

SACRIFICES AND OFFERINGS FROM CULT AND MORTUARY SITES IN THE NEGEV
AND SINAI, 6TH-3RD MILLENNIA BC

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Abstract

In the Negev and Sinai deserts, excavations of tens of cult and burial sites, radiometrically dated to the 6th to 3rd millennia BC, have yielded assemblages of artefacts and faunal remains. Many of the objects can confidently be identified as cult or mortuary offerings, while the animal bones are identified as remains of sacrifices and food offerings.

This article describes finds from fifteen excavated cult and burial sites with standing stones, as well as from the “*nawamis*” tombs of Sinai. The nature and role of cult and mortuary offerings and sacrifices in past desert societies, is discussed within this context.

INTRODUCTION

The Negev and Sinai deserts are arid in the high mountains but hyper-arid in most of the area they cover. The average annual rainfall varies from 100 mm in the north, to 20 mm in the south (with the exception of the high mountains of southern Sinai). Summer temperatures are very high, as is evaporation rate, while vegetation cover is scanty and water sources are rare (Danin 1983). Even considering climatic amelioration in the past (*e.g.* Avner 2002: Ch. 7; Roskin *et al.* 2014; Clarke *et al.* 2015), these regions present challenging physical conditions, but are surprisingly rich in archaeological remains, beginning in early prehistory (*e.g.* Bar-Yosef 1985; Ginat *et al.* 2003). Around 6000 BC, the Negev and Sinai desert societies underwent a major economic transformation from a hunting and gathering mode of production to one based on farming and herding,¹ an innovation adopted from the fertile zones of the Near East. From that time on, a religious revolution occurred in the desert, signified by a sudden abundance of cult and burial sites, each manifested by several different types. Presently, over 450 shrines of standing stones are recorded in the Negev and eastern Sinai as well as 220 open-air sanctuaries and other cult installations spanning four millennia.² In addition, 363 mountain cult installations (“Rodedian” sites), are currently recorded in the southern Negev, some were erected as early as 7000 BC.³ Also, countless burial sites of various kinds were built in the desert areas, beginning in the 6th millennium BC, *e.g.* *tumuli* or cairn burials, *nawamis* tombs and tombs in rock shelters.⁴ Since only a third of the Negev has been covered by systematic archaeological survey, and much larger areas are still to be surveyed in Sinai, these numbers are far from being final; indeed, more sites are continually being discovered.

Standing stones (Hebrew- *maššebot*, singular- *maššebah*) are stones set vertically into the ground, varying in height and found either individually or in groups of repeating numbers (2, 3, 5, 7 and 9). Ancient Near Eastern texts indicate that *maššebot* were mainly perceived as embodying the power

¹ Avner 1998, 2002: Chs. 1,2,6, 2006; Goring-Morris 1993; Horwitz *et al.* 1999; Rosen *et al.* 2005; Rosen 2011; Babenko and Khassanov 2007; Bruins and van der Plicht 2005).

² Avner 1984, 1993, 2001, 2002; Rosen 2003, 2015, Arav *et al.* 2016.

³ Avner *et al.* 2014, in press; Sohbati *et al.* 2015.

⁴ Kochavi 1967, Haiman 1992a, 1993; Avner 2002: App. 1; Rosen *et al.* 2007, for the *Nawamis* tombs- see below.

and spirit of deities. In this, they resemble statues of gods, though unlike statues they were unshaped in principle (*c.f.* Exodus 20:22 *etc.*) and therefore served as an *abstract* representation of the gods. Repeating numbers of *maṣṣeboth* in groups are identical to those of groups of deities later known from dedication inscriptions, mythologies and art. As such, groups of *maṣṣeboth* can be viewed as representing ‘organic’ groups of deities (Avner 1984, 1993, 2000, 2002:Ch. 4, with references).

In tombs, two types of *maṣṣeboth* were set. Those incorporated in the tomb’s perimeter, mostly on the eastern side and facing east, are explained as representing the deities that guard the tombs and the deceased. *Maṣṣeboth* set within tombs are usually narrow, set separately and face north; these are interpreted as representing the ancestors. Another distinction was made by past desert peoples between broad and narrow stones, as attested in *maṣṣeboth* of all periods. It is suggested that narrow stones represented male gods, while broad ones represented fertility goddesses.⁵

Here we address 15 excavated sites, one is Natufian, the others are dated to the 6th-3rd millennia BC. Seven of the sites are shrines with *maṣṣeboth*, eight are *tumuli* tombs, of which six also contain *maṣṣeboth*. A further section summarises the finds from a large group of *nawamis* tombs from southern Sinai. Most of the presented sites were excavated by the first author (Avner; those in eastern Sinai were excavated in 1982, before it was returned to Egypt),⁶ other excavators are mentioned in the text. Unless otherwise stated, all faunal remains were analysed by the second author (Horwitz). Next to the cult installations and tombs, or even inside them, hearths were found, which provided most of radiocarbon dates. In the text the dates are calibrated following OxCal 4.2, with mean values based on the dominant peak in the calibration curve. Other details are given in Table 1.

The following is a brief description of the sites and finds, arranged from north to south (Fig. 1) and not in chronological order, with a particular focus on animal sacrifices and offerings (Tables 2, 3).

A. THE NEGEV HIGHLANDS

1. Rosh Zin, excavated by D. Henry (1976), is a habitation site dated to the Late Natufian culture *ca.* 11,000 BC, and is the earliest desert site to produce stone-built circular habitations. In one room, a stone base of a broken elongated *maṣṣebah* was found *in situ*, while its upper part lay nearby on the surface. The room in which the base was found (L. 4) appears to have been special. It was the largest in the site, unusually paved with flagstones and contained ornaments, including 187 *Dentalium* shells (beads), a seashell pendent and 17 fragments of decorated ostrich eggshell. The *maṣṣebah* is well-shaped, 118 cm high (the very top is missing) and described by the excavator as resembling a phallus (Fig. 2). At its base, a *favissa* was found with a cache of several stone and flint objects, interpreted as bearing symbolic significance (Fig. 3). These comprised: two grooved stones that could be used for straightening arrow shafts, but could also symbolise the vulva, as is known in later Levantine cultures (e.g. Stekelis 1972:25-27, 33; Gopher and Orrelle 1996); a shaped stone disk that may also be symbolic, perhaps representing the sun, as is known in cultic context in later cultures⁷; and five flint cores that are described as unique in their size and symmetry (Henry 1976:318-19, and here at figure 3). Judging from later desert sites, the ornaments could also have served as offerings. As shown in Table 2, faunal remains were described for the site as a whole and were predominantly those of gazelle (*Gazella cf. dorcas*) and ibex (*Capra ibex*), but no details were published to permit their identification as food offerings. The *maṣṣebah* is actually the earliest presently known in the Near East, while the cache of stone artefacts is the first indication of offerings in a desert cult installation.

⁵ For the distinction between the two types of *maṣṣeboth* see Avner 2002: Ch.4; Arav *et al.* 2016.

⁶ In 1996, a monograph containing a detailed report on the surveys and excavations in Sinai was submitted by Avner to the Egyptian government and to the Israel Antiquities Authority, but remains unpublished.

⁷ For example, a clay disk in the Early Bronze Age sanctuary quarter of Megiddo (Laud 1948: Pl. 103) and in Iron Age Tel Nasbeh (McCown 1947:204). More examples are known in Classical temples (see references in Avner 2015:402).

2. Ramat Saharonim is a Late Neolithic-Chalcolithic mortuary and cult complex located in the Ramon Crater in the central Negev, dated *ca.* 5500-4000. BC.⁸ It comprises 30 *tumuli* tombs, one *namus* tomb and four pairs of open-air sanctuaries (Rosen and Rosen 2003; Porat *et al.* 2006; Rosen *et al.* 2007). Excavation of one *tumulus* tomb (T29) yielded a human interment with four *Conus* shell beads, interpreted as an anklet, and a lower forelimb (metacarpal) of an equid, identified as that of a very large wild ass (*E. africanus africanus*) or a small sized wild horse (*E. caballus*) (Rosen *et al.* 2007; Horwitz *et al.* 2011).

B. THE SOUTHERN NEGEV

The 'Uvda Valley, in the southern Negev, is an area with a dense settlement of agro-pastoralists, mainly dated to the 6th-3rd millennia BC. Habitation sites, agricultural installations, corrals and cult sites are concentrated on the eastern margin of the valley, near the ancient cultivated fields (Avner 1998, 2002: Ch. 2; Avner *et al.* 2003). Five *maşseboth* shrines were excavated in this area, three of which yielded offerings and/or sacrificial remains.

3. 'Uvda Site 100 is a tent camp with additional small structures. On the western end of the site a shrine was built with a pair of *maşseboth* and two stone cells, in front (east) and behind them. The front cell was partially preserved while the back cell was built of large rocks and better preserved. Finds within the cells were meagre; a few flint flakes, pottery sherds and unidentified bone splinters. However, in the front cell a trio of grinding stones was found at the feet of the *maşseboth*, laid upside-down and covered by silt (Fig. 4). Two ¹⁴C dates from both cells were the same, *ca.* 4750 BC (Table 1:3). Since trios of grinding stones were found in additional *maşseboth* shrines, their presence here seems meaningful, as discussed below. No faunal remains were recovered.

4. 'Uvda Site 124/IV is a small stone-built habitation, comprising two rectangular rooms and an older small circular courtyard, dated by ten ¹⁴C dates *ca.* 3100-2200 BC (Early Bronze (EB) I-IV, Table 1:4). Just south of the site, a broad *maşsebah* was set on an older, low wall dated to the 5th millennium BC, with a natural, unshaped stone basin next to the *maşsebah*. Excavation in front and behind the *maşsebah* uncovered many sickle blades, some Late Neolithic pottery sherds imported from the north, many local sherds of the 5th-3rd millennia BC, Red Sea shells, freshwater molluscs, and two trios of grinding stones (Fig. 5) covered by silt and small stones.

In front and behind the *maşsebah*, an assemblage of 52 animal remains was found, comprising two bones of domestic goat (*Capra hircus*), 14 of domestic sheep or goat (*Ovis aries/Capra hircus*), eight of hare (*Lepus capensis*) while 28 were unidentified fragments (Tables 2, 3). All the sheep/goat bones represent young animals, including at least one foetus animal *ca.* one week old, as well as two animals aged *ca.* 2 years. Altogether 39 bones were burnt, comprising 77% of the remains.

5. 'Uvda Site 124/XVII (Site 9 in the excavation numbers) is a habitation with two exposed layers, dated to the late 4th and 3rd millennia BC (Figs. 6). Underlying layers, dated to the 5th and 6th millennia BC, were reached only in probes.

The shrine was built just south of the habitation, with a broad *maşsebah*. On the surface level a rectangular stone platform was built, with a large flat stone which abuts the *maşsebah*, heavily cracked and bearing discolouration resulting from fire. Among the platform stones, pottery sherds of the EB IV were found (late 3rd millennium BC), while a hearth uncovered at the *maşsebah* base, 70 cm below, gave a ¹⁴C date of *ca.* 5880 BC (Figs. 7). A ¹⁴C date from a higher level hearth in a higher level was *ca.* 2750 BC (Table 1:5). The hearth and the flat stone in the platforms can be interpreted as two different kinds of altars. The finds and ¹⁴C dates indicate that the shrine was in use for *ca.* 4000 years, similar to the time span of the adjacent habitation. The finds from the excavation included many pottery sherds and flint tools of the 5th-3rd millennia BC, among them a scraper (not tabular) and lunate-shaped sickle blade.

⁸ The oldest date in the site is an OSL determination from Tomb 28, 7500±700 BP, *i.e.* a wide range of error; three ¹⁴C dates from the site were *ca.* 5100-4800 BC (Porat *et al.* 2006:10; Rosen *et al.* 2007:20).

Both were the largest of their kind found in the 'Uvda sites and are interpreted as offerings.

In front of the *maššebah*, a trio of grinding stones was found (Figs. 7), laid upside down and covered by a low pile of small stones. Since the three 'Uvda shrines mentioned here are close to each other (400 and 700 m apart), near the past cultivated fields, and contained sets of grinding stones, it seems possible that the stone tools served a role in specific rituals rather than being just functional (see discussion below).

The small faunal assemblage (Tables 2, 3), comprised three bones of sheep/goat (one goat metacarpal and two sheep/goat tooth fragments), three pieces of ostrich (*Struthio camelus*) eggshell and 12 unidentified mammalian long bone fragments, two of which were burnt.

C. EILAT BURIAL GROUND

The site is situated on the western fringe of the town, 2 km WNW of the Red Sea shore and adjacent to a junction of ancient roads. When discovered, in 1987, it was found to have been both robbed in antiquity and heavily damaged in modern times. Ten *tumuli* tombs were preserved and excavated. In eight of them multiple secondary burials were found (Eshed and Avner in press) and in three tombs animal bones were found together with the human remains. The site is dated by artefacts and ten ¹⁴C dates from *ca.* 5500 to 4450 BC (Late Neolithic-Early Chalcolithic. Table 1:6). This is actually the oldest site in the Negev with *tumuli* burials safely dated, marking the beginning of a mortuary tradition that lasted four millennia.

Despite the robbery and damage, many artefacts were still found in the tombs and numerous features indicated major innovations in burial customs and complex symbolism. Evidence was found for intensive ancestral cult activity and a rich corpus of symbolism relating to life and fertility.⁹ Three of the Eilat tombs which yielded animal offerings are described here.

6. Eilat *Tumulus V* is a circular tomb divided by a low wall into two cells (Figs. 8). In one cell, three individual *maššeboth* were set in a row, facing north. At the foot of the western one, clearly anthropomorphic though unshaped, a 'nest' of six human skulls was found. In the other cell, a single *maššebah* was set (three other tombs also contained *maššeboth* within the cells). On the eastern perimeter of the tomb a pair of broad *maššeboth* was set, with a stone pavement at their feet that served as an offering bench. On the bench a polished axe was laid, made of a hard, fine-grained igneous rock (Figs. 9a). Similar arrangements of pairs of broad *maššeboth* were found in the front (east) of four out of the ten preserved tombs, and in another tomb- a single, large and broad *maššeboth* was similarly set. Inside Tomb V secondary interments of at least six deceased were found, disturbed but with ample artefacts, including 182 small disk beads made from seashells, other types of beads, other seashells, fragments of granite grinding stones, flint items, copper nodules (Fig. 9b-e). The polished axe was most probably laid as an offering to the pair of *maššeboth*, while the finds inside the tomb were for the dead, reflecting a belief that their needs in the afterlife were similar to those when alive. No faunal remains were recovered from this tomb.

Around Tomb V and the neighboring Tomb IV, 66 hearths were found, *ca.* 50 cm in diameter and 10-20 cm deep (Fig. 10); additional hearths were found near other tombs in the site. Nine of the ¹⁴C dates of the Eilat burial ground were obtained from these hearths. Since hearths were also found in other sites next to *maššeboth* shrines or tombs, they seem to be pertinent to the cult activity performed at desert ritual sites (See discussion below).

7. Eilat *Tumulus VI* is one of a cluster of originally four attached tombs, of which two survived (Fig. 11). Its structure is unusual as its larger than all others and divided into four burial cells. Disturbed bones of both human and animals were found in all cells, as well as underneath the cells' construction stones. This may mean that the tomb was built after the locality was already used for burial.

⁹ A monograph on the site, including analysis of the burial customs and symbols, has been submitted to the Israel Antiquities Authority but remained unpublished. Synopsis of the monograph see in Avner 2002: App. 1. Following the dig, eight *tumuli* tombs, two open sanctuaries and four cult installations were moved and reconstructed outside a new neighborhood that was built on the site.

Finds included: a flint tabular scraper, a fragment of sandstone bowl decorated by relief, a shell bowl made of *Lambis truncata sebae*, other shells and coral fragments (Fig. 12), shell and faience beads, fragment of ostrich eggshell, garnet crystals, copper nodules and a pointed bone tool.

Animal bones recovered included remains of five different taxa: a left mandible of a young sheep/goat (*Ovis aries/Capra hircus*) with the unworn third molar present (Payne ware stage 1) and a loose fragment of lower first or second molar. The animal is aged *ca.* 2 years old, based on the state of tooth eruption and lack of wear on both teeth. Two further remains (a femur and a vertebral fragment) identified as those of sheep/goat may belong to the same young caprine. Also recovered were eight bones of hare (*Lepus capensis*) belonging to the same animal (a left mandible, a pelvis, three metatarsals, a vertebra and a long bone shaft, either a femur or a tibia). Remains of an unidentified medium-sized mammal, most probably sheep/goat (a femur and vertebral fragment). Three long bones of an unidentified rodent were found (femur, tibia and humerus). In addition, three species of birds were identified; three bones of a quail (*Coturnix coturnix*, a right ulna, right radius and right 1st phalanx), three bones of black kite, a raptor (*Milvus migrans*; a right ulna, right radius, right 1st phalanx) and a fragmented distal ulna of an unidentified bird.

8. Eilat Tumulus VII belongs to the same cluster of four attached tombs (Fig. 11). It has a rectangular cell with rounded corners and two *maṣṣeboth* were set in the center, facing north. The burial cell was found disturbed, with scattered human and animal bones, Artefacts, including flint blades, fragments of sandstone bowls and a pallet, one decorated by relief, fragments of grinding stones, 32 small glazed talcos beads, seashells and seashell beads, ostrich eggshell fragments and a thin copper bead (Figs. 13a-d).¹⁰ The tomb was surrounded by a stone-paved belt, partially preserved, which served as an offering bench. On the pavement several unique artefacts were found: an ordered pile of 31 flint tabular scrapers with the largest laid on top, all of a high quality execution, a sandstone bowl fragment decorated in relief and a small “HaParsah” arrowhead (Figs. 14a-c).

Animal bones were found inside the disturbed burial cell, also below the cell stones. They included three bones of Cape hare (humerus, femur and metatarsal) and two bones of an unidentified rodent (humerus and femur).

D. THE SINAI PENINSULA

9. Darb al-Hajj I is a *tumulus* tomb with a group of five *maṣṣeboth*, located *ca.* 40 km WNW of Eilat. It is one element in a cluster of sites including many hut and tent bases spread over an area of 500 x 500 m, and several habitation units with circular courtyards and rooms. The cluster is situated adjacent to an ancient road known as Darb al-Hajj and close to the seasonal water hole of Muyat Galla. It was surveyed and partly excavated by B. Kozloff (1981, see also Rothenberg and Glass 1992, site 712). The cluster is generally dated to the 5th-4th millennia BC.

The *tumulus* was built on the SW edge of the cluster, on the bank of Wadi Galla. The burial cell was found partially opened and contained a single skull fragment of a young male individual. The *maṣṣeboth* were incorporated on the tomb's east perimeter and faced east, with an offering bench at their feet. Indeed, they comprise an original triad, with a pair that was added later on the right side (Fig. 15). Just below the base of the tomb and the *maṣṣeboth*, an Epi-Paleolithic, Ramonian occupation level was uncovered (Goring-Morris and Avner 1986).

The faunal remains (Table 2) were found next to the offering bench and comprised five unidentifiable fragments of mammalian bone, all less than 10 cm in length. Although no species determination was possible, the bones represent terrestrial mammals (*e.g.* ungulates or carnivores) and not birds or reptiles.

¹⁰ Since burial in the site ceased in the second half of the 5th millennium BC, the bead is among the earliest copper objects discovered in the southern Levant. Chemical and metallographic analyses, by I. Segal and A. Kaminski, indicated a smelted copper which contains 2.3% tin. Since copper ores from the 'Araba and Sinai do not contain such high percentages of tin, it is suggested that the bead, or the ore, was imported from eastern Anatolia or northern Mesopotamia, where such ore is found. Since other objects in the site originated in these regions (a chunk of realgar, faience and glazed talcos beads), the importation of the bead or the ore is plausible as well. Other objects in the sites originated in Arabia and Egypt.

10. Wadi Watir Site is a cluster of 19 units spread along 1 km on a wide alluvial terrace. It includes five stone-built habitations with circular courtyards and rooms, the remains of 13 tent camps and one shrine of *maššeboth*. In all units many flint tools were found, generally dated to the 6th-3rd millennia BC. A ¹⁴C date measured on a seashell bracelet from the shrine was *ca.* 4040 BC (Table 1:10).

The shrine (Figs. 16) consists of a trio of *maššeboth*, two are *ca.* 1.3 m high and the third, between them, is much smaller. Surface finds around the shrine included 13 well-rounded hammer stones, fragments of a shell bracelet, fragments of two grinding stones and a fragment of a sandstone bowl. Two cells were built in the shrine, in front and behind the *maššeboth*. During the excavation of the front cell a pavement of flat cobbles was found. Just below the pavement, at the base of the central *maššeboth*, a few artefacts were discovered: two attached natural stones bearing symbolic shapes (Fig. 17a), several flint flakes, a disintegrating pottery sherd, and a fragment of shell bracelet. Excavation of the back cell uncovered an inner small cell made of stone slabs vertically set. Excavation of this inner cell exposed numerous fragments of shell bracelets, a few *Dentalium* shells, five small *Anaxeres* shells cut in half (Fig. 17b), a fragment of *Conus textilis* shell, two small conical stones (a fossil and a hematite nodule) and several bone splinters. Since the majority of artefacts were found behind the *maššeboth*, the small inner cell seems to be a *favissa* in which the offering objects were interred, sometime after being laid at the *maššeboth* feet, in the front cell. The finds underneath the pavement could be either a foundation offerings or regular offerings of an older stage that preceded the pavement.

11. Bir Sawaneh Site is situated on a low terrace of Wadi Abu Sawaneh, near a well and a group of palm trees. It includes three dwelling units with circular courtyards and rooms, the remains of a tent camp, a group of six tumuli tombs and a shrine with a triad of *maššeboth*. Two elements were excavated, *Tumulus VI* which incorporated *maššeboth* and the *maššeboth* shrine. The latter was well preserved with a triad of standing stones, but since its excavation did not produce artefacts or bones, it is not addressed here. Many flint tools were collected in all units of the cluster, generally dated to the 6th-3rd millennia BC.

Tumulus VI comprises a circular burial cairn with a triad of *maššeboth* on its eastern front, facing east, the left one was tilted forward (raised following the dig). A narrow, elongated cell was built at their feet, some 40 cm above surface (Fig.18). In the burial cell, a flexed interment of an adult male was found, with a grinding stone next to its pelvis (Fig. 19). This recalls the finding of grinding stones in several tombs of Eilat (see above) and five grinding stones under a female skeleton in the Late Neolithic submerged site of Neve Yam (Galili *et al.* 2005:9).

In the cell, at the *maššeboth* feet, one *Nerita albicilla* shell was found, together with four animal bones comprising two unidentified mammalian shaft fragments, a fragment of an ungulate tooth and the shaft of a left femur of a medium-sized ungulate (mid-shaft width 11.8 mm). Possibly, all bones derive from the same animal. Based on the relatively large size of the femur shaft and that of the tooth fragment (over 7 mm long), a gazelle can be excluded, so the bones may represent either a domestic sheep (*Ovis aries*), domestic goat (*Capra hircus*) or ibex (*Capra ibex*).

12. Wadi Zalaqa, Site M 308, *Tumulus II*, is built on a hilltop, in a cluster which includes a habitation unit with circular courtyards and rooms, a shrine of five *maššeboth*, a rectangular open-air sanctuary and additional twelve large and well-built *tumuli* tombs. The shape of *Tumulus II* is quite unusual, being semi-circular, preserved height 1.2 m with a broad *maššebah* facing NE (Fig. 20) towards the high summit of Jebel Ras al-Kalb. Flint items collected around the tomb were attributed to the 6th-3rd millennia BC and two ¹⁴C dates for the tomb's base were *ca.* 4420 and 4280 BC (Table 1:12).

In the burial cell, a single human skull fragment was found, with no artefacts but one long bone of an unidentified rodent. At the foot of the *maššebah*, two shaft fragments of unidentified mammal bones were recovered (Table 2). They were too fragmentary to facilitate identification to species but could be determined as derived from medium-sized mammals, rather than birds or reptiles.

13. Wadi Zalaqa M 301 is a regular *tumulus* built next to low remains of a habitation unit with a circular courtyard and rooms. The burial cell is small and paved with flagstones, on which a single male skeleton was found in flexed position. On the tomb's NE perimeter, a trio of *maššeboth* was set facing the same summit of Jebel Ras al-Kalb as *Tumulus II*, with an offering bench and a rectangular stone cell

at their feet (Fig. 21). Next to the offering bench, a trio of flint tabular scrapers was found (Fig. 22), generally dated to the 6th-3rd millennia BC, most probably laid as an offering. With the scrapers, two unidentified fragments of mammalian bones were found (Tables 2, 3).

14. Wadi Sa'al Site is situated on one of the ancient routes from the Gulf of 'Aqaba to the high mountains of south Sinai. It consists of a tent camp 150 m long, two stone built habitation units and two *maššeboth* shrines some 100 m apart, one with seven standing stones, the other with nine. Flint and pottery sherds collected on the surface were dated to the 5th-4th millennia BC. Attempts to date the shrines by ¹⁴C failed due to contamination by recent Bedouin encampments.

Both shrines were excavated, the later, southern one (Fig. 23) yielded 23 animal bones, eight of which could be identified as representing three species: a fragmented tooth and distal humerus shaft of domestic sheep/goat (*Ovis aries/Capra hircus*), quail (*Coturnix coturnix*; a carpometacarpus) and a vertebral spine of hare (*Lepus capensis*) (Tables 2, 3). The remaining fragmentary bones could only be generally identified as medium-sized terrestrial mammal. However, based on their relative size and texture, and the fact that sheep/goat are the only suitable species identified from the site, they most likely belong to this taxon.

15. Wadi Daba'iyeh Site is a large habitation, adjacent to the same ancient road to the high mountains of south Sinai as Wadi Sa'al. Several elements of the site were excavated by A. Goren (unpublished), including a *namus* tomb. A shrine of five large *maššeboth*, up to 2.05 m high is situated 50 m east of the habitation (Fig. 254). It comprises three cells, two in front and behind the *maššeboth*, the third is attached on the western side. The excavation uncovered an offering bench in front the *maššeboth*, but all finds were interred behind them. The latter included a large, rounded hammerstone, a fragment of a shell bracelet and 90 bone fragments. A ¹⁴C date from the shrine was *ca.* 4950 BC (Table 1:14).

Despite the large size of the bone assemblage, only 19 could be identified to species and/or body part. Species represented included: 4 bones of quail (*Coturnix coturnix*; one femur shaft, one tibiotarsus shaft, two tarsometatarsi); three bones of hare (*Lepus capensis*: distal scapula, mastoid, rib) and three bones representing at least two domestic goats, (*Capra hircus*), one aged older than 2 years (represented by a fused calcaneum with greatest fused length 29.6 mm; and a fused distal metapodial) while the second animal was aged less than 2 years, represented by an unfused distal metapodial (Silver 1969). In addition, three bones were identified belonging to a foetal sheep/goat, with the canon bones making up the metapodial still unfused (Prummel 1988). Since there is some variation in the rates of epiphyseal closure between breeds, it is difficult to assess with accuracy the precise age of the foetus. An extremely large but unfused proximal calcaneum (greatest unfused length: 51.7 mm) is too large to even represent a male domestic goat and has been tentatively assigned to ibex (*Capra ibex*). This large specimen represents an animal aged 36-48 months (Noddle 1974).

Sheep/goat are represented by both cranial and post-cranial remains (Table 3). However, toe bones (phalanges) and trunk elements (ribs and vertebrae) are absent. Of the 15 limb bones of sheep/goat, 12 (80%) are lower hind limb elements (metatarsals, tarsals, astragali and calcanea), which are poor in meat. Two explanations may account for this patterning. The first relates to differential survival of denser, more robust bones. Examination of bone mineral density values for sheep (Lyman 1994: Table 7.6- see also values given in Lyman 1994: Table 4.10b) indicates that the skeletal elements that are missing – ribs, vertebrae, scapulae, skull bones – are amongst the bones with the lowest mineral density values. In contrast, tarsals, astragali and calcanea are those with some of the highest values. For metapodials, it is also not accidental that the proximal ends are preserved rather than the mid-shafts, since these are the densest portions of the bones. Consequently, it could be argued that these bones are missing due to their lower bone mineral density values and so greater fragility (Lyman 1994, Tables 7.6, 4.10b). However, since foetal bones did survive, another explanation should perhaps be considered, such as intentional selection of lower limb bones for offerings while the parts rich in meat were consumed, perhaps as part of a ritual repast.

E. *NAWAMIS* TOMBS

The *nawamis*¹¹ are above-ground, well-built round tombs made of local selected stone, with a corbeled roof, often preserved (Fig. 25). A total of 22 *nawamis* fields are known in Sinai. They vary in numbers, from several tombs to more than 200 (Bar-Yosef *et al.* 1993, 1986; Goren 1998; Arad-Ayalon, unpublished). The material remains from these tombs indicates a Chalcolithic through Early Bronze I attribution (late 5th through 4th millennium BC). Four ¹⁴C dates span *ca.* 4720 to 3970 BC. (Table 1:16), so they were probably first built close to the end of the Late Neolithic period. Characteristic of the *nawamis* in Sinai is the uniform orientation of their doorways towards the west, *i.e.*, the fall and spring setting sun, reflecting their season of construction and burial activities (Bar-Yosef *et al.* 1983; Hershkovitz *et al.* 1985).

Excavations carried out in nine *nawamis* fields uncovered many grave goods, including bone and wooden points, arrows with their shafts, copper awls, flint artefacts (mainly tabular scrapers), groundstones, pottery, beads of stone, shell, ostrich eggshell and ivory, as well as shell bracelets and pendants (Bar Yosef *et al.* 1977, 1986; Goren 1980; Bar-Yosef Mayer 2002; Ilan and Sebbane 1989; Arad-Ayalon unpublished). Animal offerings were recovered from eight of the nine excavated *nawamis* fields. Most common are medium-sized ruminants, with remains of goat (probably domestic goat, *Capra hircus*) and dorcas gazelle (*Gazella dorcas*), positively identified. Additional taxa represented are hare, quail, rodents (*Meriones* sp.) and reptiles, especially spiny-tailed lizards (*Uromastyx*). The presence of quail, a seasonal migrant, and orientation of the *nawamis* suggest a spring/fall activity in these sites.

DISCUSSION

The association and archaeological contexts of finds recovered from the cult and burial sites described above enables their certain identification as offerings, of two general types. One comprises objects, representing “inanimate offerings” or “bloodless offerings”, the other relates to the bones which represent remains of “animate offerings” or “blood offerings” (Henninger 1987:7997).

A. OBJECT OFFERINGS

According to their locations, these finds can also be divided into two groups. Objects found inside the tombs, with the human skeletal remains, most probably represented their belongings in life or gifts given to the deceased to be used in the afterworld (*c.f.* Pearson 1999:11). Those laid in front of the *maššeboth*, or interred behind them, represent offerings given to the deities, perceived as manifested in the stones, protecting the tomb and the dead.

The Eilat tombs and the *nawamis* contained abundant objects, including decorative ornaments (*e.g.* beads made of a variety of raw materials), exotic items (fossils, seashells, special stones, imported materials from regions outside the Negev and Sinai) and utilitarian artefacts (pottery, groundstones, flint, bone and metal tools). Many of these artefacts exhibit a high level of execution, indicating intentional selection and high esteem for the deceased.

The trios of grinding stones found in front of *maššeboth* shrines in ‘Uvda Valley (Figs. 4, 5, 7) seem to represent a specific cultic activity. As mentioned above, the three shrines were built next to habitations and a tent camp, all are close to each other and close to the cultivated fields. The shrines with which they are associated were constructed of broad *maššeboth*, interpreted as representing fertility goddesses. Hence, the grinding stone could be part of the cult paraphernalia, used for preparation of flour and baking bread or cakes, to be sacrificed to the goddesses that dwelled in the stones. Such interpretation is not just imaginary since later ancient texts, describing similar rites dedicated to goddesses, are known from various cultures through the ancient Near East (Weinfeld 1972; Olyan 1987; Wild 1977; *CAD*

¹¹ *Nawamis* (mosquitos in ‘Arabic, singular *namus*) is the Bedouin name for the well-built tombs, following a legend telling that the structures, usually with small doorways, were built by the Israelites during the Exodus to hide from mosquitoes sent by God to punish them.

VIII:425-7). Also in the Bible, Jeremiah (7:18; 44:19) criticized the people of Jerusalem, saying: "... *the women knead the dough to make cakes to the queen of heaven*". Based on the above data, one can imagine a cult ceremony performed in front of the broad 'female' *maṣṣebah*, addressing the fertility of the adjacent cultivated soil, which was also perceived as a feminine entity (e.g. Frazer 1925, Chs. 6-9; Eliade 1958, Ch. 7).

B. ANIMAL BONES

Faunal remains, like objects, may serve as useful indicators of cult and mortuary practices of past desert populations.

Animal remains recovered from ritual deposits are considered to be more structured *i.e.*, non-random and manifest repetitive patterning than regular food debris and occur in special contexts or locations (e.g. Grant 1991; Hill 1995; Morris 2011; Russell 2011). A similar approach was presented by Horwitz (1987, 1999, in press a) who outlined, based on southern Levantine data, both archaeozoological and archaeological criteria for the identification of ritual practice, focusing on evidence for intentional selection of fauna and repeatability of this trait in a special archaeological context. Thus, there should be indications for selection of specific anatomical parts (or presence of articulated whole or partial animals); preferential selection of a particular species or presence of exotic taxa and selection of a specific age and/or sex group. Special contextual features noted include clear and close association with human remains or mortuary/ritual localities (e.g. altars, *favissa*, shrines *etc.*) and traces of structured and deliberate versus random deposition of remains.

Despite the meager finds reported here from the Negev and Sinai sites, studying multiple lines of evidence – the archeological context of these remains, the range of animal species represented, their age, sex and skeletal element representation – it is possible to reconstruct past ritual activities that offer important insights into the belief systems of early herders in this region.

1. Context of remains: The recurring repertoire of animal bones mentioned above, in *maṣṣeboth* shrines, in shrines incorporated in tombs and inside the tombs, together with unusual assemblages of cultural objects, allows their identification as offerings or sacrifices. Two types of offerings are observed. Animal remains found inside the tombs, often intermingled with the human bones, that were interred with the deceased, most probably as a provision for the journey to the other world (*c.f.* Frazer 1913:308; Pearson 1999:1-2). On the other hand, bones found in front of the *maṣṣeboth*, or interred behind them, represent offerings given to the deities, or the remains of sacred meals celebrated in communion with both the gods and the deceased, as can be learned from later Ugaritic texts (e.g. *KTU* 6.13, 6.14, Lang 2012:169). These sacred meals could have taken place either next to the tomb, in an ancestral shrine or at home (Robertson-Smith 1889:238-9 *etc.*; Frazer 1913; Hubert and Mauss 1964; Lewis 1989; Pearson 1999; Horwitz 2001; Lang 2012).

2. Faunal composition: The range of animals represented in the ritual sites described here, reflects not only the nature of the economy of the communities using the sites, but also intentional selection of animals for offerings. Since those who constructed and used the sites were pastoralists, who herded caprines, it is not surprising that medium-sized ungulates were the favoured species. In this light, the presence of wild species (ibex, gazelles and hares, quail) is interesting, since their bones are uncommon in contemporary habitations (e.g. Grigson 1987, 1995; Horwitz 2003; Horwitz *et al.* 2002; Witcher 1999; Witcher Kansa 2004; Horwitz in press b). Domestic goat (*Capra hircus*) as well as ibex and dorcas gazelle have been positively identified in these cult and mortuary assemblages, with a clear predominance of goats (ibex and domestic goats) over gazelles. When distinction of caprine species could be made, no remains of sheep (*Ovis aries*) were positively identified, which also reflects their lower proportions and even scarcity in contemporaneous caprine herds in these deserts (e.g. Grigson 1995; Horwitz 2003; Horwitz *et al.* 2002; Witcher 1999; Hakker-Orion 1999, 2014).

Ibex is commonly represented in the iconography of the Near East in ritual contexts as well as rock art (e.g. Amiran 1989; Miroschedji 1993; Milevski 2002; Schmidt 2009; Shalem 2015; Avner *et*

al. 2017). Still in the 1960's, ritual hunting of ibex was performed in the Yemen to ensure rainfall, a continuation of an ancient tradition (Beeston 1948; Serjeant 1976). Recently, a connection was proposed between the archaeological ibex depictions and deities associated with rainfall, seasonal cycles and celestial constellations (Avner *et al.* in press). Therefore, it may be possible that the primary motivation for ibex hunting in the Negev and Sinai deserts in the 6th-3rd millennia BC was not economic, but was a ritual act.

Hunting of gazelles in the Negev and Sinai, was mainly undertaken by means of 'desert kites' (Holzer *et al.* 2010; Nadel *et al.* 2010, 2013 and in press; Bar-Oz *et al.* 2011). In this region kites are very small and sparse, compared to those of the Syrian, Jordanian and Arabian deserts (*e.g.* Betts and Burke 2015; Abu Azizeh and Tarawneh 2015; Kennedy *et al.* 2015) such that the quantity of trapped gazelles would have a minimal contribution to the economy of past desert pastoralists. This is also reflected in the scarcity of gazelle remains recovered from Negev and Sinai domestic contexts post-6000 BP, as noted above. As such, the purpose of the gazelle hunt, like that of ibex, may have been primarily ritual (Horwitz in press b).

Wild asses, as represented in the Saharonim *tumulus*, may also have been hunted using desert kites. Their trapping in a kite is depicted on a rock engraving from Sinai (Hershkovitz *et al.* 1987: Fig. 7); and is inferred from the massive construction and the steep slopes on which some of the Negev kites are built (Arav *et al.* 2014; Nadel *et al.* in press).

The use of trapped wild taxa for ritual purposes is further manifest in the presence of hare and quail remains which are both consistently represented in the cultic assemblages, while remains of a raptor, the black kite, occur in one tomb.¹² The excavation records from the sites described here indicate that these wild taxa were found in sealed archaeological contexts, often adjacent to standing stones, and in close association with the other faunal remains. This raises the possibility that they too represent offerings rather than accidental intrusions of animals naturally occurring in the region, such as the remains of rodents and reptiles. The use of exotic taxa other than ungulates as burial offerings has been recorded in the southern Levant from as early as the Kebaran (Maher *et al.* 2011), but is also documented in the region in later periods (*e.g.* Davis and Valla 1978; Grosman and Munro 2016; Horwitz and Goring-Morris 2004; Klenck 2002; Weissbrod and Bar-Oz 2004).

3. Age and Sex of animals: Information on ageing and bone element representation is fragmentary. The caprine remains that could be aged indicate the preferential selection of a young age cohort for offerings. For example, at Wadi Daba'iyeh, one caprine was aged less than 2 years old, another was aged *ca.* 2 years, and a third, a young adult (possibly an ibex), was aged *ca.* 3.5-4 years. In light of later written sources, the occurrence of young animal bones is not accidental. Ugaritic texts distinguish between adult and young animals for different kinds of sacrifices (Levine 1963) and more detailed instructions are given in the Bible (Numbers 7), for the different types of sacrifices, including the selection of one year old lambs for the 'Olah sacrifice (see Note 15).

Foetus and/or newborn caprines are documented both in 'Uvda 124/IV and Wadi Daba'iyeh assemblages. If a foetus is represented, then probably the mother was sacrificed. If a newborn animal-then it may represent intentional sacrifice of a very young animal. On the most basic interpretive level, these immature individuals may address the issue of rebirth and fertility. A clue to a sacrifice of a newborn or very young animal is given in the Bible (Exodus 23:19, Deuteronomy 14:21), Saying: "*Do not cook a lamb in his mother's milk*". The prohibition indicates that such a practice existed among some peoples neighboring Israel.¹³

Sacrificing the most valuable animals (young and females) runs contrary to pastoralist economic logic, since both these age and sex cohorts ensure herd continuity. These choices are, however, the ultimate manifestations of the act of sacrifice which "*means not to kill, but to relinquish and to give*" to

¹² The occurrence of black kite bones in the Eilat Tomb IV may be symbolic. Later, in the Early Kingdom Egyptian mythology, Isis, endeavouring to revive the dead Osiris, turned to a black kite and hovered above his corpse to ventilate it (Pinch 2002:150; Shalomi-Hen, in preparation).

¹³ In the course of history, this prohibition developed into a total separation of dairy from meat (besides fish) for observant Jews.

gods and/or ancestors (Bataille 1992:48-49). Thus, giving your most valuable asset imbues the act with greater meaning.

4. Skeletal elements represented: In contrast to domestic contexts, where a wide range of skeletal elements are found, ritual contexts present a consistent, repetitive and often narrow spectrum of body parts, reflecting intentional selection (Horwitz 2001). The choice of body parts may vary between communities and times, relative to the type of ritual activity taking place, or, the identity of the human communities. For example, the Wadi Daba'iyeh sample contained a high frequency of hindlimb elements, a feature that does not appear to be the result of differential preservation. Rather, this patterning is interpreted as representing intentional selection of body parts used as food offerings at the shrine. Cornwall (1975) suggested that in certain circumstances, the faunal remains recovered from cult and mortuary contexts, are not intended to represent real meat cuts but rather symbolic provisions. Thus, for the Saharonim *tumulus* it was suggested (Horwitz *et al.* 2011) that the equid lower forelimb represents a *pars pro toto*, with the remainder of the animal maybe consumed elsewhere, either on or off-site, in a ritual feast accompanying the mortuary ritual.

5. Burning: The hearths, found next to almost all excavated installations and tombs, indicate that making fire was an integral and consistent part of the ritual activity performed at these sites. In some of the excavated sites burnt bones were found; the clearest case was the *maṣṣebah* shrine of 'Uvda 124/IV, where 77% of the bones were burnt. The use of fire in desert rituals is well illustrated in the Eilat burial ground, where tens of hearths were found around the tombs (Fig. 11). Based on later written sources and on anthropological studies, the hearths may be interpreted as the remains of sacred meals shared by the living with the dead. Best recorded is the Akkadian "*Kispu*" that comprised three elements: calling the dead of the last four generation by names, sometimes even the last eight ones, pouring beer, wine or cold water, for them on the ground, dining and communicating with them (*e.g.* Baylis 1973; Schmidt 1994:28-46; Finkel 1984; Tsukimoto 1985; Macdougall 2014). Such customs are still known today in many traditional societies around the world.¹⁴ The ritual meal can be understood as an act of renewal of the covenant with deities and ancestors by sharing food with them. In some cultures the recipient of the offering is perceived as receiving the soul or life of the sacrificial animal without consuming the material food. Such animate offerings may be burnt to enable the soul of the offering to rise up in the form of smoke. Total destruction of an offering via fire, may be an expression of homage or complete submission to the divinity (Robertson-Smith 1889; Henninger 1987:7998). This is actually the very essence of the biblical '*Olah* sacrifice mentioned above.¹⁵

6. Seasonality: The faunal remains provide some indication for the timing of the last use of the shrine. The quail (*Coturnix coturnix*) is a migrant species, found in Sinai and in Eilat region primarily in the spring and autumn (Paz 1987, Yom-Tov 1987; Shirihai 1996:150-152). Its presence in several assemblages (Eilat VI, Wadi Sa'al, Wadi Daba'iyeh and the *nawamis* tombs), provides some indication as to the general season of activity at these sites. Traditionally the Bedouin exploited this annual migration by catching the birds in vertically erected nets. The presence of quail bones in the Pre-Pottery Neolithic B habitations of Wadi Tbeik in Sinai (Tchernov and Bar-Yosef 1982) indicates that the migration of this species has been an annual event in the desert region for many millennia.

The presence of foetal/neonatal domestic caprines at 'Uvda 124/IV and Wadi Daba'iyeh indicates a late winter-spring period since lambing/kidding in the Negev usually occurs from November to February (Noy-Meir and Seligman 1979). This period also overlaps with that of greatest caprine milk production and weight gain for kids and lambs (Noy-Meir and Seligman 1979). In this region the late winter-early spring is also the time of pasture renewal (called the *Rabi'a*). Traditionally, Bedouin herders in the

¹⁴ For the ancestral cult in anthropology see *e.g.* Frazer 1913; Mack 1986; Radin 1991; Matclif and Huntington 1991; Barley 1997; Murray-Parker *et al.* 1997; Hardacre 2005; Teinz 2012. In July 1999 Avner had the opportunity to attend a "*slamatan*" ceremony in Java, in which a large family celebrated a sacred dinner with their dead of the last four generations. Interestingly, the ceremony followed the very same elements of the Akkadian *Kispu*, in the same order (with a few additional details).

¹⁵ See *e.g.* Lev. 6:16: "*and all priest-offering will be (burnt) complete (Heb. kalil) and will not be eaten*" (our translation, since the passage is mistranslated in *NIV* and other English versions); Sam. 7:9: "*Than Samuel took a suckling lamb and sacrificed it as a whole burnt offering (Heb. 'olah kalil) to Yahweh.*" For the idea behind the '*Olah* see Watts 2006.

Negev were transient at this time of year in order to maximize the flowering season of herbaceous plants (Noy-Meir and Seligman 1979; Abu-Rabi'a 1999; Degen *et al.* 2000). Thus, several different lines of evidence support late winter- spring as a time of activity at the cult and mortuary sites in the Negev and Sinai deserts (though perhaps not exclusively at this time). Winter-spring would also have been a period of mobility for pastoralists in the region enabling them to visit and perhaps congregate together at such sites. This in turn ties in to the suggested spring or autumn time of construction and/or burial in the *nawamis* tombs, based on tomb entrances orientation (Bar Yosef *et al.* 1983; Hershkovitz *et al.* 1985).

SUMMARY

The data presented here bears witness to a consistent pattern of cultic activities associated with tombs and shrines in late prehistory, of giving offerings to the gods represented by *maššeboth*, and to the dead in the tombs. These represent the earliest examples of animal and object offerings in a range of cult and mortuary sites from these desert regions. The material culture and faunal assemblages attest to:

1. Selection of special material objects for inclusion in tombs given to the dead, or at shrines with *maššeboth* as gifts for the gods.
2. Selection of faunal species, with a predominance of caprines (goat/ibex)
3. A preference for young animals
4. Selection of animal body parts
5. Burning of animal carcasses or joints as elements of ritual feasting.

These features accord well with the criteria outlined above for distinguishing faunal remains recovered from sacred contexts as opposed to those from domestic or profane ones and clearly demonstrate that archaeozoological remains “*may be at least as sensitive an indicator of ritual and symbolism as may building plans or pottery decoration*” (Grant 1991: 113). Based on the data from both the Sinai and Negev sites, it is possible to specify that at least part of the rites took place in the late winter-spring. Ritual practices similar to those described here, continue today as an integral part of mortuary activities amongst various religious and traditional societies, both in the form of ritual meals consumed at the graveside and/or as food offerings placed next to the grave (*e.g.* Ucko 1969; Barley 1995; Klenck 1995). These practices emphasise that mortuary activities did not cease with interment but continued long after, either at the tombs, or at the *maššeboth*. Finally, the ritual activities documented here span at least four millennia, attesting to the longevity of such traditions in the Negev and Sinai deserts.

BIBLIOGRAPHY

- Abu 'Azizeh, W. and M.B. Tarawaneh. 2015. Out of the *Harra*: Desert Kites in Southern Jordan. New Results from the South-Eastern Badia Archaeological Report. *Arabian Archaeology and Epigraphy* 26:95-119.
- Abu-Rabi'a, 'A. 1999. Some Notes on Livestock Production Among the Negev Bedouin Tribes. *Nomad Peoples* 3:22-30.
- Amiran, R. 1989. An Early Bronze I Basalt Cult-Bowl with Ibex Relief. *The Israel Museum Journal* 8:17-23.
- Arad-Ayalon, N. Unpublished. *Finds from the Nawamis Sites in Sinai. Submitted to the IAA and Egyptian Archaeological Council.*
- Arav, R., S. Filin, U. Avner and D. Nadel. 2016. Three-Dimensional Documentation of *Masseboth* Sites in the 'Uvda Valley Area, Southern Negev, Israel. *Digital Applications in Archaeology and Cultural Heritage* 2016:1-13.
- Avner, U. 1984. Ancient Cult Sites in the Negev and Sinai Deserts. *Tel Aviv* 11:115-131.
- Avner U. 1993. *Mazzebot* Sites in the Negev and Sinai and Their Significance. In: A. Biran and J. Aviram (eds.) *Biblical Archaeology Today, 1990*. Jerusalem: Israel Exploration Society. 166-181.

- Avner, U. 1998. Settlement, Agriculture and Paleoclimate in 'Uvda Valley, Southern Negev Desert, 6th-3rd Millennia B.C. In: A. Issar and N. Brown (eds.), *Water, Environment and Society in Times of Climate Change*. Dordrecht. 147-202.
- Avner, U. 2000. Nabatean Standing Stones and Their Interpretation. *Aram* 11-12:97-122.
- Avner, U. 2001. Sacred Stones in the Desert. *Biblical Archaeology Review* 27:30-41
- Avner, U. 2002. *Studies in the Material and Spiritual Culture of the Negev and Sinai Populations During the 6th-3rd millennia B.C.* PhD Thesis. The Hebrew University of Jerusalem. <http://www.adssc.org/sites/default/files/PhD-Uzi-RS.pdf>.
- Avner U., I. Carmi and D. Segal. 1994. Neolithic to Bronze Age Settlement of the Negev and Sinai in Light of Radiocarbon Dating: A View from the Southern Negev. In: O. Bar-Yosef and R. Kra (eds.), *Late Quaternary Chronology and Paleoclimates of the Eastern Mediterranean*. Radiocarbon, Arizona. 265-300.
- Avner, U., M. Shem-Tov, L. Enmar, G. Ragolski, R. Shem-Tov, O. Barzilai. 2014. Survey of Neolithic Cult sites in the Eilat Mountains, Israel. *Journal of the Israel Prehistoric Society* 44:101-116.
- Avner, U.L., Horwitz, L.K. and W. Horowitz, 2017. The Symbolic Role of Ibex in the Negev Rock Art.. *Journal of Arid Environments* 143:35-43.
https://www.academia.edu/31640584/Symbolism_of_the_ibex_motif_in_Negev_rock_art
- Avner, U., M. Shem-Tov, L. Enmar, G. Ragolski, R. Shem-Tov, O. Barzilai. In press b. Neolithic Cult Sites in the Eilat Mountains, Israel. In: Goldfus H., Gruber M.I., Yona S. and Fabian P. (eds.) *Isaac went out ... to the field" (Genesis 24:63): Studies in Archaeology and Ancient Cultures in Honor of Isaac Gilead*. Oxford.
- Babenko A. and B. Khassanov. 2007. The Absolute Chronology of the Zoogenic Deposits from the Negev Desert (Israel). *Geochronometria* 28:47-53.
- Bar-Oz, G., D. Nadel, U. Avner, D. Malkinson. 2011. Mass Hunting Game Traps in the Southern Levant: the Negev and Arava 'Desert Kites'. *Near Eastern Archaeology* 74:208-215.
- Bar-Yosef O. 1985. The Stone Age of the Sinai Peninsula. In: *Studi di Paleontologia in Onore di Salvatore M. Puglisi. Universita di Roma "La Sapienza"*. 107-122.
- Bar-Yosef O., A. Belfer, A. Goren, and P. Smith. 1977. The *Nawamis* near 'Ein Huderah. *Israel Exploration Journal* 27:65-88.
- Bar-Yosef, O, I. Hershkovitz, G. Arbel, and A. Goren. 1983. The Orientation of *Nawamis* Entrances in Southern Sinai: Expressions of Religious Belief and Seasonality? *Tel Aviv* 10: 52-60.
- Bar-Yosef, O., A. Belfer-Cohen, A. Goren, I. Hershkovitz, O. Ilan, H. Mienis and Sass, B. 1986. *Nawamis* and Habitation Sites near Gebel Gunna, Southern Sinai. *Israel Exploration Journal* 36 (3-4): 121-167.
- Bar-Yosef-Mayer, D.E. 2002. The Shells of the *Nawamis* in Southern Sinai. In: H. Buitenhuis, A.M. Choyke, M. Mashkour and A.H. Al-Shiyab (eds.) *Archaeozoology of the Near East vol V*. Groningen: ARC-Publicaties 62. Pp. 166-180.
- Barley, N. 1995. *Dancing on the Grave. Encounters with Death*. London.
- Bataille, G. 1992. *Theory of Religion*. New York.
- Bayliss, M. 1973. The Cult of Dead Kin in Assyria and Babylonia. *Iraq* 35:115-125.
- Beeston, A. F.L. 1948. The Ritual Hunt. A Study in Old South Arabian Religious Practice. *Le Muséon* 61:183-196.
- Beit-Arieh, I. 2003. *Archaeology of Sinai. The Ophir Expedition*. Emery and Claire Yass Publications in Archaeology. Tel Aviv.
- Betts, A. and D. Burke. 2015. Desert Kites in Jordan- A New Appraisal. *Arabian Archaeology and Epigraphy* 26:70-94.
- Binford, L.R. 1981. *Bones. Ancient Men and Modern Myths*. New York: Academic Press.
- Bruins, H. and J. van der Plicht. 2005. Desert Settlement through the Iron Age: Radiocarbon Dates from Sinai and the Negev Highlands. In: T. Levy, and T. Higham (eds.). *The Bible and Radiocarbon Dating: Archaeology, Text and Science*. London. 340-366.

- Clarke, J., N. Brooks, E.B. Banning M. Bar-Matthews, S. Campbell, L. Clare, M. Cremaschi, S. di Lernia, N. Drake, M. Gallinaro, S. Manning, K. Nicoll, G. Philip, S. Rosen, U-D. Schoop, M.A. Tafuri, B. Weninger and A. Zerboni. 2015. Climatic Changes and Social Transformations in the Near East and North Africa during the 'long' 4th millennium BC: A comparative study of environmental and archaeological evidence. *Quaternary Science Reviews* 1–26. 10.1016/j.quascirev.2015.10.003.
- Cornwall, I.W. 1975. Appendix K (ii). Collections of Animal Bones from Tombs of the E.B.-M.B. Outsize Type, In K.M. Kenyon (ed.). *Excavations at Jericho II*. London. 702-703.
- Danin, A. 1983. *Desert Vegetation of Israel and Sinai*. Jerusalem: Cana Publishing House.
- Davis, S.J. M. and F. R.Valla. 1978. Evidence for the Domestication of the Dog 12,000 Years Ago in the Natufian of Israel. *Nature* 276:608–610.
- Degen, A.A., R.W. Benjamin and J.C. Hoorweg. 2000. Bedouin Households and Sheep Production in the Negev Desert, Israel. *Nomadic Peoples* 125-147.
- Eddy, F.W. and F. Wendorf 1998. Prehistoric Pastoral Nomads in the Sinai. *Sahara* 10:7-20.
- Eddy, F.W. and F. Wendorf 1999. *An Archaeological Investigation of the Central Sinai, Egypt*. Boulder.
- Eliade, M. 1999. *Patterns in Comparative Religion*, Translated by R. Sheed. Lincoln and London.
- Finkel, I.L. 1984. Necromancy in Ancient Mesopotamia. *Archiv Für Orientforschung* 29:1-17.
- Frazer, J. 1913. *The Belief in Immortality and the Worship of the Dead*. London.
- Galili, E. V. Eshed, A. Gopher and I. Heshkovitz. 2005. Burial Practices at the Submerged Pre-Pottery Neolithic C Site of 'Atlit Yam, Northern Cost of Israel. *Bulletin of the American Society for Oriental Research* 339:1-19.
- Gaster, T.H. 1946. A Canaanite Ritual Drama: The Spring Festival at Ugarit. *Journal of the American Oriental Society* 66:49-76.
- Ginat H., E. Zilberman and I. Saragusti. 2003. Early Pleistocene Lake Deposits and Lower Paleolithic Finds in Naḥal Wadi Ziḥor Southern Negev Desert Israel. *Quaternary Research* 59:445-458.
- Gopher, A. and E. Orrelle. 1996. An Alternative Interpretation for the Material Imagery of the Yarmukian, a Neolithic Culture of the Sixth Millennium BC in the Southern Levant. *Cambridge Archaeological Journal* 6:255-279.
- Goren, A. 1980. The *Nawamis* in Southern Sinai. In: Z. Meshel and I. Finkelstein (eds.), *Sinai in Antiquity*. Hakkibutz Hameuchad Publishing House. 243-263 (Hebrew).
- Goren, A. 1998. The *Nawamis* in Southern Sinai. In: S. Ahituv (ed). *Studies in the Archaeology of Nomads*. Be'er Sheva. 59-86 (Hebrew).
- Goring-Morris, A.N. 1993. From Foraging to Herding in the Negev and Sinai: The Early to Late Neolithic Transition. *Paléorient* 19/1: 65-89.
- Goring-Morris, N. and U. Avner. 1986. An Epi-Paleolithic Occurrence in Eastern Sinai, Hajj I, and Some Observations on the use of the Microburin Technique. *Journal of the Israel Prehistoric Society* 19:58-65.
- Grant, A. 1991. Economic or Symbolic? Animals and Ritual Behaviour. In: P. Garwood, D. Jennings, R. Skeates and J. Toms (eds.), *Sacred and Profane*. Oxford Committee for Archaeology Monograph No. 32. Oxford.
- Grigson, C. 1987. Shiqmim: Pastoralism and Other Aspects of Animal Management in the Chalcolithic of the Northern Negev. In: T.E. Levy (ed.), *Shiqmim*. Oxford: BAR International Series 356. 219–241, 535–546.
- Grigson, C. 1995. Cattle Keepers of the Northern Negev: Animal Remains from the Chalcolithic of Grar. In: I. Gilead (ed.), *Grar, A Chalcolithic Site in the Northern Negev*. (Beer-Sheva 7). Beer Sheva. 377–452.
- Grosman, L. and N.D. Munro. 2016. Natufian Ritual Event. *Current Anthropology* 57:311-331.
- Hallote R.S. 1995. Mortuary Archaeology and the Middle Bronze Age Southern Levant. *Journal of Mediterranean Archaeology* 8:93-122.
- Haiman, M. 1992a. Cairn Burials and Cairn Fields in the Negev. *Bulletin of the American Society for Oriental Research* 287:25-45.

- Haiman, M. 1992b. Sedentarism and Pastoralism in the Negev Highlands in the Early Bronze Age: Results of the Western Negev Highlands Emergency Survey. In O. Bar-Yosef and A. Khazanov (eds.), *Pastoralism in the Levant; Archaeological Materials in Anthropological Perspectives*. Madison. 93-104.
- Haiman, M. 1993. An Early Bronze Age Cairn Field at Nahal Mitnan. *'Atiqot* 22:49-61.
- Hakker-Orion, D. 1999. Faunal Remains from Middle Bronze Age I Sites in the Negev Highlands. In: Cohen, R. (Ed.), *Ancient Settlements of the Central Negev Volume I. The Chalcolithic Period, The Early Bronze Age and the Middle Bronze Age I*. Israel Antiquities Authority Report, Jerusalem pp. 327–335.
- Hakker-Orion, D. 2014. The Faunal Remains from Be'er Resisim, In: Dever, W.G. (Ed.), *Excavations at the Early Bronze IV Sites of Jebel Qa'aqir and Be'er Resisim*. Eisenbrauns, Winona Lake. 311-318.
- Hardacre, H. 2005. Ancestor Worship In: L. Jones (ed.) *Encyclopedia of Religion, Second Edition*. San Francisco. 320-332.
- Henninger, J. 1987 2005. Sacrifice (Translated from German by Matthew J. O'Connell) In. L. Jones (ed.). *Encyclopedia of Religions, 2nd addition*. N.Y. and London. 7997-8010.
- Henry, D. 1976. Rosh Zin: A Natufian Settlement Near 'Ein 'Avdat. In: Marks, A. *Prehistory and Palaeoenvironment in the Central Negev, Israel, Vo.1 I*. Dallas. 317-347.
- HersHKovitz, I., HersHKovitz, I., G. Arbel, O. Bar-Yosef and A. Goren. 1985. The Relationship Between *Nawamis* Entrance Orientations and Sunset Direction. *Tel Aviv* 12:204-211.
- HersHKovitz, I., Y. Ben David, B. Arensburg, A. Goren and A. Pinchasov. 1987. Rock Engravings in Southern Sinai. In. G. Gvirtzman, A. Shmueli, Y. Gradus, I. Beit-Arieh and M. Har-El. *Sinai*. Tel Aviv.
- Hill, J.D. 1995. *Ritual and Rubbish in the Iron Age of Wessex: A Study on the Formation of a Specific Archaeological Record*. BAR British Series 242. Oxford.
- Holzer, A. U. Avner, N. Porat and L. K. Horwitz. 2010. Desert Kites in the Negev Desert and Northeast Sinai: their Function, Chronology and Ecology. *Journal of Arid Environment* 30:1-12.
- Horwitz, L.K. 1987. Animal Offerings from Two Middle Bronze Age Tombs. *Israel Exploration Journal* 37: 251-255.
- Horwitz, L.K. 1999. The Contribution of Archaeozoology to the Identification of Ritual Sites. In: S. Pike and S. Gitin (eds.), *The Practical Impact of Science on Near Eastern and Aegean Archaeology*. Wiener Laboratory Monograph No. 3. London. 63-69.
- Horwitz, L.K. 2001. Animal Offerings in the Middle Bronze Age: Food for the Gods, Food for Thought. *Palestine Exploration Quarterly* 133:78-90.
- Horwitz, L.K. 2003. Early Bronze Age Archaeozoological Remains. In: I. Beit-Arieh (ed.), *Archaeology of Sinai. The Ophir Expedition*. Emery and Claire Yass Publications in Archaeology. Tel Aviv. 242- 257.
- Horwitz, L.K. in press a. The Archaeozoology of Bronze Age Burial Offerings from the Nahal Refaim Tomb A-3707/2002. *'Atiqot*.
- Horwitz, L.K. in press b. Animal Remains from the *Nawamis* Fields, Fields and Coeval Habitation Sites in Southern Sinai. In, Goldfus H., Gruber M.I., Yona S. and P. Fabian (eds) *Isaac went out ... to the field" (Genesis 24:63): Studies in Archaeology and Ancient Cultures in Honor of Isaac Gilead*. Oxford.
- Horwitz, L.K. and Goring-Morris, N. 2004. Animals and Ritual During the Levantine PPNB: A Case Study from the Site of Kfar HahoresH, Israel. *Anthropozoologia* 39:165-178.
- Horwitz, L.K., E. Tchernov, P. Ducos, C. Becker, A. von den Driesch, L. Martin and A. Garrard. 1999. Animal Domestication in the Southern Levant. *Paleorient* 25:63-80
- Horwitz L.K., E. Tchernov, H. Mienis, D. Hakker-Orion and D.E. Bar-Yosef Mayer. 2002. The Archaeozoology of Three Early Bronze Age Sites in Naħal Besor, North-Western Negev. In: E.C.M. Van den Brink, and E. Yannai (eds.), *In Quest of Ancient Settlements and Landscapes. A*

- Volume in Honour of Ram Gophna*. Tel Aviv. 107-134.
- Horwitz, L.K., Rosen S.A. and Bouquentin F. 2011. A Late Neolithic Burial Offering from the Mortuary-Cult Site of Ramat Saharonim in the Central Negev. *Journal of Israel Prehistoric Society* 41:71-81.
- Hubert, H. and M. Mauss. 1964. *Sactifice: Its Nature and Function*. Translated by W.D, Hall: England.
- Ilan, O. and M. Sebbane. 1989a. Copper Metallurgy, Trade and the Urbanization of Southern Canaan in the Chalcolithic and Early Bronze Age. In: P. de Miroschedji (ed.), *L'Urbanisation de la Palestine a l'Age du Bronze Ancien. Actes du Colloque d'Emmaus October 1986*. BAR-International Series 527. Oxford. 139-153.
- Kennedy, D., R. Banks and M. Dalton. 2015. Kites in Saudi Arabia. *Arabian Archaeology and Epigraphy* 26:177-195.
- Klenck, J.D. 1995. Bedouin Animal Sacrifice Practices: Case study in Israel. In: K. Ryan and P.J. Crabtree (eds.), *The Symbolic Role of Animals in Archaeology*. Philadelphia. 57-72.
- Kochavi, M. 1967. *The Settlement of the Negev in the Middle Bronze (Canaanite) I Age*. Unpublished Ph.D. dissertation. Hebrew University, Jerusalem. (Hebrew).
- Kozloff, B. 1981. *An Ethno-Archaeological Study of Pastoral Nomadism in the Sinai*. Annual Meeting of the American Anthropological Association. Los Angeles.
- Lang, S. 2012. Food and Libation Offerings for the Royal Dead in Ugarit. In: H. Marlies (ed.). *(Re-) Construction Funerary Rituals in the Ancient Near East. Proceeding of the First International Symposium of Tübingen Post Graduate School "Symbols of the Dead in May 2009*. Wiesbaden. 161-181.
- Laud, G. 1948. *Megiddo II*. Chicago.
- Levine, B. 1963. Ugaritic Descriptive Ritual. *Journal of Cuneiform Studies* 17:105-111.
- Lewis, T.J. 1989. *Cults of the Dead in Ancient Israel and Ugarit*. Atlanta.
- Lyman, R. Lee. 1994. *Vertebrate Taphonomy*. Cambridge.
- Macdougall, R. 2014. *Remembrance and the Dead in Second Millennium BC Mesopotamia*. PhD Dissertation. University of Leicester.
<https://ira.le.ac.uk/handle/2381/29251>
- Mack, J. 1986. *Madagascar, Island of the Ancestors*. London.
- Maher, L.A., J.T. Stock, S. Finney, J.J.N. Heywood., P.T. Miracle, et al. 2011. A Unique Human-Fox Burial from a Pre-Natufian Cemetery in the Levant (Jordan). *PLoS ONE* 6(1):e15815. doi:10.1371/journal.pone.0015815
- Marbi, J. 2003. The Birth of the Ancestors: The Meaning of Human Figurines in the Near Eastern Neolithic Villages. In: B.A. Nakhai (ed.). *The Near East in the Southwest: Assays in Honour of William G. Dever*. Boston. 85-116.
- Matclif, P. and R. Huntington. 1991. *Celebration of Death*. Cambridge.
- Milevski, I. 2002. A New Fertility Figurine and New Animal Motifs from the Chalcolithic in the Southern Levant: Finds from Cave K-1 at Quleh, Israel. *Paléorient* 28:133-142.
- Miller, J. 1999. Excavations at Sinai-18, The Khasem el-Taref Site, Zarnoq Locality. In: F.W. Eddy and F. Wendorf (eds.), *An Archaeological Investigation of the Central Sinai, Egypt*. Boulder. 181-192.
- Miroschedji de, P. 1993. Cult and Religion in the Chalcolithic and Early Bronze Age. In: A. Biran and J. Aviram (eds.), *Biblical Archaeology Today, 1990. Pre-Congress Symposium: Population, Production and Power*. Jerusalem. 208-220.
- Morris J. 2011. *Investigating Animal Burials. Ritual, Mundane and Beyond*. BAR British Series, 535. Oxford.
- Murray-Parker, C., P. Laungani and B. Young. 1997. *Death and Bereavement Across Cultures*. London.
- Nadel D., Bar-Oz G., Avner U., Boaretto E. and Malkinson D. 2010. Walls, Ramps and Pits: The Construction and Landscape Modification of the Samar Desert Kites, Southern Negev, Israel. *Antiquity* 84(326):976-992.
- Nadel D., G. Bar-Oz, U. Avner, D. Malkinson and E. Boaretto 2013. Ramparts and Walls: Building

- Techniques of Kites in the Negev Highland. *Quaternary International* 297:147–154.
- Nadel D., Malkinson D., G. Bar-Oz, A. Nachmias, U. Avner, L.K. Horwitz. and N. Porat. In Press. Small, Sparse and Effective: The Negev and Sinai Kites. In A. Betts and P. van Pelt (eds), *The Gazelle's Dream. Animal Drives, Hunting Traps and Desert Kites*. Sydney.
- Noddle B. 1974. Ages of Epiphyseal Closure in Feral and Domestic Goats and Ages of Dental Eruption. *Journal of Archaeological Science* 1:195-204.
- Noy-Meir, I. and N.G. Seligman. 1979. Management of Semi-Arid Ecosystems in Israel. In: B.H. Walker (ed.) *Management of Semi-Arid Ecosystems*. Amsterdam. 113- 160.
- Olyan, S.M. 1987. Some Observations Concerning the Identity of the Queen of Heaven, *Ugarit Forschungen*. 19:161-174.
- Paz U. 1987. *The Birds of Israel*. Tel Aviv.
- Pearson, M.P. 1999. *Death and Burial*. Gloucestershire.
- Pinch, G. 2001. *Egyptian Mythology: A Guide to the Gods, Goddesses and Traditions of Ancient Egypt*. Oxford.
- Porat, N., Rosen, S. A., Boaretta, E. and Avni, Y. 2006. Dating the Ramat Saharonim Late Neolithic Desert Cult Site. *Journal of Archaeological Science* 33:1341-55.
- Prummel, W. 1988. Atlas for the Identification of Foetal Bones from Archaeozoological Contexts. Part I. *Archaeozoologia* 9:32-40.
- Radin, P. 1991. *The Road of Life and Death*. Princeton.
- Robertson Smith, W. 1889. *The Religion of the Semites*. London.
- Rosen, S.A. 2011. The Desert and the Pastoralist: an Archaeological Perspective on Human-Landscape Interaction in the Negev over the Millennia. *Annals of Arid Zone* 50:295-309.
- Rosen, S.A. 2015. Cult and the Rise of Desert Pastoralism: A Case Study from the Negev. In: N. Laneri (ed.), *Defining the Sacred: Approaches to the Archaeology of Religion in the Near East*. Oxford. 38-47.
- Rosen, S.A. and Rosen, Y. J. 2003. The Shrines of the Setting Sun. *Israel Exploration Journal* 53:1-19.
- Rosen, S.A. Savinetsky, A.B., Plakht, Y., N. Kisseleva, B. Khassanov, A. Pereladov and M. Haiman. 2005. Dung in the Desert: Preliminary Results of the Negev Holocene Ecology Project, *Current Anthropology* 46:317–327.
- Rosen, S.A. Bocquentin, F., Avni, Y. and Porat, N. 2007. Investigations at Ramat Saharonim: A Desert Neolithic Sacred Precinct in the Central Negev. *Bulletin of the American Society for Oriental Research* 346:1-27.
- Roskin J., I. Katra, N. Agha, A. N. Goring-Morris, N. Porat and O. Barzilai 2014. Rapid Anthropogenic Response to Short-Term Aeolian-Fluvial Palaeoenvironmental Changes During the Late Pleistocene-Holocene Transition in the Northern Negev Desert, Israel. *Quaternary Science Reviews* 99:176–192.
- Rothenberg, B. and J. Glass. 1992. The Beginnings and the Development of Early Metalurgy and the Settlement and Chronology of the Western Arabah, from the Chalcolithic Period to Early Bronze Age IV. *Levant* 24:141-157.
- Russell, N. 2011. *Social Zooarchaeology: Humans and Animals in Prehistory*. Cambridge.
- Sass, B. 1980. Sinai between the Fourth and First Millennia B.C. In: Z. Meshel and I. Finkelstein (eds.). *Sinai in Antiquity*. 41-53 (Hebrew).
- Schmidt, B.B. 1994. *Israel's Beneficent Dead, Ancestor Cult and Necromancy in Ancient Israelite Religion and Tradition*. Tubingen.
- Schmidt, K. 2009. Tell al- Hujayrat al Ghuzaln - The Wall Decorations. In: L. Khalil and K. Schmidt (eds.), *Prehistoric Aqaba I*. Leidorf. 90-112.
- Segal, D. and I. Carmi. 1996. Rehovot Radiocarbon Date List V. *'Atiqot* 29:79-106.
- Serjeant, R.B. 1976. *South Arabian Hunt*. London:
- Shalem, D. 2015. Motifs on the Nahal Mishmar Hoard and the Ossuaries: Comparative Observations and Interpretations. *Journal of the Israel Prehistoric Society* 45:217-237.

- Shalomi-Hen, R. In preparation. Telltale Signs: the Case of the Kite and the Mooring Post. Shirihai, H. (Eds.) 1996. *The Birds of Israel*. London.
- Silver, I.A. 1969. The Ageing of Domestic Animals. In: D.R. Brothwell and E.S. Higgs (eds.), *Science in Archaeology*. London. 283-302.
- Sohbati, R., A.S. Murray, N. Porat, M. Jain and U. Avner. 2015. Age of a Prehistoric “Rodedian” Cult Site Constrained by Sediment and Rock Surface luminescence Dating Techniques. *Quaternary Geochronology* 30: 90-99.
- Stekelis, M. 1972. *The Yarmukian Culture of the Neolithic Period*. Jerusalem.
- Tchernov E. and Bar-Yosef O. 1982. Animal Exploitation in the Pre-Pottery Neolithic B Period at Wadi Tbeik, Southern Sinai. *Paléorient* 8:17-37.
- Teinz, K. 2012. How to Become an Ancestor- Some Thoughts. In: H. Marlies (ed.). *(Re-)Construction Funerary Rituals in the Ancient Near East. Proceeding of the First International Symposium of Tübingen Post Graduate School “Symbols of the Dead in May 2009*. Wiesbaden. 235-243.
- Tsukimoto, A. 1980. Aspekte Von Kispu(m) als Totenbeigabe. In: B. Alster (ed.), *Death in Mesopotamia*. 129-138. Copenhagen.
- Ucko, P.J. 1969. Ethnography and Archaeological Interpretation of Funerary Remains. *World Archaeology* 1:261-280.
- Watts, J.W. 2006. ‘Olah: The Priority of Burnt Offerings. *Vetus Testamentum* 41:125-137.
- Weinfeld, M. 1972. The Worship of Molech and of the Queen of Heaven and Its Background. *Ugarit Forschungen* 4:133-154
- Weissbrod, L. and G. Bar-Oz 2004. Caprines and Toads: Taphonomic Patterning of Animal Offerings Practices in a Late Bronze Age Burial Assemblage. In: S. Jones O’Day, Van Neer W. and Ervynck A. (eds.), *Behaviour Behind Bones. The Zooarchaeology of Ritual, Religion, Status and Identity*. Oxford. 20-24.
- Whitcher, S.E. 1999. *Animals, Environment and Society: A Zooarchaeological Approach to the Late Chalcolithic–Early Bronze I Transition in the Southern Levant*. Unpublished PhD thesis, University of Edinburgh.
- Whitcher Kansa, S.E. 2004. Animal Consumption at Early Bronze Age I Afridar: What the Bones Tell Us: Initial Analysis of the Animal Bones from Areas E, F and G. *Atiqot* 45:279-297.
- Wild, H. 1977. “Gebäck”. In: W. Helck and E. Otto (eds.), *Lexikon der Ägyptologie* Wiesbaden. II. 429-432.
- Yom-Tov, Y. 1987. Vertebrates of the Sinai Peninsula. In: G. Gvirtzman, A. Shmueli, Y. Gradud, I. Beit-Arieh and M. Han-El (eds.), *Sinai (Human Geography) Part II*. Tel-Aviv. 341-374 (Hebrew).

Table 1: Calibrated 14C Dates from Cult and Burial Sites, Negev and Eastern Sinai*

Site No.	Site	Sample # Material	14C BP Date	BC Cal. Date Probability (%)	~ Mean Cal. BC Date	Reference
3	'Uvda 100	PRI 4401 Charcoal	5884±25	4826-4816 (2.0%) 4803-4707 (93.4%)	~4750	unpublished
3	'Uvda 100	PRI 4400 Charcoal	5878±25	4800-4696 (95.4%)	~4750	unpublished
4	'Uvda 124/IV**	RT Charcoal	4370±100	3359-2864 (93.1%) 2806-2579 (2.2%) 2717-2712 (0.2%)	~3050	Avner et al. 1994:270
4	'Uvda 124/IV	PRI 4165 Goat dung	3794±23	2294-2191 (77.0%) 2181-2141 (18.4%)	~2220	unpublished
5	'Uvda 124/XVII	PTA 3646 Charcoal	6960±70	5986-5725 (95.4)	~5880	Avner et al. 1994:269 Avner 2002, Table 1:25
5	'Uvda 124/XVII	RT 3369 Charcoal	4130±90	2896-2486 (95.4%)	~2750	“ “
6	Eilat V***	RT 989 Charcoal	6470±80	5611-5590 (2.9%) 5565-5304 (93.5%)	~5500	Avner 2002, Table 1:39
6	Eilat V	RT 1213 Charcoal	5490±60	4460-4233 (95.4%)	~4440	Avner 2002, Table 1:39
10	W. Watir VIII	RT 1845 Shell	5240±55	4232-4189 (12.0%) 4181-3963 (83.4%)	~4340	Segal & Carmi 1996:102 Avner 2002, Table 1:58
12	W. Zalaqa T. II	PTA 3633 Charcoal	5590±70	4587-4327 (95.2%) 4279-4275 (0.2%)	~4440	Avner 1994:269 Avner 2002, Table 1:63
12	W. Zalaqa T II	RT 648E Charcoal	5440±80	4449-4147 (83.5%) 4136-40-54 (11.9%)	~4300	Avner et al. 1994:269
15	W. Daba'iyeh	RT 2186 Shell	6045±65	5207-5149 (5.6%) 5137-5137 (5.6%) 5121-5095 (1.7%) 5081-4788 (87.5%)	~4960	Segal & Carmi 1996:103 Avner 2002, Table 1:65
16	Nawamis: 'Ein Um- Ahmaad Abu Khalil	RT 1856 RT 1857 RT 1851 RT 1353	5815±50 5575±50 5130±50 5200±70	4787-4546 (95.4%) 4841-4583 (95.4%) 4040-3796 (95.4%) 4234-3805 (95.4%)	~4720 ~4720 ~3970 ~4050	Avner et al. 1994:269 Segal & Carmi 1996:103 Avner 2002, Table 1:59, 70

* Calibration based on OxCal 4.2 (Ramsey 2016, <https://c14.arch.ox.ac.uk/oxcal/OxCal.html>). Approximate mean calibrated dates are based on the dominant peak in the curve.

** The two dates of 'Uvda 124/IV represent the earliest and latest of ten dates.

*** The two dates From Eilat V represent the earliest and latest of ten dates.

SACRIFICES AND OFFERINGS IN THE NEGEV AND THE SINAI

Table 2: Taxa Represented in the Cult and Mortuary Sites in the Negev and Sinai Deserts

Site #	Species Period	Equid		Cattle		Fallow Deer		Gazelle		Ibex		Domestic Goat		Sheep/Goat		Medium Mammal		Hare		Black Kite		Quail		Bird sp.		Ostrich Eggshell		Reptile		Rodent		Total Identified		Total Unidentified				
		NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP	NISP					
1	Rosh Zin# Late Natufian	X				X		13	54															2									81					
2	Ramat Saharonim L. Neolithic		1																															1				
4	'Uvda Site 124/IV EB-IV											2	14																					24	28			
5	'Uvda Site 124/XXVII 4th-3rd mill BC										1	2																						6	12			
7	Eilat Tumulus VI 5-4th mill BC I												4																						22			
8	Eilat Tumulus VII 5-4th mill BC																																		5			
9	Darb al-Hadj I 5-4th mill BC																																		5			
10	Wadi Watir 6th-3rd mill BC																																			5		
11	Bir Sawaneh 6 6th-3rd mill BC													2																						3	1	
12	Wadi Zalaqa M308 6th-3rd mill BC																																			1	2	
13	Wadi Zalaqa M301 6th-3rd mill BC																																				2	
14	Wadi Sa'al 5-4th mill BC														2																						4	19
15	Wadi Daba 'iyeh 5-4th mill BC												4	13																						25 (26)	65	
	Navamis Tombs 5-4th mill BC											49																									100	63
	Totals	1	1	X	1	X	15	54 (55)	56	37	27	43	3	7	3	4	7	19	277 (278)	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197	

Key:

'Uvda Site 100 (Site 3) and Eilat Tumulus V (Site 6) yielded no faunal remains.

Rosh Zin#: Counts for this site are higher as they include an unlisted carnivore bone and remains of deer and equid whose numbers were not given. Data are from Tchernov (1976) and Goring-Morris (1987: Table X-4).

NISP = bone counts; X = present; * = bone artefact; + may include ibex remains.

Table 3: Caprine (Ibex/Sheep/Goat) Skeletal Element Representation in the Cult and Mortuary Sites in the Negev and Sinai Deserts

Site #	4	5	7	11	14	15
Site Names	'Uvda124/IV	'Uvda 124/ XVII	Eilat Tumulus	Bir Sawaneh 6	Wadi Sa'al	Wadi Daba'iyeh
Bone Element	NISP	NISP	NISP	NISP	NISP	NISP
Horncore						1
Loose teeth (fragments)	10	2		1	1	
Molar tooth			1			1
Mandible			1 left			
Total Crania	10	2	2	1	1	2
Rib	1					
Vertebra			1			
Total Trunk	1	0	1	0	0	0
Humerus shaft					1	
Radius prox						1
Metacarpal shaft		1				
Metacarpal prox	1 left					
Total Forelimb	1	1	0	0	1	1
Femur shaft	1 left		1	1		
Tibia shaft						1
Metatarsal prox						1
Metatarsal dist						2-UF
Tarsals						3
Astragalus						1 left 1 left-neonate
Calcaneum						2 1 left-neonate
Total Hindlimb	1	0	1	1	0	12
2nd Phalange	1					
Total Feet	1	0	0	0	0	0
Unidentified Metapodials*	1 dist UF 1 shaft-neonate					1 dist 1 shaft-neonate
Total NISP	16	3	4	2	2	17

Key: * These are metapodials that could not be assigned to either the forelimb or hindlimb
 NISP = bone counts; UF = unfused; dist = distal; prox = proximal

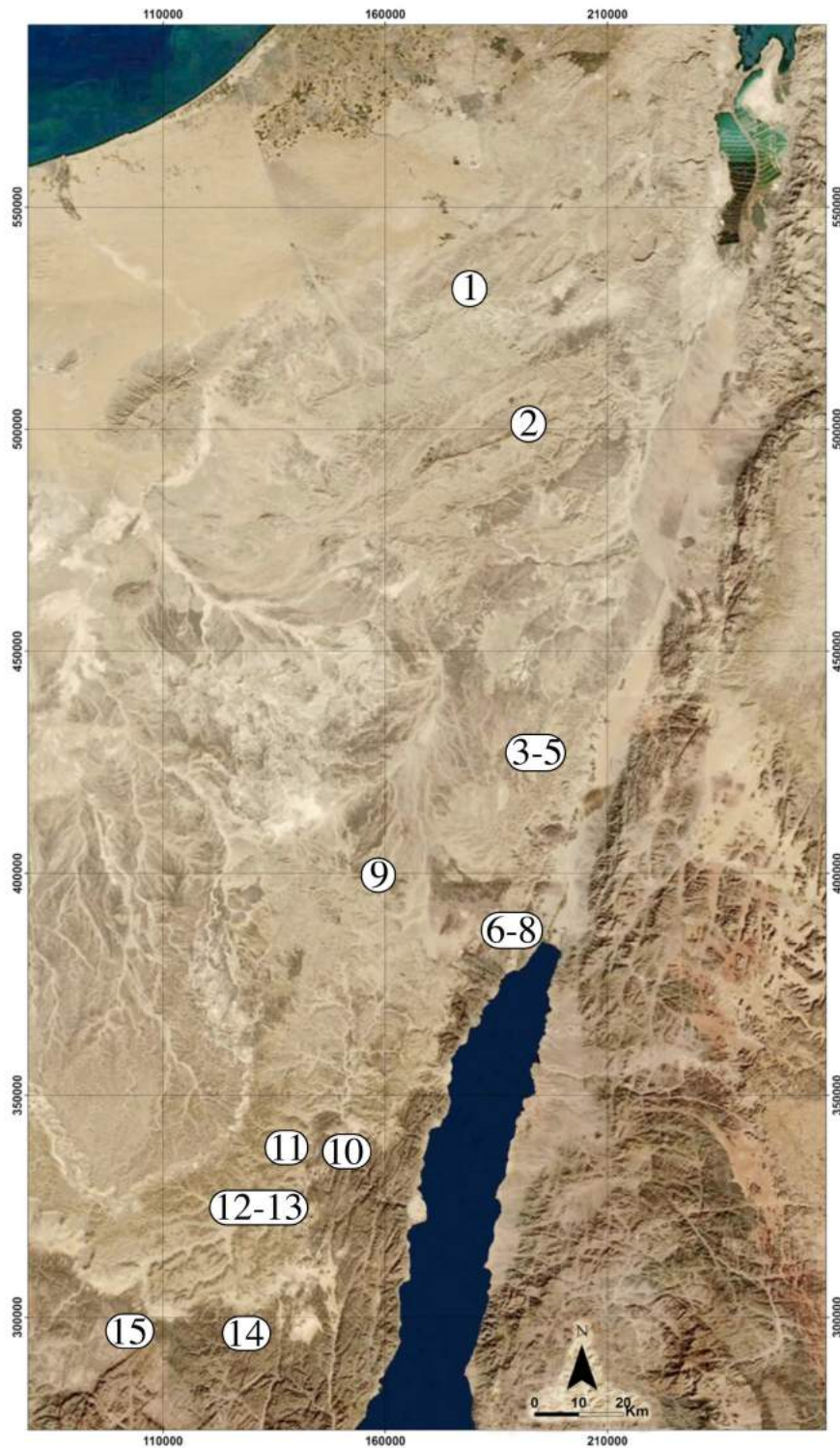


Figure 1. Map of the Negev and eastern Sinai with the numbered sites mentioned in this article: 1. Rosh Zin, 2. Ramat Saharonim, 3-5. 'Uvda Valley, 6-8. Eilat burial ground, 9. Darb al-Haji I, 10. Wadi Watir, 11. Bir Sawaneh, 12-13. Wadi Zalqa, 14. Wadi Sa'al, 15. Wadi Daba'iyeh.

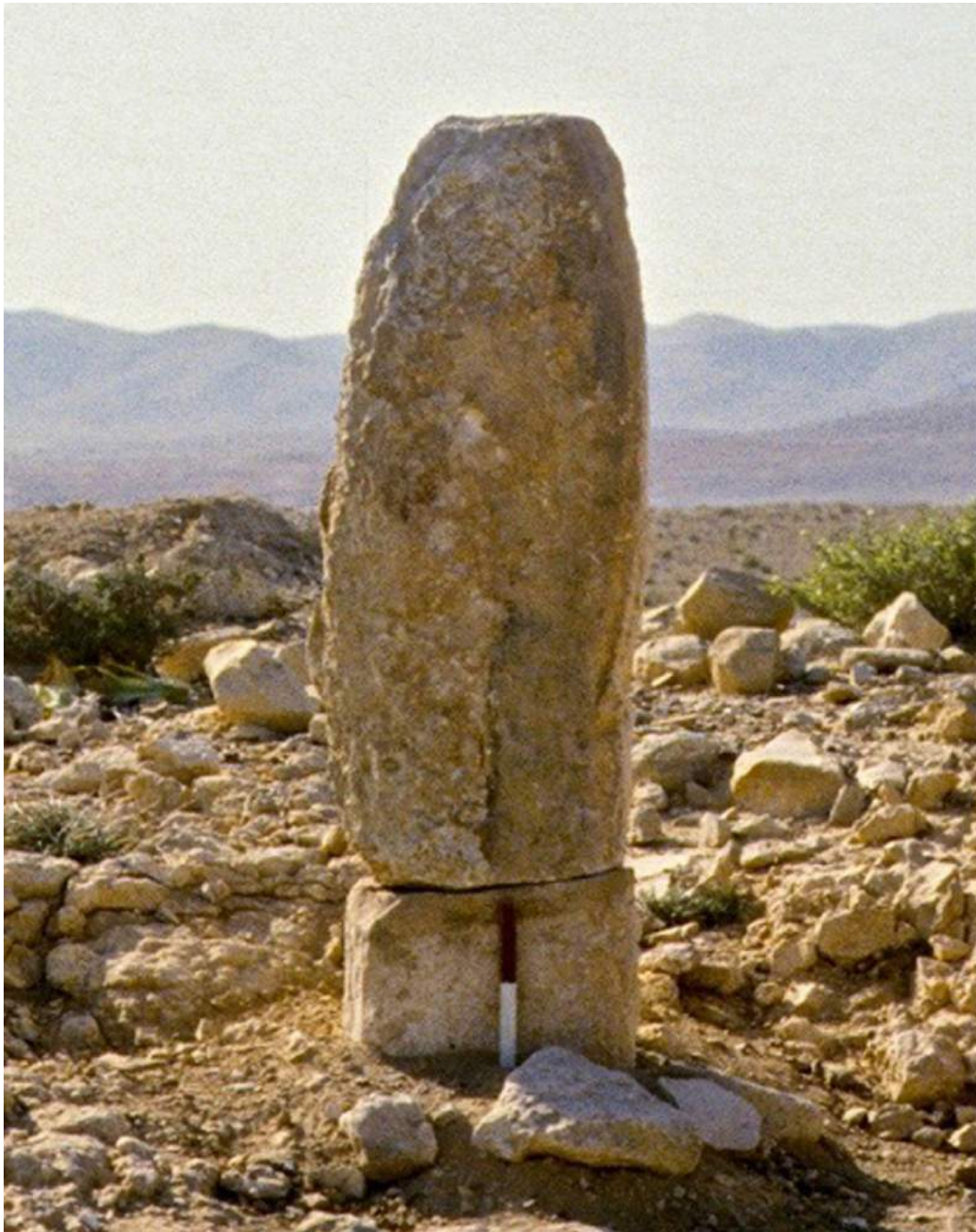


Figure 2. Rosh Zin, the maṣṣebah (view from the south, restored on its base).

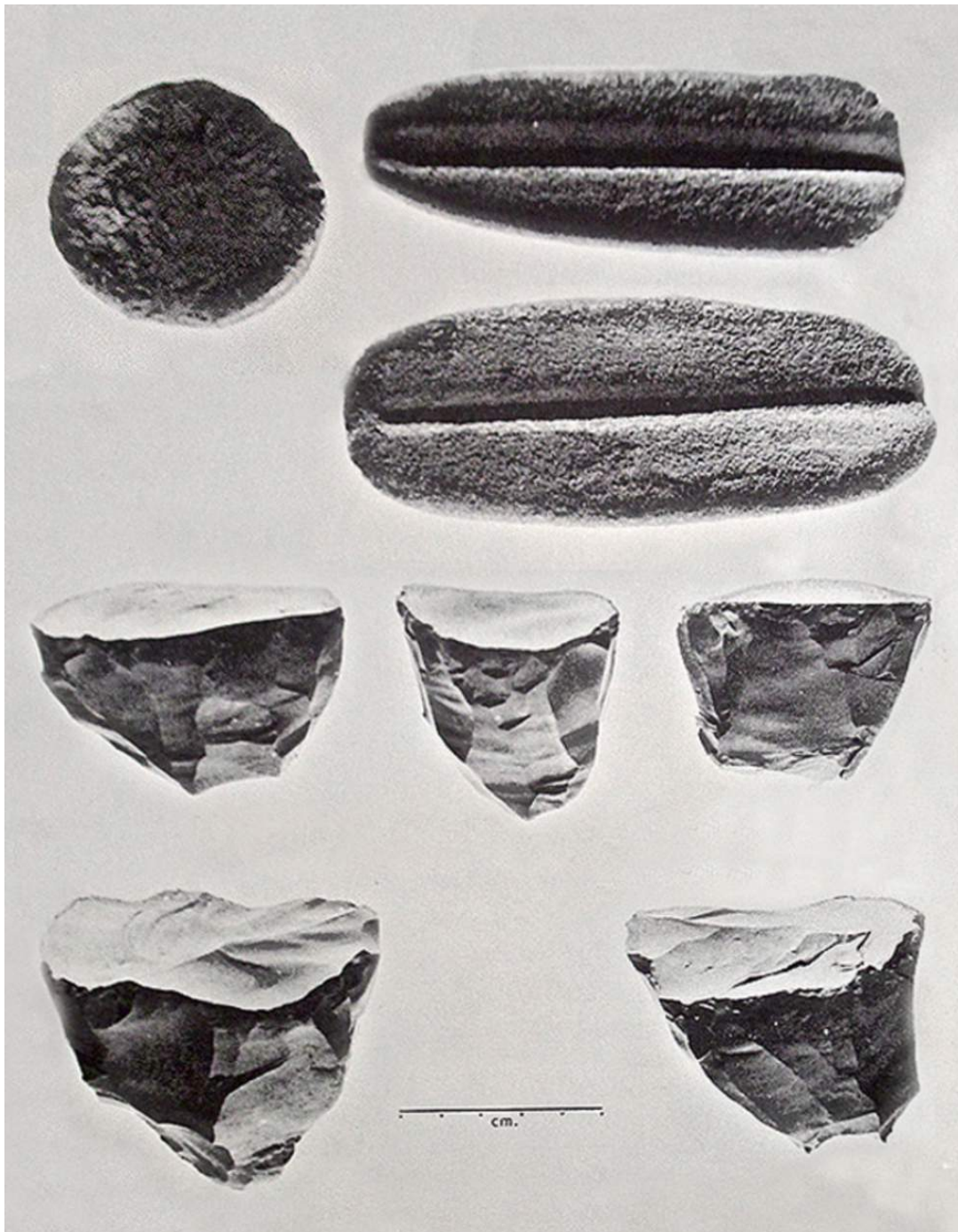


Figure 3. Stone object from the *favisa* at the foot of *maṣṣebah* of Rosh Zin (Henry 1976:324).



Figure 4. ‘Uvda 100, a pair of *maṣṣebot* (view from the east), with a trio of grinding stones (found upside-down), the-side stone is part of the back cell.



Figure 5. ‘Uvda 124/IV, a broad *maṣṣebah* (view from the east), with a natural stone basin on the left and two trios of grinding stones in front, as found.



Figure 6. 'Uvda 124/XVII ('Uvda 9) habitation site from the air, on the right is the shrine with *maṣṣebah*.



Figure 7. 'Uvda 124/XVII, a broad *maṣṣebah* (view from the west), with hearths of different periods and a trio of grinding stones (found upside-down).



Figure 8. Eilat Tomb V (view from the northeast), with a single and a pair of *maššeboth* on the eastern perimeter facing east, and *maššeboth* within the cells facing north.



Figure 9. Eilat Tomb V, some grave goods: A. polished axe, B. Red-Sea shell (*glycimeris*), C. minerals- copper nodules, realgar (imported from eastern Anatolia), jasper, D. beads- 1 and 2 from Tomb V, E. granite grinding stones.



Figure 10. Eilat, Tombs IV and V (view from the west), with 66 hearths scattered around them.



Figure 11. Eilat, Tombs VI (right) and VII (left, view from the west), after being moved and restored.



Figure 12. Eilat VI, some grave goods: A. Red-Sea shells (*Conus* spp.) and a bowl made of *Lambis* t. sebea. B. Fragment of sandstone bowl decorated with relief.



Figure 13. Eilat VII, some grave goods: A. Beads- faience (larger) and glazed steatite (smaller). B. copper bead (imported from Mesopotamia or eastern Anatolia). C. Red-Sea shells (*Nerita albicilla*, *Strombus* sp., *Oliva bulbosa*), D. fragmented sandstone bowl.

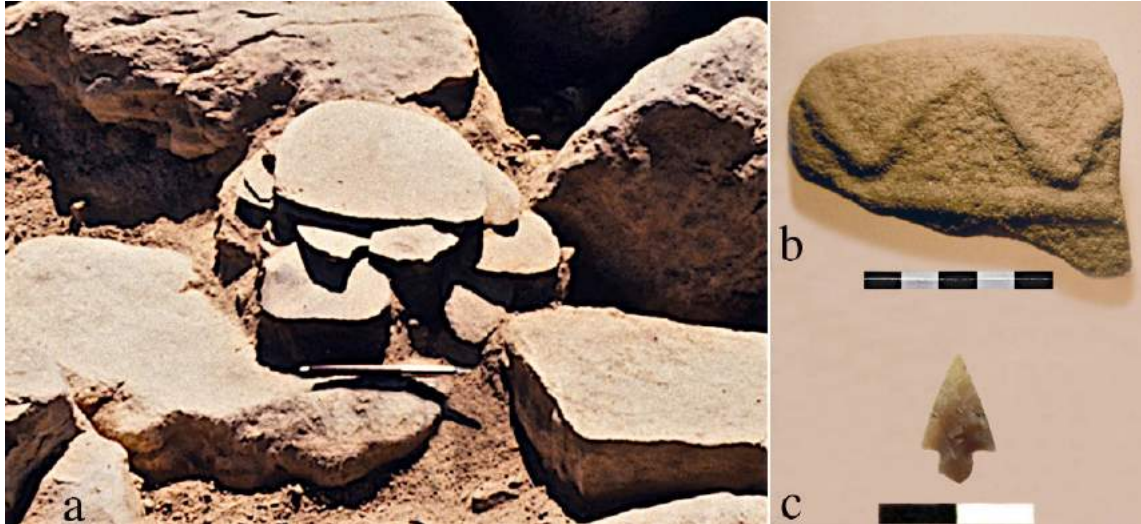


Figure 14. Eilat Tomb VII, grave goods from the surrounding pavement: A. ordered pile of 31 flint scrapers, as found, B. fragment of a sandstone bowl decorated with relief, C. “HaParsa arrowhead.



Figure 15. Darb al-Hajj I, from east, with five maṣṣeboth in the tomb's front, facing east, and the remains of an offering bench (right two maṣṣeboth were added to the original trio).



Figure 16. Wadi Watir, a shrine with three *maṣṣebot* facing east and a paved front cell.

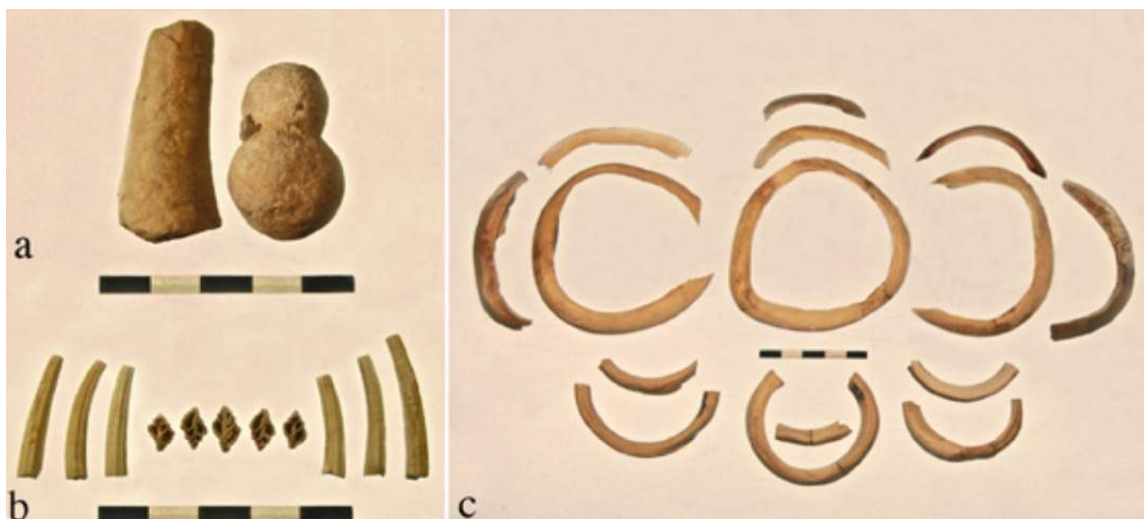


Figure 17. Wadi Watir, some grave goods: A. two stones perhaps symbolic in nature, B. *Dentalium* and *Anaxeres* shells, C. bracelets made of *Lambis t. sebae* shells (A. from the front cell, B. and C. from the back cell).



Figure 18. Bir Sawaneh, Tumulus VI (view from the east) with a trio of *maṣṣeboth* and a narrow cell at their feet (left-side *maṣṣebah* found tilted forward).



Figure 19. Bir Sawaneh, Tumulus VI, flex position of an adult male, with a grinding stone next to its pelvis.



Figure 20. Wadi Zalaqa 308, Tumulus II (view from northeast, the *maššebah* was found tilted forward).



Figure 21. Wadi Zalaqa 301 (view from the northeast) a shrine with a trio of *maššeboth* attached to a tumulus tomb, with an offering bench and a cell at their feet.



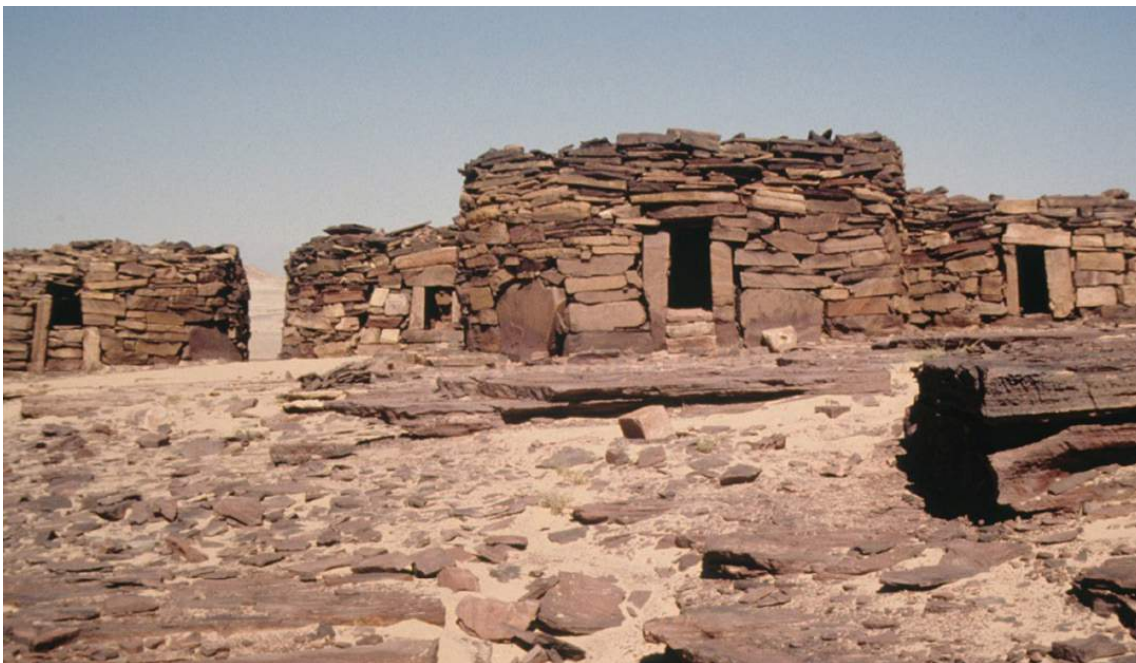
Figure 22. Wadi Zalaqa 301, a trio of flint tabular scrapers found next to the offering bench.



Figure 23. Wadi Sa'al, an ennead of *maṣṣeboth* (view from the east, the central stone was found tilted forward).



Figure 24. Wadi Daba'iyeh, a quintet of *maṣṣeboth* (view from the east), with semi-circular cells in front and back and another on the left (the second left stone was found tilted forward).



25. Nawamis tombs in Wadi Hajjaj, eastern Sinai (south of Wadi Zalaqa), all doorways face west.