nature of the ibex hunt is well attested in the studies of Ingrams (1937) and Serjeant (1976), who recorded such hunting expeditions in the 1930's through 1960's in the Arabian Peninsula, mainly in the Hadramaut. In all cases, several days of ceremonies both preceded and followed the ibex hunt. During the latter, hundreds of people shared the meat of the hunted ibex, such that no direct economic benefit was derived from these hunts. However, when interviewed, a mansab (spiritual leader) said: “If we did not hunt (an ibex) the rain would not come to us…” (Serjeant, 1976:36).

The connection of the ibex with rainfall is also expressed in older Arabian sources. In a Sabaean inscription (CIH547; ca. 8th century BCE), the god ‘Attar prevents rain from his tribe since they did not perform the (ibex) hunt properly (Beeston, 1937:50–52; Serjeant, 1976:35). Furthermore, the storm gods ‘Attar and Ta’lab were identified in south Arabia with the ibex (Serjeant, 1976:74–77).

Rain invoking rituals were still practiced in the mid-20th century in northern Iraq, preserving the connection to the ibex. This is illustrated in a Kurdish rain ritual, where the main figure is a male dancer whose costume included a goat beard, while a Yazidi rain ritual in the same region addressed Malek Ta’uz (= King Tamuz), whose symbol was an ibex or a domestic goat (Frankfort, 1934), with the animals apparently interchangeable in this rite. In the greater Near East, the use of the name Tamuz indicates an association with an older tradition relating to the death and resurrection cycle of the deity Dumuzi/Tamuz, as has been discussed above.

An older connection between the ibex and rain may be found in a small Nabataean temple, dated from the first century BCE to the 3rd century CE, built on the summit of Mount Serbal, southern Sinai (2070 m a.s.l.). In the temple, several metal objects were found (SI Fig. 6), one was a pair of ibex horns cast in copper, 12 cm long, probably from an ibex statue (Avner, 2015). The ibex, as a mountain animal, is the best candidate to represent the main aspect of Dushara, the chief Nabataean god and a mountain god—“that of the Shara Mountains” (Healey, 2001:87; Zayadine, 2003:59), that brings rain from the sky, much like the Arabian deity ‘Attar (see above), the Canaanite Ba’al (Wiggins, 2000) and other mountain-storm gods (Green, 2003).

The connection of ibex with rain may actually have had much older roots. On a pottery bowl from Susa, Iran, ca. 3600 BCE, two mirrored scenes are depicted (with other motifs, SI Fig. 7). In each, an ibex with tree-like horns is shown, with a dog on its back and another dog and a bird behind him, all are standing on top of a “comb”. Based on parallels, Ackerman (1967: 2920–27) interpreted the “comb” as a rain-giving cloud and pointed to other examples where the ibex is connected with rain. Due to this association, she interpreted the ibex as a symbol of both Anu, the sky god, and Sin, the moon god.

5. Ibex and celestial constellations

In the Negev rock art, the ibex occurs sometimes with a star, a cross, a circular spot or with the sun (SI Fig. 8a–d). The same symbols recur with the ibex in rock art in other Near Eastern countries, similar to their co-occurrence in other art media of this region (SI Fig. 9a–g). Repetition and connotations of these symbols

Fig. 4. Dead ibex and ibex alive with dead dogs: A. Killing the ibex, Har Karkom (c.f. Anati, 2015, Fig. 145), B. Killing the dog, Har Karkom, C. Har Miḥia, the dog to the right of the ibex is upside-down, D. Har Miḥia, the dog is upside-down relative to the ibex.

Since the ibex is a mountain animal, it may have been perceived as being closer to the sky than humans and their habitations, located at lower altitudes, but this explanation seems unsatisfactory and simplistic. Some scholars suggested a broader and deeper connection, identifying the ibex with the Capricorn constellation (Barnett, 1966:275; Lemaire, 1999:197; Haghhighat and Sadoddin, 2010:67–72; Younger, 2012:215). Based on ancient Mesopotamian-Iranian art and archaeoastronomy, Hartner (1965) showed that until the 4th millennium BCE an ancient star constellation was viewed as an ibex (SI Fig. 10). It made a heliacal appearance in the sky in December and disappeared in June, synchronized with the revival and death of the Mesopotamian deity Dumuzi and with the change of the seasons (Hartner, 1965:1–6, 8–10, Diagrams 1–5; c.f. Rogers, 1958:24 and Fig. 7). Later, the timing of the ibex in the sky could no longer be synchronized with the cycle of Dumuzi, since the times of the rising and setting of all constellations changes by one month in every 2106 years due to the sun’s precession. As a result, the ibex almost disappeared from Mesopotamian-Iranian art, replaced by another celestial drama - the combat between the lion and the bull (i.e. Leo and Taurus, Hartner, 1965:15–16). Hartner (1965:9), and more recently Dibon-Smith (2015:28), further suggested that by the mid-4th millennium BCE the ibex constellation was divided into two - Capricorn and Aquarius. Support for this celestial concept may be found in the name of the ninth Sumerian king (ca. 2800 BCE), EN.NUN.DAR-A.ANNA (Jacobsen, 1939:170, Tables 1 and 2) or EN.DARA.AN.NA (Zevulun and Ziffer, 2012:443), translated as “Lord Ibex of Heaven”.

Indeed, ibex imagery did not totally disappear from the Near Eastern art. It was common in Late Bronze-Iron Age seals (e.g. Keel and Uehlinger, 1998: Nos. 1a,b, 101b, 152b, 154b; Ornan, 2005; Figs. 33, 42, 43, 122 and 171; Sass, 1993: 224, Figs. 111–113) and very common in the Iron Age metal works of central-western Iran (the
“Luristan Bronzes”, early first millennium BCE; Amiet, 1976, *passim*. A bronze bowl from Luristan, originated in Syria or Phoenicia and dated around 700 BCE, is important in this context. It presents a large anthropomorph in the center, striding above an ibex, surrounded by the star-full sky, with the sun, the moon, six zodiac constellations and the planets (*SI Fig. 11a, Barnett, 1966; Lemaire, 1999; Younger, 2012*). The anthropomorph, facing to the right, is identified by the writers as Orion, the hunter or hero in the Greek mythology, while the ibex, facing left, is identified with Capricorn. However, in the sky, the constellation just below Orion is Lepus, the rabbit (who is facing right), and not Capricorn (the ibex) (*SI Fig. 11b*). This brings to mind the possibility that in the past another tradition existed, one that perceived and drew the celestial constellation Lepus as an ibex facing left, as depicted in the Luristan bowl (*SI Fig. 11c*). This theory may find possible support in a Syrian cylinder seal that seems to present an ibex with rabbit ears, combining the two traditions (*SI Fig. 12, Collon, 1982: Fig. 4g; Zevulun and Ziffer, 2012: Fig 24*).

The connection of Orion with the ibex, representing the deity Dumuzi/Tammuz, is also echoed in an earlier group of cuneiform astronomical texts. “Astrolabe B" from Berlin, a 12th century bilingual Sumerian-Akkadian hemerology, states the following in a passage for the month of Tammuz: Translated from Sumerian— “The month of Tammuz, *mut* *li-pa-zi-an-na* (– The True Shepherd of Heaven), Ninsubur, the great vizier of An and Inanna. The month of heaping up seed, taking out seed early. The wailing of Ninrurugu, the month when the shepherd Dumuzi was captured. (Horowitz, 2014: 64).

Translated from Akkadian— “The month of Tammuz (the constellation) Sidallalu, Papsukkal, the great vizier of Anu and Istar. The month of heaping up seed, taking out early seed. The wailing of Ninrurugu, the month when the shepherd Dumuzi was captured” (Horowitz, 2014).

In the Astrolabe tradition, Orion rises in the month of Tammuz, also named here Ninrurugu, (Horowitz, 2015: 64–68), the fourth month of the Mesopotamian year, the height of the Mesopotamian summer, when lamentation rituals were recited for Dumuzi's death. Yet, following the Sumerian tradition and the mainstream Mesopotamian astronomy, Orion is not a hunter. His Sumerian name, *mut* *SIPA.ZLAN.NA*, literally means— “The True Shepherd of Heaven”. This title suits the Mesopotamian plain, where herding sheep and goat was a central pillar of economy, while viewing Orion as a hero or hunter only began with the Greek and Roman mythology (Pat-El, 2008:564). The Akkadian name for the constellation, Sidallalu (alternatively Sidallu or Sidaddersu) literally— ‘The One who is Smitten by Weapon’ (Kurtig, 2007: 445) provides a hint for the possible association between Orion and the ibex tradition, that was known in Mesopotamia. Two additional Akkadian texts cited by Horowitz (2014: 67–68), also link Orion with Dumuzi.

In light of the cuneiform texts, we suggest that the iconography of the bronze bowl from Luristan (*SI Fig. 11*) reflects a tradition identifying the hunter/shepherd Dumuzi/Tammuz and the ibex with Orion and Lepus - the latter viewed as a left-facing ibex (*SI Fig. 15c*).

Though the specific role of the ibex in the sky, in different times, is currently not totally clear, the frequent association of ibex with the dog, the hunter and stars, in petroglyps and in the art of the Near East in general, seems now well connected to celestial cosmology. Indeed, there is nothing new in linking rock art and general art with astronomy, cosmology and mythology (e.g. Hartner, 1965; Sognnes, 1996:25–6; Whitley, 1998, 2005; Bradley, 2006; Kristansen, 2010; Melheim, 2013). The profound interest of past societies in the sky is well attested through ample written documents of various cultures. They carefully recorded the stars’ timing in the sky, identifying stars and constellations with deities – relating them to mythological stories and seasons, and decorated numerous artefacts with their images (Evens, 1998; Ruggles, 2005). For the ancient Near East, the most detailed recording of the starry sky is that of the series *MULAPIN* (the “Plough Constellation”, written early 1st millennium BCE). It embodies Sumerian and Akkadian traditions of the third and second millennia BCE (probably even the fourth), with the addition of new, first millennium ideas concerning the sky (Horowitz and Watson, 2011; Horowitz, 2005). The fact that the ibex is not recorded in the mature Mesopotamian stellar repertoire of the second and first millennia BCE, fits well with the theory of Hartner (1965) and Dibon-Smith (2015) elucidated above.

### 6. Conclusions

A brief survey of the symbolic role of the male ibex in the Negev rock art shows that the animal was highlighted in most panels. More so, its recurrence and predominance throughout the rock art chronological sequence is not paralleled by any other zoomorphic image. Though the exact role of the ibex for past desert societies is not fully understood as yet, the evidence presented here seem to support its identification as a symbol of a dying and resurrected god, related to rainfall, the changing of seasons and the fertility of the soil, animals and humans. This symbolic - iconic linkage was apparently adopted by early desert communities and continued into the Islamic era. The ibex and its combinations with other motifs also appears in artistic representations from the greater Near East that are older than the majority of Negev engravings, apparently indicating that a shared iconographic tradition (and possibly symbology) spanned large geographic realms and chronological periods in this region.

The Negev rock art scenes, whether executed during a ritual or not, involving shamans or commoners, were meant to invoke the divine to provide well-being and fertility. The cultic, mythological interpretation makes better sense when ibex appears with the associated elements, but its meaning is more hidden when it was just engraved individually. Perhaps the ibex alone was an abbreviated representation of the broader idea (pars pro toto), known both to the engraver and to spectators. For example, the ibex could be engraved as an act of invoking him to come back from the underworld and bring rain, which was obviously crucial for desert inhabitants.

Though the precise meaning of rock art is generally obscure to us, by following associations and repeating patterns, and by using a broader array of sources - artistic, textual, anthropological zoological and archaeo-astronomical, some rock art themes may be contextualized and so deciphered. Our impression is that rock engravings contain rich cultural and mythological content which require and justify such intensive and broad-spectrum research. Although many ethnically refrain from interpreting rock art, we find it essential, even with the chance of erring. Discussions and corrections in interpretation of archaeological artifacts are regularly ongoing, so rock art requires and deserves the same approach.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.jaridenv.2016.11.009.

References

Zooarchaeology of the Holyland. in press, Israel Antiquities Authority Monographs; Jerusalem.


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